CDM

Illinois Environmental Protection Agency

Technical Memorandum
Southeast Rockford Indoor Air Sampling Study
FINAL

June 22, 2004

Technical Memorandum

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June 22, 2004

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Subject: 2010300074 - Winnebago County
Final Indoor Air Sampling Study Technical Memorandum
Southeast Rockford Groundwater Contamination Superfund Site
Rockford, Winnebago County, Illinois
Superfund/Technical

Dear Mr. Williams:

Camp Dresser & McKee is pleased to submit three copies of the Final Indoor Air Sampling Study technical memorandum for the Southeast Rockford Groundwater Contamination Superfund Site, located in Rockford, Winnebago County, Illinois.

If you have any questions or comments, please contact me at (312) 251-8337.

Sincerely,

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Camp Dresser & McKee Inc.

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List of Acronyms and Abbreviations

1,1,2-TCA	1,1,2-Trichloroethane
1,1-DCA	1,1-Dichloroethane
1,1-DCE	1,1-Dichloroethene
1,2-DCA	1,2-Dichloroethane
bgs	below ground surface
BTEX	Benzene, toluene, ethylbenzene, and xylenes
c-1,2-DCE	*cis*-1,2-Dichloroethene
CDM	Camp Dresser & McKee Inc.
CLP	Contract Laboratory Program
cm	centimeter
COPC	Contaminants of potential concern
CSF	Cancer slope factor
DNAPL	Dense non-aqueous phase liquid
FID	Flame-ionization detector
GC/MS	Gas chromatograpy/mass spectrometry
HI	Hazard index
HQ	Hazard quotient
IAS	Indoor Air Sampling
Illinois EPA	Illinois Environmental Protection Agency
IRIS	Integrated Risk Information System
kg	kilogram
LS	Loamy sand
m^3	cubic meter
mg	milligram
min	minute
ml	milliliter
msl	above mean seal level
NOAEL	No-observed-adverse-effect-level
NTU	Nephelometric turbidity units
O.D.	outside diameter
PCE	Tetrachloroethene
PCE	Tetrachloroethene
PID	Photo-ionization detector
ppbv	parts per billion by volume
ppmv	parts per million by volume
PRG	Preliminary remediation goal
PRT	Post-run tubing
PTC	Potential thresholds of concern
QAPP	Quality assurance project plan
RAGS	Risk Assessment Guidance for Superfund

RBCA	Risk-based corrective action
RfC	Reference concentration
RfD	Reference dose
RME	Reasonable maximum exposure
S	Sand
SAP	Sampling and Analysis Plan
SIMM	Selective ion monitoring mode
SL	Sandy loam
SOW	Scope of Work
t-1,2-DCE	*trans*-1,2-Dichloroethene
TACO	Tiered Approach to Corrective Action
TCA	1,1,1-Trichloroethane
TCE	Trichloroethene
TCL	Target Compound List
UCL	Upper confidence limit
µmhos	micromhos
USCS	Unified Soil Classification System
USEPA	U.S. Environmental Protection Agency
VC	Vinyl chloride
VOC	Volatile organic compound

1. Introduction

This Final Technical Memorandum was prepared in accordance with Task 14 of the Camp Dresser & McKee (CDM) Scope of Work (SOW) and cost estimate, dated February 12, 2003, for the Indoor Air Sampling (IAS) Study at the Southeast Rockford Groundwater Contamination site in Rockford, Winnebago County, Illinois.

The primary objective of the study is to evaluate the vapor intrusion pathway to indoor residences from contaminated groundwater located below residences hydrogeologically down-gradient to Source Areas 4 and 7 through re-evaluating indoor air quality and potential risks to residences in Source Areas 4 and 7 using current data and updated guidance for data interpretation. Previous indoor air quality monitoring was performed in 1993. CDM collected soil, soil gas, and groundwater samples to assess the potential for vapor intrusion in these areas, and subsequently collected indoor and out door whole air samples to confirm the interpretations of this assessment. The primary guidance used to assess risk in this technical memorandum is the U.S. Environmental Protection Agency (USEPA) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway (USEPA 2002). The study area is shown on **Figure 1**, and a brief description of each study area is included in Sections 1.1 and 1.2.

1.1 Source Area 4

Source Area 4 is a mixed industrial/commercial and residential area located east of Marshall Street, south of Harrison Avenue and north of Alton Avenue. A mobile home park is located east (upgradient) of the area. The source of the volatile organic compound (VOC) contamination in Area 4 was found to be the Swebco Manufacturing plant, which is no longer in operation. Soil contamination and a dense non-aqueous phase liquid (DNAPL) zone have been identified near the source during previous site investigations. Downgradient groundwater contains high concentrations of 1,1,1-trichloroethane (TCA) and lower levels of various other VOCs.

Soil gas samples collected during the multiple phases of the remedial investigation indicate detections of VOCs just east of the Swebco Plant on the western edge of the mobile home park, to the south of the plant, and to the west of the plant along the west side of Marshall Street across from the Swebco parking lot. No detections of VOCs were found to the north of the plant. The primary VOC detected in soil gas was TCA.

Indoor air samples were collected in Area 4 in December of 1993. Four residences located within the existing area of the groundwater contaminant plume were sampled and two background homes outside the groundwater contamination area were also sampled. Significant concentrations of TCA and low concentrations of trichloroethene (TCE) were detected in three of the homes nearest to the source within Area 4.

VOCs were not detected in outdoor air samples collected in Area 4. The indoor air VOC concentrations detected in the homes in Area 4 were determined to be below health based air guidelines available at the time.

1.2 Source Area 7

Source Area 7 is primarily a grassy area located at the eastern end of Balsam Lane. Area 7 contains Ekberg Park and an open area containing some woodlands. Residences border the area to the west and southwest (downgradient) and distantly to the east (upgradient). Results of subsurface investigations in Area 7 indicate that VOC contamination in the soils extends from the north end of Ekberg Park, northward about 150 feet.

However, VOC contamination in groundwater extends further north, at least to monitoring well MW105. NAPL was found in the soils at the top of the groundwater table in one soil boring. The intermittent creek just north of MW105 was found to contain the same VOCs as those found in the Area 7 soils. Shallow groundwater downgradient of Area 7 shows high concentrations of TCA, the primary soil contaminant and lesser concentrations of various other VOCs.

Soil gas samples collected during the multiple phases of investigation at Area 7 indicate the highest soil gas concentrations along the former valleys within Area 7 which extend from south to north as far as the intermittent creek. Contamination in soil gas to the north along the valley has not been delineated and additional soil gas sampling to determine the extent of contamination to the north will be performed as part of the Area 7 pre-design activities. To the south, east and west, VOC contamination in soil gas has been delineated. To the west, which is the downgradient direction and the closest to area residences, soil gas concentrations reached non-detectable concentrations approximately 500 feet east of Bavarian Lane which is the eastern most north-south street for the downgradient residential area.

Indoor air samples were collected in Area 7 in August of 1993. Twelve residences located within the existing area of the groundwater contaminant plume were sampled and two background homes outside the groundwater contamination area were also sampled. The VOC TCA was detected in all 14 of the indoor air samples collected in Area 7; this includes the two indoor air samples that were designated as background samples in the IAS Study, Sampling and Analysis Plan (SAP). Lower concentrations of various VOCs were also detected in some of the homes. The indoor air VOC concentrations detected in the homes in Area 7 were determined to be below health based air guidelines available at the time. Based on historical soil gas data, it is unlikely that VOCs are migrating laterally within the soil pore spaces as far as the residential subdivision.

2. Field Investigation Methods and Procedures

Except as noted, IAS activities including sampling and analysis were conducted in accordance with the USEPA-approved SAP and Quality Assurance Project Plan (QAPP) for the Southeast Rockford Superfund Site Indoor Air Sampling Study. Both documents are dated June 11, 2004, and were prepared in accordance with "EPA Region 5, Instructions on the Preparation of a Superfund Division Quality Assurance Project Plan, Based on USEPA QA/R-5, Revision 0, June 2000."

2.1 Groundwater Sampling

Nine monitoring wells (MW-103A, MW-105A, MW-105B, MW-106A, MW-112A, MW-130, MW-134A, MW-134B, and MW-136B) were sampled between July 7 and 9, 2003. Monitoring well locations are shown on **Figure 1**. Monitoring well MW-130 is located in Area 4 and the remaining wells were located in Area 7. MW-135, located in Area 7, was proposed to be sampled, but was dry and therefore could not be sampled. Four other wells that were proposed to be sampled in Area 4 (MW-17, MW-22, MW-32, and MW-39) were not sampled because the wells could not be unlocked with the available keys.

2.1.1 Monitoring Well Redevelopment

Six monitoring wells (MW-103A, MW-105A, MW-105B, MW-106A, MW-134A, and MW-134B) were re-developed prior to groundwater sampling. These wells were redeveloped because the wells were inactive for several years and sediment build-up was noted in the wells. Monitoring wells MW-130 and MW-136 have been sampled more recently, and therefore were not redeveloped. Monitoring well MW-112A was not redeveloped because minimal sediment build-up was noted in the well.

Mid-America Drilling Services of Elburn, Illinois was retained to provide well development services. The wells were developed by alternately surging the water column and purging water from the well with an inline 12-volt submersible pump (Whale). Water within the screened interval was periodically surged using the submersible pump during pumping.

The goal of re-development was to purge water from the wells until the purge water is less than 5 Nephelometric Turbidity Units (NTUs), until turbidity stabilized (three consecutive turbidity measurements varied no more than 10 percent), or until a maximum of 10 well volumes of groundwater was removed. A turbidity of less than 5 NTU was achieved for MW-106A. Monitoring wells MW-105B and MW-103A were purged until turbidity stabilized. 10 volumes of water were purged from monitoring wells MW-134A and MW-105A. Turbidity readings remained unstable in MW-134B after 29 gallons (approximately 6.5 well volumes) of water were purged from the well. Development of this well was discontinued because insufficient drums were available to containerize additional purge water.

Purge water was placed into 55-gallon drums, which were then transported to a locked storage area owned by the City of Rockford.

2.1.2 Monitoring Well Sampling

Monitoring wells were purged using a Grundfos® Redi-Flo 2 submersible pump and Redi-Flow pump controller. The time taken to fill a 500 ml container with purge water was measured at the beginning of well purging, and the pump speed was adjusted until the pumping rate was less than 500 milliliters (ml)/minute (min). A minimum of three well volumes of water was removed from each well before sampling. Water quality readings were recorded for each volume of water removed. Water quality readings for pH, temperature, and specific conductivity were obtained using a multi-parameter probe (YSI 600-series probe/datalogger) in a flow-through cell. Turbidity was measured using a turbidimeter (HACH 2100P).

Purging continued until the field measurements stabilized (pH $\pm$ 0.25 standard units, specific conductance $\pm$ 50 micromhos (μmhos)/centimeter (cm), temperature $\pm$ 0.5° C) and sample turbidity reached less than 5 NTU (or varied less than 10 percent over three consecutive measurements, or until a maximum of five well volumes were purged.

The groundwater samples were collected either directly from the pump discharge tubing or with a new disposable bailer. New sample tubing was used for each monitoring well.

Samples were placed into 40-ml vials pre-preserved with hydrochloric acid. The sample containers were then given to an Illinois EPA representative who placed the samples in iced coolers, assigned sample numbers, entered the sample numbers into the Forms II Lite® program for generation of final sample labels and chain-of-custody forms, and prepared the sample containers for shipping. All groundwater samples were analyzed for low concentration Target Compound List (TCL) VOCs by the USEPA Contract Laboratory Program (CLP).

2.2 Soil Sampling

Forty-three soil sampling probes (GP-01 through GP-30, GP-36, GP-48, and GP-49) were advanced at the site. Soil gas probes GP-01 through GP-15 were advanced in Area 4. Soil gas probes GP-16 through GP-36 were advanced in the residential neighborhood (Pine Manor subdivision) directly west of Area 7. The location of the Pine Manor subdivision relative to Area 7 is shown in **Figures 1, 3, and 4**. Soil gas probes GP-36, GP-48, and GP-49 were advanced in Area 7. Soil gas locations for Area 4, Area 7 (residences), and Area 7 (Ekberg Park) are shown on **Figures 2 through 4**, respectively. Soil probes GP-01 through GP-30 were advanced at locations specified in the sampling and analysis plan. Soil borings GP-36, GP-48, and GP-49 were advanced within Ekberg Park. All soil borings were advanced adjacent to the soil gas probe with the same numerical designation (i.e., soil boring GP-01 was advanced and

sampled, then soil gas probe GP-01-SG was advanced adjacent to the soil boring). Soil gas sampling is described in Section 2.3.

No soil samples were originally planned to be taken in Area 7. However, based on positive soil gas reading at GP-36, soil samples were taken from soil borings GP-36, GP-48, and GP-49 at the request of the Illinois EPA project manager. Soil samples were planned for borings GP-31 through GP-35 in the Pine Manor subdivision, but were not taken due to time constraints.

Each soil boring was advanced from the surface to 12 feet below ground surface (bgs) using a direct-push (Geoprobe®) rig. Soil Essentials of New Glarus, Wisconsin was retained to provide drilling services. Continuous, four-foot soil samples were collected into a soil probe equipped with an acetate liner. The acetate liner containing the soil sample was placed on a clean surface and cut open following recovery of the sampler from the borehole. A portion of each sample was placed in a re-sealable plastic bag. After several minutes the headspace of the bag was field-screened using a photo-ionization detector (PID). A CDM engineer/geologist classified soils according to the Unified Soil Classification System (USCS) (ASTM D2487-00) and recorded the classification on a field boring log form. Physical observations (such as odors, soil staining, or free product) and field screening readings were also recorded on the boring logs. The portion of the sample used for headspace analysis was not used for laboratory sample preparation. Soil boring logs are included in **Appendix A**.

One soil sample was collected from each soil boring and submitted for VOC analysis by USEPA CLP. Soil samples were collected from the same depth interval that the corresponding soil gas sample was to be taken from (either the 10 to 11-foot bgs interval or the 11 to 12-foot bgs interval, which was based on the estimate of the depth of the base of the basement foundations). The VOC samples were collected using Encore® samplers. A separate portion of the soil sample was placed into a pre-sterilized 2-ounce glass jar for moisture content analysis. The sample containers were then given to an Illinois EPA representative who placed the samples in iced coolers, assigned sample numbers, entered the sample numbers into the Forms II Lite® program for generation of final sample labels and chain-of-custody forms, and prepared the sample containers for shipping.

After the soil samples were collected and the probe rods removed from the ground, the borehole was backfilled with granular bentonite to six inches below grade. An asphalt patch was used to restore the area to pre-investigation conditions where necessary.

2.3 Soil Gas Sampling

2.3.1 Preliminary Soil Gas Sampling Investigation

Forty-three soil gas probes (GP-01-SG through GP-41-SG, GP-48-SG, and GP-49-SG) were advanced at the site from July 7 to July 9, 2003. Soil gas probes GP-01-SG through GP-15-SG were advanced in Area 4. Soil gas probes GP-16-SG through GP-

36-SG were advanced in the residential neighborhood west of Area 7. Soil gas probes GP-36-SG through GP-41-SG, GP-48-SG, and GP-49-SG were advanced in Area 7. Soil gas locations for Area 4, Area 7 (residences), and Area 7 (Ekberg Park) are shown on **Figures 2 through 4**, respectively. Soil probes GP-01-SG through GP-41-SG were advanced at locations specified in the Sampling and Analysis Plan. Proposed sampling locations GP-42-SG through GP-47-SG were not performed following on-site review of soil gas data. Soil gas probes GP-48-SG and GP-49-SG were additional soil gas sampling points that were advanced following on-site review of soil gas data.

Soil Essentials of New Glarus, Wisconsin was retained to provide drilling and soil gas extraction services. Soil gas samples were generally collected from a depth interval of 11 to 12 feet bgs; however, some samples were taken from 10 to 11 feet bgs if soil data was available and significantly less cohesive soils were noted within the 10 to 11-foot interval. Both depth intervals were chosen as conservatively deep with respect to being beneath building foundations in the study areas. No groundwater was encountered during advancement of the soil gas probes.

The soil gas samples were collected using the Post Run Tubing (PRT) system that utilizes a hollow metal probe driven into the ground with an expendable point using the Geoprobe system. The leading hollow probe rod was fitted with an expendable point holder and an expendable point is then driven to the desired sampling interval. The expendable point holder has a left-hand female threaded opening that accepts an aluminum left-hand threaded tubing adaptor. A sufficient length of 1/4-inch outside diameter (O.D.) polyethylene tubing to reach from the sample depth to the vacuum pump (generally 17-18 feet) was fitted to the hollow tubing adaptor. The tubing and adaptor were lowered down inside of the probe rods and threaded into the expendable point holder. To assure an air tight seal is maintained, a rubber O-ring is placed between the tubing adaptor and the expendable point holder. As the probe rod string is pulled up a few inches it exposes a cavity of soil from which a representative soil gas sample can be collected. The tubing and cavity were purged of 4 to 4.5 liters of soil gas (approximately five volumes) using a vacuum pump at the surface. The tubing was then passed through a peristaltic pump mechanism. A 1-liter Tedlar bag was then connected to the end of the tubing, and the bag was filled with soil gas by activating the peristaltic pump.

Soil gas samples were assigned the designation "SG" and numbered according to the soil probe location (i.e., SG-01 was collected from soil probe GP-01-SG). Four duplicate samples were taken for quality control purposes.

After the soil gas samples were collected and the probe rods removed from the ground, the borehole was backfilled with granular bentonite to six inches below grade. An asphalt patch was used to restore the area to pre-investigation conditions where necessary.

New Age/Landmark, Inc., of Benton Harbor, Michigan was retained to provide soil gas analysis services. Soil gas samples were placed in an iced cooler following collection, and transported to the New Age/Landmark mobile laboratory (located in the parking lot of the Ken-Rock Community Center, 3218 11th Street) for analysis of selected VOCs including benzene, toluene, ethylbenzene, and xylenes (BTEX), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), cis-1,2-dichloroethene (c-1,2-DCE), trans-1,2-dichloroethene (t-1,2-DCE), TCA, TCE, tetrachloroethene (PCE), vinyl chloride (VC), and chloroform. The Tedlar bags were sub-sampled by a sterilized glass syringe to accommodate analytical volume requirements. The sample was then injected into the gas chromatograph for analysis. More than two injections were necessary in instances where there are multiple contaminants that required different sample sizes for chromatograph analysis were encountered, or where re-analysis was required.

2.3.2 Confirmatory Soil Gas Sampling

Fourteen additional soil gas probes (GP-101-SG through GP-114-SG) were advanced on August 5 and 6, 2003. Gas probes GP-101-SG through GP-112-SG were advanced in Areas 4 and 7, adjacent to the foundations of residences selected for indoor air sampling. Gas probes GP-113-SG and GP-114-SG were advanced on the west side of the Bavarian Lane right-of-way, in order to delineate the western extent of VOCs in soil gas detected during the July 2003 soil gas sampling. Confirmatory soil gas sampling locations are shown on **Figures 2 and 3.**

Soil gas samples taken during the August 2003 sampling event were collected from the 11- to 12-foot bgs sampling interval. Sampling procedures were identical to those described in Section 2.3.1.

2.4 Air Sampling

Indoor and outdoor whole air samples were collected for target VOCs at pre-selected homes located within Areas 4 and 7. Air sample locations for Areas 4 and 7 are shown on **Figures 5 and 6**, respectively.

The target VOCs included BTEX, 1,1-DCA, 1,1-DCE, c-1,2-DCE, t-1,2-DCE, TCA, TCE, PCE, VC, and chloroform. For each home, one indoor and one outdoor sample were simultaneously collected over approximately 24 consecutive hours. Samples were analyzed by Air Toxics, Ltd. of Folsom, California using gas chromatography/mass spectrometry (GC/MS) in the selective ion monitoring mode (SIMM).

2.4.1 Prescreening and Pre-selection of Residences

A prescreening survey was conducted in Areas 4 and 7 on July 8 and 9, 2003. The survey was performed to select homes for future indoor and outdoor air sampling. Indoor air sampling was slated for basement areas because basement foundations were determined to be primary pathway for VOC migration into the indoor atmosphere. Potential outdoor sampling areas were inspected, but it was decided that the specific location would be determined on the day of sampling.

Each resident was asked to complete a survey describing what chemicals they frequently use and the locations where chemicals are stored. Based on the surveys, locations throughout each home suspected of having airborne contaminants were screened with a photoionization detector to confirm the presence or absence of those contaminants. A flame ionization detector was used as a backup VOC monitor. Areas where total VOCs were detected above background were noted and screening results recorded for future evaluation. Following the screening procedure, a specific area in each basement was chosen where an air sampler could be placed. Locations near floor and sink drains were avoided.

At the end of the survey residents were informed as to whether or not they were considered primary candidates for future indoor and outdoor sampling. Each resident was given a list of procedures to follow during the day before and the day of sampling so that the quality of samples would not be compromised. Residents were instructed to keep windows open the day before sampling to flush out stagnant air. For the day of sampling, resident were instructed to keep all windows and doors shut and to refrain from using chemicals, automobiles, and other activities that could compromise the sample.

2.4.2 Sample Locations

Air Sampling was performed at Area 4 residences on August 5 through 6, 2003 and at Area 7 residences on August 6 through 7, 2003. **Table 1** summarizes Areas 4 sample locations. **Table 2** summarizes Area 7 sample locations.

One collocated (field duplicate) sample was collected for each area. These samples served as a measure of field precision.

On the day of sample initiation, each basement was inspected for unusual odors that possibly indicated the presence of VOCs. Homes with suspect odors or chemical storage containers with unfastened lids were noted in the field log book.

2.4.3 Sampling Methodology

Samples were collected in accordance with applicable sections of Compendium Method TO-15. Target VOCs were collected in SUMMA™ passivated canisters. Each canister sampler consisted of a vacuum gauge, flow controller, sintered metal particulate filter, and stainless steal probe. The laboratory solvent rinsed all sampling system components before field use. Flow controllers were calibrated by the laboratory to sample at approximately 3.5 ml per minute resulting in a nominal 5 liter sample over 24 hours. Canister pressure was recorded before and after the sampling event. Canisters with initial vacuums less than 28 inches of mercury were rejected.

Secured sampling shelters were used to house canisters at outdoor sampling locations. Each shelter was locked and chained to a stationary object such as a tree to prevent tampering and theft. Upon sample collection, the final canister pressure was

recorded, the valve shut and sample tags completed. Sampling information was recorded in a field log book.

SUMMA™ canister samples were packed in the shipping containers provided by the laboratory. A custody seal was affixed to the seam of each container. Chain of custody forms were used to document the sample location, collection time, sample identification number, desired analysis, address of the laboratory and personnel.

Samples were analyzed in accordance with Method TO-15 for the target VOCs listed above. The analysis was conducted using GC/MS SIMM.

3. Analytical Results

The following subsections include a brief discussion of analytical data compared to potential thresholds of concern (PTC). Potential thresholds of concern were developed from several sources including USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (USEPA 2002), Illinois EPA's Tiered Approach to Corrective Action (TACO), and the QAPP for the Southeast Rockford Superfund Site Indoor Air Sampling Study. A more detailed assessment of analytical data is provided in the risk assessment (Section 4).

3.1 Groundwater

Groundwater analytical results are summarized in **Table 3**. VOC levels in the Area 4 monitoring well sampled (MW-130) were below detection limits and/or applicable PTCs. PTC exceedences of the following compounds were noted in one or more Area 7 wells: VC, 1,1-DCE, c-1,2-DCE, 1,2-dichloroethane (1,2-DCA), TCE, and PCE.

3.2 Soil

Soil analytical results are summarized in **Table 4.** No exceedences of PTCs were noted for soil samples. However, elevated detection limits are noted for soil sample G36C, and the detection limit for non-detect compounds VC, chloroform, benzene, and 1,2-DCA is higher than respective PTCs.

3.3 Soil Gas

Soil gas analytical results are summarized in **Table 5.** PTC exceedences of the following compounds were noted in one or more Area 4 sample locations: 1,1-DCE, 1,1-DCA, c-1,2-DCE, chloroform, TCA, TCE, and PCE. PTC exceedences of the following compounds were noted in one or more Area 7 sample locations: 1,1-DCE, 1,1-DCA, c-1,2-DCE, TCA, TCE, and PCE.

3.4 Air

3.4.1 Significant Observations

This section describes any observations that could affect the analytical results of the samples. Observations were made by either Illinois EPA or CDM personnel.

On August 6, 2003, indoor/outdoor sample series E-A4-WA4-I was collected. The indoor air sampler was located at the end of the basement opposite to a known former well pit. The Illinois EPA personnel observed a cylindrical structure that appeared to be filled with pea gravel. The former well pit had been screened with both a PID and flame-ionization detection (FID) during the prescreening (July 7, 2003). The PID detected no VOCs, but the FID detected 30 parts per million by volume (ppmv) total VOCs. At the time of the prescreening, it was recommended that the former well pit be sealed. At the time of the sampling program, the former well pit was covered with plywood, and the Illinois EPA had no information to indicate that the well was sealed

correctly. Based on these observation, the sampler was placed as far from the former well pit as physically possible.

On July 8, 2003, during the prescreening at the residence that has sample series E-A4-WA3, the basement atmosphere was screened for VOCs with a PID. The PID detected no VOCs and no odors were noticed. A room at the farthest end of the basement was not accessible because the room was full of equipment and hardware. No odors or PID readings were detected at the entrance to this room. On August 6, 2003, the basement was accessed for indoor air sampling. Upon entering the basement, the sampling team immediately smelled a strong gasoline odor that was not present during the prescreening. The strong gasoline odor was traced to a gasoline can that was in the area of the basement that was inaccessible during the prescreening. It could not be determined when the gasoline can was placed in the room. However, during the prescreening survey the owner said that a gasoline can was stored outside and the sampling team visually confirmed this statement. It was determined that the resident would not be disqualified from the sampling program. To minimize any affects of the gasoline vapors, the sampling system was situated as far away from the room containing the gasoline can as possible, and although diminished, the gasoline odor was still apparent.

On August 7, 2003, while collecting air samples E-A7-WA7-O and E-A7-WA7-I , the sampling team was informed by the resident that a Glade® air freshener had been left plugged in his son's bedroom located in the basement. Glade® air fresheners contain isoparaffinic hydrocarbons and petroleum distillates[1].

Other irregularities include:

- At sample location E-A4-WA1, the windows were left open overnight (August 4-5, 3002) prior to sampler placement.
- The resident at sampling location E-A4-WA2 left the overhead garage door open on August 6th and 7th, 2003 to prepare for a garage sale. Illinois EPA repeatedly requested that the door be closed; however, those requests were refused.
- The residents at sampling location E-A7-WA5 pulled their car into the garage on one of the sampling days.
- During the prescreening and sampling activities, Illinois EPA personnel noted VOC odors near residences in Area 7. The Illinois EPA personnel also noted that two residences located in Area 7 but not associated with the Area 7 sampling event were performing work that may have involved VOCs.
- Gasoline was spilled in the basement at sampling location E-A7-WA3-I approximately 12 hours prior to sampling.

[1] http://householdproducts.nlm.nih.gov/cgi-bin/household/brands?tbl=chem&id=176

3.4.2 Air Analytical Results

Air analytical results are summarized in **Table 6. Tables 7 and 8** summarize the analytical results for Area 4 indoor and outdoor air samples, respectively. Tables **9 and 10** summarize the analytical results for Area 7 indoor and outdoor air samples, respectively.

Area 4 Indoor Air Samples

Background air sample E-A4-WA2-I had the maximum indoor air concentrations of c-1,2-DCE, 1,2-DCA, PCE, and toluene. *cis*-1,2-dichloroethene and 1,2-DCA were detected in only two samples. Sample E-A4-WA4-I had the maximum concentrations of 1,1-DCE, 1,1-DCA, TCE, and TCA, which are likely the result of the former well pit in the basement of this residence. The maximum benzene concentration, detected in sample E-A4-WA3-I, is probably the result of the gasoline can located in the basement.

Area 4 Outdoor Air Samples

None of the chlorinated compounds of concern were detected in background air sample E-A4-WA2-O. Vinyl chloride, 1,1,2-Trichloroethane (1,1,2-TCA), 1,1-DCA, c-1,2-DCE, 1,2-DCA and 1,1-DCE were not detected at any Area 4 outdoor sampling locations. The maximum concentrations of TCE and BTEX compounds were detected in sample E-A4-WA4-O. The maximum concentration of TCA was detected in sample E-A4-WA5-O, and the maximum PCE concentration was detected in the front yard of E-A4-WA3-O. This sampling location is downwind of a nearby silk screen printing business.

On August 5, 2003, the predominant wind was from the west northwest as shown by the windrose in **Figure 7**. As shown in **Figure 8**, on August 6, the wind shifted so that the predominant wind was from the northwest. Therefore sampling location E-A4-WA4 was approximately upwind of all other Area 4 sampling locations and background sampling location E-A4-WA2 was downwind of other sampling locations for most of the sampling duration.

Area 7 Indoor Samples

1,1,1-Trichloroethane, PCE, and BTEX compounds were detected in all samples. The maximum indoor air concentration of PCE was detected in background air sample E-A7-WA7-I. Vinyl chloride was only detected in sample E-A7-WA6-I, and this sample also had maximum concentrations of toluene, TCA, and 1,1-DCE. Trichloroethene was only detected in sample E-A7-WA5-I. 1,1-Dichloroethane, 1,1,2-TCA, and c-1,2-DCE were not detected in any samples. The maximum concentrations of 1,2-DCA, ethyl benzene, and xylenes were detected in sample E-A7-WA1-I.

Area 7 Outdoor Air Samples

Vinyl Chloride, 1,1-DCA, 1,2-DCA, 1,1,2-TCA, and TCE were not detected in any of the samples. Sample E-A7-WA4-O-EP was the only sample in which 1,1-DCE and c-1,2-DCE were detected. In addition, this sample had the maximum concentrations of PCE and TCA. The maximum concentrations of BTEX compounds were detected at E-A7-WA5-O.

On August 6, 2003, the predominant wind was from the northwest as shown by the windrose in **Figure 8**. As shown in **Figure 9**, on August 7 the wind shifted so that the predominant wind was from the north. Therefore, background sampling location E-A7-WA7 was downwind of all other Area 7 sampling locations for most of the sampling duration.

3.5 Data Review

Soil and groundwater data were validated by the USEPA CLP program. CDM performed a review of the laboratory data packages prepared by New Age/Landmark (soil gas samples) and Air Toxics, Ltd. Data review/validation results are included in **Appendix B** All data were found to be acceptable for use as screening level data.

4. Risk Assessment

4.1 Screening Analysis

The USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (USEPA 2002) provides a screening process to determine whether humans are exposed to vapors originating from Site contamination and, if so, whether such exposure poses an unacceptable risk to human health. The guidance specifically focuses on vapor intrusion, or the migration of volatile chemicals from the subsurface (i.e., from groundwater and/or soils) into overlying buildings.

The screening process includes three tiers of assessment that involve increasing levels of complexity and specificity. All three tiers were applied to the site. The first two tiers are screening analyses and the final tier is a site-specific risk assessment.

4.1.1 Tier 1- Primary Screening

The first tier of the process is designed to quickly screen out sites at which the vapor intrusion pathway generally does not need further consideration. Available soil gas data indicate that chemicals are present in the subsurface and may present a potential for subsurface vapor intrusion into residential buildings. Therefore, the site could not be screened out based on the Tier 1 Primary Screening. The following risk factors were identified at the Site:

- Chemicals of sufficient volatility and toxicity (from USEPA 2002, Table 1) are known to be present in soil gas below the houses, including 1,1-DCE, 1,1-DCA, c-1,2-DCE, chloroform, PCE, TCA, TCE, toluene, and xylenes.

- Onsite buildings are near the subsurface contamination as defined in the guidance (i.e., "near" means located within 100 feet laterally or vertically of contaminants).

Based on the Primary Screening, a Tier 2 Secondary Screening was performed.

4.1.2 Tier 2 - Secondary Screening

The second tier of the process involves comparing available measured concentrations of contaminants in soil gas, groundwater, and indoor air with target media-specific concentrations given in Table 2c in USEPA (2002).

Generic screening levels reflect reasonable worst-case conditions for a first-pass screening of data. Some of the assumptions USEPA used to develop the generic screening levels are listed below:

- The receptor is an adult resident who is exposed 350 days per year for a period of 30 years, and who has an inhalation rate of 20 cubic meters (m^3)/day and a body weight of 70 kilograms (kg).

- Shallow soil gas (i.e., subslab gas and soil gas measured at 5 feet or less from the base of the existing basement foundations) is conservatively assumed to intrude into indoor spaces with an attenuation factor of 0.1. USEPA based this value on empirical data from sites with paired indoor air and soil gas concentrations. For 85 percent of the residences in the USEPA database, the soil gas-to-indoor air attenuation factor was less than 0.1 and therefore USEPA considers 0.1 to be a reasonable upper-bound value (USEPA 2002).

- Vapors from groundwater are conservatively assumed to migrate into indoor spaces with an attenuation factor of 0.001. As with soil gas, USEPA used empirical data from sites with paired indoor air and groundwater concentrations as the basis for the attenuation factor. In the case of groundwater, 95 percent of the residences in the USEPA database had a groundwater-to-indoor air attenuation factor less than 0.001.

- The generic screening values for soil gas correspond to indoor air concentrations associated with a cancer risk of 10^{-6} or a noncancer hazard index (HI) of 1, whichever is more restrictive. CDM compared soil gas, groundwater, and indoor air concentrations observed at the Site with the corresponding target screening values for each respective medium.

Sampling results are summarized and compared with the selected generic screening levels in **Tables 11 and 12** for Area 4 and **Tables 13 through 15** for Area 7. For Area 4, six chemicals in soil gas (TCA, 1,1-DCA, 1,1-DCE, chloroform, c-1,2-DCE, and TCE) and 5 chemicals in indoor air (1,2-DCA, benzene, ethylbenzene, PCE, and TCE) exceeded their screening levels. For Area 7, five chemicals in soil gas (TCA, 1,1-DCE, c-1,2-DCE, PCE, and TCE) and five chemicals in indoor air (1,2-DCA, benzene, ethylbenzene, PCE, TCE) exceeded their screening levels. In addition, for Area 7, six chemicals in groundwater (1,1-DCE, 1,2-DCA, c-1,2-DCE, PCE, TCE, and VC) exceeded their screening levels.

In **Tables 11 through 15**, the minimum and maximum detected concentration columns incorporate applicable duplicate samples by calculating the average if both results are detect or both results are nondetect (using the detection limit). However, the column reports only the detected concentration if there is one detect and one nondetect.

Based on this Tier 2 screening, the vapor intrusion pathway for Areas 4 and 7 of the Site warrants additional evaluation.

4.2 Site-Specific Risk Assessment

As concentrations of several contaminants exceeded generic screening criteria in the Tier 2 screening, a Tier 3 site-specific assessment has been performed. Site-specific risks from inhalation of VOCs released from the subsurface to indoor air were

estimated for residents in Areas 4 and 7. **Table 16** presents a summary of the exposure pathways evaluated.

4.2.1 Data Evaluation and Identification of Chemicals of Potential Concern

Samples included in the site-specific risk assessment are listed in the tables in **Appendix C**. In some cases, soil gas samples from a given location were rerun. If a sample analysis was rerun, the detected concentrations from the rerun sample were only used for the chemical that had an Exceeds qualifier (i.e., E qualifier) in the original sample. Results from duplicate samples were averaged prior to use in the risk assessment. Based on USEPA guidance (1989), non-detect data were assumed to have a concentration equal to one-half the reported detection limit.

All detected chemicals were included in the site-specific risk assessment. For each data set (representing a single chemical in each medium) with ten or more samples, a 95 percent upper confidence limit (UCL) on the arithmetic mean concentration was calculated and compared to the maximum detected concentration for that chemical. Based on USEPA guidance (1989), non-detect data used in the calculation of the UCL were assumed to have a concentration equal to one-half the reported detection limit. The lower of the UCL and the maximum detected value is used to calculate the indoor air exposure point concentration, as recommended by USEPA (USEPA 1992). The 95 percent UCLs were calculated using the H-statistic (USEPA 1992). Less than ten indoor air samples were collected in each area, so the maximum detected concentration of each chemical was used in the risk assessment for this medium.

For Area 4, no data are available that adequately characterize shallow groundwater in the vicinity of current residences. 1,1,1-trichloroethan was detected in an upgradient well during previous investigations. MW-130 is the closest for which current data are available; however that well is downgradient/sidegradient to the plume.

For Area 7 groundwater, wells are not located in the immediate vicinity of residences. Concentrations were modeled from wells MW-106A and MW-134A out to 600 feet, which is the approximate distance from the wells to existing houses. Modeling was based on risk-based corrective action (RBCA) algorithms taken from the TACO guidance (35 IAC 742). Inputs to these calculations, and the equations used are provided in **Appendix D**. MW-106A data were used in the modeling to conservatively estimate the risks because this well is the more contaminated of the two wells and is directly upgradient of the homes.

4.2.2 Calculation of Air Exposure Point Concentrations

In this assessment, people were assumed to inhale volatile contaminants of potential concerns (COPCs) inside their primary residences. Measured indoor air concentrations can be used in the risk calculations, but often include chemicals that are from sources other than subsurface vapor intrusion (e.g., outside air, volatile chemicals from household products). Soil gas samples and groundwater samples can provide a more accurate list of chemicals that could migrate from the subsurface, but

require modeling to estimate indoor air concentrations of volatile COPCs from soil gas or groundwater vapor intrusion. This risk assessment uses both the direct indoor air measurements and modeled indoor air concentrations to provide a comprehensive picture of potential risks from indoor inhalation.

CDM modeled concentrations of volatile COPC vapors migrating into houses in Areas 4 and 7 from the vadose zone by following the methodology detailed in Johnson and Ettinger (USEPA 2000) and using the spreadsheets of this model provided on USEPA's website (USEPA 2003). From a known volatile COPC concentration in soil gas or groundwater beneath a structure, the model can estimate an indoor air concentration. The model assumes contaminants diffuse through a capillary zone immediately above the water table and subsequently through an unsaturated or vadose zone before convection transports the vapors into the overlying structure.

Implicit in the Johnson and Ettinger model are a number of assumptions that are quantifiable. The model is calibrated to site-specific conditions dependent upon the physical conditions beneath the site and characteristics of structures present above the contamination.

4.2.2.1 Site-Specific Physical Variables

The input parameters for physical conditions at the site, such as soil type and hydrogeology, were based on information from soil boring logs at locations within Areas 4 and 7. The following discussion presents the rationale for site-specific physical variables used in the vapor intrusion model. These parameters are summarized in **Tables 17 and 18.**

Depth below grade to bottom of enclosed space floor – Houses within Areas 4 and 7 typically have basements, so the USEPA default depth to the base of a foundation (200 cm or about 6.6 feet) was applied in the model. In cases where houses do not have basements, indoor air concentrations would be lower than estimated here.

Soil gas sampling depth below grade – Onsite soil gas samples were collected between 10 and 12 feet (305 to 366 cm) below grade. The shallower end of this range, 305 cm, was applied in the model.

Depth below grade to water table in Area 7 – The surface elevation in Area 7 is around 815 to 840 feet above mean sea level (msl), with the water surface under the homes at about 775 feet msl. Thus, the depth to water in Area 7 ranges from 40 to 65 feet bgs. The shallower end of the range was used in the model.

Soil strata in Area 4 – In the area of the highest detected soil gas concentrations in Area 4, silty sand is present in the top four feet and is underlain by sand. Soil Stratum A in the model represents the soil layer that is present just below the enclosed floor space. The basement is expected to extend past six ft bgs, so Soil Stratum A in Area 4 is Sand (S). No additional soil layers are present between the basement floor and the sampling

depths for soil gas or groundwater. The model's default values for soil dry bulk density, soil total porosity, and soil water-filled porosity of S soil were used.

Soil strata in Area 7 – Soil type varies in Area 7, with sands, silty sands, and sandy silts. The highest detected soil gas concentrations in Area 7 near the houses were measured in SG-27. Based on the boring log for that location, there is silt and sand down to about six feet bgs, underlain by sand from six to eight feet bgs, and silty sand below that. Soil Stratum A for Area 7 was entered as Loamy Sand (LS) in the vapor intrusion model, based on the USEPA (2003) recommendation for sand with about 12 to 50 percent fines. Soil Stratum B was entered as Sandy Loam (SL) in the vapor intrusion model, based on the USEPA (2003) recommendation for silty sand with about 20 to 50 percent fines. The model's default values for soil dry bulk density, soil total porosity, and soil water-filled porosity of LS and SL soils were used.

Default settings were used for the remainder of the model parameters. Based on the modeling results, estimated indoor air concentrations from vapor intrusion are shown on **Table 19. Table 19** also includes the maximum detected concentrations in indoor air for comparison to the modeled concentrations.

4.2.3 Residential Inhalation Exposure Parameters

Exposure assumptions for residents were primarily taken from USEPA guidance (USEPA 1989, 1991, 1997). USEPA's RME standard default assumptions (USEPA 1991) were used where available. The RME risk descriptor is a plausible estimate of the individual risk for those persons at the upper end of the exposure and risk distribution, typically with exposures much higher than average. Reasonable maximum exposure (RME) parameters and intake equations used in the risk assessment are summarized in **Table 20**.

Residents in Areas 4 and 7 are assumed to be exposed to subsurface VOC contamination through inhalation of soil gas or groundwater vapors that migrate into houses via vapor intrusion. An inhalation rate of 13.25 m^3/day was assumed for adult residents based on the average of the long-term mean inhalation rates for adult men and women (USEPA 1997). An inhalation rate of 8.3 m^3/day was assumed for child residents based on the long-term mean inhalation rate for children between the ages of three to five years (USEPA 1997).

Both adult and child residents are assumed to be exposed for 350 days per year (USEPA 1991). Total exposure duration for residents is assumed to be 30 years (USEPA 1991): 24 years as an adult and 6 years as a child. A life expectancy of 70 years (USEPA 1989) was used for all receptor groups as the averaging time for exposure to carcinogenic contaminants. The averaging time for noncarcinogenic effects is equal to the exposure duration, or 24 years for adults and 6 years for children.

4.2.4 Toxicity Assessment

Health criteria used in this risk assessment are primarily derived from information provided in USEPA's Integrated Risk Information System (IRIS). Toxicological information presented in IRIS represents a consensus opinion of USEPA health scientists and has undergone peer review (both internal and external). If no information is provided in IRIS for a given chemical, toxicity values were drawn from the USEPA Region 9 Preliminary Remediation Goal (PRG) tables.

4.2.4.1 Health Effects Criteria for Noncarcinogens

For chemicals that exhibit noncarcinogenic (e.g., systemic) effects, organisms have repair and detoxification capabilities that must be exceeded by some critical concentration (threshold) before the health effect is manifested. A threshold implies that a range of exposures from just above zero to some finite value can be tolerated by the organism without an appreciable risk of adverse effects.

Health criteria for chemicals exhibiting noncarcinogenic effects for use in risk assessment are generally USEPA-derived reference doses (RfDs) and reference concentrations (RfCs). The RfD of RfC is an estimate of average daily exposure to an individual (including sensitive individuals) that is likely to be without appreciable risk of deleterious effects during a lifetime. RfD is expressed in units of mg chemical per kg body weight per day (mg/kg-day), while a RfC is expressed in units of mg chemical per cubic meter of air (mg/m^3). RfDs and RfCs are usually derived either from human studies involving work-place exposures or from animal studies, and are adjusted using uncertainty factors to ensure that they are unlikely to underestimate the potential for adverse noncarcinogenic effects to occur. Uncertainty factors reflect scientific judgment on the confidence that can be placed in various types of data used to estimate the RfD/RfC. Generally, uncertainty factors consist of multiples of 10. For example, a factor of 10 may be introduced to account for possible differences in response between humans and animals in prolonged exposure studies. Other factors of 10 may be used to account for variation in susceptibility among individuals in the human population, use of data from a study with less-than-lifetime exposure, and/or use of data from a study that did not identify a no-observed-adverse-effect level (NOAEL).

RfDs and RfCs provide benchmarks against which estimated human exposure might be compared. Exposures that are significantly higher than the RfD/RfC may indicate an increased potential of hazard from the exposure, while doses that are less than the RfD/RfC are not likely to be associated with adverse effects.

4.2.4.2 Health Effects Criteria for Potential Carcinogens

For chemicals that exhibit carcinogenic effects, USEPA and other scientific authorities recognize that one or more molecular events can evoke changes in a single cell or a small number of cells that can lead to tumor growth. This non-threshold theory of carcinogenesis purports that any level of exposure to a carcinogen can result in some finite possibility of causing cancer. Generally, regulatory agencies assume the non-

threshold hypothesis for carcinogens in the absence of information concerning the mechanisms of carcinogenic action for the chemical. The cancer slope factor (CSF) [in units of $(mg/kg\text{-}day)^{-1}$] is a number which, when multiplied by the lifetime average daily dose of a potential carcinogen (in mg/kg -day), yields the upper-bound excess lifetime cancer risk associated with exposure at that dose. Upper-bound is a term used by USEPA to reflect the conservative nature of the CSFs: risks estimated using slope factors are considered unlikely to underestimate actual risks and may overestimate risks for a given exposure. Excess lifetime cancer risks generally are expressed in scientific notation and are probabilities. An excess lifetime cancer risk of 1E-6 (one in one million), for example, represents the incremental probability that an individual will develop cancer as a result of exposure to a carcinogenic chemical over a 70-year lifetime under specified exposure conditions.

There are varying degrees of confidence in the weight of evidence as to whether a given chemical causes cancer in humans. USEPA proposed a system for characterizing the overall weight of evidence based on the availability of animal, human, and other supportive data. The weight-of-evidence classification is an attempt to determine the likelihood that an agent is a human carcinogen and thus qualitatively affects the estimation of potential health risks. Under USEPA's 1989 risk assessment guidelines (USEPA 1986), classification of the overall weight-of-evidence has the following five categories:

- Group A - Human Carcinogen: There is at least sufficient evidence from human epidemiological studies to support a causal association between an agent and cancer.

- Group B - Probable Human Carcinogen: There is at least limited evidence from epidemiological studies of carcinogenicity in humans (Group B1) or that, in the absence of adequate data in humans, there is sufficient evidence of carcinogenicity in animals (Group B2).

- Group C - Possible Human Carcinogen: There is inadequate evidence of carcinogenicity in humans.

- Group D - Not Classified: There is inadequate data or no existing data for the chemical.

- Group E - No Evidence of Carcinogenicity in Humans: There is no evidence for carcinogenicity in at least two adequate animal tests in different species or in both epidemiological and animal studies.

According to USEPA's newest guidelines for carcinogen risk assessment (USEPA 2003b), USEPA is changing the classification of carcinogens from the letter categories listed above to narrative descriptions of the available scientific information. There are five recommended standard hazard descriptors: "carcinogenic to humans," "likely to be carcinogenic to humans," suggestive evidence of carcinogenic potential,"

"inadequate information to assess carcinogenic potential," and "not likely to be carcinogenic to humans." The weight-of-evidence classification will be based on evaluation of the data and in context of weight-of-evidence narratives, no one-to-one correspondence between the former groupings for carcinogens exists. For example, a B2 classification may change to "There is suggestive evidence for carcinogenicity based on animal studies, but not sufficient for assessment of human carcinogenic potential."

4.2.4.3 Toxicity Values Used to Estimate Inhalation Risks

Tables 21 and 22 summarize the chronic inhalation RfDs and CSFs used to estimate non-carcinogenic effects and cancer risks for the COPCs. These criteria were obtained from the November 2003 on-line versions of IRIS and the USEPA Region 9 PRG Table.

In **Table 21**, inhalation RfDs were calculated from RfCs assuming a 70 kg individual has an inhalation rate of 20 m^3/day. The same assumptions were used in **Table 22** to calculate inhalation cancer slope factors from unit risks.

4.2.5 Risk Characterization

In this section of the risk assessment, potential human health risks associated with residential indoor inhalation from subsurface vapor intrusion are assessed. Toxicity and exposure assessments are integrated into quantitative expressions of carcinogenic risk and non-carcinogenic hazards. Cancer risk and non-cancer hazard calculations for all COPCs are presented in **Tables 23 through 32**. Total risks and hazard indices for each receptor under reasonable maximum exposure scenarios are summarized in **Table 33**.

The potential for non-carcinogenic effects was evaluated by comparing an exposure level over a specified time period with a reference dose derived for a similar exposure period. This ratio of exposure to toxicity is referred to as a hazard quotient (HQ). The HI is the sum of the HQs. This hazard index assumes that there is a level of exposure below which it is unlikely even for sensitive populations to experience adverse health effects. If the HI exceeds 1, there may be concern for potential non-cancer effects; however, this value is not a probability. However, in general, the greater the HI above unity, the greater the level of concern.

Carcinogenic risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a potential carcinogen. Upper-bound excess lifetime cancer risk is estimated by multiplying lifetime exposure for an individual chemical by its cancer slope factor. Excess lifetime cancer risks generally are expressed in scientific notation as probabilities (Section 4.2.4.2).

USEPA recommends a target HI value or a target cancer risk range (i.e., HI = 1 or risk = 10^{-6} to 10^{-4}) as threshold values for potential human health impacts. The results of risk and hazard calculations presented in the spreadsheets were compared with these

target values. These values aid in determining whether additional response action is necessary at the site.

4.2.5.1 Results of Risk Characterization

Potential risks were estimated for adult and child residents exposed to contaminants that have migrated from soil gas or groundwater to indoor air and are summarized in **Table 33**. Cancer risks and noncancer hazard indices for adult and child residents were calculated separately; cancer risks for the two age groups were then summed to determine the risk for a resident exposed as both a child and adult.

Area 4 – Soil Gas

For Area 4, RME cancer risks for adult residents and child residents are each within the range of 10^{-6} to 10^{-4}, though the combined risk for the two age groups slightly exceeds the range. Cancer risk estimates are 9×10^{-5} for adults, 7×10^{-5} for children, and 2×10^{-4} for the combined age groups. Trichloroethene is the primary contributor to the estimated cancer risk, accounting for 98 percent of the total risk. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2.

In Area 4, total RME HI for adult residents was 0.8 and for child residents was 2. The total HI for children is slightly above the threshold of 1 for non-cancer effects. The majority of the non-cancer hazard is associated with inhalation of TCA. The HIs for individual target organs were below 1, indicating that non-cancer health effects are not likely to result from vapor intrusion.

Area 4 – Indoor Air

For Area 4, RME cancer risks estimated using indoor air measurements for adult residents and child residents are each within the range of 10^{-6} to 10^{-4}, though the combined risk for the two age groups slightly exceeds the range. Cancer risk estimates are 1×10^{-4} for adults, 8×10^{-5} for children, and 2×10^{-4} for the combined age groups. Trichloroethene is the primary contributor to the estimated cancer risk, accounting for 87 percent of the total risk. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2. In addition, benzene accounted for about 10 percent of the risks based on indoor air measurements. Benzene was not detected in soil gas.

In Area 4, total RME HI for adult residents was 0.6 and for child residents was 2. The total HI for children is slightly above the threshold of 1 for non-cancer effects. The majority of the non-cancer hazard is associated with inhalation of TCA. The HIs for individual target organs were below 1, indicating that non-cancer health effects are not likely to result from vapor intrusion.

As shown in **Table 33**, for Area 4, total cancer risks and HIs based on indoor air measurements were similar to those estimated from soil gas vapor intrusion, though chemicals contributing to the totals differed. Benzene was not detected in soil gas but accounted for 10 percent of the estimated cancer risk and 23 percent of the total HI for indoor air. In addition, the detected indoor air concentration of TCA was lower than the vapor intrusion model predicted from soil gas.

Area 7 – Soil Gas

For Area 7, total RME cancer risk for residents is within the range of 10^{-6} to 10^{-4}. Cancer risk estimates are 3×10^{-6} for adults, 3×10^{-6} for children, and 6×10^{-6} for the combined age groups. Trichloroethene is the primary contributor to the estimated cancer risk, again accounting for 98 percent of the total risk. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2.

Total RME HI for adult residents is 0.007 and for child residents, 0.02. Both His were well below the threshold of 1 for non-cancer effects, indicating that non-cancer health effects are not likely to result from vapor intrusion from soil gas.

Area 7 – Groundwater

For Area 7 groundwater, total RME cancer risk for residents from vapor intrusion from groundwater is at the lower end of the range of 10^{-6} to 10^{-4}. Cancer risk estimates were 1×10^{-6} for adults, 8×10^{-7} for children, and 2×10^{-6} for the combined age groups. These estimates are based on predicted groundwater concentrations from RBCA modeling as described in Section 4.2.1.

Total RME HI for adult residents is 0.3 and for child residents is 0.8. Both His were below the threshold of 1 for non-cancer effects, indicating that non-cancer health effects are not likely to result from vapor intrusion of VOCs, based on modeling from predicted groundwater concentrations downgradient from MW-106A.

Area 7 – Indoor Air

For Area 7, total RME cancer risk for residents is within the range of 10^{-6} to 10^{-4}. Cancer risk estimates are 4×10^{-5} for adults, 3×10^{-5} for children, and 7×10^{-5} for the combined age groups. Benzene is the primary contributor to the estimated cancer risk, accounting for 74 percent of the total risk. TCE accounted for 11 percent of the total estimated risk. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2.

Total RME HI for adult residents is 1 and for child residents, 3. The total HIs are at, or slightly above, the threshold of 1 for non-cancer effects. For children, HI values for

individual target organs were slightly above 1 for effects to blood (HI=1.2 from benzene) and effects to the central nervous system (HI=1.5 from xylenes).

As shown in **Table 33**, for Area 7, cancer risks and HIs based on indoor air measurements were higher than those estimated from soil gas or groundwater vapor intrusion. Benzene and xylenes, which accounted for a large portion of estimated risk from indoor air, were not present at elevated concentrations in either soil gas or groundwater. Their presence in indoor air may be due to sources other than vapor intrusion from the subsurface.

4.2.5.2 Uncertainty in the Risk Assessment

As in any risk assessment, the estimates of potential health threats (carcinogenic risks and non-carcinogenic health effects) for the Southeast Rockford site have numerous associated uncertainties. The primary areas of uncertainty and limitations are qualitatively discussed here.

Environmental data: Uncertainty is always involved in the estimation of chemical concentrations. However, the soil gas data collected are considered to adequately characterize soil gas concentrations present in the vicinity of homes in Areas 4 and 7. Some of the data included in the risk assessment may lead to overestimation of soil gas concentrations below homes, based on the fact that the highest detected concentrations were not found in the samples collected closest to homes. For Area 7, the highest soil gas concentrations were found in a sample from Ekberg Park; no VOCs were detected in samples collected within yards. For Area 4, the highest soil gas concentrations were found in samples collected at the edge of a street; samples collected within yards showed concentrations that were an order of magnitude lower.

Groundwater data are not available to characterize concentrations below the homes in Area 4. Groundwater concentrations near homes in Area 7 were conservatively estimated using data from the upgradient well with the highest detected concentrations.

Exposure point concentration estimation: Some uncertainty in the exposure point concentrations is associated with estimating indoor air concentrations from vapor intrusion using the Johnson and Ettinger model. Uncertainties in the modeled indoor air concentrations are associated with the characteristics of soil assumed in the model. Soil types at the site are variable. Of the soil types present at the site, those that are more conducive to allowing vapors to move through the vadose zone were assumed in the model. Use of these soil types in the model may slightly overestimate inhalation risks for portions of the site.

Additional uncertainties are associated with modeling indoor air concentrations with a single set of assumptions about the characteristics of the buildings. Several input parameters for the model are related to building characteristics and default assumptions for buildings were used. For example, if buildings are larger than the 10 m by 10 m that was assumed, then the inhalation risks are overestimated. In addition,

the model assumes a very low air exchange rate. Risks are likely to be overestimated because many homes have higher air exchange rates, especially during months when heating is not required. Use of the model defaults for building characteristics may approximate a worst-case scenario.

Exposure parameter estimation: Exposure parameter values for receptors also are uncertain. For example, assumptions were made for the exposure time, frequency, and duration of potential chemical exposures as well as for the quantity of inhaled air. All of these parameters vary considerably in any residential population, and risks and hazards presented in this assessment would apply to few if any actual residents. In general, assumptions were made based on reasonable maximum exposures and, in most cases, values were specified by general USEPA guidance documents. Use of these values is expected to result in risk estimates at the upper end of those possible at the site, and can therefore be expected to overstate risks for most, and sometimes all, exposed individuals.

Toxicological data: Toxicological data uncertainty one of the largest sources of uncertainty in this risk assessment. One source of uncertainty includes using dose-response information from effects observed at high doses in animals to predict adverse health effects from low-level exposures to humans in contact with the chemical in the environment. Another source is the use of dose-response information from short-term exposure studies to predict the effects of long-term exposure. Uncertainties also arise from using dose-response information in animals to predict human health effects and from homogeneous animal and healthy human populations to predict effects likely to be observed in the general population, which consists of individuals with varying sensitivities.

A very large degree of uncertainty is associated with the cancer toxicity of TCE, the chemical that accounted for 98 percent of the estimated cancer risk for both Area 4 and Area 7. USEPA is in the process of reevaluating the proposed cancer slope factor for TCE. The inhalation cancer slope factor used in this assessment was 0.4 $(mg/kg/day)^{-1}$, based on a draft value USEPA proposed in 2001 that is still under review. If the previous value proposed by USEPA in 1987, 0.006 $(mg/kg/day)^{-1}$, were used, the risk estimates associated with TCE would be almost one hundred-fold lower than those estimated in this assessment.

Risk characterization: Uncertainty exists in assessing the toxicity of a mixture of chemicals. In this assessment, the effects of exposure to each contaminant present, has initially been considered separately. However, these substances occur together at the site, and individuals may be exposed to mixtures of the chemicals. Prediction of how these mixtures of chemicals will interact must be based on an understanding of the mechanisms of such interactions. Individual compounds may interact chemically in the body, yielding a new toxic component or causing different effects at different target organs. Suitable data are not currently available to rigorously characterize the effects of chemical mixtures. Consequently, as recommended by USEPA (1989),

chemicals present at the site were assumed to act additively, and potential health risks were evaluated by summing excess lifetime cancer risks and calculating HIs for non-carcinogenic effects. This approach to assessing risk associated with mixtures of chemicals assumes that there are no synergistic or antagonistic interactions among the chemicals and that all chemicals have the same toxic endpoint and mechanisms of action. To the extent that these assumptions are incorrect, the actual risks could be under- or over-estimated.

As a result of the uncertainties described above, this risk assessment should not be construed as presenting absolute risks or hazards. Rather, it is a conservative analysis intended to indicate the potential for adverse impacts to occur based on reasonable maximum and central tendency exposures.

4.3 Summary of the Risk Assessment

4.3.1 Summary of Approach

In the risk assessment, contaminants in soil gas and groundwater at the site were quantitatively evaluated for potential health threats to current and future residents exposed via vapor intrusion to indoor air. The estimates of cancer risk and noncancer health hazard, and the greatest chemical contributors to these estimates were identified. Chemicals detected in soil gas were evaluated as chemicals of potential concern.

Exposure routes and human receptor groups were identified and quantitative estimates of the magnitude, frequency, and duration of exposure were made. Exposure points were estimated using the minimum of the 95 percent UCL and the maximum concentration. Chronic daily intakes were calculated based on the RME (the highest exposure reasonably expected to occur at a site). The intent is to estimate a conservative exposure case that is still within the range of possible exposures.

In the toxicity assessment, current toxicological human health data (i.e., reference doses and slope factors) were obtained from various sources and were utilized in the order specified by Risk Assessment Guidance for Superfund (RAGS) (USEPA 1989).

Risk characterization involved integrating the exposure and toxicity assessments into quantitative expressions of risks/health effects. Specifically, chronic daily intakes were compared with concentrations known or suspected to present health risks or hazards.

USEPA and Illinois EPA recommend target values or ranges (i.e., cancer risk of 10^{-6} to 10^{-4} or HI of one) as threshold values for potential human health impacts (USEPA 1989). These target values aid in determining whether additional response action is necessary at the site.

4.3.2 Summary of Site Risks

This section presents a summary of the carcinogenic risks and noncarcinogenic hazards for indoor air inhalation exposures to contaminants detected in soil gas at Areas 4 and 7 and detected in groundwater at Area 7.

Soil Gas: For Areas 4 and 7, RME cancer risks for adult residents and child residents are within the range of 10^{-6} to 10^{-4}, though the combined risk for the two age groups slightly exceeds the range for Area 4. TCE is the primary contributor to the estimated cancer risk, accounting for 98 percent of the total risk. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2.

The noncancer risks associated with inhalation of VOCs from soil gas are below levels of concern. The noncancer HIs for individual target organs are below 1, indicating that non-cancer health effects are not likely to result from vapor intrusion.

Area 7 Groundwater: Total RME cancer risk for residents from vapor intrusion from groundwater is at the lower end of the range of 10^{-6} to 10^{-4}. Total RME HI is below the threshold of 1 for non-cancer effects, indicating that non-cancer health effects are not likely to result from vapor intrusion of VOCs from groundwater. These estimates are based on predicted groundwater concentrations from RBCA modeling as described in Section 4.2.1.

Indoor Air: For Areas 4 and 7, RME cancer risks for adult residents and child residents based on measured indoor air concentrations are within the range of 10^{-6} to 10^{-4}, though for Area 4 the combined risk for the two age groups slightly exceeds the range. The primary contributors to the estimated cancer risks are TCE for Area 4 and benzene for Area 7. The cancer slope factor for TCE is a proposed value that is currently undergoing additional review and evaluation. Cancer risk estimates for TCE are highly uncertain and may be overestimated, as discussed in Section 4.2.5.2.

The noncancer risks associated with inhalation of VOCs from soil gas are below levels of concern for individual target organs for Area 4 and only slightly above levels of concern for Area 7 (i.e., HI=1.2 for effects to blood from benzene and HI=1.5 for nervous system effects from xylenes). Benzene and xylenes were not present at elevated concentrations in either soil gas or groundwater. Their presence in indoor air in Area 7 may be due to sources other than vapor intrusion from the subsurface.

5. Conclusions

The modeled indoor air concentrations based on vapor intrusion from soil gas and groundwater (refer to **Table 19**) were compared to the actual air sampling concentrations measured at the site. The modeled indoor air concentrations for Area 4 and Area 7 are included on **Tables 7 and 9**, respectively, for comparison purposes.

Contaminant concentrations of most indoor air samples were well below the predicted concentrations derived from the modeling results. This indicates that although VOCs in soil gas are present at concentrations that could result in the risks identified in Section 4, incomplete or inadequate migration pathways from the source areas prevent the VOCs from infiltrating residences in sufficient quantities to result in the predicted concentrations.

Those VOCs that were detected at concentrations greater than potential thresholds of concern, or greater than predicted, are described below. In several instances, the higher concentrations were detected in background sampling locations that are not related to the source area. In other instances, the specific VOC detected is not related to the nearby source area, and is possibly the result of some other source of contamination (e.g., ambient air, or consumer products and other chemicals used within a given residence). Therefore, VOCs detected in indoor air samples are likely the result of a combination of vapor intrusion, ambient air, and household consumer products and chemicals. In almost all cases, it is not possible to determine the specific source of VOCs detected in indoor air samples, or how to quantitatively apportion detected VOCs between combined sources.

For Area 4, the maximum noted concentrations of PCE, 1,2-DCA, c-1,2-DCE, TCE, and BTEX exceed PTCs or the predicted concentrations derived from the modeling results. Possible causes of these exceedances are as follows:

- **c-1,2-DCE** - The highest concentration of this compound was noted in sample E-A4-WA2-I at a concentration of 0.17 parts per billion by volume (ppbv). This sample was taken at the background location for Area 4 (outside the Area 4 boundary), where target VOCs were not detected in soil gas. Therefore, vapor intrusion from Area 4 soil gas does not appear to be the cause of this exceedance. The only other detection of c-1,2-DCE in an Area 4 indoor air sample (0.055 ppbv in E-A4-WA3-I) is below the predicted concentration. The concentration of c-1,2-DCE in both samples is below the PTC of 8.8 ppbv.

- **1,2-DCA** - The highest concentration of this compound was detected in background sample E-A4-WA2-I at a concentration of 1.9 ppbv. The PTC for 1,2-DCA is 0.023 ppbv. The only other sample in which 1,2-DCA was detected is E-A4-W1-I at a concentration of 0.045 ppbv, which also exceeds the PTC. The compound was neither detected in outdoor air samples, which apparently eliminates ambient air, nor in soil gas samples, which apparently eliminates vapor intrusion. Finally, 1,2-

DCA is not commonly found in any household product. Therefore, the source of 1,2-DCA is not known.

- **TCE** - The sample with the highest concentration of TCE, E-A4-WA4-I (2.3 ppbv), exceeds the PTC of 0.0041 ppbv, and the predicted concentration for TCE in Area 4 at a concentration of 0.045 ppbv. In addition to the fact that TCE was noted in several outdoor air samples in Area 4, including the outdoor air sample (E-A4-WA4-O at a concentration of 0.052, which also exceeds the PTC) collected at this residence, the existence of a former well pit in the basement of this residence provides clear migration pathway for the infiltration of TCE into the basement. The owner of this residence has been advised that sealing the former well pit is recommended. The elevated concentration of TCE in sample E-A4-WA4-I is likely caused by a combination of the former well pit, and ambient contamination as evidenced by the outdoor air sample.

  Overall, four of five indoor samples exceed the PTC for TCE, and compare well with the predicted concentration. However, three of five outdoor samples also exceed the PTC for TCE. Therefore, it appears that the source of TCE in indoor air samples is a combination of vapor intrusion and ambient air.

- **PCE** - The highest concentration of PCE (0.48 ppbv) was detected in sample background sample E-A4-WA2-I. This exceeds the PTC of 0.12 ppbv. PCE was not detected in the outdoor sample or in soil gas at this location, which eliminates ambient air and vapor intrusion, respectively, as sources. Although there is no apparent evidence, the source of PCE may be related to a source within the residence (e.g., recently dry cleaned clothing - the most likely source of PCE within a residence).

  Overall, PCE was detected in all indoor samples at a concentration that exceeds the PTC; however, three of the five indoor samples are only slightly above the PTC. Only one outdoor sample exceeds the PTC, and two samples were at or just below the PTC. Only sample E-A4-WA2-I exceeds the predicted concentration of PCE (0.415 ppbv). In general, the source of PCE exceedances in indoor samples appears to be a combination of vapor intrusion, ambient air, and recently dry cleaned clothing.

- **BTEX** - BTEX compounds were detected in all indoor and outdoor samples collected at Area 4. Benzene was detected at concentrations that exceed its PTC in all indoor and outdoor samples. Ethylbenzene is the only other BTEX compound detected at concentrations that exceed PTCs. Toluene and xylene concentrations were below their respective PTCs. Because neither benzene nor ethylbenzene were detected in soil gas samples, the source of these compounds does not appear to be vapor intrusion. BTEX compounds are common constituents of gasoline and other commonly used petroleum-based products in and around the home. Combined with the facts that BTEX compounds were either not detected or detected at very

low concentrations in soil gas, and were detected at relatively high concentrations in outdoor samples, the source of BTEX compounds in indoor is almost certainly not from vapor intrusion.

For Area 7, the maximum concentrations of benzene, ethylbenzene, 1,2-DCA, TCE, PCE exceed PTCs. In addition, 1,1-DCE and TCA exceed the predicted concentrations derived from the modeling results. Possible causes of these exceedances, and additional discussion are provided below. This is followed by a discussion of indoor sample E-A7-WA5-I, which contained the greatest number of VOCs at concentrations that exceed respective PTCs.

- **1,1-DCE, 1,2-DCA, and TCE** – These compounds were not detected in Area 7 outdoor air samples, with the exception of a low concentration detection of 1,1,-DCE in the outdoor air sample taken from Ekberg Park (E-A7-EA4-O-EP). Because outdoor samples did not contain any of these compounds ambient air does not appear to be a significant contributor to the presence of these contaminants in indoor air samples. Although it is possible that TCE could be present in sources within the residences (e.g., spot remover or typewriter correction fluid), 1,1-DCE and 1,2-DCA are not commonly found in any household products, and may be the result of vapor intrusion.

- **TCA** - TCA concentrations did not exceed the PTC, but did exceed the predicted concentration in two Area 7 samples. In addition, TCA was detected in almost all indoor and outdoor samples. Therefore, the source of TCA in indoor samples is probably a combination of vapor intrusion, ambient air, and sources within the residence.

- **PCE** - PCE was detected at concentrations greater than its PTC in two samples. The highest concentration of this compound was noted in background sample E-A7-WA7-I, where target VOCs were not detected in soil gas. Exceedances of the predicted TCE concentration were also noted in two of the Area 7 outdoor air samples. In general, detections of PCE in Area 7 indoor samples appears to be similar to those detected in Area 4, and are probably also related to a combination of vapor intrusion, ambient air, and sources within the residence.

- **BTEX** - BTEX compounds were detected in all indoor and outdoor samples collected at Area 7. Benzene was detected at concentrations that exceed its PTC in all indoor and outdoor samples. Ethylbenzene is the only other BTEX compound detected at concentrations that exceed PTCs. Toluene and xylene concentrations were below their respective PTCs. Because neither benzene nor ethylbenzene were detected in soil gas samples, the source of these compounds does not appear to be vapor intrusion. BTEX compounds are common constituents of gasoline and other commonly used petroleum-based products in and around the home. Combined with the facts that BTEX compounds were either not detected or detected at very low concentrations, and were detected at relatively high concentrations in outdoor

samples, the source of BTEX compounds in indoor is almost certainly not from vapor intrusion.

- **Indoor sample E-A7-WA5-I** - Indoor air sample E-A7-WA5-I contained the greatest number of VOCs that exceed PTCs and predicted concentrations. This is significant because the soil gas samples collected at this residence (SG-27) also contained the greatest number of VOCs that exceed PTCs for soil gas. Conversely, outdoor sample E-A7-WA5- O and duplicate sample E-A7-WA5- O-D, only contained benzene and ethylbenzene, which as noted above are attributable to ambient air and household products. Therefore, the source of VOCs detected in indoor sample E-A7-WA5-I is almost certainly vapor intrusion.

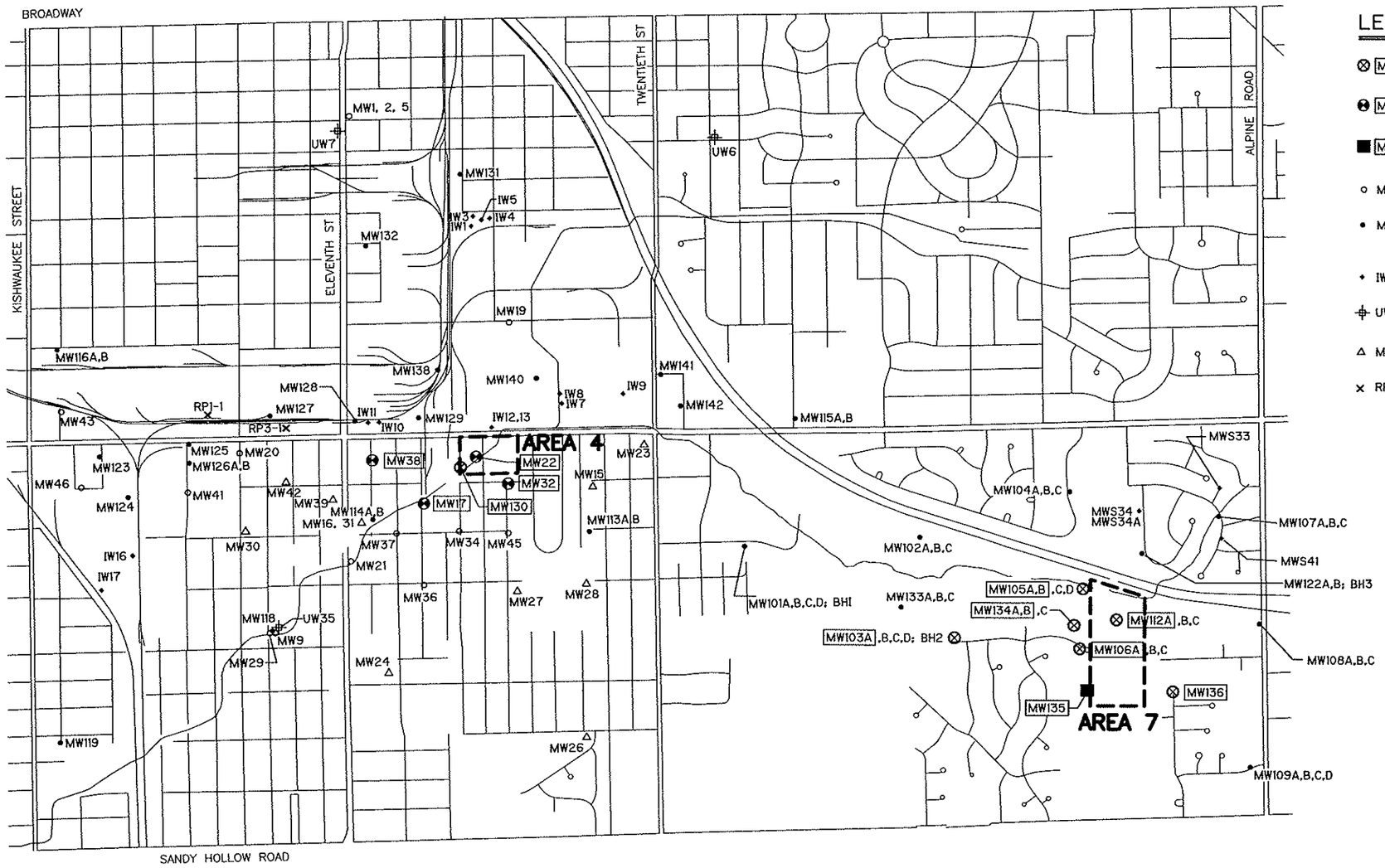
6. References

USEPA. 1992. Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER 9285.7-081. May.

USEPA 2002. Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). http://www.epa.gov/correctiveaction/eis/vapor.htm. November.

USEPA. 2003. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. June.

USEPA. 2003. Johnson and Ettinger (1991) Model for Subsurface Vapor Intrusion into Buildings. http://www.epa.gov/oerrpage/superfund/programs/risk/airmodel/johnson_ettinger.htm



LEGEND:

⊗ MW136	WELLS SAMPLED FOR INDOOR AIR SAMPLING STUDY
⊗ MW136	INACCESIBLE WELLS - WELLS NOT SAMPLED
■ MW136	DRY WELL - NOT SAMPLED
○ MW12	ISWS MONITORING WELL
• MW101	CDM/IEPA MONITORING WELL OR WELL NEST; LETTER SUFFIX INDICATES SPECIFIC WELL OF A WELL NEST
◆ IW14	INDUSTRIAL SUPPLY WELL OR MONITORING WELL
⊕ UW7	MUNICIPAL WATER SUPPLY WELL
△ MW30	ISWS WELL USED DURING PHASE I ONLY
× RP3-1	INDUSTRIAL SUPPLY OR MONITORING WELL

N

SCALE:

500 0 1000 Feet

Romano

6:05:00

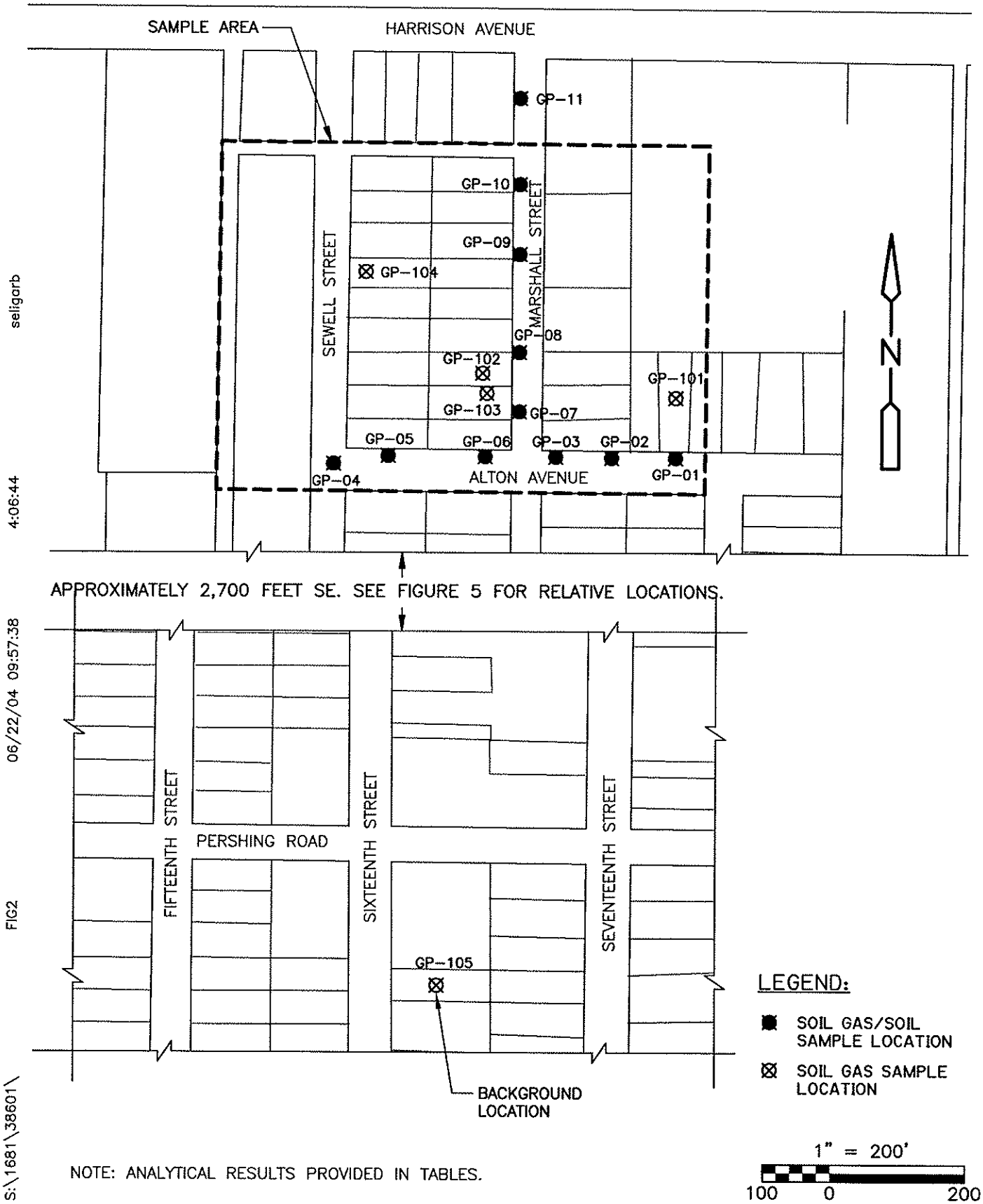
09/29/03 15:16:09

FIG1

S:\1681\38601\

CDM

Figure 1
Southeast Rockford Indoor Air Sampling Study
MONITORING WELLS SAMPLED IN AREAS 4 AND 7

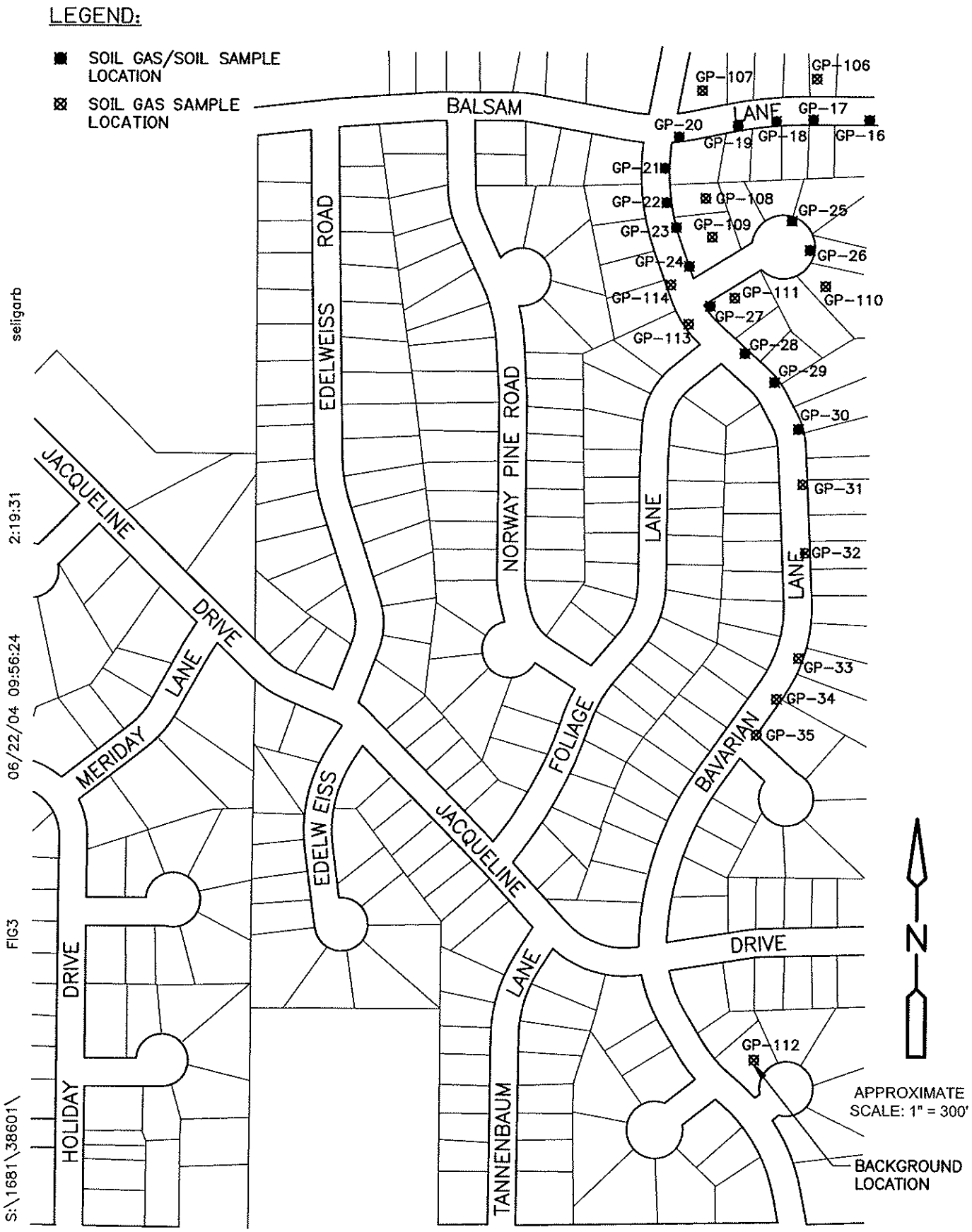


NOTE: ANALYTICAL RESULTS PROVIDED IN TABLES.

seligarb 4:06:44 06/22/04 09:57:38 FIG2 S:\1681\38601\

Figure 2
Southeast Rockford Indoor Air Sampling Study
AREA 4 SOIL / SOILGAS SAMPLING LOCATIONS

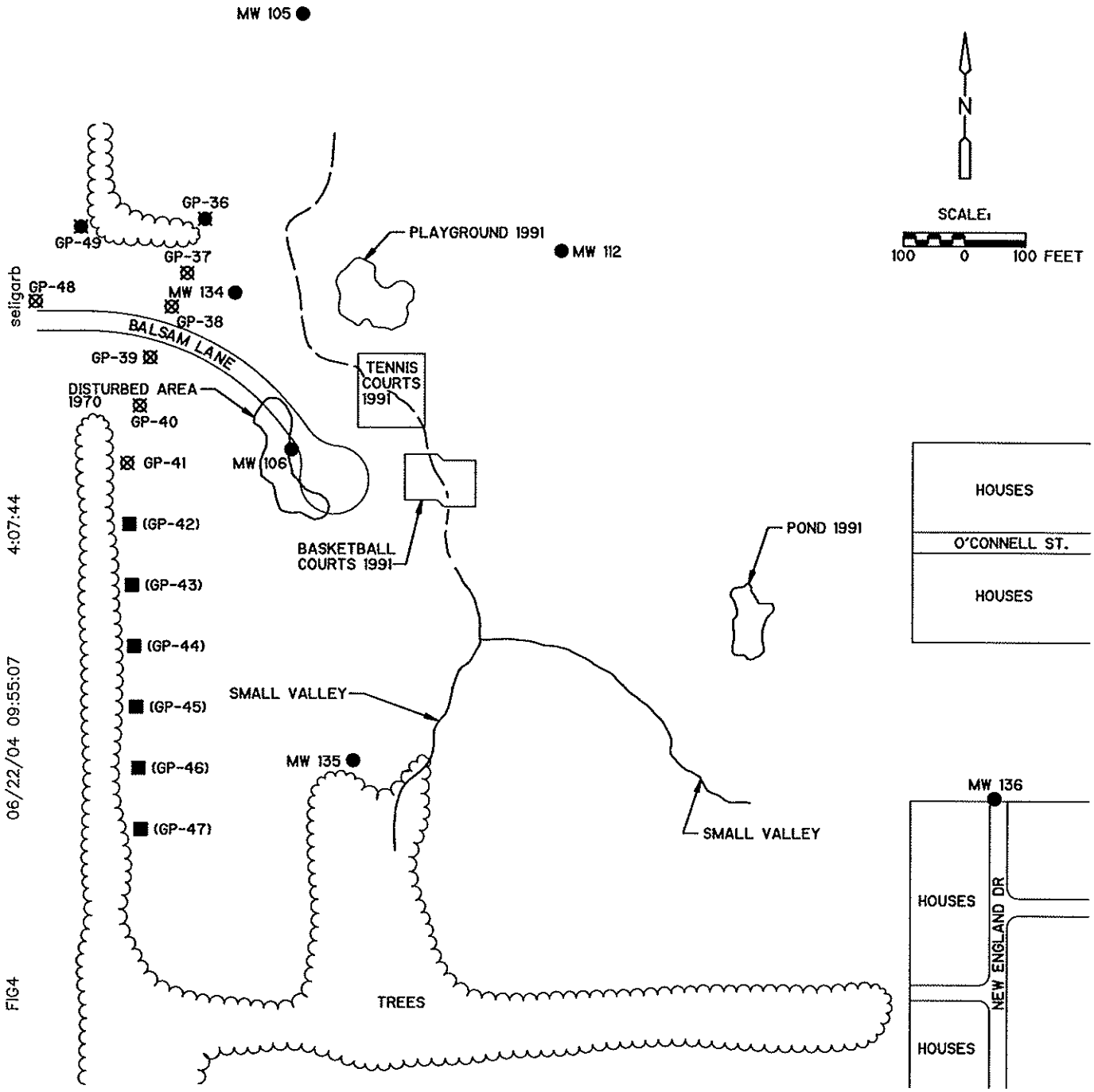
CDM



NOTE: ANALYTICAL RESULTS PROVIDED IN TABLES.

Figure 3
Southeast Rockford Indoor Air Sampling Study
AREA 7 SOIL/SOILGAS SAMPLING LOCATIONS

CDM



NOTES: 1. GP-42 THROUGH GP-47 NOT COMPLETED. NOT SCHEDULED TO BE COMPLETED BASED ON GP-36 THROUGH GP-41 RESULTS.

2. ANALYTICAL RESULTS PROVIDED IN TABLES.

LEGEND:

- ▲ OUTDOOR AIR SAMPLE LOCATION
- ● MONITORING WELL
- ■ SOIL GAS/SOIL SAMPLE LOCATION
- ⊠ SOIL GAS SAMPLE LOCATION
- ■ PROPOSED SOIL GAS SAMPLE LOCATION (NOT PERFORMED)

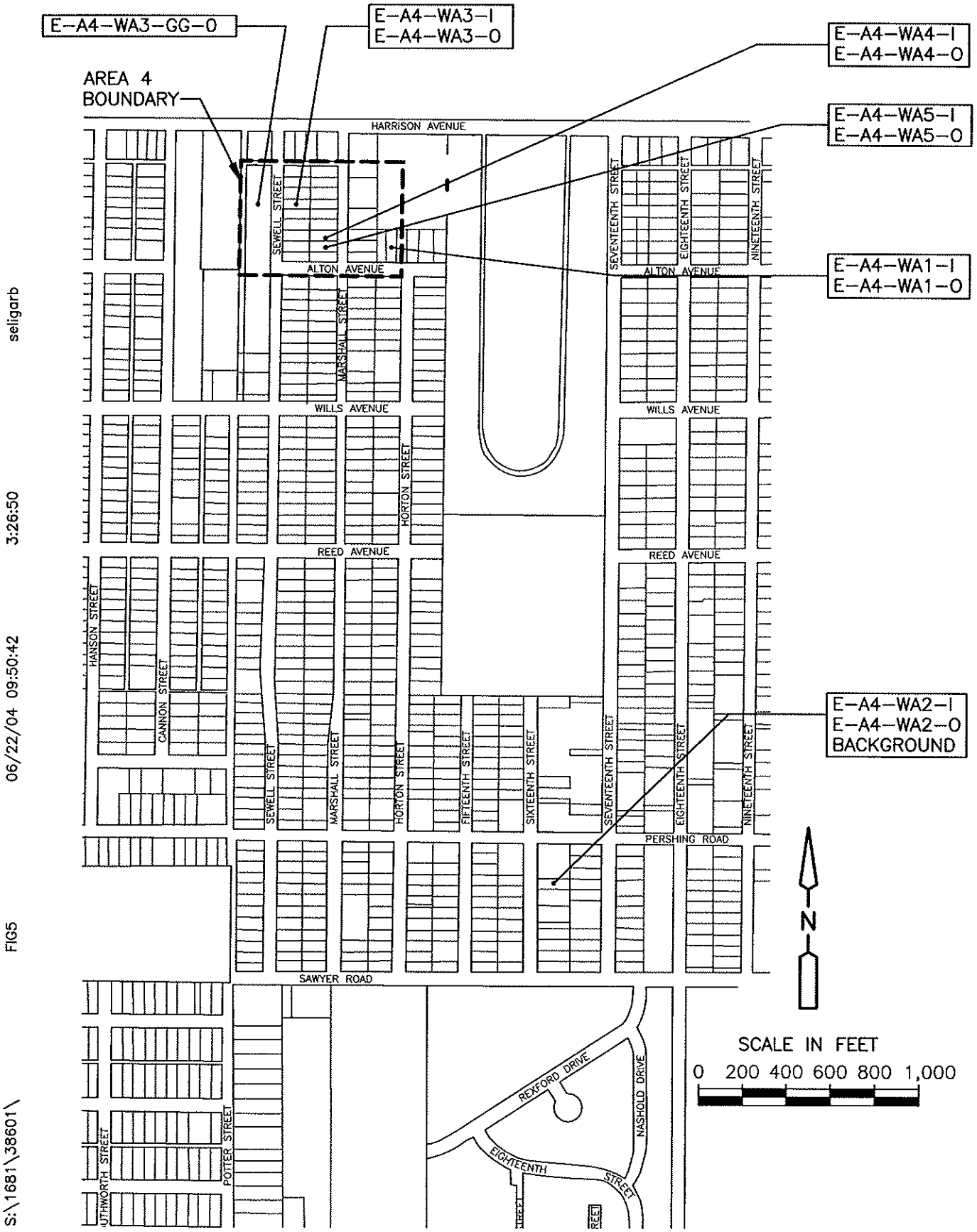
Figure 4

Southeast Rockford Indoor Air Sampling Study

AREA 7 SOIL / SOIL GAS / OUTDOOR AIR SAMPLING LOCATIONS

CDM

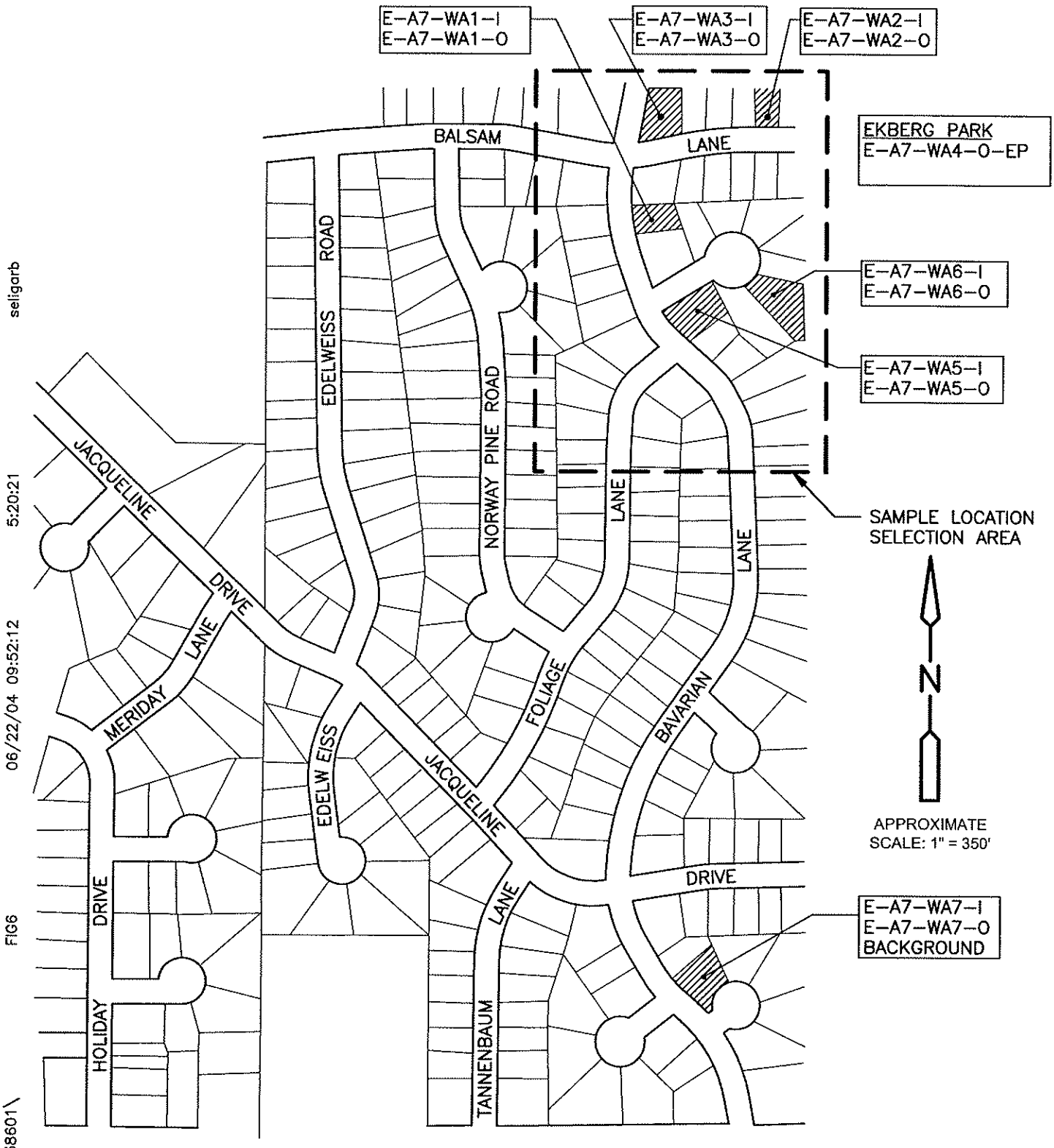
seligarb 4:07:44 06/22/04 09:55:07 FIG4 S:\1681\38601\



NOTE: ANALYTICAL RESULTS PROVIDED IN TABLES.

Figure 5
Southeast Rockford Indoor Air Sampling Study
AREA 4 AIR SAMPLING LOCATIONS

CDM



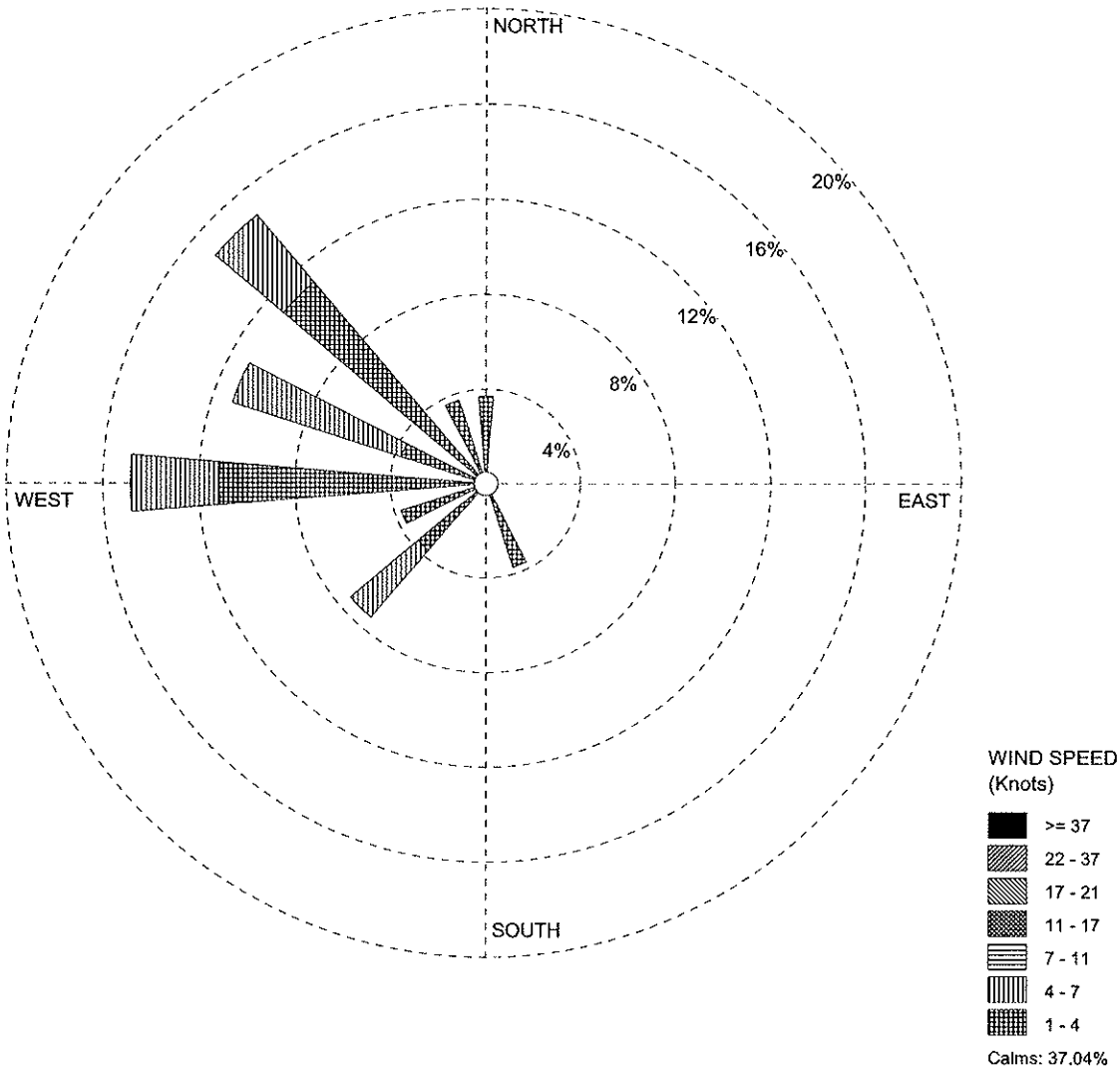
NOTE: ANALYTICAL RESULTS PROVIDED IN TABLES.

S:\1681\38601\ FIG6 06/22/04 09:52:12 5:20:21 seligarb

Figure 6
Southeast Rockford Indoor Air Sampling Study
AREA 7 AIR SAMPLING LOCATIONS

CDM

WIND ROSE PLOT:	DISPLAY:
Rockford, Illinois **Illinois EPA - SE Rockford Indoor Air Monitor**	**Wind Speed** **Direction (blowing from)**



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Data Obtained from: Midwestern Regional Climate Center c/o Illinois State Water Survey 2204 Griffith Drive Champaign, Illinois 61820-7495 Phone: (217) 244-8226 Fax: (217) 244-0220 email: mcc@sws.uiuc.edu URL: http://mrcc.sws.uiuc.edu	**2003** **Aug 5 - Aug 5** **00:00 - 23:00**	**CDM**	
		MODELER: **Vincent Tino**	CDM
	CALM WINDS: **37.04%**	TOTAL COUNT: **27 hrs.**	
	AVG. WIND SPEED: **4.30 Knots**	DATE: **12/9/2003**	PROJECT NO.: **1681-38601-PDN.DAT**

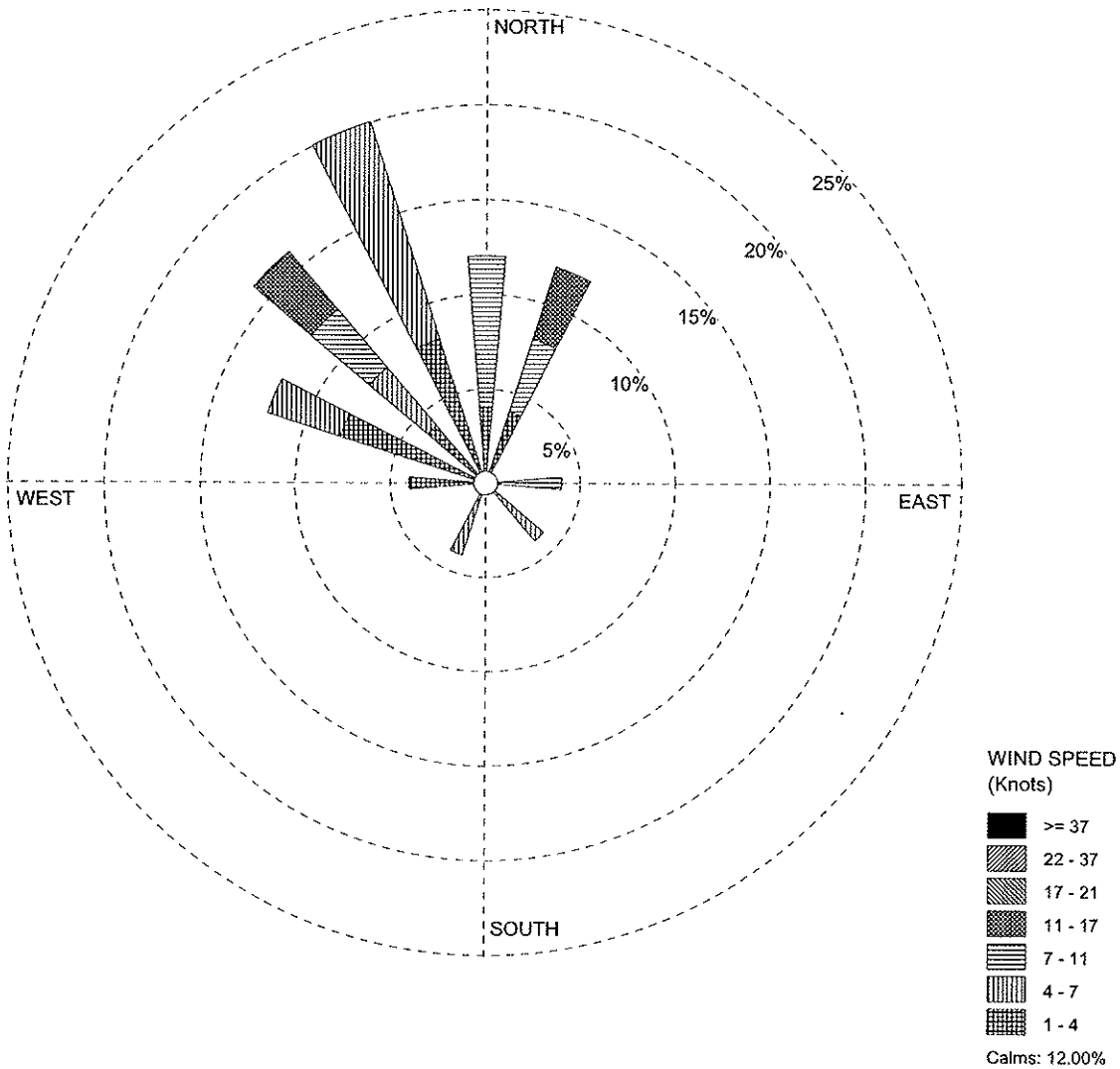
WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:

Rockford, Illinois
Illinois EPA - SE Rockford Indoor Air Monitor

DISPLAY:

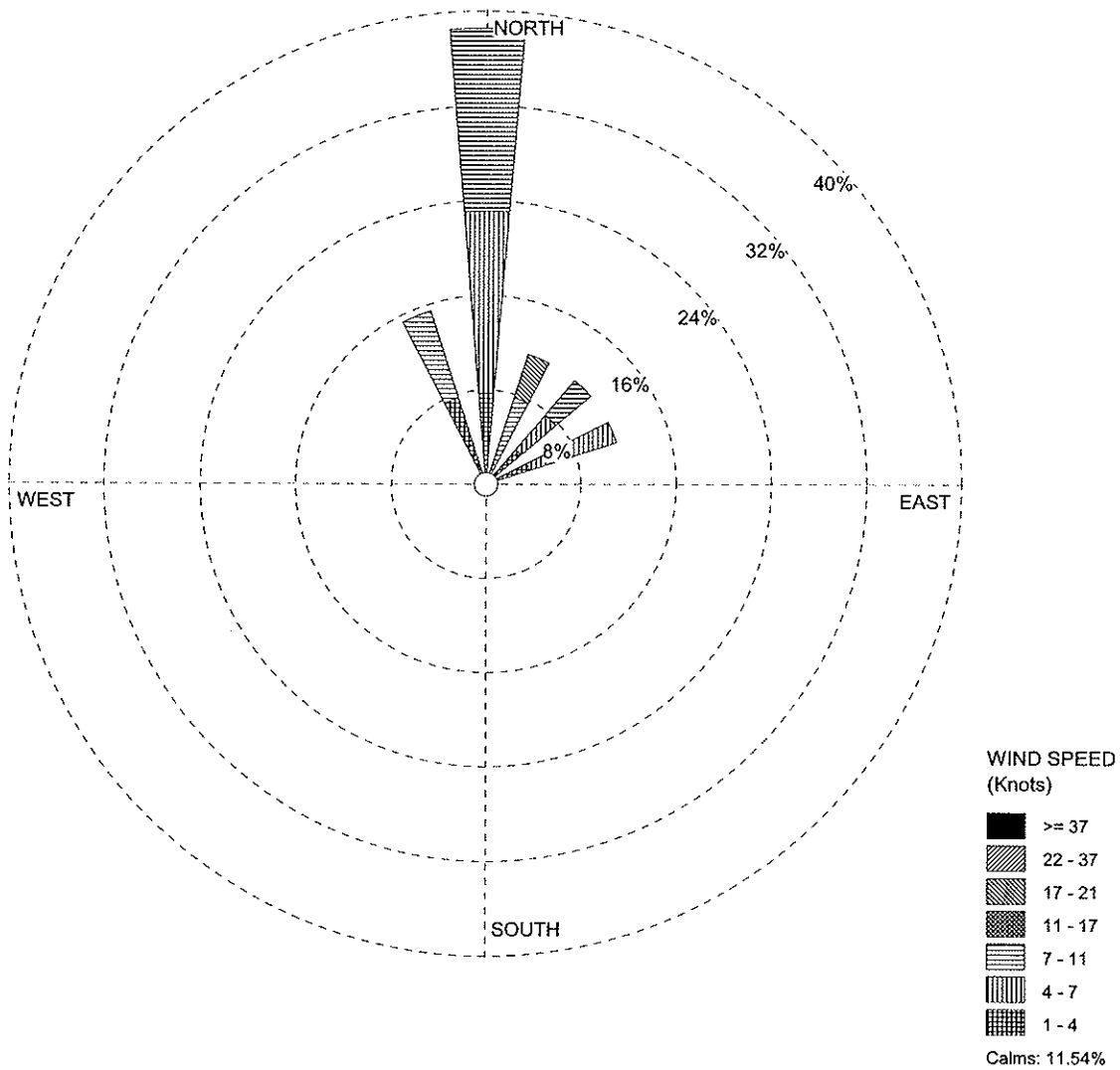
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Data Obtained from: Midwestern Regional Climate Center c/o Illinois State Water Survey 2204 Griffith Drive Champaign, Illinois 61820-7495 Phone: (217) 244-8226 Fax: (217) 244-0220 email: mcc@sws.uiuc.edu URL: http://mrcc.sws.uiuc.edu	**2003** **Aug 6 - Aug 6** **00:00 - 23:00**	**CDM**	
		MODELER: **Vincent Tino**	CDM
	CALM WINDS: **12.00%**	TOTAL COUNT: **25 hrs.**	
	AVG. WIND SPEED: **6.51 Knots**	DATE: **12/9/2003**	PROJECT NO.: **1681-38601-PDN.DAT**

WRPLOT View - Lakes Environmental Software

WIND ROSE PLOT:	DISPLAY:
Rockford, Illinois **Illinois EPA - SE Rockford Indoor Air Monitor**	**Wind Speed** **Direction (blowing from)**



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
Data Obtained from: Midwestern Regional Climate Center c/o Illinois State Water Survey 2204 Griffith Drive Champaign, Illinois 61820-7495 Phone: (217) 244-8226 Fax: (217) 244-0220 email: mcc@sws.uiuc.edu URL: http://mrcc.sws.uiuc.edu	**2003** **Aug 7 - Aug 7** **00:00 - 23:00**	**CDM**	
		MODELER: **Vincent Tino**	CDM
	CALM WINDS: **11.54%**	TOTAL COUNT: **26 hrs.**	
	AVG. WIND SPEED: **7.18 Knots**	DATE: **12/9/2003**	PROJECT NO.: **1681-38601-PDN.DAT**

WRPLOT View - Lakes Environmental Software

Table 1
Area 4 Sampling Locations, August 5 through 6, 2003
Southeast Rockford Indoor Air Sampling
Final

Indoor Sample ID	Outdoor Sample ID
E-A4-WA1-I	E-A4-WA1-O
E-A4-WA2-I	E-A4-WA2-O
E-A4-WA3-I	E-A4-WA3-O
Not Applicable	E-A4-WA3-GG-O
E-A4-WA4-I	E-A4-WA4-O
E-A4-WA5-I	E-A4-WA5-O
E-A4-WA5-I-D	E-A4-WA5-O-D

Table 2
Area 7 Sampling Locations, August 6 through 7, 2003
Southeast Rockford Indoor Air Sampling
Final

Indoor Sample ID	Outdoor Sample ID
E-A7-WA1-I	E-A7-WA1-O
E-A7-WA2-I	E-A7-WA2-O
E-A7-WA3-I	E-A7-WA3-O
Not Applicable	E-A7-WA4-O-EP
E-A7-WA5-I	E-A7-WA5-O
E-A7-WA5-I-D	E-A7-WA5-O-D
E-A7-WA6-I	E-A7-WA6-O
E-A7-WA7-I	E-A7-WA7-O

Table 3
Groundwater Analytical Results
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ug/L)	MW103		MW103D (dup)		MW105A		MW105B		MW106A		MW112A		MW130		MW134A		MW134B		MW136	
		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03	
		Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	14	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Chloromethane	6.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Vinyl Chloride	2	0.50	U	0.50	U	**6.3**		**13**		0.61		0.50	U	0.50	U	**240**		0.50	U	0.50	U
Bromomethane	20	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ
Chloroethane	28000	0.50	U	0.18	J	0.31	J	1.3		0.48	J	0.50	U	0.50	U	1700.00		0.50	U	0.50	U
Trichlorofluoromethane	180	0.78		1.9		0.50	U	0.50	U	1.5		0.50	U	0.32	J	0.50	U	0.50	U	0.50	U
1,1-Dichloroethene	190	40	U	75		0.50	U	0.50	U	**250**		0.50	U	0.50	U	2.3	J	0.50	U	0.50	U
1,1,2-Trichloro-1,2,2-trifluorethene	1500	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Acetone	220000	7.8	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	10	J	5	UJ	5.3	UJ	5.9	UJ	7.5	J
Carbon Disulfide	560	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Methyl Acetate	720000	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ
Methylene Chloride	58	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	1.2		0.50	U	0.50	U
trans-1,2-Dichloroethene	180	8.3		10		2.7		2.1		13		0.50	U	0.28	J	2.3		0.50	U	0.50	U
Methyl tert-Butyl Ether	120000	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.55	
1,1-Dichloroethane	2200	98		110		52		87		120		0.50	U	11		210		0.50	U	0.50	U
cis-1,2-Dichloroethene	210	**800**		**890**		87		77		**2500**		0.50	U	7.5		180		0.35	J	0.50	U
2-Butanone	440000	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	6.9		5	U	30		5.0	U	5.0	U
Bromochloromethane	NA	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Chloroform	80	3.0		3.4		0.50	U	0.50	U	1.2		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,1,1-Trichloroethane	3100	260		300		44		59		1,300		0.38	J	210		76		0.29	J	0.19	J
Cyclohexane	NA	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	2.3		0.50	U	0.50	U
Carbon Tetrachloride	5	39		46		4.6		6.3		200		0.50	U	32		0.50	U	0.50	U	0.50	U
Benzene	5	0.50	U	0.26	J	0.50	U	0.61		1.4		0.50	U	0.50	U	1.0		0.50	U	0.50	U
1,2-Dichloroethane	5	2.6		3.1		0.50	U	2.6		**6.0**		0.50	U	0.50	U	4.1		0.50	U	0.50	U
Trichloroethene	5	**79**		**93**		**9.0**		**17**		1.6		0.50	U	4		1.6		0.50	U	0.50	U
Methylcyclohexane	710	0.50	UJ	0.50	UJ	0.50	UJ	0.50	UJ	1.3	J	0.50	UJ	0.50	UJ	4.2	J	0.50	UJ	0.50	U
1,2-Dichloropropane	35	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromodichloromethane	21	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
cis-1,3-Dichloropropene	0.84	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
4-Methyl-2-pentanone	14000	5.0	UJ	5.0	U	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5	UJ	5.0	U	5.0	UJ	5.0	U
Toluene	1500	0.50	U	0.19	J	0.50	U	0.50	U	250		0.50	U	0.50	U	170		0.50	U	0.50	U
trans-1,3-Dichloropropene	0.84	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,1,2-Trichloroethane	5	2.0		2.5		0.55		0.28	J	0.50	U	0.50	U	0.39	J	0.50	U	0.50	U	0.50	U
Tetrachloroethene	5	**40**		**44**	J	1.7		**7.4**		**16**		0.50	U	0.90		4.4		0.50	U	0.50	U
2-Hexanone	NA	5.0	UJ	5.0	U	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	U	5.0	UJ	5.0	U
Dibromochloromethane	3.2	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.31	J	0.50	U	0.50	U	0.50	U	0.50	U
1,2-Dibromoethane	0.36	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Chlorobenzene	390	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Ethylbenzene	700	0.50	U	0.50	U	0.50	U	0.50	U	250		0.50	U	0.50	U	360		0.50	U	0.50	U
Xylenes (total)	26000	0.50	U	0.50	U	0.50	U	0.50	U	130		0.50	U	0.50	U	1,700		0.50	U	0.50	U
Styrene	8900	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromoform	0.0083	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Isopropylbenzene	8.4	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	63.00		0.50	U	0.50	U	8.8	
1,1,2,2-Tetrachloroethane	3	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,3-Dichlorobenzene	830	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,4-Dichlorobenzene	8200	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	1.2		0.50	U	0.50	U	0.24	J
1,2-Dichlorobenzene	2600	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	87.00		0.50	U	0.50	U	4.6	
1,2-Dibromo-3-chloropropane	33	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,2,4-Trichlorobenzene	3400	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
1,2,3-Trichlorobenzene	NA	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U

Notes: ug/L = Micrograms per Liter
U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Values in Boldface exceed the Potential Threshold of Concern

Table 4
Summary of Detected Soil Parameters
Southeast Rockford Indoor Air Sampling Study
Final

Analyte	Project Action Limit (ug/kg)	GS01C		GS02C		GS03C		GS03CD (dup)		GS04C		GS05C		GS06C		GS07C		GS08C		GS09C		GS10C		GS10CD (dup)	
		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/10/2003		07/11/2003		07/11/2003		07/11/2003	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
DICHLORODIFLUOROMETHANE	NA	10	UJ	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CHLOROMETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
VINYL CHLORIDE	280	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
BROMOMETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CHLOROETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
TRICHLOROFLUOROMETHANE	NA	10	U	11	U	1	J	11	U	1	J	11	U	1	J	11	U	11	U	2	J	2	J	11	U
1,1-DICHLOROETHENE	1,500,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
ACETONE	100,000,000	6	J	7	J	7	J	8	J	5	J	6	J	6	J	11	UJ	5	J	11	UJ	11	UJ	6	J
CARBON DISULFIDE	720,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
METHYL ACETATE	NA	10	UJ	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
METHYLENE CHLORIDE	13,000	21	UJ	27	UJ	28	UJ	32	UJ	26	UJ	27	UJ	28	UJ	27	UJ	24	UJ	50	UJ	48	UJ	28	UJ
TRANS-1,2-DICHLOROETHENE	3,100,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
METHYL TERT-BUTYL ETHER	8,800,00	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,1-DICHLOROETHANE	1,300,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CIS-1,2-DICHLOROETHENE	1,200,000	10	U	1	J	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
2-BUTANONE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CHLOROFORM	300	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,1,1-TRICHLOROETHANE	1,200,000	10	U	1	J	12	U	11	U	10	U	11	U	11	U	18		12		11	U	11	U	11	U
CYCLOHEXANE	NA	10	UJ	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	UJ	11	U	11	U	11	UJ
CARBON TETRACHLORIDE	300	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
BENZENE	800	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,2-DICHLOROETHANE	400	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
TRICHLOROETHENE	5,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
METHYLCYCLOHEXANE	NA	10	UJ	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	UJ	11	U	11	U	11	UJ
1,2-DICHLOROPROPANE	15,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
BROMODICHLOROMETHANE	3,000,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CIS-1,3-DICHLOROPROPENE	1,100	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
4-METHYL-2-PENTANONE	NA	10	UJ	11	UJ	12	UJ	11	UJ	10	UJ	11	UJ	11	UJ	11	U	11	UJ	11	U	11	U	11	UJ
TOLUENE	650,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
TRANS-1,3-DICHLOROPROPENE	1,100	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,1,2-TRICHLOROETHANE	1,800,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
TETRACHLOROETHENE	11,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
2-HEXANONE	NA	10	UJ	11	UJ	12	UJ	11	UJ	10	UJ	11	UJ	11	UJ	11	U	11	UJ	11	U	11	U	11	UJ
DIBROMOCHLOROMETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,2-DIBROMOETHANE	170	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
CHLOROBENZENE	130,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
ETHYLBENZENE	400,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
XYLENES (TOTAL)	320,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
STYRENE	1,500,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
BROMOFORM	53,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
ISOPROPYLBENZENE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,1,2,2-TETRACHLOROETHANE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,3-DICHLOROBENZENE	NA	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,4-DICHLOROBENZENE	11,000,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,2-DICHLOROBENZENE	560,000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	U	11	U	11	U	11	U
1,2-DIBROMO-3-CHLOROPROPANE	11,000	10	R	11	R	12	R	11	R	10	R	11	R	11	R	11	R	11	R	11	R	11	R	11	R
1,2,4-TRICHLOROBENZENE	32000	10	U	11	U	12	U	11	U	10	U	11	U	11	U	11	U	11	UJ	11	U	11	U	11	UJ

Notes: ug/kg = micrograms per kilogram
U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Values in bold/italics- Analyte was not detected, but the detection limit is greater than the Project Action Limit for that compound.

Table 4
Summary of Detected Soil Parameters
Southeast Rockford Indoor Air Sampling Study
Final

Analyte	Project Action Limit (ug/kg)	GS11C		GS12C		GS13C		GS14C		GS15C		GS16C		GS17C		GS18C		GS19C		GS20C		GS20CD		GS22C	
		07/11/2003		07/11/2003		07/11/2003		07/11/2003		07/11/2003		07/07/2003		07/07/2003		07/08/2003		07/08/2003		07/08/2003		07/08/2003		07/08/2003	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
DICHLORODIFLUOROMETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CHLOROMETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
VINYL CHLORIDE	280	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
BROMOMETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CHLOROETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
TRICHLOROFLUOROMETHANE	NA	2	J	10	U	11	U	2	J	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1-DICHLOROETHENE	1,500,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
ACETONE	100,000,000	11	UJ	4	J	5	J	11	UJ	5	J	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CARBON DISULFIDE	720,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
METHYL ACETATE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
METHYLENE CHLORIDE	13,000	45	UJ	25	UJ	26	UJ	47	UJ	24	UJ	35	UJ	37	UJ	34	UJ	26	UJ	34	UJ	36	UJ	32	UJ
TRANS-1,2-DICHLOROETHENE	3,100,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
METHYL TERT-BUTYL ETHER	8,800,00	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1-DICHLOROETHANE	1,300,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CIS-1,2-DICHLOROETHENE	1,200,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
2-BUTANONE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CHLOROFORM	300	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1,1-TRICHLOROETHANE	1,200,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CYCLOHEXANE	NA	11	U	10	UJ	11	UJ	11	U	11	UJ	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CARBON TETRACHLORIDE	300	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
BENZENE	800	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2-DICHLOROETHANE	400	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
TRICHLOROETHENE	5,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
METHYLCYCLOHEXANE	NA	11	U	10	UJ	11	UJ	11	U	11	UJ	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2-DICHLOROPROPANE	15,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
BROMODICHLOROMETHANE	3,000,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CIS-1,3-DICHLOROPROPENE	1,100	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
4-METHYL-2-PENTANONE	NA	11	U	10	UJ	11	UJ	11	U	11	UJ	10	U	10	U	11	U	10	U	11	U	11	U	10	U
TOLUENE	650,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
TRANS-1,3-DICHLOROPROPENE	1,100	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1,2-TRICHLOROETHANE	1,800,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
TETRACHLOROETHENE	11,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
2-HEXANONE	NA	11	U	10	UJ	11	UJ	11	U	11	UJ	10	U	10	U	11	U	10	U	11	U	11	U	10	U
DIBROMOCHLOROMETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2-DIBROMOETHANE	170	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
CHLOROBENZENE	130,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
ETHYLBENZENE	400,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
XYLENES (TOTAL)	320,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
STYRENE	1,500,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
BROMOFORM	53,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
ISOPROPYLBENZENE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,1,2,2-TETRACHLOROETHANE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,3-DICHLOROBENZENE	NA	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,4-DICHLOROBENZENE	11,000,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2-DICHLOROBENZENE	560,000	11	U	10	U	11	U	11	U	11	U	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2-DIBROMO-3-CHLOROPROPANE	11,000	11	R	10	R	11	R	11	R	11	R	10	U	10	U	11	U	10	U	11	U	11	U	10	U
1,2,4-TRICHLOROBENZENE	32000	11	U	10	UJ	11	UJ	11	U	11	UJ	10	U	10	U	11	U	10	U	11	U	11	U	10	U

Notes: ug/kg = micrograms per kilogram
U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
Values in bold/italics- Analyte was not detected, but the detection limit is greater than the Project Action Limit for that compound.

Table 4
Summary of Detected Soil Parameters
Southeast Rockford Indoor Air Sampling Study
Final

Analyte	Project Action Limit (ug/kg)	GS21C		GS23C		GS24C		GS25C		GS26C		GS27C		GS28C		GS29C		GS30C		GS36C		GS48C		GS49C	
		07/08/2003		07/08/2003		07/08/2003		07/09/2003		07/09/2003		07/09/2003		07/09/2003		07/09/2003		07/09/2003		07/09/2003		07/08/2003		07/09/2003	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
DICHLORODIFLUOROMETHANE	NA	10	U	10	U	10	U	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
CHLOROMETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
VINYL CHLORIDE	280	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	***1300***	U	10	U	10	U
BROMOMETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
CHLOROETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
TRICHLOROFLUOROMETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,1-DICHLOROETHENE	1,500,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
ACETONE	100,000,000	10	U	10	U	10	U	6	J	6	J	7	J	6	J	9	J	6	J	1300	U	10	U	6	J
CARBON DISULFIDE	720,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
METHYL ACETATE	NA	10	U	10	U	10	U	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
METHYLENE CHLORIDE	13,000	30	UJ	22	UJ	25	UJ	23	UJ	21	UJ	24	UJ	26	UJ	31	UJ	22	UJ	1300	U	32	UJ	23	UJ
TRANS-1,2-DICHLOROETHENE	3,100,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
METHYL TERT-BUTYL ETHER	8,800,00	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,1-DICHLOROETHANE	1,300,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
CIS-1,2-DICHLOROETHENE	1,200,000	10	U	10	U	10	U	10	U	10	U	2	J	11	U	13	U	10	U	120	J	10	U	10	U
2-BUTANONE	NA	10	U	10	UJ	10	UJ	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
CHLOROFORM	300	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	***1300***	U	10	U	10	U
1,1,1-TRICHLOROETHANE	1,200,000	10	U	10	U	10	U	10	U	10	U	6	J	11	U	13	U	10	U	160	J	10	U	10	U
CYCLOHEXANE	NA	10	U	10	U	10	U	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
CARBON TETRACHLORIDE	300	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
BENZENE	800	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	***1300***	U	10	U	10	U
1,2-DICHLOROETHANE	400	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	***1300***	U	10	U	10	U
TRICHLOROETHENE	5,000	10	U	10	U	10	U	10	U	10	U	2	J	11	U	13	U	10	U	1300	U	10	U	10	U
METHYLCYCLOHEXANE	NA	10	U	10	U	10	U	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
1,2-DICHLOROPROPANE	15,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
BROMODICHLOROMETHANE	3,000,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
CIS-1,3-DICHLOROPROPENE	1,100	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
4-METHYL-2-PENTANONE	NA	10	U	10	U	10	U	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
TOLUENE	650,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
TRANS-1,3-DICHLOROPROPENE	1,100	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,1,2-TRICHLOROETHANE	1,800,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
TETRACHLOROETHENE	11,000	10	U	10	U	10	U	10	U	10	U	4	J	11	U	13	U	10	U	130	J	10	U	10	U
2-HEXANONE	NA	10	U	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	11	UJ	13	UJ	10	UJ	1300	U	10	U	10	UJ
DIBROMOCHLOROMETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,2-DIBROMOETHANE	170	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
CHLOROBENZENE	130,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
ETHYLBENZENE	400,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
XYLENES (TOTAL)	320,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
STYRENE	1,500,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
BROMOFORM	53,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
ISOPROPYLBENZENE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,1,2,2-TETRACHLOROETHANE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,3-DICHLOROBENZENE	NA	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,4-DICHLOROBENZENE	11,000,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,2-DICHLOROBENZENE	560,000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U
1,2-DIBROMO-3-CHLOROPROPANE	11,000	10	U	10	U	10	U	10	R	10	R	10	R	11	R	13	R	10	R	1300	U	10	U	10	R
1,2,4-TRICHLOROBENZENE	32000	10	U	10	U	10	U	10	U	10	U	10	U	11	U	13	U	10	U	1300	U	10	U	10	U

Notes: ug/kg = micrograms per kilogram

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Values in bold/italics- Analyte was not detected, but the detection limit is greater than the Project Action Limit for that compound.

Table 5
Soil Gas Analytical Data
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	Area 4																									
		SG-01 10-11'		SG-02 11-12'		SG-03 11-12'		SG-04 11-12'		SG-05 11-12'		SG-06 11-12'		SG-07 11-12'		SG-08 11-12'		SG-09 11-12'		SG-10 11-12'		SG-11 11-12'		SG-12 11-12'		SG-13 11-12'	
		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		10-Jul-03		11-Jul-03		11-Jul-03		11-Jul-03		11-Jul-03		11-Jul-03	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
Vinyl Chloride	1.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethene	500	BDL		99		BDL		BDL		BDL		BDL		4,200		5,600		310		BDL		BDL		BDL		BDL	
trans- 1,2 - Dichloroethene	180	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethane	1200	BDL		150		BDL		BDL		BDL		BDL		4,400		5,600		90		BDL		BDL		BDL		BDL	
cis - 1,2 - Dichloroethene	88	BDL		BDL		BDL		BDL		BDL		BDL		210		560		BDL		BDL		BDL		BDL		BDL	
Chloroform	0.22	BDL		BDL		BDL		BDL		BDL		BDL		42		BDL		BDL		BDL		BDL		BDL		BDL	
1,1,1 - Trichloroethane	4000	980		12,000		4,500		BDL		BDL		350		100,000	E	180,000	E	13,000	E	660		BDL		290		150	
Benzene	0.98	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,2 - Dichloroethane	0.23	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Trichloroethene	0.041	BDL		BDL		BDL		BDL		BDL		BDL		860		1,900		84		BDL		BDL		71		57	
Toluene	1100	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		57		BDL		57	
Tetrachloroethene	1.2	BDL		BDL		BDL		BDL		BDL		BDL		BDL		64		BDL		BDL		BDL		110		38	
Ethylbenzene	5.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Xylenes	16000	31	J	34	J	BDL		31	J	30	J	30	J	32	J	30	J	25	J	48		59		57		57	

Notes:

BDL = Below detection limit

J = Value is estimated between the method detection limit and the quantitation limit

E = Concentration exceeded the instruments calibration range

Highlighted/Circled Values exceed Project Action Limit

Table 5
Soil Gas Analytical Data
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	Area 4				Area 7																					
		SG-14 11-12'		SG-15 11-12'		SG-16 11-12'		SG-17 11-12'		SG-18 11-12'		SG-19 11-12'		SG-20 11-12'		SG-21 11-12'		SG-22 11-12'		SG-23 11-12'		SG-24 11-12'		SG-25 11-12'		SG-26 11-12'	
		11-Jul-03		11-Jul-03		7-Jul-03		7-Jul-03		8-Jul-03		8-Jul-03		8-Jul-03		8-Jul-03		8-Jul-03		8-Jul-03		8-Jul-03		9-Jul-03		9-Jul-03	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
Vinyl Chloride	1.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethene	500	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
trans- 1,2 - Dichloroethene	180	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethane	1200	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
cis - 1,2 - Dichloroethene	88	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Chloroform	0.22	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1,1 - Trichloroethane	4000	BDL		BDL		BDL		BDL		BDL		BDL		41		BDL		BDL		BDL		BDL		BDL		BDL	
Benzene	0.98	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,2 - Dichloroethane	0.23	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Trichloroethene	0.041	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Toluene	1100	BDL		55		BDL		BDL		BDL		BDL		BDL		BDL		100		130		BDL		BDL		BDL	
Tetrachloroethene	1.2	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Ethylbenzene	5.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Xylenes	16000	45		93		BDL		BDL		BDL		BDL		BDL		29	J	43	J	57		BDL		37	J	32	J

Notes:

BDL = Below detection limit

J = Value is estimated between the method detection limit and the quantitation limit

E = Concentration exceeded the instruments calibration range

Highlighted/Circled Values exceed Project Action Limit

Table 5
Soil Gas Analytical Data
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	Area 7																									
		SG-27 11-12'		SG-27-2 11-12'		SG-28 11-12'		SG-29 11-12'		SG-30 11-12'		SG-31 11-12'		SG-32 11-12'		SG-33 11-12'		SG-34 11-12'		SG-35 11-12'		SG-36 11-12'		SG-37 11-12'		SG-38 11-12'	
		9-Jul-03		11-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		9-Jul-03		7-Jul-03		7-Jul-03		7-Jul-03	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
Vinyl Chloride	1.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethene	500	3,300		1,700		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		1,400		BDL		BDL	
trans- 1,2 - Dichloroethene	180	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1 - Dichloroethane	1200	1,600		620		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		730		BDL		BDL	
cis - 1,2 - Dichloroethene	88	5,500		1,800		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		2,200		BDL		BDL	
Chloroform	0.22	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,1,1 - Trichloroethane	4000	26,000		13,000		160		BDL		BDL		BDL		BDL		BDL		BDL		BDL		19,000		BDL		BDL	
Benzene	0.98	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
1,2 - Dichloroethane	0.23	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Trichloroethene	0.041	3,000		1,200		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		1,200		BDL		BDL	
Toluene	1100	BDL		BDL		52		BDL		BDL		BDL		BDL		70		BDL		BDL		BDL		BDL		BDL	
Tetrachloroethene	1.2	1,800		710		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		1,300		BDL		BDL	
Ethylbenzene	5.1	BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL		BDL	
Xylenes	16000	BDL		39		33	J	25	J	28	J	25	J	24	J	47		30	J	31	J	BDL		BDL		BDL	

Notes:

BDL = Below detection limit

J = Value is estimated between the method detection limit and the quantitation limit

E = Concentration exceeded the instruments calibration range

Highlighted/Circled Values exceed Project Action Limit

Table 5
Soil Gas Analytical Data
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	Area 7										Area 4 Confirmatory Sampling													
		SG-39 11-12'		SG-40 11-12'		SG-41 11-12'		SG-48 11-12'		SG-49 11-12'		SG-101 11-12'		SG-102 11-12'		SG-102 11-12' (rerun)		SG-103 11-12'		SG-103 11-12' (rerun)		SG-104 11-12'		SG-105 11-12'	
		7-Jul-03		7-Jul-03		7-Jul-03		8-Jul-03		9-Jul-03		5-Aug-03		5-Aug-03		5-Aug-03		5-Aug-03		5-Aug-03		5-Aug-03		5-Aug-03	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
Vinyl Chloride	1.1	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
1,1 - Dichloroethene	500	BDL		BDL		BDL		BDL		BDL		ND		1,600		ND		290		ND		ND		ND	
trans- 1,2 - Dichloroethene	180	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
1,1 - Dichloroethane	1200	BDL		BDL		BDL		BDL		BDL		ND		390		ND		250		ND		ND		ND	
cis - 1,2 - Dichloroethene	88	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
Chloroform	0.22	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
1,1,1 - Trichloroethane	4000	BDL		BDL		BDL		BDL		BDL		1900		24,000	E	26,000		7,800	E	5,600		40		ND	
Benzene	0.98	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
1,2 - Dichloroethane	0.23	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	0.041	BDL		BDL		BDL		BDL		BDL		ND		170		ND		46		ND		ND		ND	
Toluene	1100	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene	1.2	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	5.1	BDL		BDL		BDL		BDL		BDL		ND		ND		ND		ND		ND		ND		ND	
Xylenes	16000	BDL		BDL		BDL		31	J	BDL		ND		ND		ND		ND		ND		ND		ND	

Notes:

BDL = Below detection limit

J = Value is estimated between the method detection limit and the quantitation limit

E = Concentration exceeded the instruments calibration range

Highlighted/Circled Values exceed Project Action Limit

Table 5
Soil Gas Analytical Data
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	Area 7 Confirmatory Sampling																	
		SG-106 11-12'		SG-107 11-12'		SG-108 11-12'		SG-109 11-12'		SG-110 11-12'		SG-111 11-12'		SG-112 11-12'		SG-113 11-12'		SG-114 11-12'	
		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03		6-Aug-03	
		Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag	Results	Flag
Vinyl Chloride	1.1	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1 - Dichloroethene	500	ND		ND		ND		ND		ND		ND		ND		ND		ND	
trans- 1,2 - Dichloroethene	180	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1 - Dichloroethane	1200	ND		ND		ND		ND		ND		ND		ND		ND		ND	
cis - 1,2 - Dichloroethene	88	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Chloroform	0.22	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,1,1 - Trichloroethane	4000	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Benzene	0.98	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,2 - Dichloroethane	0.23	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Trichloroethene	0.041	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Toluene	1100	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Tetrachloroethene	1.2	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Ethylbenzene	5.1	ND		ND		ND		ND		ND		ND		ND		ND		ND	
Xylenes	16000	ND		ND		ND		ND		ND		ND		ND		ND		ND	

Notes:

BDL = Below detection limit

J = Value is estimated between the method detection limit and the quantitation limit

E = Concentration exceeded the instruments calibration range

Highlighted/Circled Values exceed Project Action Limit

Table 6
Air Results
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	E-A4-WA1-O 6-Aug-03			E-A4-WA1-I 6-Aug-03			E-A4-WA2-O 6-Aug-03			E-A4-WA2-I 6-Aug-03			E-A4-WA3-O 6-Aug-03			E-A4-WA3-I 6-Aug-03		
		Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL
Vinyl Chloride	0.11		ND	0.018		ND	0.020		ND	0.019		ND	0.021		ND	0.016		ND	0.014
1,1-Dichloroethene	50		ND	0.018	0.069		0.020		ND	0.019	0.047		0.021		ND	0.016	0.026		0.014
1,1-Dichloroethane	120		ND	0.036		ND	0.040		ND	0.038	0.31		0.041		ND	0.032	0.074		0.027
cis-1,2-Dichloroethene	8.8		ND	0.036		ND	0.040		ND	0.038	0.17		0.041		ND	0.032	0.055		0.027
1,1,1-Trichloroethane	400	0.066		0.036	3.6		0.040		ND	0.038	0.11		0.041		ND	0.032	0.24		0.027
Benzene	0.098	**0.40**		0.09	**0.92**		**0.10**	**0.34**		0.096	**1.8**		**0.10**	**0.34**		0.080	**1.9**		0.068
1,2-Dichloroethane	0.023		ND	**0.036**	**0.045**		**0.040**		ND	**0.038**	**1.9**		**0.041**		ND	**0.032**		ND	**0.027**
Trichloroethene	0.0041		ND	**0.036**	**0.051**		**0.040**		ND	**0.038**	**0.052**		**0.041**	**0.032**		**0.032**	**0.062**		**0.027**
Toluene	110	0.95		0.036	7.9		0.040	0.84		0.038	10		0.041	0.89		0.032	5.9		0.027
1,1,2-Trichloroethane	0.028		ND	**0.036**		ND	**0.040**		ND	**0.038**		ND	**0.041**		ND	**0.032**		ND	0.027
Tetrachloroethene	0.12	0.060		0.036	**0.17**		0.040		ND	0.038	**0.48**		0.041	0.12		0.032	**0.37**		0.027
Ethyl Benzene	0.51	0.12		0.036	**1.1**		0.040	0.10		0.038	**0.85**		0.041	0.10		0.032	**0.67**		0.027
m,p-Xylene	1600	0.35		0.072	3.2		0.080	0.32		0.076	2.2		0.082	0.30		0.064	2.6		0.054
o-Xylene	1600	0.13		0.036	0.98		0.040	0.11		0.038	0.63		0.041	0.10		0.032	0.85		0.027
Total Xylene	1600	0.48		0.108	4.180		0.120	0.430		0.114	2.830		0.123	0.400		0.096	3.450		0.081
1,1,2,2-Tetrachloroethane	0.0061		ND	**0.036**		ND	**0.040**		ND	**0.038**		ND	**0.041**		ND	**0.032**		ND	**0.027**
trans-1,2-Dichloroethene	18		ND	0.18		ND	0.20		ND	0.19		ND	0.21		ND	0.16		ND	0.14
Methyl tert-butyl ether	830		ND	0.18		ND	0.20		ND	0.19		ND	0.21		ND	0.16		ND	0.14

Notes:

Results in parts per billion by volume (ppbv)

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

RL = Reporting Limit (quantitation limit)

Highlighted results/detection limits exceed the Project Action Limit

Table 6
Air Results
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	E-A4-WA3-GG-O 6-Aug-03			E-A4-WA4-I 6-Aug-03			E-A4-WA4-O 6-Aug-03			E-A4-WA4-O Duplicate 6-Aug-03			E-A4-WA5-O 6-Aug-03			E-A4-WA5-O-D 6-Aug-03		
		Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL
Vinyl Chloride	0.11		ND	0.021		ND	0.059		ND	0.020		ND	0.020		ND	0.014		ND	0.021
1,1-Dichloroethene	50		ND	0.021	2.3		0.059		ND	0.020		ND	0.020		ND	0.014		ND	0.021
1,1-Dichloroethane	120		ND	0.041	1.3		0.12		ND	0.040		ND	0.040		ND	0.028		ND	0.041
cis-1,2-Dichloroethene	8.8		ND	0.041		ND	0.12		ND	0.040		ND	0.040		ND	0.028		ND	0.041
1,1,1-Trichloroethane	400		ND	0.041	81		0.12	0.052		0.040	0.050		0.040	0.083		0.028	0.097		0.041
Benzene	0.098	**0.37**		**0.10**	**0.63**		**0.30**	**1.1**		**0.10**	**1.1**		**0.10**	**0.28**		0.070	**0.34**		0.10
1,2-Dichloroethane	0.023		ND	**0.041**		ND	**0.12**		ND	**0.040**		ND	**0.040**		ND	**0.028**		ND	**0.041**
Trichloroethene	0.0041	**0.045**		**0.041**	**0.68**		**0.12**	**0.052**		**0.040**	**0.046**		**0.040**	**0.029**		**0.028**		ND	**0.041**
Toluene	110	0.90		0.041	1.6		0.12	1.4		0.040	1.4		0.040	0.78		0.028	0.88		0.041
1,1,2-Trichloroethane	0.028		ND	**0.041**		ND	**0.12**		ND	**0.040**		ND	**0.040**		ND	0.028		ND	**0.041**
Tetrachloroethene	0.12	**0.15**		0.041	**0.18**		0.12	0.11		0.040	0.10		0.040	0.078		0.028	0.095		0.041
Ethyl Benzene	0.51	0.10		0.041	0.18		0.12	0.16		0.040	0.14		0.040	0.083		0.028	0.10		0.041
m,p-Xylene	1600	0.32		0.082	0.44		0.24	0.51		0.080	0.47		0.080	0.24		0.056	0.29		0.082
o-Xylene	1600	0.11		0.041	0.15		0.12	0.20		0.040	0.16		0.040	0.094		0.028	0.10		0.041
Total Xylene	1600	0.430		0.123	0.590		0.360	0.710		0.120	0.630		0.120	0.334		0.084	0.390		0.123
1,1,2,2-Tetrachloroethane	0.0061		ND	**0.041**		ND	**0.12**		ND	**0.040**		ND	**0.040**		ND	**0.028**		ND	**0.041**
trans-1,2-Dichloroethene	18		ND	0.21		ND	0.59		ND	0.20		ND	0.20		ND	0.14		ND	0.21
Methyl tert-butyl ether	830		ND	0.21		ND	0.59		ND	0.20		ND	0.20		ND	0.14		ND	0.21

Notes:

Results in parts per billion by volume (ppbv)

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

RL = Reporting Limit (quantitation limit)

Highlighted results/detection limits exceed the Project Action Limit

Table 6
Air Results
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	E-A4-WA5-I 6-Aug-03			E-A4-WA5-I-D 6-Aug-03			E-A7-WA1-I 7-Aug-03			E-A7-WA1-O 7-Aug-03			E-A7-WA2-O 7-Aug-03			E-A7-WA2-I 7-Aug-03		
		Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL
Vinyl Chloride	0.11		ND	0.020		ND	0.017		ND	0.018		ND	0.019		ND	0.018		ND	0.018
1,1-Dichloroethene	50	0.21		0.020	0.13		0.017		ND	0.018		ND	0.019		ND	0.018		ND	0.018
1,1-Dichloroethane	120	0.14		0.039	0.13		0.034		ND	0.036		ND	0.038		ND	0.037		ND	0.037
cis-1,2-Dichloroethene	8.8		ND	0.039		ND	0.034		ND	0.036		ND	0.038		ND	0.037		ND	0.037
1,1,1-Trichloroethane	400	8.1		0.039	8.0		0.034	0.043		0.036	0.040		0.038	0.045		0.037	0.051		0.037
Benzene	0.098	**0.50**		0.098	**0.48**		0.086	**4.0**		0.090	**0.29**		0.096	**0.23**		0.092	**5.9**		0.092
1,2-Dichloroethane	0.023		ND	**0.039**		ND	**0.034**	**0.11**		**0.036**		ND	**0.038**		ND	**0.037**		ND	**0.037**
Trichloroethene	0.0041	**0.095**		**0.039**	**0.094**		**0.034**		ND	**0.036**		ND	**0.038**		ND	**0.037**		ND	**0.037**
Toluene	110	1.7		0.039	1.6		0.034	10		0.036	0.74		0.038	0.50		0.037	5.4		0.037
1,1,2-Trichloroethane	0.028		ND	**0.039**		ND	**0.034**		ND	**0.036**		ND	**0.038**		ND	**0.037**		ND	**0.037**
Tetrachloroethene	0.12	**0.13**		0.039	**0.13**		0.034	0.060		0.036		ND	0.038		ND	0.037	0.071		0.037
Ethyl Benzene	0.51	0.19		0.039	0.19		0.034	**3.0**		0.036	0.072		0.038	0.083		0.037	0.33		0.037
m,p-Xylene	1600	0.43		0.078	0.43		0.068	14		0.072	0.20		0.076	0.25		0.073	0.91		0.073
o-Xylene	1600	0.15		0.039	0.14		0.034	1.7		0.036	0.070		0.038	0.070		0.037	0.25		0.037
Total Xylene	1600	0.580		0.117	0.570		0.102	15.700		0.108	0.270		0.114	0.320		0.110	1.160		0.110
1,1,2,2-Tetrachloroethane	0.0061		ND	**0.039**		ND	**0.034**		ND	**0.036**		ND	**0.038**		ND	**0.037**		ND	**0.037**
trans-1,2-Dichloroethene	18		ND	0.20		ND	0.17		ND	0.18		ND	0.19		ND	0.18		ND	0.18
Methyl tert-butyl ether	830		ND	0.20		ND	0.17		ND	0.18		ND	0.19		ND	0.18		ND	0.18

Notes:

Results in parts per billion by volume (ppbv)

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

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UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

RL = Reporting Limit (quantitation limit)

Highlighted results/detection limits exceed the Project Action Limit

Analyte	Potential Threshold of Concern (ppbv)	E-A7-WA3-O 7-Aug-03			E-A7-WA3-I 7-Aug-03			E-A7-WA4-O-EP 7-Aug-03			E-A7-WA5-I 7-Aug-03			E-A7-WA5-I Duplicate 7-Aug-03			E-A7-WA5-I-D 7-Aug-03		
		Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL
Vinyl Chloride	0.11		ND	0.021		ND	0.019		ND	0.019		ND	0.018		ND	0.018		ND	0.019
1,1-Dichloroethene	50		ND	0.021	0.047		0.019	0.019	J	0.019	0.019		0.018		ND	0.018		ND	0.019
1,1-Dichloroethane	120		ND	0.041		ND	0.038		ND	0.038		ND	0.036		ND	0.036		ND	0.038
cis-1,2-Dichloroethene	8.8		ND	0.041		ND	0.038	0.046		0.038		ND	0.036		ND	0.036		ND	0.038
1,1,1-Trichloroethane	400	0.045		0.041	1.7		0.038	0.69		0.038	0.39		0.036	0.36		0.036	0.37		0.038
Benzene	0.098	**0.24**		**0.10**	**0.43**		0.096	**0.23**		0.096	**2.3**		0.090	**2.0**		0.090	**2.1**		0.096
1,2-Dichloroethane	0.023		ND	**0.041**		ND	**0.038**		ND	**0.038**	**0.069**		**0.036**	**0.060**		**0.036**	**0.063**		**0.038**
Trichloroethene	0.0041		ND	**0.041**		ND	**0.038**		ND	**0.038**	**0.036**	J	**0.036**		ND	**0.036**		ND	**0.038**
Toluene	110	0.56		0.041	9.8		0.038	0.46		0.038	7.1		0.036	6.4		0.036	6.5		0.038
1,1,2-Trichloroethane	0.028		ND	**0.041**		ND	**0.038**		ND	**0.038**		ND	**0.036**		ND	**0.036**		ND	**0.038**
Tetrachloroethene	0.12		ND	0.041	0.11		0.038	0.059		0.038	**0.14**		0.036	**0.13**		0.036	0.052		0.038
Ethyl Benzene	0.51	0.067		0.041	0.32		0.038	0.098		0.038	**0.55**		0.036	**0.52**		0.036	**0.52**		0.038
m,p-Xylene	1600	0.20		0.082	0.89		0.076	0.28		0.076	1.9		0.072	1.8		0.072	1.8		0.076
o-Xylene	1600	0.084		0.041	0.29		0.038	0.073		0.038	0.56		0.036	0.52		0.036	0.51		0.038
Total Xylene	1600	0.284		0.123	1.180		0.114	0.353		0.114	2.460		0.108	2.320		0.108	2.310		0.114
1,1,2,2-Tetrachloroethane	0.0061		ND	**0.041**		ND	**0.038**		ND	**0.038**		ND	**0.036**		ND	**0.036**		ND	**0.038**
trans-1,2-Dichloroethene	18		ND	0.21		ND	0.19		ND	0.19		ND	0.18		ND	0.18		ND	0.19
Methyl tert-butyl ether	830		ND	0.21		ND	0.19		ND	0.19		ND	0.18		ND	0.18		ND	0.19

Notes:

Results in parts per billion by volume (ppbv)

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

RL = Reporting Limit (quantitation limit)

Highlighted results/detection limits exceed the Project Action Limit

Table 6
Air Results
Southeast Rockford Indoor Air Sampling
Final

Analyte	Potential Threshold of Concern (ppbv)	E-A7-WA5-O			E-A7-WA5-O-D			E-A7-WA6-O			E-A7-WA6-I			E-A7-WA7-O			E-A7-WA7-I		
		7-Aug-03			7-Aug-03			7-Aug-03			7-Aug-03			7-Aug-03			7-Aug-03		
		Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL	Results	QC	RL
Vinyl Chloride	0.11		ND	0.019		ND	0.019		ND	0.020	0.037		0.018		ND	0.022		ND	0.018
1,1-Dichloroethene	50		ND	0.019		ND	0.019		ND	0.020	0.17		0.018		ND	0.022		ND	0.018
1,1-Dichloroethane	120		ND	0.038		ND	0.038		ND	0.039		ND	0.036		ND	0.045		ND	0.037
cis-1,2-Dichloroethene	8.8		ND	0.038		ND	0.038		ND	0.039		ND	0.036		ND	0.045		ND	0.037
1,1,1-Trichloroethane	400	0.040		0.038	0.039		0.038	0.045		0.039	7.6		0.036		ND	0.045	0.039		0.037
Benzene	0.098	**0.30**		0.096	**2.2**		0.096	**0.24**		0.098	**2.9**		0.090	**0.29**		**0.11**	**0.58**		0.092
1,2-Dichloroethane	0.023		ND	**0.038**		ND	**0.038**		ND	**0.039**	**0.040**		**0.036**		ND	**0.045**		ND	**0.037**
Trichloroethene	0.0041		ND	**0.038**		ND	**0.038**		ND	**0.039**		ND	**0.036**		ND	**0.045**		ND	**0.037**
Toluene	110	0.62		0.038	8.3		0.038	0.68		0.039	11		0.036	0.56		0.045	3.3		0.037
1,1,2-Trichloroethane	0.028		ND	**0.038**		ND	**0.038**		ND	**0.039**		ND	**0.036**		ND	**0.045**		ND	**0.037**
Tetrachloroethene	0.12	0.043		0.038		ND	0.038		ND	0.039	0.083		0.036		ND	0.045	**0.20**		0.037
Ethyl Benzene	0.51	0.060		0.038	**2.0**		0.038	0.12		0.039	1.3		0.036	0.061		0.045	0.40		0.037
m,p-Xylene	1600	0.16		0.076	8.7		0.076	0.41		0.078	4.8		0.072	0.17		0.089	1.2		0.073
o-Xylene	1600	0.060		0.038	2.8		0.038	0.15		0.039	1.6		0.036	0.060		0.045	0.44		0.037
Total Xylene	1600	0.220		0.114	11.500		0.114	0.560		0.117	6.400		0.108	0.230		0.134	1.640		0.110
1,1,2,2-Tetrachloroethane	0.0061		ND	**0.038**		ND	**0.038**		ND	**0.039**		ND	**0.036**		ND	**0.045**		ND	**0.037**
trans-1,2-Dichloroethene	18		ND	0.19		ND	0.19		ND	0.20		ND	0.18		ND	0.22		ND	0.18
Methyl tert-butyl ether	830		ND	0.19		ND	0.19		ND	0.20		ND	0.18		ND	0.22		ND	0.18

Notes:

Results in parts per billion by volume (ppbv)

U = Analyte was analyzed for, but was not detected above the reported sample quantitation limit.

J = Analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.

UJ = Analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

RL = Reporting Limit (quantitation limit)

Highlighted results/detection limits exceed the Project Action Limit

Table 7
Area 4 Indoor Air Analytical Results Summary
Southeast Rockford Indoor Air Sampling
Final

Compound of Concern	Sample with Maximum Concentration	Number of Samples Above Detection Limit	Maximum Value (ppbv)	Modeled Indoor Air Concentration (Soil Gas)* (ppbv)
Vinyl Chloride	N/A	0	N/D	--
1,1-Dichloroethene	E-A4-WA4-I	6	2.3E+00	2.3E+00
1,1-Dichloroethane	E-A4-WA4-I	5	1.3E+00	6.18E+00
Cis-1,2-Dichloroethene	E-A4-WA2-I	2	1.7E-01	1.59E-01
1,1,1-Trichloroethane	E-A4-WA4-I	6	8.1E+01	3.08E+02
Benzene	E-A4-WA3-I	6	1.9E+00	--
1,2-Dichloroethane	E-A4-WA2-I	2	1.9E+00	--
Trichloroethene	E-A4-WA4-I	6	6.8E-01	6.66E-01
Toluene	E-A4-WA2-I	6	1.0E+01	7.60E-02
1,1,2-Trichloroethane	N/A	0	N/D	--
Tetrachloroethene	E-A4-WA2-I	6	4.8E-01	6.02E-02
Ethyl Benzene	E-A4-WA1-I	6	1.1E+00	--
Total Xylenes	E-A4-WA1-I	6	4.18E+00	4.19E-04

*Based on results of risk assessment (refer to Table 19 and Section 4 of the Technical Memorandum).

Includes background locations. See Table 19 for maximum values that exclude background.

Table 8
Area 4 Outdoor Air Analytical Results Summary
Southeast Rockford Indoor Air Sampling
Final
Page 1 of 1

Compound of Concern	Sample That has Maximum Concentration	Number of Samples Above Detection Limit	Maximum Value (ppbv)
Vinyl Chloride	N/A	0	N/D
1,1-Dichloroethene	N/A	0	N/D
1,1-Dichloroethane	N/A	0	N/D
Cis-1,2-Dichloroethene	N/A	0	N/D
1,1,1-Trichloroethane	E-A4-WA5-O-D	5	9.7E-02
Benzene	E-A4-WA4-O	8	1.1E+00
1,2-Dichloroethane	N/A	0	N/D
Trichloroethene	E-A4-WA4-O	5	5.2E-02
Toluene	E-A4-WA4-O	8	1.4E+00
1,1,2-Trichloroethane	N/A	0	N/D
Tetrachloroethene	E-A4-WA3-GG-O	7	1.5E-01
Ethyl Benzene	E-A4-WA4-O	8	1.6E-01
m,p-Xylene	E-A4-WA4-O	8	5.1E-01
o-Xylene	E-A4-WA4-O	8	2.0E-01

Note: Includes background locations

Table 9
Area 7 Indoor Air Analytical Summary
Southeast Rockford Indoor Air Sampling
Final

Compound Name	Sample That has Maximum Concentration	Number of Samples Above Detection Limit	Maximum Value (ppbv)	Modeled Indoor Air concentration (Soil Gas)* (ppbv)	Modeled Indoor Air Concentration (Groundwater)* (ppbv)
Vinyl Chloride	E-A7-WA6-I	1	3.7E-02	--	1.38E-01
1,1-Dichloroethene	E-A7-WA6-I	3	1.7E-01	3.30E-02	--
1,1-Dichloroethane	N/A	0	N/D	2.36E-02	--
Cis-1,2-Dichloroethene	N/A	0	N/D	3.85E-02	3.78E+00
1,1,1-Trichloroethane	E-A7-WA6-I	8	7.6E+00	1.42E-01	9.41E-01
Benzene	E-A7-WA2-I	8	5.9E+00	--	--
1,2-Dichloroethane	E-A7-WA1-I	5	1.1E-01	--	--
Trichloroethene	E-A7-WA5-I	1	3.6E-02	2.53E-02	2.87E-03
Toluene	E-A7-WA6-I	8	1.1E+01	1.76E-02	--
1,1,2-Trichloroethane	N/A	0	N/D	--	--
Tetrachloroethene	E-A7-WA7-I	8	2.0E-01	2.02E-02	1.38E-02
Ethyl Benzene	E-A7-WA1-I	8	3.0E+00	--	--
Total Xylenes	E-A7-WA1-I	8	1.6E+01	1.37E-02	--

*Based on results of risk assessment (refer to Table 19 and Section 4 of Technical Memorandum).

Includes background locations. See Table 19 for maximum values that exclude background.

Table 10
Area 7 Outdoor Air Analytical Summary
Southeast Rockford Indoor Air Sampling
Final

Compound Name	Sample That has Maximum Concentration	Number of Samples Above Detection Limit	Maximum Value (ppbv)
Vinyl Chloride	N/A	0	N/D
1,1-Dichloroethene	E-A7-WA4-O-EP	1	1.9E-02
1,1-Dichloroethane	N/A	0	N/D
cis-1,2-Dichloroethene	E-A7-WA4-O-EP	1	4.6E-02
1,1,1-Trichloroethane	E-A7-WA4-O-EP	7	6.9E-01
Benzene	E-A7-WA5-O-D	8	2.2E+00
1,2-Dichloroethane	N/A	0	N/D
Trichloroethene	N/A	0	N/D
Toluene	E-A7-WA5-O-D	8	8.3E+00
1,1,2-Trichloroethane	N/A	0	N/D
Tetrachloroethene	E-A7-WA4-O-EP	2	5.9E-02
Ethyl Benzene	E-A7-WA5-O-D	8	2.0E+00
m,p-Xylene	E-A7-WA5-O-D	8	8.7E+00
o-Xylene	E-A7-WA5-O-D	8	2.8E+00

Table 11
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Area 4 Soil Gas
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Medium:	Soil Gas
Exposure Medium:	Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (4)	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Area 4		VOCs													
	71556	1,1,1-Trichloroethane	40	180000	ppbv	SG-08	15 / 19	36 - 900	1.8E+05	ND	4.0E+03	NA	NA	Y	ASL
	75343	1,1-Dichloroethane	56	5600	ppbv	SG-08	7 / 19	49 - 49	5.6E+03	ND	1.2E+03	NA	NA	Y	ASL
	75354	1,1-Dichloroethene	70	5600	ppbv	SG-08	7 / 19	50 - 50	5.6E+03	ND	5.0E+02	NA	NA	Y	ASL
	156592	1,2-Dichloroethene (cis)	210	560	ppbv	SG-08	2 / 19	50 - 50	5.6E+02	ND	8.8E+01	NA	NA	Y	ASL
	67663	Chloroform	42	42	ppbv	SG-07	1 / 19	40 - 40	4.2E+01	ND	2.20E-01	NA	NA	Y	ASL
	127184	Tetrachloroethene	38	110	ppbv	SG-12	3 / 19	29 - 29	1.1E+02	ND	1.2E+00	NA	NA	Y	ASL
	108883	Toluene	55	57	ppbv	SG-11	3 / 19	52 - 52	5.7E+01	ND	1.1E+03	NA	NA	N	BSL
	79016	Trichloroethene	46	1900	ppbv	SG-08	7 / 19	37 - 37	1.9E+03	ND	4.1E-02	NA	NA	Y	ASL
	1330207	Xylene	25	93	ppbv	SG-15	14 / 19	45 - 45	9.3E+01	ND	1.6E+04	NA	NA	N	BSL

(1) Maximum detected concentration used for screening.
(2) No VOCs were detected in the background soil gas sample from SG-105.
(3) Screened against EPA (2002) screening levels for vapor intrusion based on cancer benchmark = 1E-6 and HQ = 1.
(4) No ARAR/TBC values are available for soil gas data.
(5) Rationale Codes:

Selection Reason: ASL = Above Screening Level
Deletion Reason: BSL = Below Screening Level
ND = Not Detected

Definitions: NA = Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
VOCs - Volatile organic compounds

Table 12
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Area 4 Indoor Air
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Medium:	Indoor Air
Exposure Medium:	Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (4)	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Area 4		Organics													
	71556	1,1,1-Trichloroethane	0.24	81	ppbv	E-A4-WA4-I	4 / 4	0.03 - 0.12	8.1E+01	1.1E-01	4.0E+02	NA	NA	N	BSL
	75343	1,1-Dichloroethane	0.074	1.3	ppbv	E-A4-WA4-I	3 / 4	0.03 - 0.12	1.3E+00	3.1E-01	1.2E+02	NA	NA	N	BSL
	75354	1,1-Dichloroethene	0.026	2.3	ppbv	E-A4-WA4-I	4 / 4	0.01 - 0.06	2.3E+00	4.7E-02	5.0E+01	NA	NA	N	BSL
	107062	1,2-Dichloroethane	0.045	0.045	ppbv	E-A4-WA1-I	1 / 4	0.03 - 0.12	4.5E-02	1.9E+00	2.3E-02	NA	NA	Y	ASL
	156592	1,2-Dichloroethene (cis)	0.055	0.055	ppbv	E-A4-WA3-I	1 / 4	0.03 - 0.12	5.5E-02	1.7E-01	8.8E+00	NA	NA	N	BSL
	71432	Benzene	0.49	1.9	ppbv	E-A4-WA3-I	4 / 4	0.07 - 0.30	1.9E+00	1.8E+00	9.8E-02	NA	NA	Y	ASL
	100414	Ethylbenzene	0.18	1.1	ppbv	E-A4-WA1-I	4 / 4	0.03 - 0.12	1.1E+00	8.5E-01	5.1E-01	NA	NA	Y	ASL
	127184	Tetrachloroethene	0.13	0.37	ppbv	E-A4-WA3-I	4 / 4	0.03 - 0.12	3.7E-01	4.8E-01	1.2E-01	NA	NA	Y	ASL
	108883	Toluene	1.6	7.9	ppbv	E-A4-WA1-I	4 / 4	0.03 - 0.12	7.9E+00	1.0E+01	1.1E+02	NA	NA	N	BSL
	79016	Trichloroethene	0.051	0.68	ppbv	E-A4-WA4-I	4 / 4	0.03 - 0.12	6.8E-01	5.2E-02	4.1E-03	NA	NA	Y	ASL
	1330207	Xylene	0.57	4.18	ppbv	E-A4-WA1-I	4 / 4	0.08 - 0.36	4.2E+00	2.8E+00	1.6E+03	NA	NA	N	BSL

(1) Maximum detected concentration used for screening.
(2) VOCs were detected in background indoor air sample E-A4-WA2-I.
(3) Screened against EPA (2002) screening levels for vapor intrusion based on cancer benchmark = 1E-6 and HQ = 1.
(4) No ARAR/TBC values are available for soil gas data.
(5) Rationale Codes:

Selection Reason: ASL = Above Screening Level
Deletion Reason: BSL = Below Screening Level
ND = Not Detected

Definitions: NA = Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
VOCs - Volatile organic compounds

Table 13
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Area 7 Soil Gas
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Medium:	Soil Gas
Exposure Medium:	Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (nc/ca) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (4)	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Area 7		**ORGANICS**													
	71556	1,1,1-Trichloroethane	42	19000	ppbv	SG-36	4 / 32	36 - 180	1.9E+04	ND	4.0E+03	NA	NA	Y	ASL
	75343	1,1-Dichloroethane	560	730	ppbv	SG-36	2 / 32	49 - 243	7.3E+02	ND	1.2E+03	NA	NA	N	BSL
	75354	1,1-Dichloroethene	1400	1400	ppbv	SG-27-2	2 / 32	50 - 248	1.4E+03	ND	5.0E+02	NA	NA	Y	ASL
	156592	1,2-Dichloroethene (cis)	1600	2200	ppbv	SG-36	2 / 32	50 - 248	2.2E+03	ND	8.8E+01	NA	NA	Y	ASL
	127184	Tetrachloroethene	580	1300	ppbv	SG-36	2 / 32	29 - 145	1.3E+03	ND	1.2E+00	NA	NA	Y	ASL
	108883	Toluene	52	130	ppbv	SG-23	4 / 32	52 - 261	1.3E+02	ND	1.1E+03	NA	NA	N	BSL
	79016	Trichloroethene	1000	1200	ppbv	SG-36	2 / 32	37 - 183	1.2E+03	ND	4.1E-02	NA	NA	Y	ASL
	1330207	Xylene	24	57	ppbv	SG-23	15 / 32	45 - 227	5.7E+01	ND	1.6E+04	NA	NA	N	BSL

(1) Maximum detected concentration used for screening.
(2) No VOCs were detected in the background soil gas sample from SG-105.
(3) Screened against EPA (2002) screening levels for vapor intrusion based on cancer benchmark = 1E-6 and HQ = 1.
(4) No ARAR/TBC values are available for soil gas data.
(5) Rationale Codes:

Selection Reason: ASL = Above Screening Level
Deletion Reason: BSL = Below Screening Level
ND = Not Detected

Definitions: NA = Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
VOCs - Volatile organic compounds

Table 14
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Area 7 Groundwater
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Medium:	Groundwater
Exposure Medium:	Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (nc/ca) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (4)	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Area 7		ORGANICS													
	71556	1,1,1-Trichloroethane	0.19 J	1300	ug/L	MW106A	9 / 9	NA - NA	1.3E+03	NA	3.1E+03	NA	NA	N	BSL
	75343	1,1-Dichloroethane	52	210	ug/L	MW134A	6 / 9	0.05 - 0.05	2.1E+02	NA	2.2E+03	NA	NA	N	BSL
	75354	1,1-Dichloroethene	2.3 J	250	ug/L	MW106A	3 / 9	0.05 - 40	2.5E+02	NA	1.9E+02	NA	NA	Y	ASL
	107062	1,2-Dichloroethane	2.6	6	ug/L	MW106A	5 / 9	0.05 - 0.05	6.0E+00	NA	5.0E+00	NA	NA	Y	ASL
	156592	1,2-Dichloroethene (cis)	0.35 J	2500	ug/L	MW106A	7 / 9	0.05 - 0.05	2.5E+03	NA	2.1E+02	NA	NA	Y	ASL
	156605	1,2-Dichloroethene (trans)	2.1	13	ug/L	MW106A	6 / 9	0.05 - 0.05	1.3E+01	NA	1.8E+02	NA	NA	N	BSL
	71432	Benzene	0.26 J	1.4	ug/L	MW106A	4 / 9	0.05 - 0.05	1.4E+00	NA	5.0E+00	NA	NA	N	BSL
	67663	Chloroform	1.2	3.4	ug/L	MW103Dup	3 / 9	0.05 - 0.05	3.4E+00	NA	8.0E+01	NA	NA	N	BSL
	100414	Ethylbenzene	250	360	ug/L	MW134A	2 / 9	0.05 - 0.05	3.6E+02	NA	7.0E+02	NA	NA	N	BSL
	127184	Tetrachloroethene	1.7	44 J	ug/L	MW103Dup	6 / 9	0.05 - 0.05	4.4E+01	NA	5.0E+00	NA	NA	Y	ASL
	108883	Toluene	0.19 J	250	ug/L	MW106A	3 / 9	0.05 - 0.05	2.5E+02	NA	1.5E+03	NA	NA	N	BSL
	79016	Trichloroethene	1.6	93	ug/L	MW103Dup	6 / 9	0.05 - 0.05	9.3E+01	NA	5.0E+00	NA	NA	Y	ASL
	75014	Vinyl Chloride	0.61	240	ug/L	MW134A	4 / 9	0.05 - 0.05	2.4E+02	NA	2.0E+00	NA	NA	Y	ASL
	1330207	Xylene	130	1700	ug/L	MW134A	2 / 9	0.05 - 0.05	1.7E+03	NA	2.2E+04	NA	NA	N	BSL

(1) Maximum detected concentration used for screening.
(2) Background groundwater data were not available.
(3) Screened against EPA (2002) screening levels for vapor intrusion based on cancer benchmark = 1E-6 and HQ = 1.
(4) No ARAR/TBC values are available for groundwater data based on vapor intrusion.
(5) Rationale Codes:

Selection Reason: ASL = Above Screening Level
Deletion Reason: BSL = Below Screening Level
ND = Not Detected

Definitions: NA = Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
-avg = Maximum value presented is based the average of duplicate samples collected from this location.
VOCs - Volatile organic compounds

Table 15
Occurrence, Distribution, and Selection of Chemicals of Potential Concern - Area 7 Indoor Air
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Medium:	Indoor Air
Exposure Medium:	Indoor Air

Exposure Point	CAS Number	Chemical	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (nc/ca) (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source (4)	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Area 7		ORGANICS													
	71556	1,1,1-Trichloroethane	0.043	7.6	ppbv	E-A7-WA6-I	6 / 6	0.036 - 0.038	7.6E+00	3.9E-02	4.0E+02	NA	NA	N	BSL
	75354	1,1-Dichloroethene	0.019	0.17	ppbv	E-A7-WA6-I	2 / 6	0.018 - 0.019	1.7E-01	ND	5.0E+01	NA	NA	N	BSL
	107062	1,2-Dichloroethane	0.04	0.11	ppbv	E-A7-WA1-I	4 / 6	0.036 - 0.038	1.1E-01	ND	2.3E-02	NA	NA	Y	ASL
	71432	Benzene	0.43	5.9	ppbv	E-A7-WA2-I	6 / 6	0.090 - 0.096	5.9E+00	5.8E-01	9.8E-02	NA	NA	Y	ASL
	100414	Ethylbenzene	0.32	3	ppbv	E-A7-WA1-I	6 / 6	0.036 - 0.038	3.0E+00	4.0E-01	5.1E-01	NA	NA	Y	ASL
	127184	Tetrachloroethene	0.052	0.14	ppbv	E-A7-WA5-I	6 / 6	0.036 - 0.038	1.4E-01	1.6E+00	1.2E-01	NA	NA	Y	ASL
	108883	Toluene	5.4	11	ppbv	E-A7-WA6-I	6 / 6	0.036 - 0.038	1.1E+01	3.3E+00	1.1E+02	NA	NA	N	BSL
	79016	Trichloroethene	0.036	0.036	ppbv	E-A7-WA5-I	1 / 6	0.036 - 0.038	3.6E-02	ND	4.1E-03	NA	NA	Y	ASL
	75014	Vinyl Chloride	0.037	0.037	ppbv	E-A7-WA6-I	1 / 6	0.018 - 0.019	3.7E-02	ND	1.1E-01	NA	NA	N	BSL
	1330207	Xylene	1.16	15.7	ppbv	E-A7-WA1-I	6 / 6	0.108 - 0.114	1.6E+01	ND	1.6E+03	NA	NA	N	BSL

(1) Maximum detected concentration used for screening.
(2) VOCs were detected in background indoor air sample E-A7-WA7-I.
(3) Screened against EPA (2002) screening levels for vapor intrusion based on cancer benchmark = 1E-6 and HQ = 1.
(4) No ARAR/TBC values are available for soil gas data.
(5) Rationale Codes:

Selection Reason: ASL = Above Screening Level
Deletion Reason: BSL = Below Screening Level
ND = Not Detected

Definitions: NA = Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
VOCs - Volatile organic compounds

Table 16
Selection of Exposure Pathways
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Soil Gas	Indoor Air	Area 4	Resident	Adult	Inhalation	Quant	VOCs have been detected in shallow soil gas samples collected in residential area.
					Child (0-6 yrs)	Inhalation	Quant	
			Area 7	Resident	Adult	Inhalation	Quant	VOCs have been detected in shallow soil gas samples collected in residential area.
					Child (0-6 yrs)	Inhalation	Quant	
	Groundwater	Indoor Air	Area 4	Resident	Adult	Inhalation	None	Exposure pathway may be complete; however, groundwater data is not available from the immediate vicinity of the residences near Area 4
					Child (0-6 yrs)	Inhalation	None	
			Area 7	Resident	Adult	Inhalation	Quant	VOCs have been detected in groundwater samples collected near residential area.
					Child (0-6 yrs)	Inhalation	Quant	
	Indoor Air	Indoor Air	Area 4	Resident	Adult	Inhalation	Quant	VOCs have been detected in indoor air samples collected in residential area.
					Child (0-6 yrs)	Inhalation	Quant	
			Area 7	Resident	Adult	Inhalation	Quant	VOCs have been detected in indoor air samples collected in residential area.
					Child (0-6 yrs)	Inhalation	Quant	

Quant = Quantitative risk analysis performed.

VOC = volatile organic compounds

Input Parameters for Vapor Intrusion Model for Soil Gas Data
Southeast Rockford Indoor Air Sampling
Final
Page 1 of 1

Parameter		Units	Default	Area 4		Area 7	
				Value Used	Basis for Value Used	Value Used	Basis for Value Used
Depth below grade to bottom of enclosed space floor	L_F	cm	200	200	Default (EPA 2003) depth to base of foundation - basement scenario (about 6.6 feet)	200	Default (EPA 2003) depth to base of foundation - basement scenario (about 6.6 feet)
Soil gas sampling depth below grade	L_S	cm	NA (site-specific)	305	Onsite soil gas samples were collected from depths between 10 and 12 feet bgs. (305 to 366 cm)	305	Onsite soil gas samples were collected from depths between 10 and 12 feet bgs. (305 to 366 cm)
Average soil temperature	T_S	°C	10	10	Default (EPA 2003)	10	Default (EPA 2003)
Thickness of soil stratum A	h_A	cm	NA (site-specific)	305	Silty sand down to about 4 ft bgs (122 cm) in GP-07 (near highest concentrations), underlain by sand. Only sand is located between basements and soil gas sampling depth.	244	Silt and sand down to about 6 ft (183 cm) bgs in GP-27, underlain by sand from 6 to 8 ft bgs (61 cm thick).
Thickness of soil stratum B	h_B	cm	NA (site-specific)	0	No second layer between soil gas and ground surface.	61	Silty sand below 8 ft bgs.
Thickness of soil stratum C	h_C	cm	NA (site-specific)	0	No third layer between soil gas and ground surface.	0	No third layer between soil gas and ground surface.
Stratum A SCS soil type (used to est. soil vapor permeability)			NA (site-specific)	S	Sand below 4 ft bgs. EPA (2003) recommends S for sand with less than about 12% fines.	LS	Sand from 6 to 8 ft bgs in GP-27. EPA (2003) recommends LS for sand with about 12 to 25% fines.
Stratum A soil dry bulk density	ρ_b^A	g/cm^3	1.5	1.66	Default (EPA 2003) for S soil	1.62	Default (EPA 2003) for LS soil
Stratum A soil total porosity	n^A	unitless	0.43	0.375	Default (EPA 2003) for S soil	0.39	Default (EPA 2003) for LS soil
Stratum A soil water-filled porosity	θ_w^A	cm^3/cm^3	0.3	0.054	Default (EPA 2003) for S soil	0.076	Default (EPA 2003) for LS soil
Stratum B SCS soil type			NA (site-specific)	NA	No second layer.	SL	Silty sand below 8 ft bgs. EPA (2003) recommends LS for silty sand with about 12 to 25% fines or SL for silty sand with about 20 to 50% fines.
Stratum B soil dry bulk density	ρ_b^B	g/cm^3	1.5	NA		1.62	Default (EPA 2003) for SL soil
Stratum B soil total porosity	n^B	unitless	0.43	NA		0.387	Default (EPA 2003) for SL soil
Stratum B soil water-filled porosity	θ_w^B	cm^3/cm^3	0.3	NA		0.103	Default (EPA 2003) for SL soil
Stratum C SCS soil type			NA (site-specific)	NA	No third layer.	NA	No third layer.
Stratum C soil dry bulk density	ρ_b^C	g/cm^3	1.5	NA		NA	
Stratum C soil total porosity	n^C	unitless	0.43	NA		NA	
Stratum C soil water-filled porosity	θ_w^C	cm^3/cm^3	0.3	NA		NA	
Enclosed space floor thickness	L_{crack}	cm	10	10	Default (EPA 2003)	10	Default (EPA 2003)
Soil-bldg pressure differential	ΔP	$g/cm\text{-}s^2$	40	40	Default (EPA 2003) - equal to 4 Pa	40	Default (EPA 2003) - equal to 4 Pa
Enclosed space floor length	L_B	cm	1000	1000	Default (EPA 2003) - residential	1000	Default (EPA 2003) - residential
Enclosed space floor width	W_B	cm	1000	1000	Default (EPA 2003) - residential	1000	Default (EPA 2003) - residential
Enclosed space height	H_B	cm	366	366	Default (EPA 2003) - basement scenario	366	Default (EPA 2003) - basement scenario
Floor-wall seam crack width	w	cm	0.1	0.1	Default (EPA 2003)	0.1	Default (EPA 2003)
Indoor air exchange rate	ER	1/h	0.25	0.25	Default (EPA 2003) - residential	0.25	Default (EPA 2003) - residential
Averaging time for carcinogens	AT_C	yrs	70	70	Default (EPA 2003) - all receptors	70	Default (EPA 2003) - all receptors
Averaging time for non-carcinogens	AT_C	yrs	30	30	Default (EPA 2003) - residential	30	Default (EPA 2003) - residential
Exposure Duration	ED	yrs	30	30	Default (EPA 2003) - residential	30	Default (EPA 2003) - residential
Exposure Frequency	EF	days/yr	350	350	Default (EPA 2003) - residential	350	Default (EPA 2003) - residential

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Table 18
Input Parameters for Vapor Intrusion Model for Groundwater Data
Southeast Rockford Indoor Air Sampling
Final

Parameter		Units	Default	Area 7	
				Value Used	Basis for Value Used
Depth below grade to bottom of enclosed space floor	L_F	cm	200	200	Default (EPA 2003) depth to base of foundation - basement scenario (about 6.6 feet)
Depth below grade to water table	L_{WT}	cm	NA (site-specific)	1219	Groundwater is located 40 to 65 ft below grade (1219 to 1981 cm)
Average soil/groundwater temperature	T_S	°C	10	10	Default (EPA 2003)
Thickness of soil stratum A (soil type below the enclosed space floor)	h_A	cm	NA (site-specific)	244	Silt and sand down to about 6 ft (183 cm) bgs in GP-27, underlain by sand from 6 to 8 ft bgs (61 cm thick).
Thickness of soil stratum B	h_B	cm	NA (site-specific)	975	Silty sand below 8 ft bgs.
Thickness of soil stratum C	h_C	cm	NA (site-specific)	0	No third layer between groundwater and ground surface.
Stratum A SCS soil type (used to est. soil vapor permeability)			NA (site-specific)	LS	Sand from 6 to 8 ft bgs in GP-27. EPA (2003) recommends LS for sand with about 12 to 25% fines.
Stratum A soil dry bulk density	ρ_b^A	g/cm^3	1.5	1.62	Default (EPA 2003) for LS soil
Stratum A soil total porosity	n^A	unitless	0.43	0.39	Default (EPA 2003) for LS soil
Stratum A soil water-filled porosity	θ_w^A	cm^3/cm^3	0.3	0.076	Default (EPA 2003) for LS soil
Stratum B SCS soil type			NA (site-specific)	SL	Silty sand below 8 ft bgs. EPA (2003) recommends LS for silty sand with about 12 to 25% fines or SL for silty sand with about 20 to 50% fines.
Stratum B soil dry bulk density	ρ_b^B	g/cm^3	1.5	1.62	Default (EPA 2003) for SL soil
Stratum B soil total porosity	n^B	unitless	0.43	0.387	Default (EPA 2003) for SL soil
Stratum B soil water-filled porosity	θ_w^B	cm^3/cm^3	0.3	0.103	Default (EPA 2003) for SL soil
Stratum C SCS soil type			NA (site-specific)	NA	No third layer.
Stratum C soil dry bulk density	ρ_b^C	g/cm^3	1.5	NA	
Stratum C soil total porosity	n^C	unitless	0.43	NA	
Stratum C soil water-filled porosity	θ_w^C	cm^3/cm^3	0.3	NA	
Enclosed space floor thickness	L_{crack}	cm	10	10	Default (EPA 2003)
Soil-bldg pressure differential	ΔP	g/cm-s^2	40	40	Default (EPA 2003) - equal to 4 Pa
Enclosed space floor length	L_B	cm	1000	1000	Default (EPA 2003) - residential
Enclosed space floor width	W_B	cm	1000	1000	Default (EPA 2003) - residential
Enclosed space height	H_B	cm	366	366	Default (EPA 2003) - basement scenario
Floor-wall seam crack width	w	cm	0.1	0.1	Default (EPA 2003)
Indoor air exchange rate	ER	1/h	0.25	0.25	Default (EPA 2003) - residential
Averaging time for carcinogens	AT_C	yrs	70	70	Default (EPA 2003) - all receptors
Averaging time for non-carcinogens	AT_C	yrs	30	30	Default (EPA 2003) - residential
Exposure Duration	ED	yrs	30	30	Default (EPA 2003) - residential
Exposure Frequency	EF	days/yr	350	350	Default (EPA 2003) - residential

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Table 19
Estimated Indoor Air Concentrations - Vapor Intrusion from Soil Gas and Groundwater
Southeast Rockford Indoor Air Sampling
Final

			Area 4 - Indoor Air		Area 4 - Soil Gas		Area 7 - Indoor Air		Area 7 - Soil Gas		Area 7 - Groundwater	
Chemical Name	Chem-Specific Conversion Factor 1 ppm = x mg/m3	Cas #	Maximum Measured Indoor Air Concentration (ppmv)	Maximum Measured Indoor Air Concentration (ug/m3)	Soil Gas Concentration (ppmv) (1)	Estimated Indoor Air Concentration (ug/m^3) (2)	Maximum Measured Indoor Air Concentration (ppmv)	Maximum Measured Indoor Air Concentration (ug/m3)	Soil Gas Concentration (ppmv) (1)	Estimated Indoor Air Concentration (ug/m^3) (2)	Modeled Groundwater Concentration (ug/L) (3)	Estimated Indoor Air Concentration (ug/m^3) (2)
VOCs												
1,1,1-Trichloroethane	5.55	71556	8.10E-02	4.50E+02	1.80E+02	2.11E+03	7.60E-03	4.22E+01	3.48E-01	7.89E-01	1.33E+02	5.22E+00
1,1-Dichloroethane	4.05	75343	1.30E-03	5.27E+00	1.54E+00	1.33E+01	ND	ND	5.70E-02	9.55E-02	--	--
1,1-Dichloroethene	4.03	75354	2.30E-03	9.27E+00	2.83E+00	2.49E+01	1.70E-04	6.85E-01	8.00E-02	1.33E-01	--	--
1,2-Dichloroethane	4.05	107062	4.50E-05	1.82E-01	ND	ND	1.10E-04	4.46E-01	ND	ND	--	--
1,2-Dichloroethene (cis)	3.97	156592	5.50E-05	2.18E-01	7.60E-02	6.39E-01	ND	ND	9.30E-02	1.53E-01	1.47E+03	1.50E+01
1,2-Dichloroethene (trans)	3.97	156605	ND	ND	ND	ND	ND	ND	ND	ND	--	--
Benzene	3.19	71432	1.90E-03	6.06E+00	ND	ND	5.90E-03	1.88E+01	ND	ND	--	--
Chloroform	4.88	67663	--	--	2.30E-02	2.57E-01	--	--	ND	ND	--	--
Ethylbenzene	4.34	100414	1.10E-03	4.77E+00	ND	ND	3.00E-03	1.30E+01	ND	ND	--	--
Tetrachloroethene	6.78	127184	3.70E-04	2.51E+00	2.90E-02	4.15E-01	1.40E-04	9.49E-01	4.90E-02	1.37E-01	2.73E+00	9.35E-02
Toluene	3.77	108883	7.90E-03	2.98E+01	3.50E-02	2.91E-01	1.10E-02	4.15E+01	4.20E-02	6.62E-02	--	--
Trichloroethene	5.37	79016	6.80E-04	3.65E+00	3.14E-01	3.64E+00	3.60E-05	1.93E-01	6.10E-02	1.36E-01	6.70E-01	1.54E-02
Vinyl Chloride	2.56	75014	ND	ND	ND	ND	3.70E-05	9.47E-02	ND	ND	3.60E+00	3.54E-01
Xylenes (total) (4)	4.34	1330207	4.18E-03	1.81E+01	4.50E-02	4.19E-01	1.57E-02	6.81E+01	3.30E-02	5.95E-02	--	--

(1) Soil gas concentrations are the 95 percent Upper Confidence Limit (UCL) on the mean, calculated using the H-statistic, with the exception of 1,1,1-trichloroethane (111-TCA). Because the 95 percent UCL for 111-TCA exceeded the maximum detected concentration, the maximum was used.
(2) Based on results of Johnson and Ettinger Model
(3) Based on concentrations detected in MW-106A, modeled out to 600 feet from the source, which is the approximate distance from the well to Bavarian Avenue
(4) p-Xylene (CAS 106423) used in the Johnson and Ettinger Model to estimate Xylenes (total) air concentration.

Table 20
Values Used for Daily Intake Calculations - RME
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Future
Medium:	Soil Gas and Groundwater
Exposure Medium:	Indoor Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	RME Value	Units	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Indoor Air (Vapor Intrusion from Soil Gas or Groundwater)	CA	Chemical Concentration in Air	See Table C-3	ug/m^3	See Table C-3	Chronic Daily Intake (CDI) (mg/kg-day) = CA x CF1 x IR-A x EF x ED x ET x 1/BW x 1/AT
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				IR-A	Inhalation Rate of Air	13.25	m^3/day	EPA 1997 (1)	
				EF	Exposure Frequency	350	days/year	EPA 1991b	
				ED	Exposure Duration	24	years	EPA 1991b	
				BW	Body Weight	70	kg	EPA 1991b	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA 1989	
				AT-N	Averaging Time (Noncancer)	8,760	days	EPA 1989	
Inhalation	Resident	Child	Indoor Air (Vapor Intrusion from Soil Gas or Groundwater)	CA	Chemical Concentration in Air	See Table C-3	ug/m^3	See Table C-3	Chronic Daily Intake (CDI) (mg/kg-day) = CA x CF1 x IR-A x EF x ED x ET x 1/BW x 1/AT
				CF1	Conversion Factor 1	0.001	mg/ug	--	
				IR-A	Inhalation Rate of Air	8.3	m^3/day	EPA 1997 (2)	
				EF	Exposure Frequency	350	days/year	EPA 1991b	
				ED	Exposure Duration	6	years	EPA 1991b	
				BW	Body Weight	15	kg	EPA 1991b	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA 1989	
				AT-N	Averaging Time (Noncancer)	2,190	days	EPA 1989	

RME = Reasonable Maximum Exposure.

(1) Based on the average of the mean longterm inhalation rates for adult men and women (EPA 1997, Table 5-23).

(2) Based on the mean longterm inhalation rate for children ages 3 to 5 years (EPA 1997, Table 5-23).

Sources:

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

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

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

Table 21
Non-Cancer Toxicity Data - Inhalation
Southeast Rockford Indoor Air Sampling
Final

Chemical of Potential Concern	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD (1)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC:RfD	Dates (2) (MM/DD/YY)
ORGANICS									
1,1,1-Trichloroethane	Chronic	N/A	N/A	6.3E-01	mg/kg-day	N/A	N/A	EPA Region 9	10/1/2002
1,1-Dichloroethane	Chronic	N/A	N/A	1.4E-01	mg/kg-day	Kidney	1000	EPA Region 9	10/1/2002
1,1-Dichloroethene	Chronic	2.0E-01	mg/m^3	5.7E-02	mg/kg-day	Liver	30	IRIS	11/10/2003
1,2-Dichloroethane	Chronic	N/A	N/A	1.4E-03	mg/kg-day	GI Tract/Liver/Kidney	1000	EPA Region 9	10/1/2002
1,2-Dichloroethene (cis)	Chronic	N/A	N/A	1.0E-02	mg/kg-day	Blood	3000	EPA Region 9	10/1/2002
1,2-Dichloroethene (trans)	Chronic	N/A	N/A	2.0E-02	mg/kg-day	Blood	N/A	EPA Region 9	10/1/2002
Benzene	Chronic	3.0E-02	mg/m^3	8.6E-03	mg/kg-day	Blood	300	IRIS	11/10/2003
Chloroform	Chronic	N/A	N/A	8.6E-04	mg/kg-day	Liver/Kidney	1000	EPA Region 9	10/1/2002
Ethylbenzene	Chronic	1.0E+00	mg/m^3	2.9E-01	mg/kg-day	Fetus	300	IRIS	11/10/2003
Tetrachloroethene	Chronic	N/A	N/A	1.7E-01	mg/kg-day	Kidney	100	EPA Region 9	10/1/2002
Toluene	Chronic	4.0E-01	mg/m^3	1.1E-01	mg/kg-day	CNS/Nasal Epithelium	300	IRIS	11/10/2003
Trichloroethene	Chronic	N/A	N/A	1.0E-02	mg/kg-day	Liver/Kidney/Fetus	1000	EPA Region 9	10/1/2002
Vinyl Chloride	Chronic	1.0E-01	mg/m^3	2.9E-02	mg/kg-day	Liver	30	IRIS	11/10/2003
Xylene	Chronic	1.0E-01	mg/m3	2.9E-02	mg/kg-day	CNS	300	IRIS	11/10/2003

EPA Region 9 = EPA Region 9 PRG table
IRIS = Integrated Risk Information System

RfC = Reference concentration
RfD = Reference dose
N/A = Not Available

(1) Inhalation RfDs were calculated from Inhalation RfCs assuming a 70 kg individual has an inhalation rate of 20 m3/day.
(2) IRIS values were confirmed against the EPA's online database in November 2003.
EPA Region 9 values were confirmed against the EPA Region 9 online PRG Table file in November 2003. The date on the most recent posted file is 10/01/02.

Table 22
Cancer Toxicity Data - Inhalation
Southeast Rockford Indoor Air Sampling
Final

Chemical of Potential Concern	Unit Risk	Units	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (MM/DD/YY)
ORGANICS							
1,1,1-Trichloroethane	N/A	N/A	N/A	N/A	D	IRIS	11/10/2003
1,1-Dichloroethane	N/A	N/A	N/A	N/A	C	IRIS	11/10/2003
1,1-Dichloroethene	N/A	N/A	N/A	N/A	C	IRIS	11/10/2003
1,2-Dichloroethane	2.6E-05	$(ug/m^3)^{-1}$	9.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	11/10/2003
1,2-Dichloroethene (cis)	N/A	N/A	N/A	N/A	D	IRIS	11/10/2003
1,2-Dichloroethene (trans)	N/A	N/A	N/A	N/A	N/A	IRIS	11/10/2003
Benzene	7.8E-06	$(ug/m^3)^{-1}$	2.7E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	11/10/2003
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	11/10/2003
Ethylbenzene	N/A	N/A	3.9E-03	$(mg/kg\text{-}day)^{-1}$	D	EPA Region 9	10/1/2002
Tetrachloroethene	N/A	N/A	1.0E-02	$(mg/kg\text{-}day)^{-1}$	N/A	EPA Region 9	10/1/2002
Toluene	N/A	N/A	N/A	N/A	D	IRIS	11/10/2003
Trichloroethene	N/A	N/A	4.0E-01	$(mg/kg\text{-}day)^{-1}$	B2-C	EPA Region 9	10/1/2002
Vinyl Chloride	8.8E-06	$(ug/m^3)^{-1}$	3.1E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	11/10/2003
Xylene	N/A	N/A	N/A	N/A	D	IRIS	11/10/2003

IRIS = Integrated Risk Information System
EPA Region 9 = EPA Region 9 PRG table
N/A = Not Available

EPA Weight of Evidence:
A - Human Carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available.
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans.
C - Possible human carcinogen
D - Not classifiable as human carcinogen

(1) Inhalation CSFs were calculated from unit risks assuming a 70 kg individual has an inhalation rate of 20 m3/day.
(2) IRIS values were confirmed against the EPA's online database in November 2003.
EPA Region 9 values were confirmed against the EPA Region 9 online PRG Table file in November 2003. The date on the most recent posted file is 10/01/02.

Table 23
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 4 - Resident - Adult (Soil Gas)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Soil Gas	Indoor Air	Area 4	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	2.1E+03	ug/m^3	1.3E-01	mg/kg/day	N/A	N/A	--	3.8E-01	mg/kg/day	6.3E-01	mg/kg-day	6.1E-01
				1,1-Dichloroethane	1.3E+01	ug/m^3	8.3E-04	mg/kg/day	N/A	N/A	--	2.4E-03	mg/kg/day	1.4E-01	mg/kg-day	1.7E-02
				1,1-Dichloroethene	2.5E+01	ug/m^3	1.6E-03	mg/kg/day	N/A	N/A	--	4.5E-03	mg/kg/day	5.7E-02	mg/kg-day	7.9E-02
				1,2-Dichloroethene (cis)	6.4E-01	ug/m^3	4.0E-05	mg/kg/day	N/A	N/A	--	1.2E-04	mg/kg/day	1.0E-02	mg/kg-day	1.2E-02
				Chloroform	2.6E-01	ug/m^3	1.6E-05	mg/kg/day	8.1E-02	(mg/kg-day)-1	1.3E-06	4.7E-05	mg/kg/day	8.6E-04	mg/kg-day	5.4E-02
				Tetrachloroethene	4.2E-01	ug/m^3	2.6E-05	mg/kg/day	1.0E-02	(mg/kg-day)-1	2.6E-07	7.5E-05	mg/kg/day	1.7E-01	mg/kg-day	4.4E-04
				Toluene	2.9E-01	ug/m^3	1.8E-05	mg/kg/day	N/A	N/A	--	5.3E-05	mg/kg/day	1.1E-01	mg/kg-day	4.6E-04
				Trichloroethene	3.6E+00	ug/m^3	2.3E-04	mg/kg/day	4.0E-01	(mg/kg-day)-1	9.1E-05	6.6E-04	mg/kg/day	1.0E-02	mg/kg-day	6.6E-02
				Xylene	4.2E-01	ug/m^3	2.6E-05	mg/kg/day	N/A	N/A	--	7.6E-05	mg/kg/day	2.9E-02	mg/kg-day	2.7E-03
			Exp. Route Total								9.2E-05					8.4E-01
		Exposure Point Total									9E-05					8E-01

NA = Not Available. Toxicity value is not available.

Table 24
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 4 - Resident - Child (Soil Gas)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Soil Gas	Indoor Air	Area 4	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	2.1E+03	ug/m^3	9.6E-02	mg/kg/day	N/A	N/A	--	1.1E+00	mg/kg/day	6.3E-01	mg/kg-day	1.8E+00
				1,1-Dichloroethane	1.3E+01	ug/m^3	6.0E-04	mg/kg/day	N/A	N/A	--	7.0E-03	mg/kg/day	1.4E-01	mg/kg-day	5.0E-02
				1,1-Dichloroethene	2.5E+01	ug/m^3	1.1E-03	mg/kg/day	N/A	N/A	--	1.3E-02	mg/kg/day	5.7E-02	mg/kg-day	2.3E-01
				1,2-Dichloroethene (cis)	6.4E-01	ug/m^3	2.9E-05	mg/kg/day	N/A	N/A	--	3.4E-04	mg/kg/day	1.0E-02	mg/kg-day	3.4E-02
				Chloroform	2.6E-01	ug/m^3	1.2E-05	mg/kg/day	8.1E-02	(mg/kg-day)-1	9.4E-07	1.4E-04	mg/kg/day	8.6E-04	mg/kg-day	1.6E-01
				Tetrachloroethene	4.2E-01	ug/m^3	1.9E-05	mg/kg/day	1.0E-02	(mg/kg-day)-1	1.9E-07	2.2E-04	mg/kg/day	1.7E-01	mg/kg-day	1.3E-03
				Toluene	2.9E-01	ug/m^3	1.3E-05	mg/kg/day	N/A	N/A	--	1.5E-04	mg/kg/day	1.1E-01	mg/kg-day	1.4E-03
				Trichloroethene	3.6E+00	ug/m^3	1.7E-04	mg/kg/day	4.0E-01	(mg/kg-day)-1	6.6E-05	1.9E-03	mg/kg/day	1.0E-02	mg/kg-day	1.9E-01
				Xylene	4.2E-01	ug/m^3	1.9E-05	mg/kg/day	N/A	N/A	--	2.2E-04	mg/kg/day	2.9E-02	mg/kg-day	7.8E-03
			Exp. Route Total								6.7E-05					2.5E+00
		Exposure Point Total									7E-05					2E+00

NA = Not Available. Toxicity value is not available.

Table 25
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 4 - Resident - Adult (Indoor Air)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Indoor Air	Indoor Air	Area 4	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	4.5E+02	ug/m^3	2.8E-02	mg/kg/day	N/A	N/A	--	8.2E-02	mg/kg/day	6.3E-01	mg/kg-day	1.3E-01
				1,1-Dichloroethane	5.3E+00	ug/m^3	3.3E-04	mg/kg/day	N/A	N/A	--	9.6E-04	mg/kg/day	1.4E-01	mg/kg-day	6.8E-03
				1,1-Dichloroethene	9.3E+00	ug/m^3	5.8E-04	mg/kg/day	N/A	N/A	--	1.7E-03	mg/kg/day	5.7E-02	mg/kg-day	2.9E-02
				1,2-Dichloroethane	1.8E-01	ug/m^3	1.1E-05	mg/kg/day	9.1E-02	(mg/kg-day)-1	1.0E-06	3.3E-05	mg/kg/day	1.4E-03	mg/kg-day	2.4E-02
				1,2-Dichloroethene (cis)	2.2E-01	ug/m^3	1.4E-05	mg/kg/day	N/A	N/A	--	4.0E-05	mg/kg/day	1.0E-02	mg/kg-day	4.0E-03
				Benzene	6.1E+00	ug/m^3	3.8E-04	mg/kg/day	2.7E-02	(mg/kg-day)-1	1.0E-05	1.1E-03	mg/kg/day	8.6E-03	mg/kg-day	1.3E-01
				Ethylbenzene	4.8E+00	ug/m^3	3.0E-04	mg/kg/day	3.9E-03	(mg/kg-day)-1	1.1E-06	8.7E-04	mg/kg/day	2.9E-01	mg/kg-day	3.0E-03
				Tetrachloroethene	2.5E+00	ug/m^3	1.6E-04	mg/kg/day	1.0E-02	(mg/kg-day)-1	1.6E-06	4.6E-04	mg/kg/day	1.7E-01	mg/kg-day	2.7E-03
				Toluene	3.0E+01	ug/m^3	1.9E-03	mg/kg/day	N/A	N/A	--	5.4E-03	mg/kg/day	1.1E-01	mg/kg-day	4.7E-02
				Trichloroethene	3.7E+00	ug/m^3	2.3E-04	mg/kg/day	4.0E-01	(mg/kg-day)-1	9.1E-05	6.6E-04	mg/kg/day	1.0E-02	mg/kg-day	6.6E-02
				Xylene	1.8E+01	ug/m^3	1.1E-03	mg/kg/day	N/A	N/A	--	3.3E-03	mg/kg/day	2.9E-02	mg/kg-day	1.2E-01
			Exp. Route Total								1.0E-04					5.6E-01
		Exposure Point Total									1E-04					6E-01

NA = Not Available. Toxicity value is not available.

Table 26
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 4 - Resident - Child (Indoor Air)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Indoor Air	Indoor Air	Area 4	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	4.5E+02	ug/m^3	2.0E-02	mg/kg/day	N/A	N/A	--	2.4E-01	mg/kg/day	6.3E-01	mg/kg-day	3.8E-01
				1,1-Dichloroethane	5.3E+00	ug/m^3	2.4E-04	mg/kg/day	N/A	N/A	--	2.8E-03	mg/kg/day	1.4E-01	mg/kg-day	2.0E-02
				1,1-Dichloroethene	9.3E+00	ug/m^3	4.2E-04	mg/kg/day	N/A	N/A	--	4.9E-03	mg/kg/day	5.7E-02	mg/kg-day	8.6E-02
				1,2-Dichloroethane	1.8E-01	ug/m^3	8.3E-06	mg/kg/day	9.1E-02	(mg/kg-day)-1	7.5E-07	9.7E-05	mg/kg/day	1.4E-03	mg/kg-day	6.9E-02
				1,2-Dichloroethene (cis)	2.2E-01	ug/m^3	9.9E-06	mg/kg/day	N/A	N/A	--	1.2E-04	mg/kg/day	1.0E-02	mg/kg-day	1.2E-02
				Benzene	6.1E+00	ug/m^3	2.8E-04	mg/kg/day	2.7E-02	(mg/kg-day)-1	7.5E-06	3.2E-03	mg/kg/day	8.6E-03	mg/kg-day	3.8E-01
				Ethylbenzene	4.8E+00	ug/m^3	2.2E-04	mg/kg/day	3.9E-03	(mg/kg-day)-1	8.4E-07	2.5E-03	mg/kg/day	2.9E-01	mg/kg-day	8.9E-03
				Tetrachloroethene	2.5E+00	ug/m^3	1.1E-04	mg/kg/day	1.0E-02	(mg/kg-day)-1	1.1E-06	1.3E-03	mg/kg/day	1.7E-01	mg/kg-day	7.8E-03
				Toluene	3.0E+01	ug/m^3	1.4E-03	mg/kg/day	N/A	N/A	--	1.6E-02	mg/kg/day	1.1E-01	mg/kg-day	1.4E-01
				Trichloroethene	3.7E+00	ug/m^3	1.7E-04	mg/kg/day	4.0E-01	(mg/kg-day)-1	6.6E-05	1.9E-03	mg/kg/day	1.0E-02	mg/kg-day	1.9E-01
				Xylene	1.8E+01	ug/m^3	8.3E-04	mg/kg/day	N/A	N/A	--	9.6E-03	mg/kg/day	2.9E-02	mg/kg-day	3.4E-01
			Exp. Route Total								7.7E-05					1.6E+00
		Exposure Point Total									8E-05					2E+00

NA = Not Available. Toxicity value is not available.

Table 27
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Adult (Soil Gas)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Soil Gas	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	7.9E-01	ug/m^3	4.9E-05	mg/kg/day	N/A	N/A	--	1.4E-04	mg/kg/day	6.3E-01	mg/kg-day	2.3E-04
				1,1-Dichloroethane	9.6E-02	ug/m^3	5.9E-06	mg/kg/day	N/A	N/A	--	1.7E-05	mg/kg/day	1.4E-01	mg/kg-day	1.2E-04
				1,1-Dichloroethene	1.3E-01	ug/m^3	8.3E-06	mg/kg/day	N/A	N/A	--	2.4E-05	mg/kg/day	5.7E-02	mg/kg-day	4.2E-04
				1,2-Dichloroethene (cis)	1.5E-01	ug/m^3	9.5E-06	mg/kg/day	N/A	N/A	--	2.8E-05	mg/kg/day	1.0E-02	mg/kg-day	2.8E-03
				Tetrachloroethene	1.4E-01	ug/m^3	8.5E-06	mg/kg/day	1.0E-02	(mg/kg-day)-1	8.5E-08	2.5E-05	mg/kg/day	1.7E-01	mg/kg-day	1.5E-04
				Toluene	6.6E-02	ug/m^3	4.1E-06	mg/kg/day	N/A	N/A	--	1.2E-05	mg/kg/day	1.1E-01	mg/kg-day	1.1E-04
				Trichloroethene	1.4E-01	ug/m^3	8.5E-06	mg/kg/day	4.0E-01	(mg/kg-day)-1	3.4E-06	2.5E-05	mg/kg/day	1.0E-02	mg/kg-day	2.5E-03
				Xylene	5.9E-02	ug/m^3	3.7E-06	mg/kg/day	N/A	N/A	--	1.1E-05	mg/kg/day	2.9E-02	mg/kg-day	3.8E-04
			Exp. Route Total								3.5E-06					6.6E-03
		Exposure Point Total									3E-06					7E-03

NA = Not Available. Toxicity value is not available.

Table 28
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Child (Soil Gas)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Soil Gas	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	7.9E-01	ug/m^3	3.6E-05	mg/kg/day	N/A	N/A	--	4.2E-04	mg/kg/day	6.3E-01	mg/kg-day	6.7E-04
				1,1-Dichloroethane	9.6E-02	ug/m^3	4.3E-06	mg/kg/day	N/A	N/A	--	5.1E-05	mg/kg/day	1.4E-01	mg/kg-day	3.6E-04
				1,1-Dichloroethene	1.3E-01	ug/m^3	6.0E-06	mg/kg/day	N/A	N/A	--	7.1E-05	mg/kg/day	5.7E-02	mg/kg-day	1.2E-03
				1,2-Dichloroethene (cis)	1.5E-01	ug/m^3	6.9E-06	mg/kg/day	N/A	N/A	--	8.1E-05	mg/kg/day	1.0E-02	mg/kg-day	8.1E-03
				Tetrachloroethene	1.4E-01	ug/m^3	6.2E-06	mg/kg/day	1.0E-02	(mg/kg-day)-1	6.2E-08	7.3E-05	mg/kg/day	1.7E-01	mg/kg-day	4.3E-04
				Toluene	6.6E-02	ug/m^3	3.0E-06	mg/kg/day	N/A	N/A	--	3.5E-05	mg/kg/day	1.1E-01	mg/kg-day	3.1E-04
				Trichloroethene	1.4E-01	ug/m^3	6.2E-06	mg/kg/day	4.0E-01	(mg/kg-day)-1	2.5E-06	7.2E-05	mg/kg/day	1.0E-02	mg/kg-day	7.2E-03
				Xylene	5.9E-02	ug/m^3	2.7E-06	mg/kg/day	N/A	N/A	--	3.2E-05	mg/kg/day	2.9E-02	mg/kg-day	1.1E-03
			Exp. Route Total								2.5E-06					1.9E-02
		Exposure Point Total									3E-06					2E-02

NA = Not Available. Toxicity value is not available.

Table 29
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Adult (Groundwater)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Groundwater	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	5.2E+00	ug/m^3	3.3E-04	mg/kg/day	N/A	N/A	--	9.5E-04	mg/kg/day	6.3E-01	mg/kg-day	1.5E-03
				1,2-Dichloroethene (cis)	1.5E+01	ug/m^3	9.3E-04	mg/kg/day	N/A	N/A	--	2.7E-03	mg/kg/day	1.0E-02	mg/kg-day	2.7E-01
				Tetrachloroethene	9.4E-02	ug/m^3	5.8E-06	mg/kg/day	1.0E-02	(mg/kg-day)-1	5.8E-08	1.7E-05	mg/kg/day	1.7E-01	mg/kg-day	1.0E-04
				Trichloroethene	1.5E-02	ug/m^3	9.6E-07	mg/kg/day	4.0E-01	(mg/kg-day)-1	3.8E-07	2.8E-06	mg/kg/day	1.0E-02	mg/kg-day	2.8E-04
				Vinyl Chloride	3.5E-01	ug/m^3	2.2E-05	mg/kg/day	3.1E-02	(mg/kg-day)-1	6.8E-07	6.4E-05	mg/kg/day	2.9E-02	mg/kg-day	2.2E-03
			Exp. Route Total								1.1E-06					2.8E-01
		Exposure Point Total									1E-06					3E-01

NA = Not Available. Toxicity value is not available.

Table 30
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Child (Groundwater)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Groundwater	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	5.2E+00	ug/m^3	2.4E-04	mg/kg/day	N/A	N/A	--	2.8E-03	mg/kg/day	6.3E-01	mg/kg-day	4.4E-03
				1,2-Dichloroethene (cis)	1.5E+01	ug/m^3	6.8E-04	mg/kg/day	N/A	N/A	--	8.0E-03	mg/kg/day	1.0E-02	mg/kg-day	8.0E-01
				Tetrachloroethene	9.4E-02	ug/m^3	4.3E-06	mg/kg/day	1.0E-02	(mg/kg-day)-1	4.3E-08	5.0E-05	mg/kg/day	1.7E-01	mg/kg-day	2.9E-04
				Trichloroethene	1.5E-02	ug/m^3	7.0E-07	mg/kg/day	4.0E-01	(mg/kg-day)-1	2.8E-07	8.2E-06	mg/kg/day	1.0E-02	mg/kg-day	8.2E-04
				Vinyl Chloride	3.5E-01	ug/m^3	1.6E-05	mg/kg/day	3.1E-02	(mg/kg-day)-1	5.0E-07	1.9E-04	mg/kg/day	2.9E-02	mg/kg-day	6.6E-03
			Exp. Route Total								8.2E-07					8.1E-01
		Exposure Point Total									8E-07					8E-01

NA = Not Available. Toxicity value is not available.

Table 31
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Adult (Indoor Air)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Indoor Air	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	4.2E+01	ug/m^3	2.6E-03	mg/kg/day	N/A	N/A	--	7.7E-03	mg/kg/day	6.3E-01	mg/kg-day	1.2E-02
				1,1-Dichloroethene	6.9E-01	ug/m^3	4.3E-05	mg/kg/day	N/A	N/A	--	1.2E-04	mg/kg/day	5.7E-02	mg/kg-day	2.2E-03
				1,2-Dichloroethane	4.5E-01	ug/m^3	2.8E-05	mg/kg/day	9.1E-02	(mg/kg-day)-1	2.5E-06	8.1E-05	mg/kg/day	1.4E-03	mg/kg-day	5.8E-02
				Benzene	1.9E+01	ug/m^3	1.2E-03	mg/kg/day	2.7E-02	(mg/kg-day)-1	3.2E-05	3.4E-03	mg/kg/day	8.6E-03	mg/kg-day	4.0E-01
				Ethylbenzene	1.3E+01	ug/m^3	8.1E-04	mg/kg/day	3.9E-03	(mg/kg-day)-1	3.1E-06	2.4E-03	mg/kg/day	2.9E-01	mg/kg-day	8.3E-03
				Tetrachloroethene	9.5E-01	ug/m^3	5.9E-05	mg/kg/day	1.0E-02	(mg/kg-day)-1	5.9E-07	1.7E-04	mg/kg/day	1.7E-01	mg/kg-day	1.0E-03
				Toluene	4.1E+01	ug/m^3	2.6E-03	mg/kg/day	N/A	N/A	--	7.5E-03	mg/kg/day	1.1E-01	mg/kg-day	6.6E-02
				Trichloroethene	1.9E-01	ug/m^3	1.2E-05	mg/kg/day	4.0E-01	(mg/kg-day)-1	4.8E-06	3.5E-05	mg/kg/day	1.0E-02	mg/kg-day	3.5E-03
				Vinyl Chloride	9.5E-02	ug/m^3	5.9E-06	mg/kg/day	3.1E-02	(mg/kg-day)-1	1.8E-07	1.7E-05	mg/kg/day	2.9E-02	mg/kg-day	6.0E-04
				Xylene	6.8E+01	ug/m^3	4.2E-03	mg/kg/day	N/A	N/A	--	1.2E-02	mg/kg/day	2.9E-02	mg/kg-day	4.3E-01
			Exp. Route Total								4.3E-05					9.8E-01
		Exposure Point Total									4E-05					1E+00

NA = Not Available. Toxicity value is not available.

Table 32
Calculation of Chemical Cancer Risks and Non-Cancer Hazards
Reasonable Maximum Exposure
Area 7 - Resident - Child (Indoor Air)
Southeast Rockford Indoor Air Sampling
Final

Scenario Timeframe:	Current
Receptor Population:	Resident
Receptor Age:	Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
							Intake/ Exposure Concentration		CSF/Unit Risk		Cancer	Intake/ Exposure Concentration		RfD/RfC		Hazard
					Value	Units	Value	Units	Value	Units	Risk	Value	Units	Value	Units	Quotient
Indoor Air	Indoor Air	Area 7	Inhalation	**VOCs**												
				1,1,1-Trichloroethane	4.2E+01	ug/m^3	1.9E-03	mg/kg/day	N/A	N/A	--	2.2E-02	mg/kg/day	6.3E-01	mg/kg-day	3.6E-02
				1,1-Dichloroethene	6.9E-01	ug/m^3	3.1E-05	mg/kg/day	N/A	N/A	--	3.6E-04	mg/kg/day	5.7E-02	mg/kg-day	6.4E-03
				1,2-Dichloroethane	4.5E-01	ug/m^3	2.0E-05	mg/kg/day	9.1E-02	(mg/kg-day)-1	1.8E-06	2.4E-04	mg/kg/day	1.4E-03	mg/kg-day	1.7E-01
				Benzene	1.9E+01	ug/m^3	8.6E-04	mg/kg/day	2.7E-02	(mg/kg-day)-1	2.3E-05	1.0E-02	mg/kg/day	8.6E-03	mg/kg-day	1.2E+00
				Ethylbenzene	1.3E+01	ug/m^3	5.9E-04	mg/kg/day	3.9E-03	(mg/kg-day)-1	2.3E-06	6.9E-03	mg/kg/day	2.9E-01	mg/kg-day	2.4E-02
				Tetrachloroethene	9.5E-01	ug/m^3	4.3E-05	mg/kg/day	1.0E-02	(mg/kg-day)-1	4.3E-07	5.0E-04	mg/kg/day	1.7E-01	mg/kg-day	3.0E-03
				Toluene	4.1E+01	ug/m^3	1.9E-03	mg/kg/day	N/A	N/A	--	2.2E-02	mg/kg/day	1.1E-01	mg/kg-day	1.9E-01
				Trichloroethene	1.9E-01	ug/m^3	8.8E-06	mg/kg/day	4.0E-01	(mg/kg-day)-1	3.5E-06	1.0E-04	mg/kg/day	1.0E-02	mg/kg-day	1.0E-02
				Vinyl Chloride	9.5E-02	ug/m^3	4.3E-06	mg/kg/day	3.1E-02	(mg/kg-day)-1	1.3E-07	5.0E-05	mg/kg/day	2.9E-02	mg/kg-day	1.8E-03
				Xylene	6.8E+01	ug/m^3	3.1E-03	mg/kg/day	N/A	N/A	--	3.6E-02	mg/kg/day	2.9E-02	mg/kg-day	1.3E+00
			Exp. Route Total								3.2E-05					2.9E+00
		Exposure Point Total									3E-05					3E+00

NA = Not Available. Toxicity value is not available.

Table 33
Summary of Risks and Hazards
Reasonable Maximum Exposure
Southeast Rockford Indoor Air Sampling
Final

Receptor	Cancer Risk	Cancer Risk Note	Noncancer Hazard Index (HI)	Noncancer HI Note
AREA 4 - MODELED SOIL GAS TO INDOOR AIR				
Resident - Adult	9E-05	Within target risk range. Trichloroethene was 98 percent of total risk.	0.8	Total HI and HI values for individual target organs were below 1.
Resident - Child	7E-05	Within target risk range. Trichloroethene was 98 percent of total risk.	2	111-TCA (HI = 1.8) was 73 percent of total hazard. Target organ for 111-TCA has not been identified. HI values for individual target organs were below 1.
Total Resident - Combined Child/Adult Exposure	2E-04	Trichloroethene was 98 percent of total risk to receptor.	NA	HI value for adult and child receptors should not be combined.
AREA 4 - MEASURED INDOOR AIR				
Resident - Adult	1E-04	At upper end of target risk range. Trichloroethene was 87 percent and benzene was 10 percent of total risk. Benzene was not detected in soil gas.	0.6	Total HI and HI values for individual target organs were below 1.
Resident - Child	8E-05	Within target risk range. Trichloroethene was 87 percent and benzene was 10 percent of total risk. Benzene was not detected in soil gas.	2	Total HI value above 1. HI values for individual target organs were below 1.
Total Resident - Combined Child/Adult Exposure	2E-04	Trichloroethene was 87 percent and benzene was 10 percent of total risk. Benzene was not detected in soil gas.	NA	HI value for adult and child receptors should not be combined.
AREA 7 - SOIL GAS TO INDOOR AIR				
Resident - Adult	3E-06	Within target risk range. Trichloroethene was 98 percent of total risk.	0.007	HI values were below 1.
Resident - Child	3E-06	Within target risk range. Trichloroethene was 98 percent of total risk.	0.02	HI values were below 1.
Total Resident - Combined Child/Adult Exposure	6E-06	Within target risk range. Trichloroethene was 98 percent of total risk.	NA	HI value for adult and child receptors should not be combined.
AREA 7 - GROUNDWATER TO INDOOR AIR				
Resident - Adult	1E-06	Risk estimate is at lower end of target risk range.	0.3	HI values were below 1.
Resident - Child	8E-07	Risk estimate is below 1e-6.	0.8	HI values were below 1.
Total Resident - Combined Child/Adult Exposure	2E-06	Vinyl chloride was 60 percent and trichloroethene was 34 percent of total risk.	NA	HI value for adult and child receptors should not be combined.
AREA 7 - MEASURED INDOOR AIR				
Resident - Adult	4E-05	Within target risk range. Benzene was 74 percent and trichloroethene was 11 percent of total risk.	1	Total HI value equal to 1. HI values for individual target organs were below 1.
Resident - Child	3E-05	Within target risk range. Benzene was 74 percent and trichloroethene was 11 percent of total risk.	3	Total HI value above 1. HI values for individual target organs were above 1 of blood (HI=1.2, from benzene) and CNS (HI=1.5, from xylene).
Total Resident - Combined Child/Adult Exposure	7E-05	Within target risk range. Benzene was 74 percent and trichloroethene was 11 percent of total risk.	NA	HI value for adult and child receptors should not be combined.

Cancer risks: An excess lifetime cancer risk of 1E-06 indicates that an individual experiencing the reasonable maximum exposure has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. EPA's generally acceptable risk range for site-related exposures is 1E-06 to 1E-04 (one in one million to one in ten thousand).

Noncancer hazards: EPA Risk Assessment Guidance for Superfund (EPA 1989) states that, generally, a hazard index (HI) greater than 1 indicates the potential for adverse noncancer effects.

Appendix A

Soil Boring Logs

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-01

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/30	0	0.0	---		ASPHALT	GRAVEL/ASPHALT STREET
							FILL	FILL-silty sand, medium dense, dark brown, trace gravel, moist
							FILL	FILL-silty sand, loose, light brown, trace gravel, dry
							SM	SILTY SAND-loose, dark brown to black, trace brick pieces, dry
GP	B	48/28	5	0.0	---			
GP	C	48/16	10	0.0	---		ML	SANDY SILT-stiff, dark brown, dry to moist
							SP	SAND-medium stiff, light brown, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 10'-11' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-02

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/40	0		—		ASPHALT	GRAVEL/ASPHALT STREET
							FILL	FILL-loose silty sand, light brown, trace coarse sand, trace gravel, dry
							SP	SAND-loose, brown, medium to coarse grained, dry Rock @ 6'
GP	B	48/24	5		—			
GP	C	48/31	10		—		SP	SAND-loose, light brown, medium grained, dry
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-03

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/30	0	0.0	—		ASPHALT FILL ML	GRAVEL/ASPHALT FILL-silty sand, loose with little gravel, dry SANDY SILT-stiff, dark brown, dry
GP	B	48/27	5	0.0	—		SP	SAND-loose, light brown, medium grained, dry
GP	C	48/28	10	0.0	—			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample and duplicate for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-04

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/28	0	0.0	---		ASPHALT FILL ML	ASPHALT/GRAVEL FILL-silty sand, light brown, loose, little gravel, dry SANDY SILT-stiff, dark brown, dry
GP	B	48/22	5	0.0	---			
GP	C	48/23	10	0.0	---		SP	SAND-medium dense, light brown, medium, little silt, dry to moist 2" concrete piece in bottom of 8-12' core, no resistance
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-05

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/30	0	0	---		ASPHALT	ASPHALT/GRAVEL
							SM	SILTY SAND-medium dense, dark brown to black, fine to medium grained, dry
							SP	2" little brick pieces and concrete pieces at 2'
								SAND-loose with little silt, brown, medium to coarse, dry
GP	B	48/27	5	0	---		SP	SAND-medium dense, brown to light brown, fine to medium grained, dry
								Sand looser at 8'
GP	C	48/30	10	0	---		SP	SAND-loose, brown to light brown, fine to medium grained, dry
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-06

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/42	0	0.0	---		ASPHALT FILL CL	ASPHALT/GRAVEL FILL-sand and gravel, loose, brown to black, dry SILTY CLAY-stiff, dark brown to black, dry
GP	B	48/17	5	0.0	---		SP	SAND-loose, brown, fine to medium grained, dry very soft, easy push 4-8'
GP	C	48/24	10	0.0	---		SP	SAND-loose, light brown, fine to medium grained, dry
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-07

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/29	0	0.0	---		ASPHALT	ASPHALT
							FILL	FILL-silty sand, loose, light brown, little gravel, dry
							FILL	FILL-medium dense, medium brown, trace gravel, dry
							SP	SAND-medium dense, light brown, little silt, dry
GP	B	48/30	5	0.0	---		SP	SAND-medium dense, light brown to brown, fine to medium grained, dry
GP	C	48/28	10	0.0	---		SP	SAND-loose, medium dense, light brown to brown, fine to medium grained, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-08

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/10/03 **End:** 7/10/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/36	0	0.0	---	ASPHALT	SP	ASPHALT/STREET SAND-medium dense, dark brown to brown, fine to medium grained, little silt, dry
GP	B	48/28	5	0.0	---		SP	SAND-light brown, fine grained, trace silt, dry
GP	C	48/26	10	0.0	---		SP	SAND-light brown, fine to medium grained, trace silt, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-09

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/36	0	0.0	---		ASPHALT FILL CL	ASPHALT/STREET FILL-fine to medium loose silty sand, light brown, trace gravel SILTY CLAY-stiff, dark brown to black, trace gravel pieces, dry
GP	B	48/30	5	0.0	---		CL	SANDY CLAY-very stiff, dark brown to black, little silt, dry to moist
GP	C	48/30	10	0.0	---		SP	SAND-loose, brown to light brown, fine to medium grained, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-10

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/48	0	0.0	---		ASPHALT CL	ASPHALT/STREET SILTY CLAY-very stiff, dark brown to black, little sand, trace gravel, dry Looser sandy clay @ 5-5.5'
GP	B	48/15	5	0.0	---			
GP	C	48/48	10	0.0	---		SP	SAND-loose, brown, fine to medium grained, moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample and duplicate for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-11

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/23	0	0.0	---		ASPHALT FILL CL	ASPHALT/STREET FILL-loose silty sand, light brown, fine to medium grained, trace gravel, dry SILTY CLAY-stiff, dark brown to black, little sand, dry
GP	B	48/26	5	0.0	---		CL	SILTY CLAY-stiff, dark brown to black, some sand, dry
							SP	SAND-loose, brown, fine to medium grained, moist
GP	C	48/25	10	0.0	---		SP	SAND-loose, brown, fine to medium grained, moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-12

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/35	0	0.0	---		ASPHALT FILL CL	ASPHALT//STREET FILL-silty, loose, light brown, fine to medium grained, little gravel, dry CLAY-very stiff, dark brown to black, some sand, dry
GP	B	48/27	5	0.0	---		CL	SANDY CLAY-medium stiff, dark brown to black, fine to medium grained, dry
GP	C	48/24	10	0.0	---		SC SP	CLAYEY SAND-loose to medium dense, brown to dark brown, fine to medium grained, dry SAND-loose, brown to dark brown, fine to medium grained, little clay, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-13

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4

Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/45	0	0.0	---		ASPHALT FILL SC	ASPHALT/STREET FILL-concrete/gravel CLAYEY SAND-loose to medium stiff, light brown to brown, fine to medium grained, dry
GP	B	48/36	5	0.0	---		SC	CLAYEY SAND-loose, light brown to brown, fine to medium grained, dry Some 2" zones of sandy clay, medium stiff, dry
GP	C	48/25	10	0.0	---		SP	SAND-loose, light brown to brown, fine to medium grained, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-14

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/34	0	0.0	---		ASPHALT FILL SP	ASPHALT/STREET FILL-concrete/gravel SAND-loose, brown, fine to medium grained, dry
GP	B	48/18	5	0.0	---		SP	SAND-loose, brown, fine to medium grained, dry to moist
GP	C	48/16	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-15

Client: Illinois Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 4
Project Name: Southeast Rockford Superfund Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/11/03 **End:** 7/11/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Aimee Vessell

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	A	48/37	0	0.0	--		ASPAHLT FILL SP	ASPHALT/STREET FILL-asphalt/concrete/gravel SAND-loose, brown, fine to medium grained, dry
GP	B	48/25	5	0.0	--		SP	SAND-loose, brown, fine to medium grained, dry @ 7.5' - 2" silty clay, medium stiff, black, dry
GP	C	48/48	10	0.0	--		SP	SAND-loose, brown, fine to medium grained, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-16

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/7/03 **End:** 7/7/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0				TOPSOIL	GRASS COVER, TOP 6" TOPSOIL
GP	1	48/48		0.0	—		SP	SAND-medium dense, brown, fine to medium grained, trace silt, trace gravel, dry to moist
GP	2	48/48	5	0.0	—		SM	SILTY SAND-dense, brown, some silt, trace gravel, dry to moist
GP	3	48/48	10	0.0	—			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-17

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/7/03 **End:** 7/7/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/48	0	0.0	---		TOPSOIL SM	GRASS COVER, TOP 6" TOPSOIL SILTY SAND-medium dense, brown, dry to moist
GP	2	48/48	5	0.0	---			
GP	3	48/48	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-18

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	GRASS COVER, TOP 1" TOPSOIL
GP	1	48/44		0.0			SC	CLAYEY SAND-medium dense, brown, moist 1" sand seam @ 3' bgs.
GP	2	48/40	5	0.0	---			
GP	3	48/30	10	0.0	---		SM	SILTY SAND-medium dense, light brown, trace gravel, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-19

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	GRASS COVER, TOP 1" TOPSOIL
GP	1	48/40		0.0			SC	CLAYEY SAND-medium dense, dark brown, trace gravel, moist
GP	2	48/47	5	0.0	---		SM	SILTY SAND-medium dense, light brown, trace clay, trace gravel, dry to moist
GP	3	48/48	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-20

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		--		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
GP	1	48/48		0.0			ML	SANDY SILT-stiff, dark brown, trace gravel, moist
GP	2	48/44	5	0.0	--		SM	SILTY SAND-medium dense, light brown, trace clay, trace gravel, dry to moist
GP	3	48/48	10	0.0	--			
							SP	SAND-medium dense, fine to medium grained
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-21

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
GP	1	48/40		0.0			SC	CLAYEY SAND-medium dense, dark brown, trace gravel, moist
GP	2	48/40	5	0.0	---		ML	SANDY SILT-stiff to very stiff, brown, trace gravel, moist
GP	3	48/48	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-22

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	GRASS COVER, TOP 8" TOPSOIL
GP	1	48/40		0.0			SC	CLAYEY SAND-medium dense, dark brown, trace gravel, moist
GP	2	48/40	5	0.0	---		ML	SANDY SILT-very stiff, brown, trace gravel, dry to moist
GP	3	48/48	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-23

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/36	0	0.0	---		TOPSOIL CL	GRASS COVER, TOP 6" TOPSOIL SANDY CLAY-stiff, dark brown, trace to little gravel, moist
GP	2	48/40	5	0.0	---		SM	SILTY SAND-medium dense, brown, trace gravel, dry to moist
GP	3	48/40	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-24

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/8/03 **End:** 7/8/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/44	0	0.0	--		TOPSOIL SC	GRASS COVER, TOP 6" TOPSOIL CLAYEY SAND-medium dense, dark brown, trace gravel, moist
GP	2	48/48	5	0.0	--		ML	SANDY SILT-very stiff to hard, brown, trace gravel, dry to moist 1' silty sand seam 10-11'
GP	3	48/48	10	0.0	--			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-25

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		--		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
GP	1	48/48		0.0			ML	SANDY SILT-stiff, dark brown, trace clay, trace gravel, moist
GP	2	48/36	5	0.0	--		ML	SANDY SILT-very stiff, brown, trace gravel, dry to moist
GP	3	48/40	10	0.0	--			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-26

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/36	0	0.0	—		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
							CL	SANDY CLAY-medium stiff, dark brown, moist
							SM	SILTY SAND-medium dense, light brown, trace clay, trace gravel, moist
GP	2	48/30	5	0.0	—			6" clayey silt @ 7.5-8' bgs.
GP	3	48/40	10	0.0	—		ML	SANDY SILT-very stiff, light brown, trace gravel, moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-27

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E
Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
GP	1	48/44		0.0			ML	SILT-very stiff to hard, brown to dark brown, trace clay, trace gravel, moist
GP	2	48/30	5	0.0	---		SM	SILTY SAND-medium dense, light brown, fine grained, trace to little silt, dry to moist
GP	3	48/36	10	0.0	---		SM	SILTY SAND-very stiff, light brown, fine grained sand, dry to moist 3" sandy silt seam @ 7.5' 8" of fine grained sand @ 11.25-12' bgs.
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-28

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/24	0	0.0	--		TOPSOIL	GRASS COVER, TOP 6" TOPSOIL
							ML	SANDY SILT-stiff, dark brown, trace clay, trace gravel, moist
							ML	SANDY SILT-stiff, light brown, trace gravel, dry to moist
GP	2	48/40	5	0.0	--			
							SM	SILTY SAND-medium dense, light brown, fine to medium grained sand, dry to moist
GP	3	48/40	10	0.0	--		SP	SAND-medium dense, brown, fine to medium grained, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-29

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/40	0	0.0	---		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
							CL	SANDY CLAY-stiff, dark brown, trace gravel, moist
GP	2	48/40	5	0.0	---		SM	SILTY SAND-medium dense, light brown, fine grained sand, little silt, dry to moist
GP	3	48/30	10	0.0	---			
							ML	SILT-light brown, little sand, dry to moist
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 10'-11' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE

CDM

125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-30

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7

Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
GP	1	48/36	0	0.0	--		TOPSOIL	GRASS COVER, TOP 12" TOPSOIL
							CL	SANDY CLAY-dark brown, trace sand, trace gravel, moist
							SP	SAND-brown, little silt, dry to moist
GP	2	48/40	5	0.0	--		ML	SANDY SILT-stiff, light brown, trace gravel, moist 3" sand seam @ 6' bgs. 2" sand seam @ 7' bgs.
GP	3	48/48	10	0.0	--			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 10'-11' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-36

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0				TOPSOIL	TALL GRASS COVER, TOP 12" TOPSOIL
GP	1	48/40		0.0	--		SM	SILTY SAND-medium dense, fine grained sand, trace gravel, dry to moist
GP	2	48/40	5	0.0	--		ML	SANDY SILT-very stiff, light brown, trace gravel, dry to moist coarse sand @ 11.5-12' bgs.
GP	3	48/48	10	0.0	--			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-48

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	TALL GRASS COVER, TOP 12" TOPSOIL
GP	1	48/40		0.0			SM	SILTY SAND-medium dense, fine to medium grained, trace gravel, dry to moist
GP	2	48/48	5	0.0	---			
GP	3	48/48	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
BX - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

CAMP DRESSER & McKEE
CDM
125 South Wacker Drive, Suite 600
Chicago, Illinois 60606

BOREHOLE LOG
GP-49

Client: Illionis Environmental Protection Agency
Project Location: Rockford, IL - SCOU Area 7
Project Name: Southeast Rockford Superfnd Site
Project Number: 1681-38601

Drilling Contractor: Soil Essentials
Drilling Method/Rig: Direct Push/Geoprobe
Drillers: David Paulson
Drilling Date: Start: 7/9/03 **End:** 7/9/03
Borehole Coordinates:
N E

Surface Elevation (ft.):
Total Depth (ft.): 12
Depth to Initial Water Level (ft. BGS): Not Encountered
Abandonment Method: Soil Cuttings/Granular Bentonite
Field Screening Instrument: PID
Logged By: Mark Peters

Sample Type	Sample Number	Sample Recovery (Inches)	Elev. Depth (ft.)	Field Instrument Reading (ppm)	Blows per 6 Inches	Graphic Log	Stratum Designation	Material Description
			0		---		TOPSOIL	TALL GRASS COVER, TOP 12" TOPSOIL
GP	1	48/48		0.0			ML	SANDY SILT-stiff, dark brown, trace clay, trace gravel, dry to moist
GP	2	48/48	5	0.0	---		SM	SILTY SAND-medium dense, light brown, fine grained, trace gravel, moist
GP	3	48/44	10	0.0	---			
			15					End of Boring @ 12 feet bgs.

EXPLANATION OF ABBREVIATIONS

DRILLING METHODS:
HSA - Hollow Stem Auger
SSA - Solid Stem Auger
HA - Hand Auger
AR - Air Rotary
DTR - Dual Tube Rotary
FR - Foam Rotary
MR - Mud Rotary
RC - Reverse Circulation
CT - Cable Tool
JET - Jetting
D - Driving
DTC - Drill Through Casing

SAMPLING TYPES:
AS - Auger/Grab Sample
CS - California Sampler
8X - 1.5" Rock Core
NX - 2.1" Rock Core
GP - Geoprobe
HP - Hydro Punch
SS - Split Spoon
ST - Shelby Tube
WS - Wash Sample
OTHER:
AGS - Above Ground Surface

REMARKS

Submitted 11'-12' sample for VOC analysis

Reviewed by: **Date:**

Appendix B

Data Validation Results

JUL 3 0 2003

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: _____

SUBJECT: Review of Data
Received for Review on July 21, 2003

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE NAME: Southeast Rockford Groundwater Contamination (IL)

CASE NUMBER: 31901 SDG NUMBER: E00A1

Number and Type of Samples: 16 Soils

Sample Numbers: E00A1, E00A3, E00A4, E00A7 - E00A9, E00B0 - E00B9

Laboratory: Ceimic Hrs. for Review: _____

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

ase Number : 31901
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL)

SDG Number: E00A1
Laboratory: CEIMIC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Sixteen (16) soil samples, numbered *E00A1, E00A3, E00A4, E00A7* through *E00A9* and *E00B0* through *E00B9* were collected *July 10 - 11, 2003*. The lab received the samples on *July 11th and 14th, 2003* in good condition. All samples were analyzed for only the volatile list of organic analytes. All were analyzed according to CLP SOW *OLM04.3*.

Reviewed By: Allison Harvey/ESAT
Date: July 28, 2003

Case Number : 31901 SDG Number: E00A1
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

1. HOLDING TIME

No defects found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No defects found.

3. CALIBRATION

The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has relative response factors (RRFs) outside primary criteria. Hits are flagged "J" and non-detects are qualified "R".

1,2-Dibromo-3-chloropropane
E00A1, E00A3, E00A4, E00A7, E00A8, E00A9, E00A9MS, E00A9MSD, E00B0, E00B1, E00B2, E00B3, E00B4, E00B5, E00B6, E00B7, E00B8, E00B9, VBLKQR, VBLKQS, VBLKQT, VHBLK01

The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has percent relative standard deviation (%RSD) outside primary criteria. Hits are qualified "J" and non-detects are flagged "UJ".

Acetone, Methylene Chloride
E00A1, E00A3, E00A4, E00A7, E00A8, E00A9, E00A9MS, E00A9MSD, E00B0, E00B1, E00B2, E00B3, E00B4, E00B5, E00B6, E00B7, E00B8, E00B9, VBLKQR, VBLKQS, VBLKQT, VHBLK01

The following volatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Methylene Chloride
E00B0, E00B2, E00B3, E00B5, E00B8, VBLKQS

Cyclohexane, Methylcyclohexane, 1,2,4-Trichlorobenzene
E00A9MS, E00A9MSD, E00B1, E00B4, E00B6, E00B7, E00B9, VBLKQT, VHBLK01

4-Methyl-2-pentanone, 2-Hexanone
E00A1, E00A3, E00A4, E00A7, E00A8, E00A9, E00A9MS, E00A9MSD, E00B1, E00B4, E00B6, E00B7, E00B9, VBLKQR, VBLKQT, VHBLK01

4. BLANKS

Reviewed By: Allison Harvey/ESAT
Date: July 28, 2003

ase Number : 31901
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL)

SDG Number: E00A1
Laboratory: CEIMIC

The following volatile samples have analyte concentrations reported above the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Hits are qualified "U" or "UJ" and non-detects are not flagged.

Methylene Chloride
E00A1, E00A3, E00A4, E00A7, E00A8, E00A9, E00A9MS, E00A9MSD, E00B0, E00B1, E00B2, E00B3, E00B4, E00B5, E00B6, E00B7, E00B8, E00B9, VHBLK01

The following volatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL. Hits are qualified "U" or "UJ" and non-detects are not flagged.

Acetone
E00B2, E00B3, E00B5, E00B8

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

No defects found.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No defects found.

7. FIELD BLANK AND FIELD DUPLICATE

Sample *E00A4* is a field duplicate of Sample *E00A3*. Sample *E00B4* is a field duplicate of Sample *E00B3*. Results are summarized in the following table:

Analytes	E00A3	E00A4	E00B3	E00B4
	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Trichlorofluoromethane	1 J		2 J	
Acetone	7 J	8 J		6 J
# of TICs	1	1	1	

Results are not qualified based upon the results of the field blank or field duplicates.

8. INTERNAL STANDARDS

No defects found.

Reviewed By: Allison Harvey/ESAT
Date: July 28, 2003

ıse Number : 31901
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL)

SDG Number: E00A1
Laboratory: CEIMIC

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E00A1
Acetone, cis-1,2-Dichloroethane, 1,1,1-Trichloroethane

E00A3, E00A7, E00A9, E00A9MS, E00A9MSD
Trichlorofluoromethane, Acetone

E00A4, E00A8, E00B1, E00B4, E00B6, E00B7, E00B9, VBLKQS
Acetone

E00B2, E00B3, E00B5, E00B8
Trichlorofluoromethane

Adjusted CRQL values of the following volatile samples are less than the contract specified CRQLs. The contract specified CRQL values are used by CADRE during data validation and reported for non-detected compounds.

E00A7

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Verification of non-detected results and assignment of "U" qualifier when the reported value is less than CRQL.

E00A1, E00A3, E00A4, E00A7, E00A8, E00A9, E00A9MS, E00A9MSD, E00B0, E00B1, E00B2, E00B3, E00B4, E00B5, E00B6, E00B7, E00B8, E00B9, VBLKQR, VBLKQS, VBLKQT, VHBLK01

Reviewed By: Allison Harvey/ESAT
Date: July 28, 2003

JUL 28 2003

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: _____

SUBJECT: Review of Data
Received for Review on July 21, 2003

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE NAME: Southeast Rockford Groundwater Contamination (IL)

CASE NUMBER: 31901 SDG NUMBER: E0067

Number and Type of Samples: 20 Soils

Sample Numbers: E0067, E0068, E0070, E0072 - E0075, E0077, E0082 - E0084, E0086, E0087, E0089, E0091 - E0093, E0095, E0096, E00A0

Laboratory: Ceimic Hrs. for Review: _____

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

Case Number : 31901 SDG Number: E0067
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) soil samples, numbered *E0067, E0068, E0070, E0072* through *E0075, E0077, E0082* through *E0084, E0086, E0087, E0089, E0091* through *E0093, E0095, E0096* and *E00A0,* were collected *July 7 - 10, 2003.* The lab received the samples *July 8 - 11, 2003* in good condition. All samples were analyzed for only the volatile list of organic analytes. All were analyzed according to CLP SOW *OLM04.3.*

Reviewed By: Allison Harvey/ESAT
Date: July 25, 2003

ase Number : 31901 SDG Number: E0067
ite Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

1. HOLDING TIME

No defects found.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No defects found.

3. CALIBRATION

The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has relative response factors (RRFs) outside primary criteria. Hits are flagged "J" and non-detects are qualified "R".

1,2-Dibromo-3-chloropropane
E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKQQ

The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has percent relative standard deviation (%RSD) outside primary criteria. Hits are qualified "J" and non-detects are flagged "UJ".

Acetone
E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKQQ

Methylene Chloride
E0067, E0068, E0070, E0072, E0073, E0073MS, E0073MSD, E0074, E0075, E0077, E0082, E0083, E0084, E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKLF, VBLKLG, VBLKQQ

The following volatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Dichlorodifluoromethane, Methyl Acetate, Cyclohexane, Methylcyclohexane, 4-Methyl-2-pentanone
E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKQQ

Trichlorofluoromethane, 1,1,2-Trichloro-1,2,2-trifluoroethane
E0086MSD, VBLKOU, VBLKOX, VHBLK01

Methylene Chloride
E0067, E0068, E0070, E0072, E0073, E0074, E0075, E0077, E0082, VBLKLF

Reviewed By: Allison Harvey/ESAT
Date: July 25, 2003

Case Number : 31901 SDG Number: E0067
Site Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

2-Butanone
E0073MS, E0073MSD, E0083, E0084, VBLKLG

2-Hexanone
E0073MS, E0073MSD, E0083, E0084, E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKLG, VBLKQQ

The following volatile samples are associated with a continuing calibration in which a SMC/DMC exceeded percent difference (%D) criteria.

1,2-Dichloroethane-d4
E0086, E0086MS, E0086MSD, VBLKOU, VBLKOW, VBLKOX, VHBLK01

4. BLANKS

The following volatile samples have analyte concentrations reported above the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Hits are qualified "U" or "UJ" and non-detects are not flagged.

Methylene Chloride
E0067, E0068, E0070, E0072, E0073, E0073MS, E0073MSD, E0074, E0075, E0077, E0082, E0083, E0084, E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0

The following volatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL. Hits are qualified "U" and non-detects are not flagged.

Methylene Chloride
E0086, E0086MS, E0086MSD

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

No defects found.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

No defects found.

7. FIELD BLANK AND FIELD DUPLICATE

Sample *E0075* is a field duplicate of Sample *E0074*. Both samples reported no target analytes or TICs. Results are not qualified based upon the results of the field blank or field duplicates.

Reviewed By: Allison Harvey/ESAT
Date: July 25, 2003

ase Number : 31901 SDG Number: E0067
ite Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

8. INTERNAL STANDARDS

No defects found.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E0086, E0086MS, E0086MSD
cis-1,2-Dichloroethane, 1,1,1-Trichloroethane, Tetrachloroethene

E0087, E0091, E0092, E0093, E0095, E0096, E00A0
Acetone

E0089
Acetone, cis-1,2-Dichloroethane, 1,1,1-Trichloroethane, Trichloroethene, Tetrachloroethene

VBLKOU, VBLKOW, VBLKOX
Methylene Chloride

Adjusted CRQL values of the following volatile samples are less than the contract specified CRQLs. The contract specified CRQL values are used by CADRE during data validation and reported for non-detected compounds.

E0067, E0068, E0072, E0073MSD, E0077, E0082, E0083, E0084, E0086, E0086MS, E0086MSD, E0087, E0089, E0091, E0092, VBLKOW, VBLKOX

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Verification of non-detected results and assignment of "U" qualifier when the reported value is less than CRQL.

Reviewed By: Allison Harvey/ESAT
Date: July 25, 2003

ase Number : 31901 SDG Number: E0067
ite Name: SE ROCKFORD GROUNDWATER CONT. (IL) Laboratory: CEIMIC

E0067, E0068, E0070, E0072, E0073, E0073MS, E0073MSD, E0074, E0075, E0077, E0082, E0083, E0084, E0086, E0086MS, E0086MSD, E0087, E0089, E0091, E0092, E0093, E0095, E0096, E00A0, VBLKLF, VBLKLG, VBLKOU, VBLKOW, VBLKOX, VBLKQQ, VHBLK01

Reviewed By: Allison Harvey/ESAT
Date: July 25, 2003

AUG 0 1 2003

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: _____

SUBJECT: Review of Data
Received for Review on July 24, 2003

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: CDM

We have reviewed the data for the following case:

SITE NAME: Southeast Rockford Groundwater Contamination (IL)

CASE NUMBER: 31901 SDG NUMBER: E0069

Number and Type of Samples: 17 Waters

Sample Numbers: E0069, E0071, E0076, E0078 - E0081, E0085, E0088, E0090, E0094, E0097 - E0099, E00A2, E00A5, E00A6

Laboratory: A4 Scientific Hrs. for Review: _____

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

ase Number : 31901 SDG Number: E0069
Site Name: SE ROCKFORD GW CONTAMINATION (IL) Laboratory: A4 SCIENTIFIC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seventeen (17) preserved water samples, numbered *E0069, E0071, E0076, E0078* through *E0081, E0085, E0088, E0090, E0094, E0097* through *E0099, E00A2, E00A5* and *E00A6*, were collected *July 3rd and 7th thru 10th, 2003.* The lab received the samples *July 10 - 11, 2003* in good condition, except for 1 vial of sample E0078 which was received broken. All samples were analyzed for only the volatile list of organic analytes. All were analyzed according to CLP SOW *OLC03.2.*

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

1. HOLDING TIME

Following volatile preserved water samples exceeded technical holding time criteria. All detects are flagged "J" and non-detects are flagged "R".

E00A6

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No defects found.

3. CALIBRATION

The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has percent relative standard deviation (%RSD) outside primary criteria. Hits are qualified "J" and non-detects are flagged "UJ" unless qualified for another problem.

Bromomethane, Acetone, Methyl Acetate
E0069, E0071, E0076, E0078, E0079, E0079DL, E0080, E0080DL, E0080RE, E0081, E0085, E0088, E0088DL, E0088MS, E0088MSD, E0088MSDRE, E0088MSRE, E0090, E0090DL, E0094, E0094DL, E0097, E0098, E0098DL, E0099, E00A2, E00A2DL, E00A5, E00A6, VBLK17, VBLK18, VBLK19, VBLK20, VBLK21, VBLK22, VHBLK01

The following volatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ" unless qualified for another problem.

Acetone
E0069, E0071, E0078, E0080, E0080RE, E0088, E0088MS, E0088MSD, E0088MSDRE, E0088MSRE, VBLK17, VBLK20, VBLK21, VBLK22, VHBLK01

Methyl Acetate
E0076, E0079, E0079DL, E0080, E0080DL, E0080RE, E0081, E0085, E0088, E0088DL, E0088MS, E0088MSD, E0088MSRE, E0088MSDRE, E0090, E0090DL, E0094, E0094DL, E0097, E0098, E0098DL, E0099, E00A2, E00A2DL, E00A5, E00A6, VBLK18, VBLK19, VBLK20, VBLK21, VBLK22, VHBLK01

Methylcyclohexane
E0076, E0079, E0080, E0080DL, E0080RE, E0085, E0088, E0088MS, E0088MSD, E0088MSRE, E0088MSDRE, E0090, E0094, E0098, E0098DL, E00A2, E00A2DL, VBLK19, VBLK20, VBLK21

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

4-Methyl-2-pentanone, 2-Hexanone
E0076, E0079, E0079DL, E0080DL, E0081, E0085, E0088DL, E0090, E0090DL, E0094, E0094DL, E0097, E0098, E0098DL, E0099, E00A2, E00A2DL, E00A5, E00A6, VBLK18, VBLK19

Toluene, Tetrachloroethene
E0080RE, E0088MSRE, E0088MSDRE, VBLK21

1,2,3-Trichlorobenzene
VBLK22, VHBLK01

4. BLANKS

The following volatile samples have analyte concentrations reported below the CRQL. The associated method blank concentration is less than the concentration criteria. Reported sample concentrations have been elevated to the CRQL. Hits are qualified "U or UJ" and non-detects are not flagged unless qualified for another problem.

Acetone
E0080, E0080RE, E0090, E0094

Methylene Chloride
E0079, E0098

Benzene
E0079, E0081, E0090DL, E0094, E0094DL, E0097, E00A5, E00A6

Toluene
E0079DL, E0080DL, E0081, E0090DL, E0094DL, E0097, E0098DL, E00A5

The following volatile samples have analyte concentrations reported at or above the CRQL. The associated method blank concentration is less than the concentration criteria. Hits are qualified "U or UJ" and non-detects are not flagged unless qualified for another problem.

Acetone
E0079, E0080DL, E0085, E0088, E0088MS, E0088MSD, E0088MSDRE, E0088MSRE, E0098DL, E00A2DL

2-Butanone
E0079DL, E00A6

The following volatile samples have analyte concentrations reported at or above the CRQL and less than the method blank concentration. The associated method blank concentration is more than or

equal to the concentration criteria. Blank concentration value is reported as the sample result. Hits are qualified "U or UJ" and non-detects are not flagged.

Acetone
E0099, E00A5

The following volatile samples have analyte concentrations reported at or above the CRQL and more than or equal to the method blank concentration. The associated method blank concentration is more than or equal to the concentration criteria. Hits are qualified "U or UJ" and non-detects are not flagged.

Acetone
E0088DL, E0090DL, E0094DL

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

The following volatile samples have DMC recoveries above the upper limit of the criteria window. Hits are qualified "J" and non-detects are not flagged.

E0080RE
Dichlorodifluoromethane, Chloromethane, Bromomethane, Chloroethane, Carbon Disulfide

E0088MS, E0088MSDRE
1,1,2,2,-Tetrachloroethane, 1,2-Dibromo-3-chloropropane

E00A2
Vinyl Chloride

The following volatile samples have one or more DMC recovery values below the lower limit of the criteria window. Hits are biased low and qualified "J" and non-detects are qualified "UJ".

E0080
Benzene, Cyclohexane, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The relative percent difference (RPD) between the following volatile matrix spike and matrix spike duplicate recoveries is outside criteria. The presence of 1,1-Dichloroethene in the unspiked sample, E0088, is qualified "J" and non-detects are flagged "UJ".

E0088MS, E0088MSD
1,1-Dichloroethene

ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

The following volatile matrix spike/matrix spike duplicate samples have percent recovery outside criteria. The presence of Toluene in the unspiked sample, E0088, is qualified "J" and non-detects are not flagged.

E0088MS, E0088MSD
Toluene

7. FIELD BLANK AND FIELD DUPLICATE

Samples *E0081* and *E00A5* are trip blanks. Trip blank E0081 contained Acetone at 11 µg/L and no TICs. Trip blank E00A5 contained no target analytes and no TICs.

Sample *E0099* is a field blank. Sample *E0080* is a field duplicate of Sample *E0079*. Results are summarized in the following table:

	E0079	E0079DL	E0080	E0080DL	E0080RE	E0099
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Chloroethane			0.20 J		0.18 J	
Trichlorofluoromethane	0.78		0.90		1.9	
1,1-Dichloroethene	33		35		45	
Acetone		870				
Methylene Chloride			0.20 J		0.18 J	
trans-1,2-Dichloroethene	8.3		11		9.7	
1,1-Dichloroethane	110	98	110	110	130	
cis-1,2-Dichloroethene	730	800	750	890	770	
Chloroform	3.0		3.2		3.4	
1,1,1-Trichloroethane	280	260	210	300	360	
Carbon Tetrachloride	45	39 J	33	46 J	60	
Benzene			0.16 J		0.26 J	0.87
1,2-Dichloroethane	2.6		3.3		3.1	
Trichloroethene	74	79	61	93	100	
Toluene					0.19 J	1.7

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

	E0079	E0079DL	E0080	E0080DL	E0080RE	E0099
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,1,2-Trichloroethane	2.0		1.8		2.5	
Tetrachloroethene	48	40	36	44 J	58	
Ethylbenzene						0.32 J
Xylene (total)			0.35 J			1.8
1,3-Dichlorobenzene						0.18 J
1,4-Dichlorobenzene						0.19 J

Samples E0079, E0079DL, E0080, E0080DL, E0080RE and E0099 contained no TICs.

Results are not qualified based upon the results of the field blank or field duplicates.

8. INTERNAL STANDARDS

The following volatile samples have internal standard area counts that are outside the upper limit of primary criteria. Hits are qualified "J" and non-detects are not flagged unless qualified for another problem.

E0080
1,1,1-Trichloroethane, Cyclohexane, Carbon Tetrachloride, Benzene, 1,2-Dichloroethane, Trichloroethene, Methylcyclohexane, 1,2-Dichloropropane, Bromodichloromethane, cis-1,3-Dichloropropene, 4-Methyl-2-pentanone, Toluene, trans-1,3-Dichloropropene, 1,1,2-Trichloroethane, Tetrachloroethene, 2-Hexanone, Dibromochloromethane, 1,2-Dibromoethane, Chlorobenzene, Ethylbenzene, Xylenes (total), Styrene, Bromoform, Isopropylbenzene, 1,1,2,2-Tetrachloroethane, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 1,2-Dichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

The following volatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

'ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

E0071
1,1,1-Trichloroethane

E0076
1,1,1-Trichloroethane, Dibromochloromethane

E0078
Dibromochloromethane

E0079DL
Methylene Chloride, Carbon Tetrachloride

E0080
Chloroethane, Methylene Chloride, Benzene, Xylenes (total)

E0080DL
Carbon Tetrachloride, Tetrachloroethene

E0080RE
Chloroethane, Benzene, Toluene

E0085
cis-1,2-Dichloroethene, 1,1,1-Trichloroethane

E0088MS, **E0088MSD**, **E0088MSRE**
4-Methyl-2-pentanone, 2-Hexanone

E0088MSDRE
2-Hexanone

E0090
1,1,2-Trichloroethane

E0090DL
trans-1,2-Dichloroethene

E0094
Chloroethane

E0094DL
trans-1,2-Dichloroethene, Tetrachloroethene

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

E0098
Chloroethane, 1,4-Dichlorobenzene

E0098DL
1,1-Dichloroethane, Carbon Tetrachloride, Xylenes (total)

E0099
Methylene Chloride, Ethylbenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene

E00A2
Trichlorofluoromethane, trans-1,2-Dichloroethene, 1,1,2-Trichloroethane

E00A2DL
Trichloroethene

E00A6
Ethylbenzene

VBLK17
Benzene, 1,2,4-Trichlorobenzene

VBLK18
Benzene, Toluene, 1,2,3-Trichlorobenzene

VBLK19
Methylene Chloride, Benzene, Toluene

VBLK20, VBLK21
Acetone, 2-Butanone

VBLK22
2-Butanone, 1,2,4-Trichlorobenzene

VHBLK01
Methylene Chloride

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

ase Number : 31901
Site Name: SE ROCKFORD GW CONTAMINATION (IL)
SDG Number: E0069
Laboratory: A4 SCIENTIFIC

Verification of non-detected results and assignment of "U" qualifier when the reported value is less than CRQL.

E0069, E0071, E0076, E0078, E0079, E0079DL, E0080, E0080DL, E0080RE, E0081, E0085, E0088, E0088DL, E0088MS, E0088MSD, E0088MSDRE, E0088MSRE, E0090, E0090DL, E0094, E0094DL, E0097, E0098, E0098DL, E0099, E00A2, E00A2DL, E00A5, E00A6, VBLK17, VBLK18, VBLK19, VBLK20, VBLK21, VBLK22, VHBLK01

The following analytes reported concentrations which exceeded the instrument's calibration range. The results from the diluted analyses should be considered the analyte's final concentration.

Vinyl Chloride, Chloroethane, Isopropylbenzene, 1,2-Dichlorobenzene
E0088

1,1-Dichloroethene
E0079, E0080, E0080RE, E0098

1,1-Dichloroethane, cis-1,2-Dichloroethene
E0079, E0080, E0080RE, E0088, E0090, E0094, E0098

1,1,1-Trichloroethane
E0079, E0080, E0080RE, E0088, E0090, E0094, E0098, E00A2

Carbon Tetrachloride
E0079, E0080, E0080RE, E0098, E00A2

Trichloroethene, Tetrachloroethene
E0079, E0080, E0080RE

Toluene, Ethylbenzene, Xylene (total)
E0088, E0098

The following samples did not follow SOW OLC03.2 protocol for Instrument Blanks. According to Section 12.1.1.3 - "Instrument blanks are analyzed after a sample/dilution which contains a target compound at a concentration greater than 25 micrograms per liter (µg/L) (ketones 125 µg/L), or a non-target compound at a concentration greater than 100 µg/L or saturated ions from a compound". (p D-44/VOA). All samples analyzed following these samples may have experienced carry-over. Copies of the Laboratory's BFB Tune Checks (pps 020 - 025) are included with the Hard Copy data.

E0079DL, E0080DL, E0088DL, E0090DL, E0098DL, E00A2DL

The following instrument blanks did not meet the acceptance criteria for SOW OLC03.2. According to Section 12.1.5.7 - The concentration of each target compound in the instrument blank must be

less than its CRQL listed in Exhibit C. The concentration of non-target compounds in all blanks must be less than 2.0 µg/L p D-46/VOA).

VIBLK03, VIBLK04	Acetone > 5.0 µg/L
VIBLK10, VIBLK13	Xylene (total) > 0.50 µg/L TIC > 2 µg/L
VIBLK11	cis-1,2-Dichloroethene > 0.5 µg/L 2-Butanone > 5.0 µg/L

Copies of the Form 1's for VIBLK03, VIBLK04, VIBLK10, VIBLK11 and VIBLK13 are included with the Hard Copy data.

Reviewed By: A.Harvey/R.Baltrus/ESAT
Date: July 31, 2003

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The anlayte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present)

CDM

Memorandum

To: *John Grabs*

From: *Todd Burgesser* TB

Date: *October 2, 2002*

Subject: *Southeast Rockford Indoor Air Sampling Data Validation, Air Toxics Work Order # 0308176*

I have reviewed the data for the following AirToxics work order # 0308176.

Number of Samples: 13 air samples

Sample Numbers: E-A4-WA1-0, E-A4-WA1-1, E-A4-WA2-0, E-A4-WA2-1, E-A4-WA3-0, E-A4-WA3-1, E-A4-WA3-GG-0, E-A4-WA4-0, E-A4-WA4-0 Duplicate, E-A4-WA5-0, E-A4-WA5-0-D, E-A4-WA5-1, E-A4-WA5-1D

Laboratory: Air Toxics

Findings: 13 air samples were collected on August 6, 2003. The lab received the samples on August 8, 2003. All samples were received in good condition and analyzed for volatile organics via modified EPA Method TO14/15 in the SIM mode.

1. Holding Times:

All samples analyzed with six days of sample collection. No defects found.

2. GC/MS Tuning and GC Instrument Performance

No defects found

3. Calibration:

All target compounds had relative percent difference (RPD) within the primary criteria.

4. Blanks

No target compounds were reported above the reporting limit.

5. System Monitoring Compounds (surrogates)

All surrogates were recovered within the control limits specified by the laboratory.

6. Laboratory Control Sample (LCS)

All compounds spiked into the LCS were recovered within the control limits established by the laboratory.

7. Duplicates

Sample E-A4-WA4-0 had a laboratory duplicate identified as E-A4-WA4-0-Duplicate. Sample E-A4-WA5-O had a field duplicate identified as E-A4-WA5-O-D and sample E-A4-WA5-I had a field duplicate identified as E-A4-WA5-O-D Results are summarized below:

Compound	*E-A4-WA4-0 Result (ppbv)*	*E-A4-WA4-0 Duplicate Result (pppv)*	*RPD*
1,1,1-TCA	*0.052*	*0.05*	*3.9*
Benzene	*1.1*	*1.1*	*0*
TCE	*0.052*	*0.046*	*12.2*
Toluene	*1.4*	*1.4*	*0*
PCE	*0.11*	*0.1*	*9.52*
o-xylene	*0.2*	*0.16*	*22*
Ethylbenzene	*0.16*	*0.14*	*13*
m,p-xylene	*0.51*	*0.47*	*8.1*

Compound	*E-A4-WA5-0 Result (ppbv)*	*E-A4-WA5-0-D Duplicate Result (pppv)*	*RPD*
1,1,1-TCA	*0.083*	*0.097*	*15*
Benzene	*0.28*	*0.34*	*19*

TCE	*0.029*	*nd*	*200*
Toluene	*0.78*	*0.88*	*12*
PCE	*0.078*	*0.095*	*19*
o-xylene	*0.094*	*0.1*	*6*
Ethylbenzene	*0.083*	*0.1*	*18*
m,p-xylene	*0.24*	*0.29*	*18*

Compound	*E-A4-WA5-I Result (ppbv)*	*E-A4-WA5-I-D Duplicate Result (pppv)*	*RPD*
1,1,1-TCA	*8.1*	*8*	*1*
Benzene	*0.5*	*0.48*	*4*
TCE	*0.095*	*0.094*	*1*
Toluene	*1.7*	*1.6*	*6*
PCE	*0.13*	*0.13*	*0*
o-xylene	*0.15*	*0.14*	*6.9*

Ethylbenzene	*0.19*	*0.19*	*0*
m,p-xylene	*0.43*	*0.43*	*0*
1,1-DCE	*0.21*	*0.13*	*47*
1,1-DCA	*0.14*	*0.13*	*7.4*

The RPD results for this duplicate are acceptable.

8. Internal Standards

All internal standard count areas and retention times were within the control limits.

9. Compound Identification

After reviewing the mass spectra and chromatograms it appears that all VOCs were properly identified.

10. Compound Quantitation and Reported Detection Limits

All compound dilution factors were properly calculated. Compounds were not reported below the reporting limit.

11. System Performance

12. GC/MS baseline indicates acceptable performance.

13. Overall Assessment

The data provided can be used for its intended uses. No additional qualifiers have been added to this data set.

CDM

Memorandum

To: *John Grabs*

From: *Todd Burgesser* TB

Date: *October 2, 2002*

Subject: *Southeast Rockford Indoor Air Sampling Data Validation, Air Toxics Work Order # 0308187*

I have reviewed the data for the following AirToxics work order # 0308187.

Number of Samples: 15 air samples

Sample Numbers: E-A7-WA1-I, E-A7-WA1-0, E-A7-WA2-O, E-A7-WA2-I, E-A7-WA3-O, E-A7-WA3-I, E-A7-WA4-O-EP, E-A7-WA5-I, E-A7-WA5-I Duplicate, E-A7-WA5-I-D, E-A7-WA5-O, E-A7-WA5-O-D, E-A7-WA6-O, E-A7-WA6-I, E-A7-WA7-O, E-A7-WA7-I, E-A7-WA4-I

Laboratory: Air Toxics

Findings: 15 air samples were collected on August 6 and 7, 2003 . The lab received the samples on August 8, 2003. All samples were received in good condition and analyzed for volatile organics via modified EPA Method TO14/15 in the SIM mode.

1. Holding Times:

All samples analyzed with eight days of sample collection. No defects found.

2. GC/MS Tuning and GC Instrument Performance

No defects found

3. Calibration:

All target compounds had relative percent difference (RPD) within the primary criteria.

4. Blanks

No target compounds were reported above the reporting limit.

5. System Monitoring Compounds (surrogates)

All surrogates were recovered within the control limits specified by the laboratory.

6. Laboratory Control Sample (LCS)

All compounds spiked into the LCS were recovered within the control limits established by the laboratory.

7. Duplicates

Sample E-A4-WA4-0 had a duplicate identified as E-A4-WA4-0-Duplicate. Results are summarized below:

Compound	E-A4-WA4-0 Result (ppbv)	E-A4-WA4-0 Duplicate Result (pppv)	RPD
Ethyl Benzene	0.55	0.52	6.2
1,2-DCA	0.07	0.06	14
m,p-xylene	1.92	1.81	6
Toluene	7.1	6.4	11
PCE	0.14	0.13	7.8
Benzene	2.3	2.0	12
1,1,1-TCA	0.4	0.35	9.6
1,1-DCE	0.02	ND	200
TCE	0.036J	ND	200

Compound	E-A4-WA4-0 Result (ppbv)	E-A4-WA4-0-D Duplicate Result (pppv)	RPD

Ethyl Benzene	*0.55*	*0.52*	*5.6*
1,2-DCA	*0.07*	*0.06*	*15*
m,p-xylene	*1.9*	*1.8*	*5*
Toluene	*7.1*	*6.5*	*8*
PCE	*0.14*	*0.052*	*91*
Benzene	*2.3*	*2.1*	*9*
1,1,1-TCA	*0.39*	*0.37*	*5*
1,1-DCE	*0.02*	*ND*	*200*
TCE	*0.036J*	*ND*	*200*

The RPD results for these duplicates are acceptable. Results are not qualified based on the duplicate sample only.

8. Internal Standards

All internal standard count areas and retention times were within the control limits.

9. Compound Identification

After reviewing the mass spectra and chromatograms it appears that all VOCs were properly identified.

10. Compound Quantitation and Reported Detection Limits

All compound dilution factors were properly calculated. Compounds were not reported below the reporting limit.

11. System Performance

12. GC/MS baseline indicates acceptable performance.

13. Overall Assessment

Based on the results of the data validation, all data can be used for the intended project uses without qualification. Although TCE and 1,1-DCE had duplicate RPD results outside of the control limits, all other data evaluated indicate acceptable results.

CDM

Memorandum

To: *John Grabs*

From: *Todd Burgesser*

Date: *October 2, 2002*

Subject: *Southeast Rockford Indoor Air Sampling Data Review, New Age/Landmark Laboratory.*

I have reviewed the data for the air samples collected and analyzed onsite by New Age/Landmark Laboratory for the Southeast Rockford Indoor Air sampling.

Number of Samples: 19 air samples

Sample Numbers: See Data Sheets

Laboratory: New Age/Landmark Laboratory

Findings: 19 air samples were collected on July 7 through July11, 2003 . The lab received the samples immediately after collection. All samples were received in good condition and analyzed for volatile organics via modified EPA Method 8260.

1. Holding Times:

All samples analyzed with within 48-hours of collection

2. Calibration:

All target compounds had relative percent difference (RPD) within the primary criteria.

2. Blanks

No target compounds were reported above the reporting limit.

3. System Monitoring Compounds (surrogates)

All surrogates were recovered within the control limits specified by the laboratory.

4. Laboratory Control Sample (LCS)

Two LCS/LCSD were analyzed, The %R and he RPD were acceptable for all compounds spiked.

5. Matrix Spike/Matrix Spike Duplicates

Two MS/MSD samples were analyzed. The %R and the RPD were acceptable.

6. Duplicates

NA

7. Internal Standards

NA

8. Compound Identification

Raw data not available for review

9. Compound Quantitation and Reported Detection Limits

Raw data not available for review.

10. System Performance

Raw data not available for review but based on surrogate recoveries and calibration standards being acceptable, the data appears acceptable.

11. Overall Assessment

Based on the results of the data review, all data can be used for the intended project uses of screening level. All data should be qualified with a "J" as estimated and considered screening level data only.

CDM

Memorandum

To: *Southeast Rockford Indoor Air Sampling File (1681-38601)*

From: *John Grabs*

Date: *October 7, 2003*

Subject: *Southeast Rockford Indoor Air Sampling Data Review, New Age/Landmark Laboratory*

In reference to the memorandum from Todd Burgesser to John Grabs, dated October 2, 2003, with the above-referenced subject, the validator qualified all data as estimated ("J" or "UJ") solely on the basis of the data being screening level data generated by an onsite laboratory, and not because of any QA/QC deficiency in the analyses. However, because the intended usage of the data is as screening level data, the addition of estimated qualifiers to the results is inappropriate and the qualifiers will not be added to the analytical results in the database.

Appendix C

Samples Used in Risk Assessment

Table C.1
Samples Included in the Human Health Risk Assessment - Soil Gas
Southeast Rockford Indoor Air Sampling
Final

Area of Concern	Location Code	Soil Gas	Comment
Area 4	GP-101	SG-101	
Area 4	GP-102	SG-102	
Area 4	GP-103	SG-103	
Area 4	GP-104	SG-104	
Area 4	GP-105	SG-105	Background
Area 4	GP-1	SG-1 SG(R)-01	
Area 4	GP-2	SG-02 SG-02 RERUN SG(R)-02 SG(D)-02	
Area 4	GP-3	SG-3	
Area 4	GP-4	SG-4 SG(R)-04	
Area 4	GP-5	SG-5	
Area 4	GP-6	SG-6	
Area 4	GP-7	SG-7	
Area 4	GP-8	SG-8	
Area 4	GP-9	SG-9	
Area 4	GP-10	SG-10	
Area 4	GP-11	SG-11	
Area 4	GP-12	SG-12	
Area 4	GP-13	SG-13	
Area 4	GP-14	SG-14	
Area 4	GP-15	SG-15	
Area 7	GP-106	SG-106	
Area 7	GP-107	SG-107	
Area 7	GP-108	SG-108	
Area 7	GP-110	SG-110	
Area 7	GP-111	SG-111	
Area 7	GP-112	SG-112	Background
Area 7	GP-113	SG-113	
Area 7	GP-114	SG-114	
Area 7	GP-16	SG-16	
Area 7	GP-18	SG-18	
Area 7	GP-19	SG-19	
Area 7	GP-20	SG-20	
Area 7	GP-21	SG-21	
Area 7	GP-22	SG-22	
Area 7	GP-23	SG-23	
Area 7	GP-25	SG-25	
Area 7	GP-26	SG-26	
Area 7	GP-27	SG-27-2 SG-27-2-rerun	
Area 7	GP-28	SG-28	
Area 7	GP-29	SG-29	
Area 7	GP-30	SG-30	
Area 7	GP-31	SG-31	
Area 7	GP-32	SG-32	
Area 7	GP-33	SG-33	
Area 7	GP-34	SG-34	
Area 7	GP-35	SG-35	
Area 7	GP-36	SG-36	
Area 7	GP-37	SG-37	
Area 7	GP-38	SG-38	
Area 7	GP-39	SG-39	
Area 7	GP-40	SG-40	
Area 7	GP-41	SG-41	
Area 7	GP-48	SG-48	

Table C.2
Samples Included in the Human Health Risk Assessment - Groundwater
Southeast Rockford Indoor Air Sampling
Final

Area of Concern	Location Code	Sample ID	Media Group	Sample Date
Area 7	MW103	MW103	Groundwater	10-Jul-03
Area 7	MW103	MW103D (dup)	Groundwater	10-Jul-03
Area 7	MW105	MW105A	Groundwater	10-Jul-03
Area 7	MW105	MW105B	Groundwater	10-Jul-03
Area 7	MW106	MW106A	Groundwater	10-Jul-03
Area 7	MW112	MW112A	Groundwater	10-Jul-03
Area 7	MW134	MW134A	Groundwater	10-Jul-03
Area 7	MW134	MW134B	Groundwater	10-Jul-03
Area 7	MW136	MW136	Groundwater	10-Jul-03

Table C.3
Samples Included in the Human Health Risk Assessment - Indoor Air
Southeast Rockford Indoor Air Sampling
Final

Area of Concern	Indoor Sample ID	Comment
Area 4	E-A4-WA1-I	
Area 4	E-A4-WA2-I	Background
Area 4	E-A4-WA3-I	
Area 4	Not Applicable	
Area 4	E-A4-WA4-I	
Area 4	E-A4-WA5-I	
Area 4	E-A4-WA5-I-D	
Area 7	E-A7-WA1-I	
Area 7	E-A7-WA2-I	
Area 7	E-A7-WA3-I	
Area 7	Not Applicable	
Area 7	E-A7-WA5-I	
Area 7	E-A7-WA5-I-D	
Area 7	E-A7-WA6-I	
Area 7	E-A7-WA7-I	Background

Appendix D

RBCA Groundwater Modeling Results

Table D-1
Input Parameters and Equations Used for RBCA Modeling
Southeast Rockford Indoor Air Sampling
Final

Parameter	Source	Comments
Equation R-26 Solved for Concentration along Centerline, $C_{(x)}$ (mg/L_{water})		
Concentration at the source, C_{source} (mg/L)	$C_{source} = C_{water}$	
Distance along centerline of groundwater plume in direction of groundwater flow, X (cm)	Estimated	
Distance to compliance point (ft)	Calculated using R-26	
Source width perpendicular to flow direction in vertical plane, S_d (cm)	Site-specific	Estimate from RIR Figure 4-32
Source width perpendicular to flow direction in horizontal plane, S_w (cm)	Site-specific	Estimate from RIR Figure 4-40
First order degradation constant, λ (d^{-1})	App. C, Table E	
Hydraulic conductivity, K (cm/dy)	Site-specific average	
Hydraulic gradient, i (cm/cm)	Site-specific average	
Total soil porosity, θ_T(cm^3/cm^3_{soil})	App. C, Table D, value for clay	
Longitudinal dispersivity, α_x (cm)	R-16	$\alpha_x = 0.10 \bullet X$
Transverse dispersivity, α_y (cm)	R-17	$\alpha_y = \frac{\alpha_x}{3}$
Vertical dispersivity, α_z (cm)	R-18	$\alpha_z = \frac{\alpha_x}{20}$
Specific discharge, U (cm/d)	R-19	$U = \frac{K \bullet i}{\theta_T}$
Concentration at a distance x from source, $C_{(x)}$ (mg/L)	R-26	$C_{(x)} = C_{source} \bullet \exp\left[\left(\frac{X}{2\alpha_x}\right) \bullet \left(1 - \sqrt{1 + \frac{4\lambda \bullet \alpha_x}{U}}\right)\right] \bullet erf\left[\frac{S_w}{4 \bullet \sqrt{\alpha_y \bullet X}}\right] \bullet erf\left[\frac{S_d}{2 \bullet \sqrt{\alpha_z \bullet X}}\right]$

Table D-2
RBCA R-26 Groundwater Calculations
Southeast Rockford Indoor Air Sampling
Final

Equation R-26 Solved for Concentration along Centerline, $C_{(x)}$ (mg/L_{water})

Parameter	1,1,1-TCA		cis-1,2-DCE		Vinyl Chloride		TCE		PCE	
Well Number	*MW-106A*	*MW-134A*	*MW-106A*	*MW-134A*	*MW-106A*	*MW-134A*	*MW-106A*	*MW-134A*	*MW-106A*	*MW-134A*
Concentration at the source, C_{source} (mg/L)	1.300	0.210	2.500	0.180	0.006	0.240	0.002	0.004	0.016	0.004
Distance along centerline of groundwater plume in direction of groundwater flow, X (cm)	18288	18288	18288	18288	18288	18288	18288	18288	18288	18288
Distance to compliance point (ft)	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**	**600**
Source width perpendicular to flow direction in vertical plane, S_d (cm)	3657.6	3657.6	3657.6	3657.6	3657.6	3657.6	3657.6	3657.6	3657.6	3657.6
Source width perpendicular to flow direction in horizontal plane, S_w (cm)	54864	54864	54864	54864	54864	54864	54864	54864	54864	54864
First order degradation constant, λ (d^{-1})	0.0013	0.0013	0.00024	0.00024	0.00024	0.00024	0.00042	0.00042	0.00096	0.00096
Hydraulic conductivity, K (cm/dy)	191.8080	54.0000	191.8080	54.0000	191.8080	54.0000	191.8080	54.0000	191.8080	54.0000
Hydraulic gradient, i (cm/cm)	0.0145	0.0145	0.0145	0.0145	0.0145	0.0145	0.0145	0.0145	0.0145	0.0145
Total soil porosity, θ_T(cm^3/cm^3_{soil})	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Longitudinal dispersivity, α_x (cm)	1828.80	1828.80	1828.80	1828.80	1828.80	1828.80	1828.80	1828.80	1828.80	1828.80
Transverse dispersivity, α_y (cm)	609.60	609.60	609.60	609.60	609.60	609.60	609.60	609.60	609.60	609.60
Vertical dispersivity, α_z (cm)	91.44	91.44	91.44	91.44	91.44	91.44	91.44	91.44	91.44	91.44
Specific discharge, U (cm/d)	8.69130	2.44688	8.69130	2.44688	8.69130	2.44688	8.69130	2.44688	8.69130	2.44688
Concentration at a distance x from source, $C_{(x)}$ (mg/L)	**0.13268**	**0.00047**	**1.47393**	**0.03637**	**0.00360**	**0.04849**	**0.00067**	**0.00031**	**0.00273**	**0.00003**