# SDMS US EPA REGION V

# COLOR - RESOLUTION - 3

## IMAGERY INSERT FORM

Multiple pages of this document include color or resolution variations and may be illegible in SDMS due to bad source documents. Unless otherwise noted, these pages are available in monochrome. (The source document page(s) are more legible than the images.) The original document is available for viewing at the Superfund Records Center.

| | |
|---|---|
| **SITE NAME** | S E ROCKFORD GROUNDWATER |
| **DOC ID #** | 140916 |
| **DOCUMENT VARIATION** | _X_ COLOR **OR** ___ RESOLUTION |
| **PRP** | S E ROCKFORD GROUNDWATER |
| **PHASE** | REM |
| **OPERABLE UNITS** | |
| **LOCATION** | Box #___ Folder #____ Subsection_K8_ |
| **PHASE** (AR DOCUMENTS ONLY) | ____ Remedial ____ Removal ___ Deletion Docket ____ ____ Original ____ Update # ____ Volume ___ of ___ |

**COMMENT(S)**

CDM Camp Dresser & McKee

Report

FINAL

# REMEDIAL INVESTIGATION REPORT SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY

## APPENDICES VOLUME II

G1 SOIL GAS SURVEY, MAY 1992
G2 SOIL GAS SURVEY, FEBRUARY 1993
H PHASE II ANALYTICAL DATA
I RISK ASSESSMENT PROTOCOL DOCUMENT
J IEPA CHEMICAL INFORMATION SHEETS
K EXPOSURE POINT CONCENTRATION CALCULATIONS
L CHEMICAL INTAKE AND RISK CALCULATIONS
M GROUNDWATER MODEL SENSITIVITY ANALYSIS

# FINAL

# REMEDIAL INVESTIGATION REPORT
# SOUTHEAST ROCKFORD
# GROUNDWATER CONTAMINATION STUDY

## APPENDICES VOLUME II

G1 SOIL GAS SURVEY, MAY 1992
G2 SOIL GAS SURVEY, FEBRUARY 1993
H PHASE II ANALYTICAL DATA
I RISK ASSESSMENT PROTOCOL DOCUMENT
J IEPA CHEMICAL INFORMATION SHEETS
K EXPOSURE POINT CONCENTRATION CALCULATIONS
L CHEMICAL INTAKE AND RISK CALCULATIONS
M GROUNDWATER MODEL SENSITIVITY ANALYSIS

# Appendix G

# APPENDIX G1
# SOIL GAS SURVEY
# MAY 1992

Tracer Research Corporation

**Prepared for:**

CAMP, DRESSER & MCKEE, INCORPORATED
200 West Adams, Suite 1600
Chicago, Illinois 60606

Telephone: (312) 786-1313

Attention: Ms. Wendy Dewar

**Prepared by:**

TRACER RESEARCH CORPORATION
3855 North Business Center Drive
Tucson, Arizona 85705-2944

Telephone: (602) 888-9400

FAX: (602) 293-1306

Shallow Soil Gas
Investigation

**SOUTHEAST ROCKFORD**

Rockford, Illinois
May 26-29, 1992

**Submitted by:**

Marjorie D. Stivers

C. Wesley Pa

1-92-412-S

# TABLE OF CONTENTS


1.0 SOUTHEAST ROCKFORD INVESTIGATION....1
- 1.1 Objectives....1
- 1.2 Overview of Results....1

2.0 SITE DESCRIPTION....1

3.0 SAMPLING PARAMETERS....1

4.0 ANALYTICAL PARAMETERS....2
- 4.1 Analyte Class....3
- 4.2 Chromatographic System....3
- 4.3 Analyses....4

5.0 QUALITY ASSURANCE AND QUALITY CONTROL....4

6.0 RESULTS....7

APPENDIX A Condensed Data....A-1

APPENDIX B Field Map....B-1


## TABLES


Table 1. Detection Limits for Target Compounds....4

Table 2. Quality Assurance Samples....6

Table 3. Soil Gas Sample Summary....7

## 1.0 SOUTHEAST ROCKFORD INVESTIGATION

Tracer Research Corporation (Tracer Research) performed a shallow soil gas investigation at a site in southeast Rockford, Illinois. The investigation was conducted May 26 through 29, 1992, for Camp, Dresser & McKee, Inc.

### 1.1 Objective

The purpose of the investigation was to assess the site for soil and groundwater contamination by screening shallow soil gas for the presence of volatile organic chemicals (VOCs). Soil gas samples were collected and analyzed for the following halocarbons.

1,1,1-trichloroethane (TCA)
trichloroethene (TCE)
tetrachloroethene (PCE)

### 1.2 Overview of Results

For this investigation, 78 soil gas samples were collected at depths of 1.5 to 7 feet below grade from 78 locations. TCA and PCE were found throughout the site. TCA was detected in 77 of the 78 samples in concentrations ranging from 0.002 to 3,800 micrograms per liter (ug/L). PCE was detected in 72 of the 78 samples in concentrations ranging from 0.0004 to 1,100 ug/L.

TCE was found in more than half of the samples collected in concentrations ranging from 0.0006 to 690 ug/L. The sample with the highest concentrations of each of the target compounds was SG-68.

## 2.0 SITE DESCRIPTION

The subsurface of the site is soil overlying fine-grained limestone bedrock. The depth to groundwater is 22 feet below grade. Groundwater flow is to the west, northwest.

## 3.0 SAMPLING PARAMETERS

Soil gas sampling probes consisted of 7-foot lengths of 3/4-inch diameter hollow steel pipe. The probes were fitted with detachable drive tips and pushed and pounded to depths of 1.5 to 7 feet below ground surface (bgs). The probes at sample locations SG-4 and SG-5 met refusal at 1.5 feet bgs. Probes at locations SG-25, SG-24, SG-3, and SG-10 met

refusal at depths ranging from 1.5 to 3.5 feet bgs. SG-8 and SG-9 probes met refusal at 5 feet bgs.

The aboveground end of each probe was fitted with an aluminum reducer (manifold) and a length of polyethylene tubing leading to a vacuum pump. Soil gas was pulled by the vacuum pump into the probe. Samples were collected in a glass syringe by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. The vacuum was monitored by a vacuum gauge to ensure an adequate gas flow from the vadose zone was maintained.

The volume of air within the probe was purged by evacuating 2 to 5 probe volumes of gas. The evacuation time in minutes versus the vacuum in inches of mercury (Hg) was used to calculate the necessary evacuation time. The vacuum in inches Hg was recorded at each sampling location.

Sample probe vacuums ranged from 2 to 10 inches Hg. The vacuum capacity of the pump was approximately 20 inches Hg.

Wet clay and mud were seen on probes retracted from sampling locations SG-22, SG-26, SG-29, SG-30, SG-34, SG-47, and SG-58. The mud and clay observed on the probe retracted from SG-34 was an organic peat color. Also, a slight to strong odor was detected in Samples SG-11, SG-34, and SG-47.

## 4.0 ANALYTICAL PARAMETERS

During this investigation, 6 to 10 milliliters (mL) of soil gas were collected for each sample and immediately analyzed in the Tracer Research analytical van. Subsamples (replicates) from these samples were injected into the gas chromatograph (GC) in volumes of 0.01 to 500 microliters (uL) Several of these subsamples were diluted because they contained high concentrations of the targeted VOCs.

## 4.1 Analyte Class

The soil gas samples were analyzed for the following analyte class and compounds:

**Analyte Class: Halocarbon**
1,1,1-trichloroethane (TCA)
trichlorethene (TCE)
tetrachloroethene (PCE)

## 4.2 Chromatographic System

A Varian 3300 gas chromatograph, equipped with an electron capture detector (ECD) and a computing integrator, was used for the soil gas analyses. Compounds were separated in the GC on a 6 foot by 1/8 inch outer diameter (OD) packed analytical column (10% OV101 stationary phase bonded to 80/100 mesh Chromosorb W support) in a temperature controlled oven. Nitrogen was used as the carrier gas.

The instrument calibrations were checked periodically throughout each day to monitor the response factor and retention time. The following paragraphs explain the GC and ECD processes.

### GC Process

The soil gas vapor is injected into the GC where it is swept through the analytical column by the carrier gas. The detector senses the presence of a component different from the carrier gas and converts that information to an electrical signal. The components of the sample pass through the column at different rates, according to their individual properties, and are detected by the detector. Compounds are identified by the time it takes them to pass through the column (retention time).

### ECD Process

The ECD captures low energy thermal electrons that have been ionized by beta particles. The flow of these captured electrons into an electrode produces a small current, which is collected and measured. When the halogen atoms (halocarbons) are introduced into the detector, electrons that would otherwise be collected at the electrode are captured by the sample, resulting in decreased current. The current causes the computing integrator to

record a peak on a chromatogram. The area of the peak is compared to the peak generated by a known standard to determine the concentration of the analyte.

### 4.3 Analyses

The detection limits for target compounds depend on the sensitivity of the detector to the individual compound as well as the volume of the injection. The detection limits of the target compounds were calculated from the response factor, the sample size, and the calculated minimum peak size (area) observed under the conditions of the analyses. If any compound was not detected in an analysis, the detection limit is given as a "less than" value, e.g., <0.1 ug/L. The approximate detection limits for the target compounds are presented in the below.

**Table 1. Detection Limits for Soil Gas Compounds**

| Compound | Detection Limits (ug/L) |
|---|---|
| TCA | 0.0002 |
| TCE | 0.0001 |
| PCE | 0.0003 |

## 5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Tracer Research's Quality Assurance (QA) and Quality Control (QC) program was followed to maintain data that was reproducible through the investigation. An overview presenting the significant aspects of this program is presented below.

### Soil Gas Sampling Quality Assurance

To ensure consistent collection of soil gas samples, the following procedures are performed:

- Sampling Manifolds

Tracer Research's custom designed sampling manifold connects the sample probe to the vacuum line and pump. The manifold is designed to eliminate sample exposure to the polymeric (plastic) materials that connect the probe to the vacuum pump.

The sampling manifold is attached to the end of the probe, forming an air tight union between the probe and the silicone tubing septum. The septum connects the manifold to the pump vacuum line and permits syringe sampling.

This sampling system allows the sample to be taken upstream of the sampling pump, manifold, and septum. Since cross contamination of sampling equipment can be a major problem, Tracer Research replaces the materials (probe and syringe), between sampling points, that contact the soil gas before or during sampling.

-Sampling Probes

Steel probes are used only once each day. To eliminate the possibility of cross contamination, they are washed with high pressure soap and hot water spray, or steam-cleaned. Enough sampling probes are carried on each van to avoid the need to re-use any during the day.

-Glass Syringes

Glass syringes are used for only one sample a day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

-Sampling Efficiency

Soil gas pumping is monitored by a vacuum gauge to ensure that an adequate flow of gas from the soil is maintained. A reliable gas sample can be obtained if the sample vacuum gauge reading is at least 2 inches Hg less than the maximum measured vacuum of the vacuum pump.

**Analytical Quality Assurance Samples**

Quality assurance samples are performed at the below listed, or greater, frequencies. The frequency depends on the number of soil gas samples analyzed and the length of time of the survey:

Table 2. Quality Assurance Samples

| Sample type | Frequency |
|---|---|
| Ambient Air Samples | 2 per day or per site |
| Analytical Method Blanks | 5% (1 per 20 samples or 1 a day) |
| Continuing Calibration Check | 20% (1 every 5 samples) |
| Field System Blank | 10% (1 every 10 samples or 1 a day) |
| Reagent Blank | 1 per set of working standards |
| Replicate Samples | 100% of all soil gas samples |

The ambient air samples are obtained on site by sampling the air immediately outside the mobile analytical van and directly injecting it into the GC. Analytical method blanks are taken to demonstrate that the analytical instrumentation is not contaminated. These are performed by injecting carrier gas (nitrogen) into the GC with the sampling syringe. Subsampling syringes are also checked in this fashion.

The injector port septa through which soil gas samples are injected into the GC are replaced daily to prevent possible gas leaks from the chromatographic column. All sampling and subsampling syringes are decontaminated after use and are not used again until they have been decontaminated by washing in anionic detergent and baking at 90°C.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected using standard soil gas sampling procedures, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled ambient air analysis.

If the blanks detect compounds of interest at concentrations that indicate equipment contamination or concentrations that exceed normal background levels (ambient air

analysis), corrective actions are performed. If the problem cannot be corrected, an out-of-control event is documented and reported.

A reagent blank is performed to ensure the solvent used to dilute the stock standards is not contaminated. Analytical instruments are calibrated daily using fresh working standards made from National Institute of Sciences and Technology traceable standards and reagent blanked solvents.

Quantitative precision is assured by replicating analysis of 100 percent of the soil gas samples. Replicate analyses are performed by subsampling vapors from the original sampling syringe.

## 6.0 RESULTS

The analytical results from this soil gas investigation are condensed in Appendix A. The data are presented by location and by analyte concentration. When the compound was not detected, the detection limit is presented as a "less than" value, e.g., <0.0001 ug/L. A map of the sampling locations is included in Appendix B.

Soil gas samples are identified by sample location and sampling depth. For example, SG-1-5' represents soil gas sample number one, collected at a depth of 5 feet below the ground surface. A summary of the soil gas investigation is presented in the table below.

**Table 3. Soil Gas Sample Summary**

| Compound | # of samples in which compound was detected | Low conc. ug/L | High conc. ug/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 77 | 0.002 | 3,800 | SG-68 |
| TCE | 41 | 0.0006 | 690 | SG-68 |
| PCE | 72 | 0.004 | 1,100 | SG-68 |

TCA is found throughout the site (Figure 2). The contamination extends from an area north of the tennis courts south through the disposal area, and northeast through the gravel pit area. Samples SG-68 (3,800 ug/L) and SG-36 (1,700 ug/L) form an anchor of the contamination.

Sample SG-62 (2,800 ug/L), near the basketball court, is also an area of high concentrations of TCA. These two areas are approximately 300 feet apart and do not appear to be related. A region of low concentrations surrounded by higher concentrations is found in the old gravel pit area.

Sample SG-68 contained the greatest amount of TCE (690 ug/L) found at this site (Figure 3). The contamination extends from an area east of the tennis court south through the disposal area. The contamination seems to follow the natural drainage pathways of the area.

High concentrations of PCE are found to the south of the basketball court at this site (Figure 4). Sample SG-68 (1,100 ug/L) forms the anchor of the contamination. Contamination extends from an area north of the tennis courts to the south and east through a disposal area.

The anchors of the contamination for all three target VOCs are found at Samples SG-62 and SG-68. All three compounds have similar contour outlines and seem to follow the natural drainage pathways in the area. More samples need to be taken on the north, west, and south sides of the site to better define the extent of the contamination.

# APPENDIX A Condensed Data

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE/SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS/ JOB#1-92-412-S
05/26/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.0005 | <0.0001 | 0.00006 |
| SG-1-7' | 0.06 | 0.0006 | 0.06 |
| SG-2-7' | 0.09 | 0.001 | 0.1 |
| SG-3-3.5' | 0.002 | 0.0007 | 0.02 |
| SG-4-1.5' | 0.2 | 0.05 | 8 |
| SG-5-1.5' | 1 | 0.001 | 0.8 |
| SG-6-7' | 0.2 | <0.0006 | 0.1 |
| SG-7-7' | 0.2 | <0.0006 | 0.06 |
| SG-8-5.5' | 0.003 | <0.0006 | 0.001 |
| SG-9-5' | 0.005 | 0.002 | 0.001 |
| AIR | 0.0006 | <0.004 | 0.00007 |
| SG-10-3.5' | 0.01 | 0.006 | 0.002 |

Analyzed by: E. Kaupanger
Proofed by: M. Stikeus

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE/ SOUTHEAST ROCKFORD/ ROCKFORD, ILLINOIS/ JOB#1-92-214-S
05/26/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| SG-11-3.5' | 0.8 | <0.0006 | 0.08 |
| SG-12-3.5' | 0.02 | <0.0006 | 0.0007 |
| SG-13-5.5' | 2 | <0.0006 | 0.5 |
| SG-14-7' | 0.4 | 0.02 | 0.4 |
| SG-15-7' | 2 | 0.7 | 21 |
| SG-16-7' | 0.7 | 0.05 | 0.3 |
| SG-17-3.5' | 0.003 | <0.0006 | 0.001 |
| SG-18-7' | 6 | 7 | 22 |
| SG-19-7' | 35 | 3 | 7 |
| SG-20-5' | 0.07 | <0.0006 | 0.02 |
| AIR | 0.004 | <0.0001 | <0.00006 |

Analyzed by: E. Kaupanger
Proofed by: M. Stivers

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE/SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS/JOB#1-92-214-S
05/27/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.008 | 0.0004 | 0.0008 |
| SG-21-6.5' | 0.006 | <0.0006 | 0.02 |
| SG-22-6' | 0.9 | <0.0006 | 0.02 |
| SG-23-7' | 0.02 | <0.0006 | 0.0004 |
| SG-24-3' | 0.002 | <0.0006 | 0.0005 |
| SG-25-2.5' | 0.004 | <0.0006 | 0.0004 |
| SG-26-7' | 0.003 | <0.0006 | 0.004 |
| SG-27-7' | 4 | 0.4 | 2 |
| SG-28-3.5' | 0.02 | 0.004 | 0.01 |
| SG-29-7' | 0.9 | 0.02 | 0.4 |
| SG-30-7' | 56 | 6 | 10 |
| SG-31-5' | 1 | 0.08 | 0.3 |
| SG-32-7' | 0.01 | <0.0006 | 0.003 |
| AIR | 0.001 | <0.001 | 0.0006 |
| SG-33-7' | 0.4 | 0.008 | 0.6 |
| SG-34-7' | 950 | 180 | 64 |
| SG-35-7' | 0.3 | 0.03 | 0.03 |
| SG-36-7' | 1700 | 130 | 470 |
| SG-37-7' | 210 | 1 | 16 |
| SG-38-7' | 390 | 26 | 98 |

Analyzed by: E. Kaupanger
Proofed by: M. Stivers

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE/SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS/JOB#1-92-214-S
05/27/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.008 | 0.0004 | 0.0008 |
| SG-39-6' | 200 | 55 | 28 |
| SG-40-7' | 4 | <0.01 | 0.3 |
| AIR | 0.001 | <0.0001 | 0.0001 |
| SG-41-7' | 0.004 | <0.0006 | 0.001 |
| SG-42-7' | 230 | 34 | 220 |

Analyzed by: E. Kaupanger
Proofed by: M. Stivers

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE /SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS /JOB#1-92-214-S
05/28/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.02 | 0.002 | 0.001 |
| SG-43-7' | 0.007 | 0.002 | 0.01 |
| SG-44-7' | 0.006 | 0.0009 | 0.0007 |
| SG-45-7' | 0.003 | 0.002 | 0.002 |
| SG-46-7' | 0.009 | 0.001 | 0.004 |
| SG-47-7' | 0.01 | <0.0006 | <0.0003 |
| SG-48-7' | 0.02 | <0.0006 | <0.0003 |
| SG-49-7' | 0.007 | 0.004 | 0.02 |
| SG-50-7' | 0.06 | 0.02 | 0.08 |
| SG-51-7' | <0.0002 | <0.0006 | <0.0003 |
| SG-52-7' | 0.006 | <0.0001 | 0.004 |
| SG-53-7' | 0.006 | <0.0001 | 0.003 |
| SG-54-7' | 0.01 | <0.0001 | 0.005 |
| SG-55-7' | 0.8 | 0.02 | 1 |
| SG-56-7' | 0.003 | <0.0001 | 0.005 |
| SG-57-7' | 0.1 | <0.0006 | 0.6 |
| AIR | 0.0008 | <0.0001 | <0.00006 |
| SG-58-7' | 0.002 | <0.0001 | 0.0008 |
| SG-59-7' | 0.04 | <0.0001 | 0.003 |

Analyzed by: E. Kaupanger
Proofed by: M. Stivers

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE /SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS/JOB#1-92-412-S
05/28/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.02 | 0.002 | 0.001 |
| SG-60-7' | 5 | <0.01 | 0.06 |
| SG-61-7' | 160 | <0.06 | 14 |
| SG-62-7' | 2800 | 64 | 980 |
| SG-63-7' | 17 | <0.06 | <0.03 |
| SG-64-7' | 440 | 120 | 160 |
| SG-65-7' | 0.0008 | <0.0006 | <0.0003 |
| AIR | 0.0002 | <0.0001 | <0.00005 |
| SG-66-7' | 2 | <0.0006 | 0.3 |
| SG-67-7' | 170 | 48 | 500 |

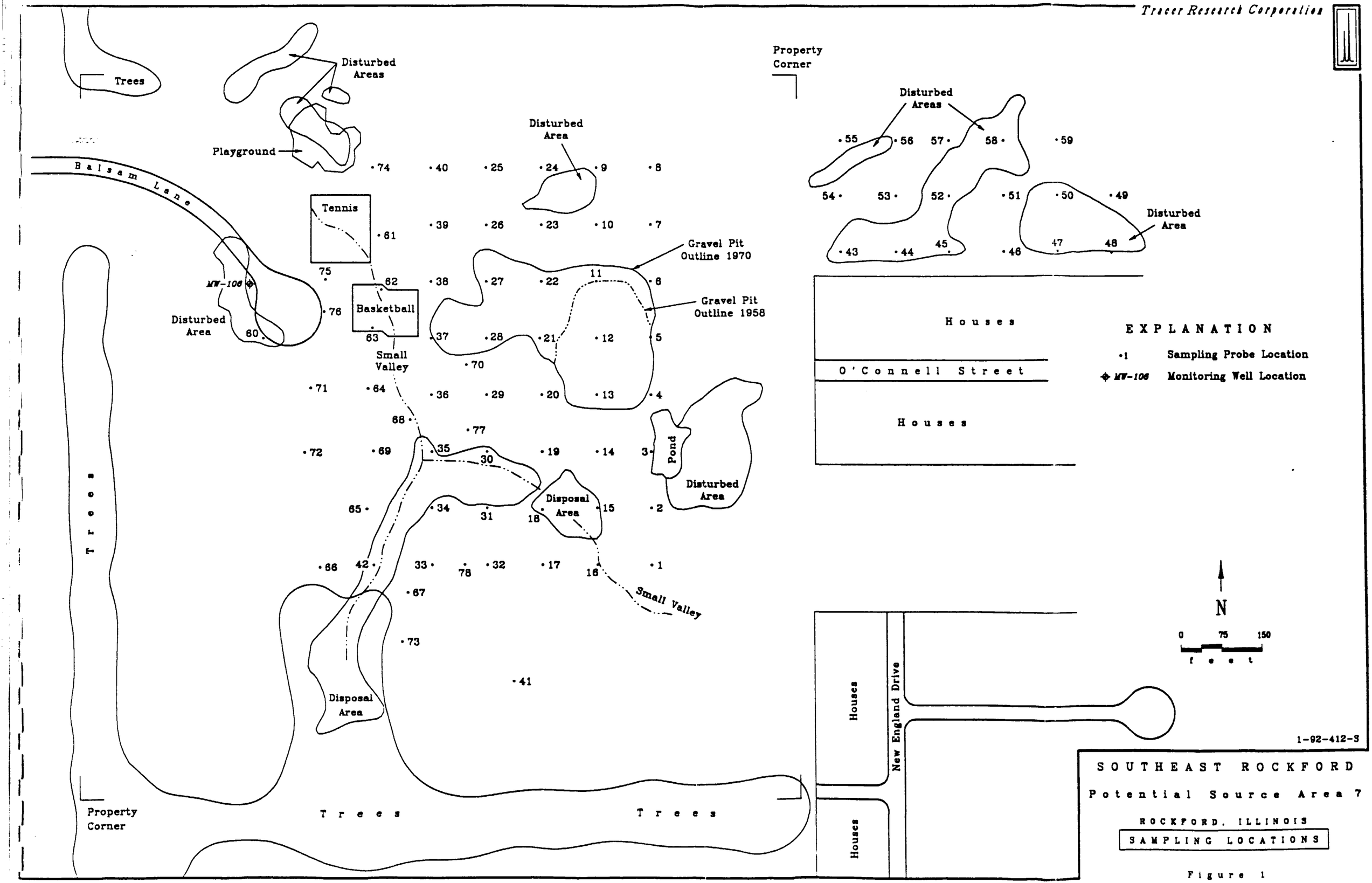
Analyzed by: E. Kaupanger
Proofed by: M. Stivers

TRACER RESEARCH CORPORATION - ANALYTICAL RESULTS
CAMP DRESSER & MCKEE /SOUTHEAST ROCKFORD /ROCKFORD, ILLINOIS /JOB#1-92-412-S
05/29/92

| SAMPLE | TCA ug/l | TCE ug/l | PCE ug/l |
|---|---|---|---|
| AIR | 0.007 | 0.001 | 0.002 |
| SG-68-7' | 3800 | 690 | 1100 |
| SG-69-6' | 640 | 210 | 210 |
| SG-70-7' | 0.006 | 0.003 | 0.03 |
| SG-71-6' | 0.01 | <0.0006 | <0.0003 |
| SG-72-7' | 65 | 1 | 6 |
| SG-73-7' | 150 | 2 | 170 |
| SG-74-6' | 28 | <0.06 | 0.9 |
| SG-75-6' | 2 | <0.0006 | 0.07 |
| SG-76-6' | 200 | <0.06 | 3 |
| SG-77-7' | 560 | <0.06 | 220 |
| AIR | 0.002 | 0.0005 | <0.0006 |
| SG-78-7' | 3 | 0.02 | 0.4 |

Analyzed by: E. Kaupanger
Proofed by: M. Stivers

# APPENDIX B Field Map




SOUTHEAST ROCKFORD

Potential Source Area 7

ROCKFORD, ILLINOIS

SAMPLING LOCATIONS

Figure 1

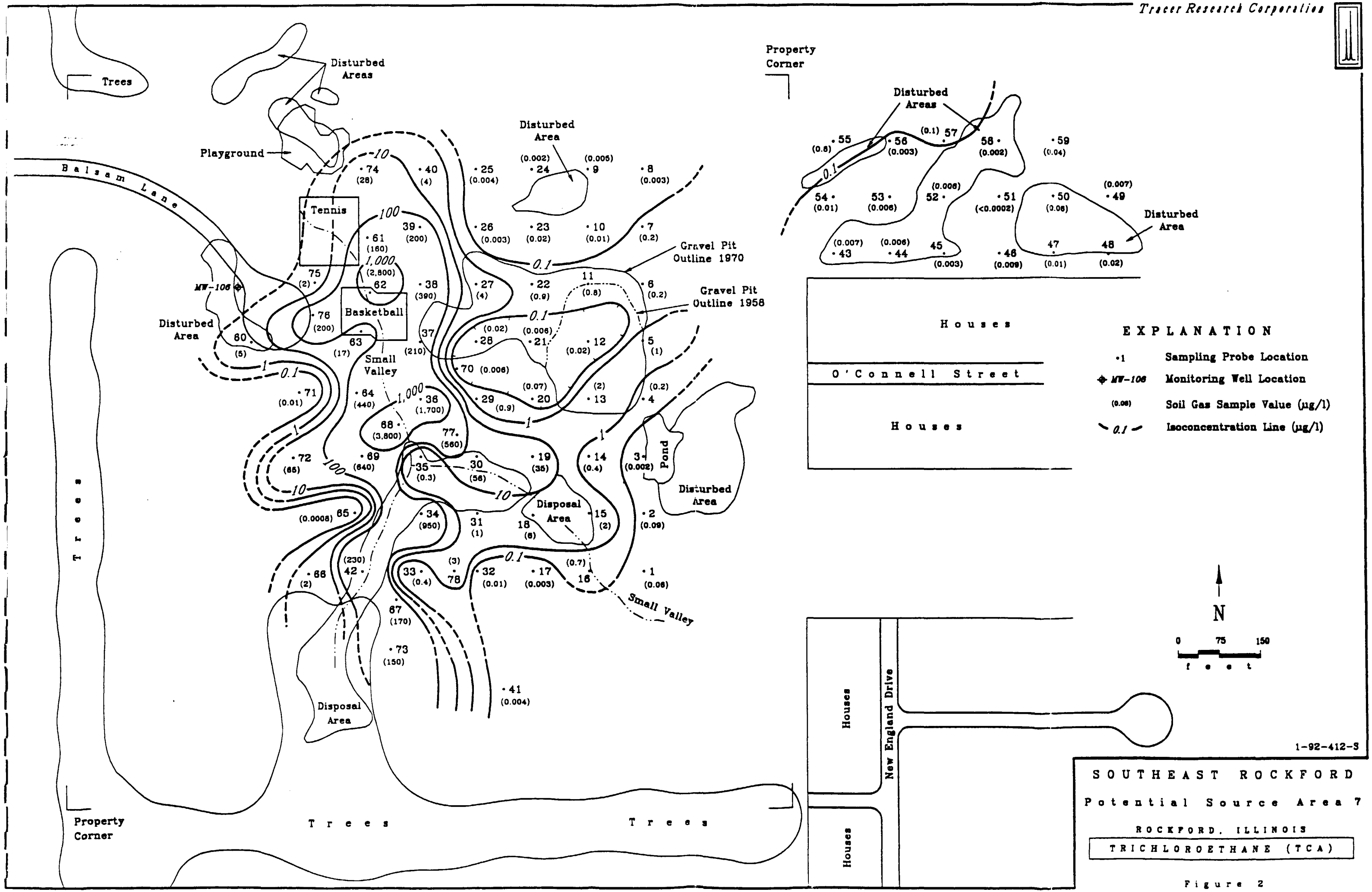

Trees
Disturbed Areas
Playground
Balsam Lane
Tennis
Basketball
MW-106
Disturbed Area
Small Valley
Disturbed Area
Gravel Pit Outline 1970
Gravel Pit Outline 1958
Pond
Disturbed Area
Disposal Area
Small Valley
Disposal Area
Trees
Trees
Trees
Property Corner
Property Corner
Disturbed Areas
Disturbed Area
Houses
O'Connell Street
Houses
Houses
New England Drive
Houses
EXPLANATION
•1 Sampling Probe Location
MW-106 Monitoring Well Location
(0.06) Soil Gas Sample Value (µg/l)
0.1 Isoconcentration Line (µg/l)
N
0 75 150
feet
1-92-412-S
SOUTHEAST ROCKFORD
Potential Source Area 7
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 2

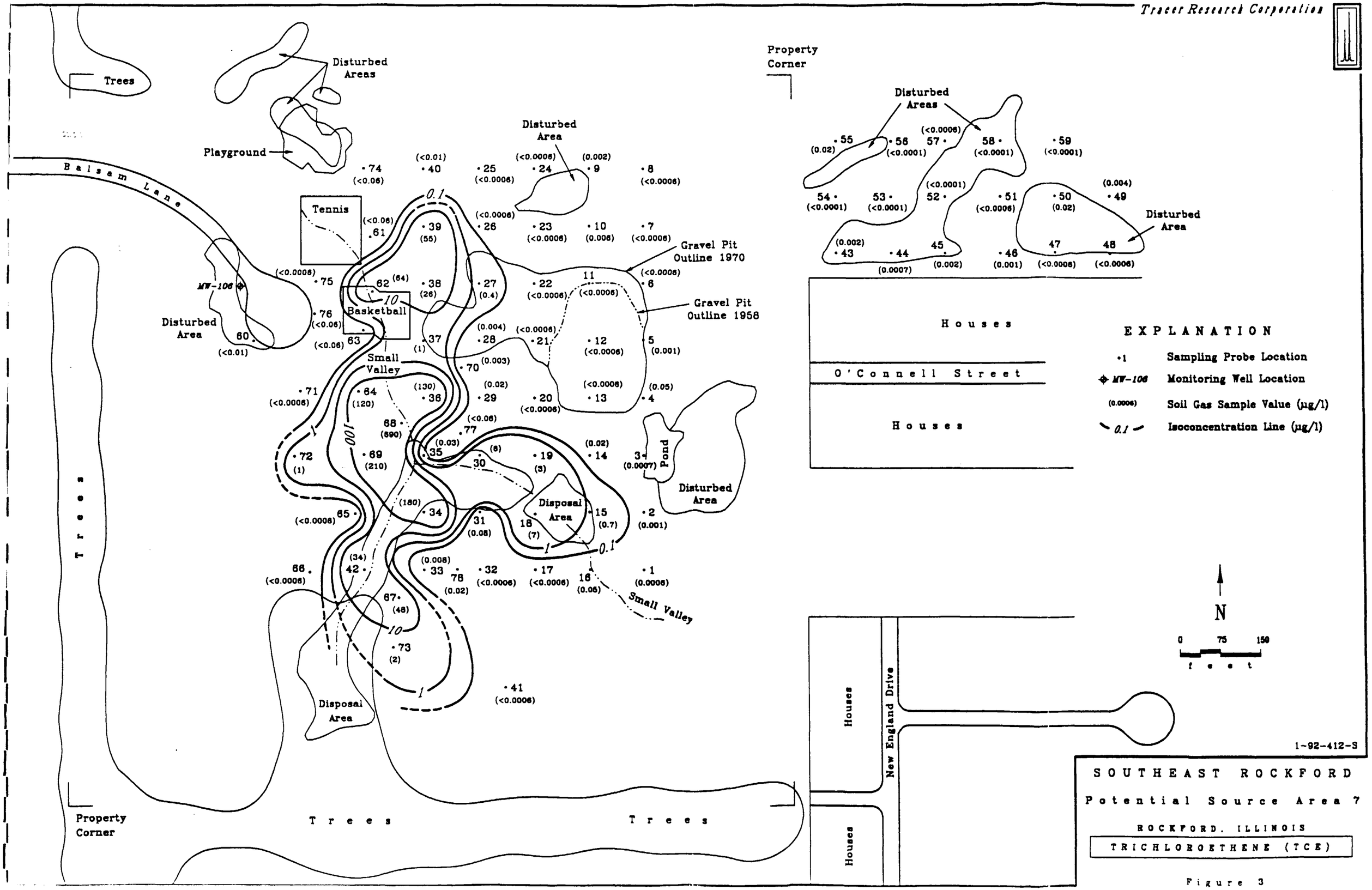

Trees
Disturbed Areas
Playground
Balsam Lane
Tennis
Disturbed Area
Gravel Pit Outline 1970
Gravel Pit Outline 1958
MW-106
Disturbed Area
Basketball
Small Valley
Pond
Disturbed Area
Disposal Area
Small Valley
Disposal Area
Trees
Property Corner
Trees
Trees
Property Corner
Disturbed Areas
Disturbed Area
Houses
O'Connell Street
Houses
Houses
New England Drive
Houses
EXPLANATION
•1 Sampling Probe Location
MW-106 Monitoring Well Location
(0.0006) Soil Gas Sample Value (µg/l)
0.1 Isoconcentration Line (µg/l)
N
0 75 150
feet
1-92-412-S
SOUTHEAST ROCKFORD
Potential Source Area 7
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 3

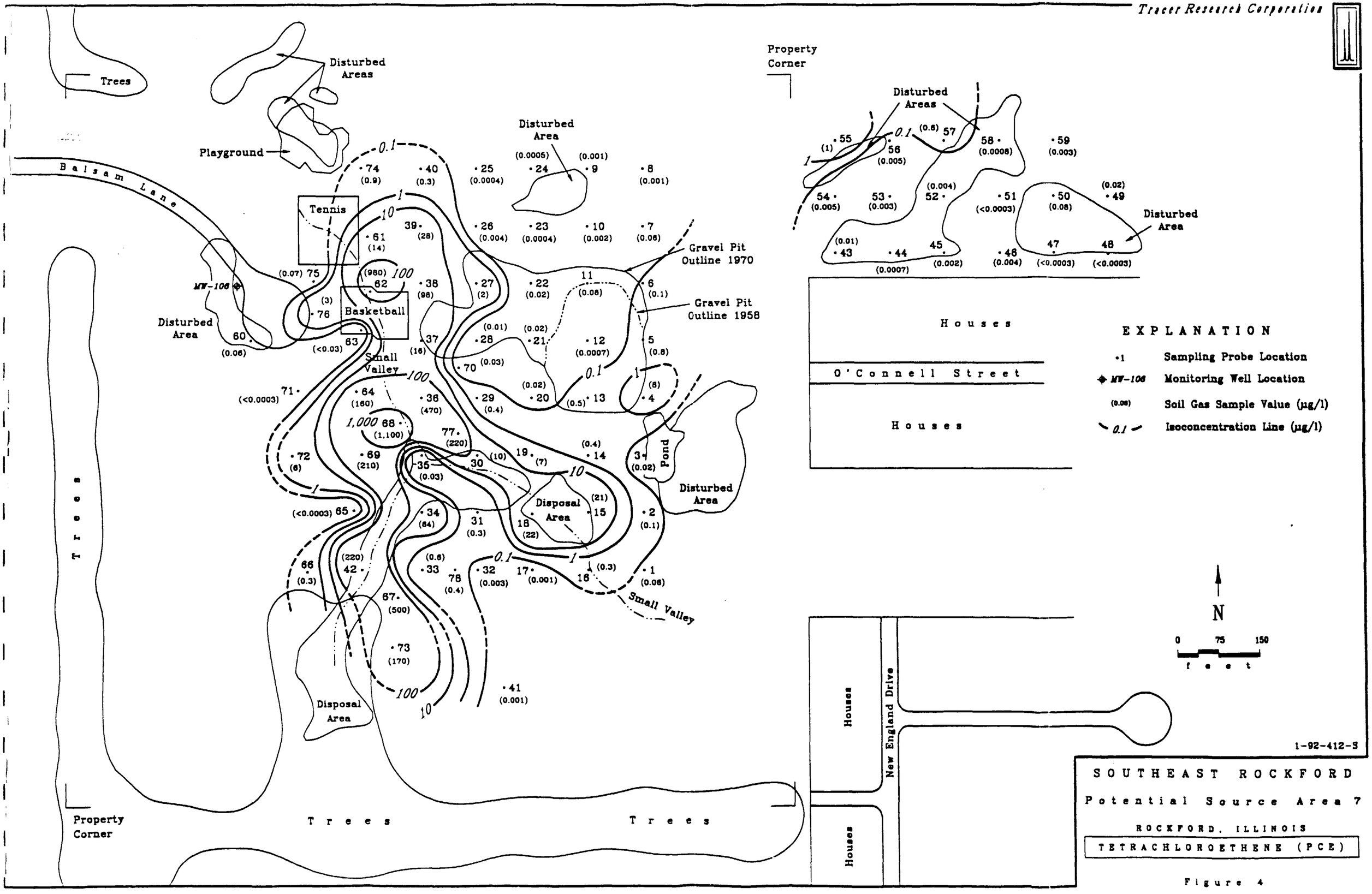

Trees
Disturbed Areas
Playground
Balsam Lane
Tennis
Basketball
Small Valley
Disturbed Area
Gravel Pit Outline 1970
Gravel Pit Outline 1958
Pond
Disposal Area
MW-106
Property Corner
Houses
O'Connell Street
New England Drive
EXPLANATION
Sampling Probe Location
Monitoring Well Location
Soil Gas Sample Value (µg/l)
Isoconcentration Line (µg/l)
N
0 75 150
feet
1-92-412-S
SOUTHEAST ROCKFORD
Potential Source Area 7
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 4

# APPENDIX G2
# SOIL GAS SURVEY
# FEBRUARY 1993

Shallow Soil Gas Investigation

# SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION

Rockford, Illinois

January 25 to February 17, 1993

**Tracer Research Corporation**

Tracer Research Corporation

Shallow Soil Gas Investigation

# SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION

Rockford, Illinois

January 25 to February 17, 1993

Tracer Research Corporation

Shallow Soil Gas Investigation

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION
Rockford, Illinois

January 25 to February 17, 1993

**Prepared for:**

CAMP DRESSER & McKEE
The Sears Tower, Suite 450
233 South Wacker Drive
Chicago, Illinois 60606

Telephone: (312) 474-1313
FAX: (312) 474-1004

**Prepared by:**

TRACER RESEARCH CORPORATION
3855 North Business Center Drive
Tucson, Arizona 85705-2944

Telephone: (602) 888-9400
FAX: (602) 293-1306

**Submitted by:**

Karen L. McWhirter

Eric J. Kampinger

1-93-035-S

# TABLE OF CONTENTS

1.0 SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION INVESTIGATION....1
1.1 Objectives....1
1.2 Overview of Results....1

2.0 SITE DESCRIPTION....8

3.0 SOIL GAS SAMPLING PARAMETERS....8

4.0 ANALYTICAL PARAMETERS....9
4.1 Chromatographic System....9
4.2 Analyses....10

5.0 QUALITY ASSURANCE AND QUALITY CONTROL....10

6.0 RESULTS....13

APPENDIX A Condensed Data....A-1

APPENDIX B Figures....B-1

## TABLES

Table 1. Soil Gas Sample Summary....2

Table 2. Detection Limits for Target Compounds....10

Table 3. Quality Assurance Samples....12

## 1.0 SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION INVESTIGATION

Tracer Research Corporation (Tracer Research) performed shallow soil gas investigations at twelve areas within the Southeast Rockford Groundwater Contamination site located in Rockford, Illinois. The investigations were conducted January 25 through February 17, 1993 for Camp Dresser & McKee (CDM) of Chicago, Illinois.

### 1.1 Objective

The purpose of the investigations was to determine the source and extent of possible soil and/or groundwater contamination at each area by screening the shallow soil gas for the presence of volatile organic compounds (VOCs). The soil gas samples were collected and analyzed for the following analyte class and compounds:

**Analyte Class: Halocarbon**
1,1,1 trichloroethane (TCA)
trichloroethene (TCE)
tetrachloroethene (PCE)

### 1.2 Overview of Results

For this investigation, 176 samples were collected from 176 sampling locations. Samples were collected at depths of 4 to 5 feet below ground surface (bgs). A summary of the results for each area investigation is presented in Table 1.

Table 1. Soil Gas Sample Summary

Area 1 - 16 samples (Figure 1)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 14 | 0.0008 | 0.04 | SG-1-3-5' |
| TCE | 0 | NA | NA | NA |
| PCE | 12 | 0.003 | 18 | SG-1-3-5' |

NA = Not Applicable

Area 2 - 11 samples (Figure 2)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 6 | 0.0003 | 0.02 | SG-2-1-5' |
| TCE | 1 | NA | 0.02 | SG-2-9-5' |
| PCE | 11 | 0.0006 | 140 | SG-2-9-5' |

NA = Not Applicable

Area 3 - 2 samples (Figure 3)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 2 | 1 | 2 | SG-3-1-5' |
| TCE | 2 | 0.2 | 0.5 | SG-3-1-5' |
| PCE | 2 | 0.2 | 0.4 | SG-3-1-5' |

Area 4 - 18 samples (Figure 4)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 18 | 0.01 | 4,300 | SG-4-11-5' |
| TCE | 8 | 0.008 | 66 | SG-4-1-5' |
| PCE | 4 | 0.02 | 22 | SG-4-1-5' |

Area 5 - 7 samples (Figure 5)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 7 | 0.0009 | 6 | SG-5-4-5' |
| TCE | 2 | 0.002 | 0.5 | SG-5-4-5' |
| PCE | 6 | 0.0004 | 0.01 | SG-5-4-5' |

Area 7 - 15 samples (Figure 6)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 15 | 0.0006 | 860 | SG-7-4-5' |
| TCE | 6 | 0.0009 | 8 | SG-7-9-5' |
| PCE | 15 | 0.0003 | 160 | SG-7-9-5' |

Area 9 - 6 samples (Figure 3)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 6 | 0.0004 | 120 | SG-9-4-5' |
| TCE | 3 | 0.001 | 91 | SG-9-4-5' |
| PCE | 5 | 0.005 | 120 | SG-9-4-5' |

Area 10 - 20 samples (Figure 7)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 20 | 0.003 | 3 | SG-10-11-5' |
| TCE | 10 | 0.0004 | 0.6 | SG-10-15-5' |
| PCE | 19 | 0.001 | 0.2 | SG-10-16-5' |

Area 11 - 5 samples (Figure 8)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 5 | 0.01 | 0.5 | SG-5'-5 |
| TCE | 0 | NA | NA | NA |
| PCE | 5 | 0.05 | 1 | SG-11-5-5' |

NA = Not Applicable

Area 12 - 11 samples (Figure 9)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 11 | 0.8 | 22,000 | SG-12-10-5' |
| TCE | 11 | 0.03 | 11,000 | SG-12-10-5' |
| PCE | 11 | 0.07 | 3,500 | SG-12-10-5' |

Area 13 - 4 samples (Figure 9)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 4 | 2 | 810 | SG-13-1-5' |
| TCE | 3 | 0.06 | 95 | SG-13-1-5' |
| PCE | 4 | 0.3 | 130 | SG-13-1-5' |

Area 14 - 61 samples (Figure 10)

| Compound | # of samples in which compound was detected | Low conc. µg/L | High conc. µg/L | Sample(s) with high conc. |
|---|---|---|---|---|
| TCA | 61 | 0.0006 | 16 | SG-14-52-5' |
| TCE | 21 | 0.0004 | 4 | SG-14-50-5' |
| PCE | 60 | 0.0002 | 1 | SG-14-51-5'<br>SG-14-57-4' |

## 2.0 SITE DESCRIPTION

The soil gas samples were collected from eleven areas in the Southeast Rockford Groundwater Contamination site. The areas include residential neighborhoods, commercial and retail businesses, and industrial facilities.

The CDM field representatives reported that the subsurface of these areas consists of 2 feet of top soil overlying medium to fine sand. Limestone bedrock is approximately 200 feet bgs. The depth to groundwater is approximately 20 to 30 feet bgs. The groundwater flow is generally to the west.

## 3.0 SOIL GAS SAMPLING PARAMETERS

Soil gas sampling probes consisted of 7-foot lengths of 3/4-inch diameter hollow steel pipe. The probes were fitted with detachable drive tips and hydraulically pushed and/or pounded to depths of 4 to 5 feet bgs. Where there was not van access, the probes were hand pounded to depth. An electric rotary hammer drill was used to drill holes through asphalt and concrete.

The aboveground end of each probe was fitted with an aluminum reducer (manifold) and a length of polyethylene tubing leading to a vacuum pump. Soil gas was pulled by the vacuum pump into the probe. Samples were collected in a syringe by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. The vacuum was monitored by a vacuum gauge to ensure an adequate gas flow from the vadose zone was maintained.

The volume of air within the probe was purged by evacuating 2 to 5 probe volumes of gas. The evacuation time in minutes versus the vacuum in inches of mercury (Hg) was used to calculate the necessary evacuation time. The vacuum in inches Hg was recorded at each sampling location.

Sample probe vacuums ranged from 2 to 7 inches Hg. The vacuum capacity of the pump was approximately 23 inches Hg.

## 4.0 ANALYTICAL PARAMETERS

During this investigation, up to 10 milliliters (mL) of soil gas were collected for each sample and immediately analyzed in the Tracer Research analytical van. Subsamples (replicates) from these samples were injected into the gas chromatograph (GC) in volumes of 1 to 1000 microliters (µL). Twenty-one samples had to be diluted to effective injection volumes ranging from 0.005 to 0.1 µL due to high VOC concentrations.

Analytical instruments were calibrated daily using fresh working standards made from National Institute of Sciences and Technology (NIST) traceable standards and reagent blanked solvents.

### 4.1 Chromatographic System

A Hewlett Packard 5890 Series II gas chromatograph, equipped with an electron capture detector (ECD) and one computing integrator, was used for the soil gas analyses. The compounds were separated in the GC on one 6 foot by 1/8 inch outer diameter (OD) packed analytical column (10% OV101 stationary phase bonded to 80/100 mesh Chromosorb W support) in a temperature controlled oven. Nitrogen was used as the carrier gas.

The instrument calibrations were checked periodically throughout the day to monitor the response factor and retention time. The following paragraphs explain the GC and ECD processes.

#### GC Process

The soil gas is injected into the GC where it is swept through the analytical column by the carrier gas. The detector senses the presence of a component different from the carrier gas and converts that information to an electrical signal. The components of the sample pass through the column at different rates, according to their individual properties, and are detected by the detector. Compounds are identified by the time it takes them to pass through the column (retention time).

ECD Process

The ECD captures low energy thermal electrons that have been ionized by beta particles. The flow of these captured electrons into an electrode produces a small current, which is collected and measured. When the halogen atoms (halocarbons) are introduced into the detector, electrons that would otherwise be collected at the electrode are captured by the sample, resulting in decreased current. The current causes the computing integrator to record a peak on a chromatogram. The area of the peak is compared to the peak generated by a known standard to determine the concentration of the analyte.

## 4.2 Analyses

The detection limits for target compounds depend on the sensitivity of the detector to the individual compound as well as the volume of the sample injection. The detection limits of the target compounds were calculated from the response factor, the sample injection size, and the calculated minimum peak size (area) observed under the conditions of the analyses. If any compound was not detected in an analysis, the detection limit is given as a "less than" value, e.g., <0.01 µg/L. The approximate detection limits for the target compounds are presented in Table 2.

**Table 2. Detection Limits for Target Compounds**

| Compound | Detection Limits (µg/L) |
|---|---|
| TCA | 0.0001 |
| TCE | 0.0004 |
| PCE | 0.0002 |

# 5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Tracer Research's Quality Assurance (QA) and Quality Control (QC) program was followed to maintain data that was reproducible through the investigation. An overview presenting the significant aspects of this program is presented below.

## Soil Gas Sampling Quality Assurance

To ensure consistent collection of samples, the following procedures are performed:

- Sampling Manifolds

Tracer Research's custom designed sampling manifold connects the sample probe to the vacuum line and pump. The manifold is designed to eliminate sample exposure to the polymeric (plastic) materials that connect the probe to the vacuum pump.

The sampling manifold is attached to the end of the probe, forming an air tight union between the probe and the silicone tubing septum. The septum connects the manifold to the pump vacuum line and permits syringe sampling.

This sampling system allows the sample to be taken upstream of the sampling pump, manifold, and septum. Since cross contamination of sampling equipment can be a major problem, Tracer Research replaces the materials (probe and syringe), between sampling points, that contact the soil gas before or during sampling.

-Sampling Probes

Steel probes are used only once each day. To eliminate the possibility of cross contamination, they are washed with high pressure soap and hot water spray, or steam-cleaned. Enough sampling probes are carried on each van to avoid the need to re-use any during the day.

-Glass Syringes

Glass syringes are used for only one sample a day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

-Sampling Efficiency

Soil gas pumping is monitored by a vacuum gauge to ensure that an adequate flow of gas from the soil is maintained. A reliable gas sample can be obtained if the sample vacuum gauge reading is at least 2 inches Hg less than the maximum measured vacuum of the vacuum pump.

## Analytical Quality Assurance Samples

Quality assurance samples are performed at the minimum frequencies listed in Table 3. The actual frequency depends on the number of samples analyzed each day and the length of time of the survey.

Table 3. Quality Assurance Samples

| Sample type | Frequency |
|---|---|
| Ambient Air Samples | 3 per day or 1 per site |
| Analytical Method Blanks | 5% (1 per 20 samples or 1 a day) |
| Continuing Calibration Check | 20% (1 every 5 samples) |
| Field System Blank | 1 per day |
| Reagent Blank | 1 per set of working standards |
| Replicate Samples | 100% of all samples |

The ambient air samples are obtained on site by sampling the air immediately outside the mobile analytical van and directly injecting it into the GC. Analytical method blanks are taken to demonstrate that the analytical instrumentation is not contaminated. These are performed by injecting carrier gas (nitrogen) into the GC with the sampling syringe. Subsampling syringes are also checked in this fashion.

The injector port septa through which soil gas samples are injected into the GC are replaced daily to prevent possible gas leaks from the chromatographic column. All sampling and subsampling syringes are decontaminated after use and are not used again until they have been decontaminated by washing in anionic detergent and baking at 90°C.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected using standard soil gas sampling procedures, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled ambient air analysis.

If the blanks detect compounds of interest at concentrations that indicate equipment contamination or concentrations that exceed normal background levels (ambient air analysis), corrective actions are performed. If the problem cannot be corrected, an out-of-control event is documented and reported. Field system blanks are not performed every day if clean probes are still available. Field system blanks are performed after any probe decontamination process.

A reagent blank is performed to ensure the solvent used to dilute the stock standards is not contaminated. Analytical instruments are calibrated daily using fresh working standards made from National Institute of Sciences and Technology traceable standards and reagent blanked solvents.

Quantitative precision is assured by replicating analysis of 100 percent of the samples. Replicate analyses are performed by subsampling vapors from the same sampling syringe.

## 6.0 RESULTS

The analytical results from this soil gas investigation are condensed in Appendix A. The data are presented by location and by analyte concentration. When the compound was not detected, the detection limit is presented as a "less than" value, e.g., <0.01 µg/L.

Soil gas samples are identified by area, sample location and sampling depth. For example, SG-2-9-5' represents a soil gas sample collected at area 2, location 9 at a depth of 5 feet bgs.

Sampling location maps and isoconcentration contours of the target compounds for each area are in Appendix B. The depths of some samples were not listed in the sample name if there was not enough room on the figure.

Isoconcentration contours were made to 0.1 µg/L for each of the target VOCs. Tracer Research draws contour lines to approximately two orders of magnitude above ambient air concentrations and/or background concentrations.

# APPENDIX A Condensed Data

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**01/25/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.004 | <0.002 | <0.003 |
| SG-1-1-5' | 0.0008 | <0.001 | 0.4 |
| SG-1-2-5' | <0.001 | <0.002 | <0.003 |
| SG-1-13-5' | 0.004 | <0.004 | 2 |
| SG-1-3-5' | 0.04 | <0.04 | 18 |
| SG-1-11-5' | 0.002 | <0.002 | 0.8 |
| AIR | 0.001 | <0.0002 | 0.001 |

Analyzed by: J. Humphries
Proofed by: Km

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**01/26/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0002 | <0.0006 | <0.0007 |
| SG-1-12-5' | 0.003 | <0.003 | 0.01 |
| SG-1-9-5' | 0.006 | <0.003 | 0.2 |
| SG-1-10-5' | 0.01 | <0.006 | 3 |
| SG-1-7-5' | 0.01 | <0.003 | 0.02 |
| SG-1-8-5' | 0.002 | <0.003 | 0.003 |
| AIR | 0.0002 | <0.0003 | <0.0003 |
| SG-1-4-5' | 0.01 | <0.003 | 0.5 |
| SG-1-6-5' | 0.01 | <0.003 | 0.02 |
| SG-1-5-5' | <0.001 | <0.003 | <0.003 |
| SG-1-14-5' | 0.01 | <0.003 | 0.05 |
| SG-1-15-5' | 0.003 | <0.003 | <0.003 |
| SG-1-16-5' | 0.008 | <0.006 | <0.007 |
| AIR | <0.0001 | <0.0003 | <0.0003 |

Analyzed by: J. Humphries
Proofed by: Km

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**01/27/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.002 | 0.006 | 0.008 |
| SG-3-1-5' | 2 | 0.5 | 0.4 |
| SG-3-2-5' | 1 | 0.2 | 0.2 |
| | | | |
| SG-9-1-5' | 0.07 | 0.001 | 0.04 |
| SG-9-2-5' | 0.009 | <0.001 | 0.005 |
| SG-9-3-5' | 0.0004 | <0.001 | <0.002 |
| | | | |
| AIR | 0.0002 | <0.0002 | <0.0003 |
| SG-9-6-5' | 0.03 | <0.001 | 0.005 |
| SG-9-5-5' | 18 | 7 | 24 |
| SG-9-4-5' | 120 | 91 | 120 |
| | | | |
| SG-2-9-5' | <0.0008 | 0.02 | 140 |
| SG-2-10-5' | <0.08 | <0.2 | 10 |
| AIR | 0.0002 | <0.0002 | 0.0003 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**01/28/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0005 | 0.0002 | 0.0003 |
| SG-2-1-5' | 0.02 | <0.0004 | 0.004 |
| AIR | 0.0005 | 0.0004 | 0.0003 |
| SG-2-2-5' | 0.0005 | <0.0004 | 0.06 |
| SG-2-3-5' | 0.001 | <0.0004 | 0.1 |
| SG-2-4-5' | 0.0005 | <0.0004 | 0.002 |
| SG-2-5-5' | 0.0003 | <0.0004 | 0.3 |
| SG-2-8-5' | <0.01 | <0.04 | 22 |
| SG-2-6-5' | <0.0001 | <0.0004 | 0.04 |
| SG-2-7-5' | <0.001 | <0.004 | 2 |
| AIR | 0.0005 | <0.0002 | 0.0003 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**01/29/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0005 | 0.0002 | 0.0003 |
| SG-2-11-5' | 0.003 | <0.0004 | 0.0006 |
| | | | |
| SG-4-2-5' | 1 | 0.1 | 0.8 |
| SG-4-1-5' | 33 | 66 | 22 |
| SG-4-3-5' | 3 | 0.1 | <0.06 |
| | | | |
| SG-4-4-5' | 0.2 | 0.008 | 0.02 |
| AIR | 0.0004 | 0.0002 | 0.0003 |
| SG-4-5-5' | 0.01 | <0.0004 | <0.0006 |
| | | | |
| SG-4-9-5' | 1500 | 4 | <6 |
| SG-4-10-5' | 3600 | 19 | <6 |
| SG-4-11-5' | 4300 | <4 | <6 |
| | | | |
| AIR | 0.002 | <0.0002 | <0.0003 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/01/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0008 | <0.0002 | <0.0003 |
| SG-4-6-5' | 36 | <0.2 | <0.3 |
| SG-4-7-5' | 35 | <0.2 | <0.3 |
| SG-4-8-5' | 23 | 0.2 | <0.3 |
| SG-4-12-5' | 3200 | <4 | <6 |
| SG-4-14-5' | 620 | <4 | <6 |
| AIR | 0.0007 | <0.0002 | <0.0003 |
| SG-4-13-5' | 110 | <4 | <6 |
| SG-4-15-5' | 120 | <0.2 | <0.3 |
| SG-4-18-5' | 2400 | 21 | 0.6 |
| SG-4-17-5' | 3 | <0.04 | <0.06 |
| SG-4-16-5' | 0.4 | <0.04 | <0.06 |
| AIR | 0.0005 | <0.0002 | <0.0003 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/02/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.005 | <0.0002 | 0.0005 |
| SG-5-3-4' | 0.001 | <0.0004 | 0.0005 |
| SG-5-4-5' | 6 | 0.5 | 0.01 |
| SG-5-1-5' | 0.001 | <0.0004 | 0.0004 |
| SG-5-2-5' | 0.0009 | <0.0004 | <0.0002 |
| SG-5-5-4' | 0.06 | 0.002 | 0.001 |
| AIR | 0.001 | <0.0002 | 0.0003 |
| SG-5-6-5' | 0.001 | <0.0004 | 0.0004 |
| SG-5-7-5' | 0.01 | <0.0004 | 0.0004 |
| SG-10-12-5' | 0.08 | <0.002 | 0.004 |
| SG-10-15-5' | 0.05 | 0.6 | 0.009 |
| SG-10-13-5' | 0.04 | <0.0004 | 0.01 |
| SG-10-14-5' | 2 | 0.008 | 0.02 |
| AIR | 0.001 | <0.0002 | 0.0002 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/03/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.004 | 0.006 | 0.004 |
| SG-10-1-5' | 0.003 | 0.0004 | 0.001 |
| SG-10-2-5' | 0.2 | <0.002 | <0.001 |
| AIR | 0.002 | 0.001 | 0.001 |
| SG-10-3-5' | 0.01 | <0.002 | 0.04 |
| SG-10-4-5' | 0.007 | <0.0004 | 0.005 |
| SG-10-5-5' | 0.01 | <0.0004 | 0.003 |
| AIR | 0.001 | 0.01 | 0.0002 |
| SG-10-6-5' | 0.03 | <0.0004 | 0.009 |
| SG-10-7-5' | 0.02 | 0.04 | 0.09 |
| SG-10-8-5' | 0.06 | 0.008 | 0.08 |
| SG-10-9-5' | 0.2 | 0.5 | 0.01 |
| AIR | 0.003 | 0.0006 | 0.0002 |
| SG-10-10-5' | 0.4 | 0.5 | 0.04 |
| SG-10-11-5' | 3 | 0.08 | 0.1 |
| AIR | 0.001 | <0.0002 | 0.0005 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/04/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.002 | <0.0003 | 0.001 |
| SG-10-19-5' | 0.006 | 0.004 | 0.02 |
| SG-10-18-5' | 0.01 | <0.0005 | 0.04 |
| SG-10-16-5' | 0.1 | 0.0005 | 0.2 |
| SG-10-20-5' | 0.02 | <0.0005 | 0.04 |
| SG-10-17-5' | 0.01 | <0.0005 | 0.003 |
| AIR | 0.002 | <0.0003 | 0.0006 |
| SG-7-5-5' | 3 | <0.0005 | 0.2 |
| SG-7-4-5' | 860 | <0.3 | 11 |
| SG-7-3-4' | 63 | 7 | 50 |
| SG-7-2-5' | 0.2 | 0.003 | 0.3 |
| SG-7-1-5' | 260 | 1 | 3 |
| AIR | 0.002 | 0.0003 | 0.0006 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/05/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.002 | 0.002 | 0.0005 |
| SG-7-12-5' | 0.003 | 0.0009 | 0.0007 |
| SG-7-11-5' | 0.07 | <0.0004 | 0.005 |
| SG-7-10-5' | 0.3 | <0.0004 | 0.03 |
| SG-7-6-5' | 0.7 | <0.004 | 0.2 |
| SG-7-7-5' | 0.002 | <0.0004 | 0.0007 |
| AIR | 0.002 | <0.0002 | 0.0008 |
| SG-7-8-5' | 9 | <0.04 | 5 |
| SG-7-9-5' | 130 | 8 | 160 |
| SG-7-13-4' | 2 | 0.03 | 0.1 |
| AIR | 0.0008 | <0.0002 | 0.0002 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/08/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0008 | <0.0002 | 0.0002 |
| SG-14-20-4' | 0.0009 | <0.0004 | 0.0002 |
| SG-14-11-4' | 0.0007 | <0.0004 | 0.0002 |
| SG-14-10-4' | 0.001 | <0.0004 | 0.0002 |
| SG-14-9-5' | 0.002 | <0.0004 | 0.001 |
| SG-14-12-5' | 0.001 | <0.0004 | 0.0004 |
| AIR | 0.0008 | <0.0002 | 0.0001 |
| SG-14-19-5' | 0.001 | <0.0004 | 0.0002 |
| SG-14-18-5' | 0.002 | <0.0004 | 0.0002 |
| SG-14-13-5' | 0.002 | <0.0004 | 0.0002 |
| SG-14-8-5' | 0.002 | <0.0004 | 0.0002 |
| SG-14-7-5' | 0.002 | <0.0004 | 0.0006 |
| SG-14-14-5' | 0.002 | <0.0004 | 0.0006 |
| SG-14-17-5' | 0.002 | <0.0004 | 0.0004 |
| AIR | 0.001 | <0.0002 | 0.0003 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/09/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.001 | 0.0004 | 0.0003 |
| SG-14-16-5' | 0.002 | 0.0004 | 0.0009 |
| SG-14-15-5' | 0.003 | 0.0004 | 0.003 |
| SG-14-6-5' | 0.002 | <0.0004 | 0.0004 |
| SG-14-5-5' | 0.001 | <0.0004 | 0.0004 |
| SG-14-4-5' | 0.001 | <0.0004 | 0.0004 |
| SG-14-3-5' | 0.001 | <0.0004 | 0.001 |
| SG-14-2-5' | 0.002 | <0.0004 | 0.0006 |
| SG-14-1-5' | 0.01 | <0.0004 | 0.004 |
| SG-14-28-5' | 0.002 | <0.0004 | 0.001 |
| SG-14-29-5' | 0.04 | <0.0004 | 0.01 |
| AIR | 0.001 | <0.0002 | 0.0003 |
| SG-14-30-5' | 0.01 | <0.0004 | 0.04 |
| SG-14-31-5' | 0.02 | <0.0004 | 0.03 |
| SG-14-32-5' | 0.003 | <0.0004 | 0.06 |
| SG-14-33-5' | 0.002 | <0.0004 | 0.2 |
| SG-14-37-5' | 0.002 | <0.0004 | 0.06 |
| SG-14-36-5 | 0.0006 | <0.0004 | 0.07 |
| SG-14-34-5' | 0.002 | <0.0004 | 0.1 |
| SG-14-35-5' | 0.002 | <0.0007 | 0.04 |
| SG-14-39-5' | 0.005 | <0.0007 | 0.0006 |
| SG-14-38-5' | 0.001 | <0.0004 | 0.001 |
| AIR | 0.002 | 0.0002 | 0.0005 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/10/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.001 | <0.0002 | 0.0004 |
| SG-14-40-5' | 0.006 | <0.0004 | 0.001 |
| SG-14-27-5' | 0.001 | 0.02 | 0.002 |
| SG-14-21-5' | 0.001 | 0.0004 | 0.001 |
| SG-14-22-5' | 0.01 | <0.0004 | 0.001 |
| SG-14-23-5' | 0.004 | <0.0004 | 0.001 |
| AIR | 0.001 | <0.0002 | 0.0004 |
| SG-14-24-5' | 0.007 | 0.0008 | 0.002 |
| SG-14-25-5' | 0.02 | <0.0004 | 0.003 |
| SG-14-26-5' | 0.004 | 0.006 | 0.0009 |
| SG-14-58-4' | 0.6 | 0.02 | 0.009 |
| SG-14-57-4' | 2 | 0.04 | 1 |
| SG-14-56-5' | 2 | 0.2 | 0.9 |
| SG-14-55-5' | 0.4 | 0.09 | 0.2 |
| SG-14-54-5' | 0.2 | 0.1 | 0.03 |
| SG-14-53-5' | 0.2 | 0.2 | 0.4 |
| SG-14-52-5' | 16 | 0.4 | 0.2 |
| AIR | 0.002 | <0.0002 | 0.0005 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/11/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.0008 | <0.0002 | 0.00009 |
| SG-14-51-5' | 13 | 2 | 1 |
| SG-14-48-4' | 4 | 0.6 | 0.2 |
| SG-14-49-5' | 3 | 0.9 | 0.2 |
| SG-14-47-4' | 0.7 | 0.1 | 0.06 |
| SG-14-50-5' | 3 | 4 | 0.3 |
| AIR | 0.001 | <0.0002 | 0.0002 |
| SG-14-59-5 | 0.05 | <0.0004 | 0.01 |
| SG-14-60-5' | 7 | <0.04 | <0.02 |
| SG-14-61-5' | 0.1 | 2 | 0.09 |
| SG-14-41-5' | 0.004 | <0.0004 | 0.04 |
| SG-14-42-5' | 0.002 | <0.0004 | 0.06 |
| SG-14-43-5' | 0.0006 | <0.0006 | 0.1 |
| SG-14-44-5' | 0.01 | 0.0004 | 0.01 |
| AIR | 0.001 | <0.0002 | 0.0005 |

Analyzed by: J. Humphries
Proofed by: RSM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/12/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.001 | <0.0002 | 0.0002 |
| SG-14-45-5' | 0.02 | 0.002 | 0.005 |
| SG-14-46-5' | 0.006 | <0.0004 | 0.01 |
| SG-7-14-4' | 0.0006 | <0.0002 | 0.0003 |
| SG-7-15-5' | 13 | <0.04 | 4 |
| AIR | 0.0009 | <0.0002 | 0.0002 |

Analyzed by: J. Humphries
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/16/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.005 | 0.006 | 0.0006 |
| SG-12-2-5' | 26 | 2 | 32 |
| SG-12-9-5' | 140 | 22 | 88 |
| SG-12-10-5' | 22000 | 11000 | 3500 |
| AIR | 0.001 | <0.0002 | 0.0002 |
| SG-12-11-4' | 0.8 | 0.03 | 0.07 |
| SG-12-8-5' | 920 | 170 | 160 |
| SG-12-7-5' | 17 | 2 | 4 |
| SG-12-6-4' | 120 | 24 | 21 |
| AIR | 0.003 | 0.0009 | 0.001 |

Analyzed by: D. Walker
Proofed by: KM

**TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS**
**CDM/Southeast Rockford Groundwater Contamination-Soil Gas Survey/Rockford, Illinois/Job No. 1-93-035-S**
**02/17/93**

| SAMPLE | TCA µg/L | TCE µg/L | PCE µg/L |
|---|---|---|---|
| AIR | 0.001 | 0.0003 | 0.009 |
| SG-12-3-5' | 53 | 6 | 6 |
| SG-12-1-5' | 180 | 17 | 330 |
| SG-12-4-4' | 41 | 46 | 25 |
| SG-12-5-5' | 11 | 5 | 36 |
| SG-13-4-5' | 2 | 0.06 | 0.3 |
| SG-13-3-5' | 2 | <0.06 | 0.8 |
| AIR | 0.002 | <0.0003 | 0.0005 |
| SG-13-1-5' | 810 | 95 | 130 |
| SG-13-2-5' | 350 | 6 | 17 |
| SG-11-5-5' | 0.5 | <0.06 | 1 |
| SG-11-1-5' | 0.09 | <0.003 | 0.07 |
| SG-11-2-5' | 0.01 | <0.003 | 0.1 |
| SG-11-3-5' | 0.03 | <0.003 | 0.09 |
| SG-11-4-5' | 0.08 | <0.003 | 0.05 |
| AIR | 0.0009 | <0.0003 | 0.0003 |

Analyzed by: D. Walker
Proofed by: KM

# APPENDIX B Figures

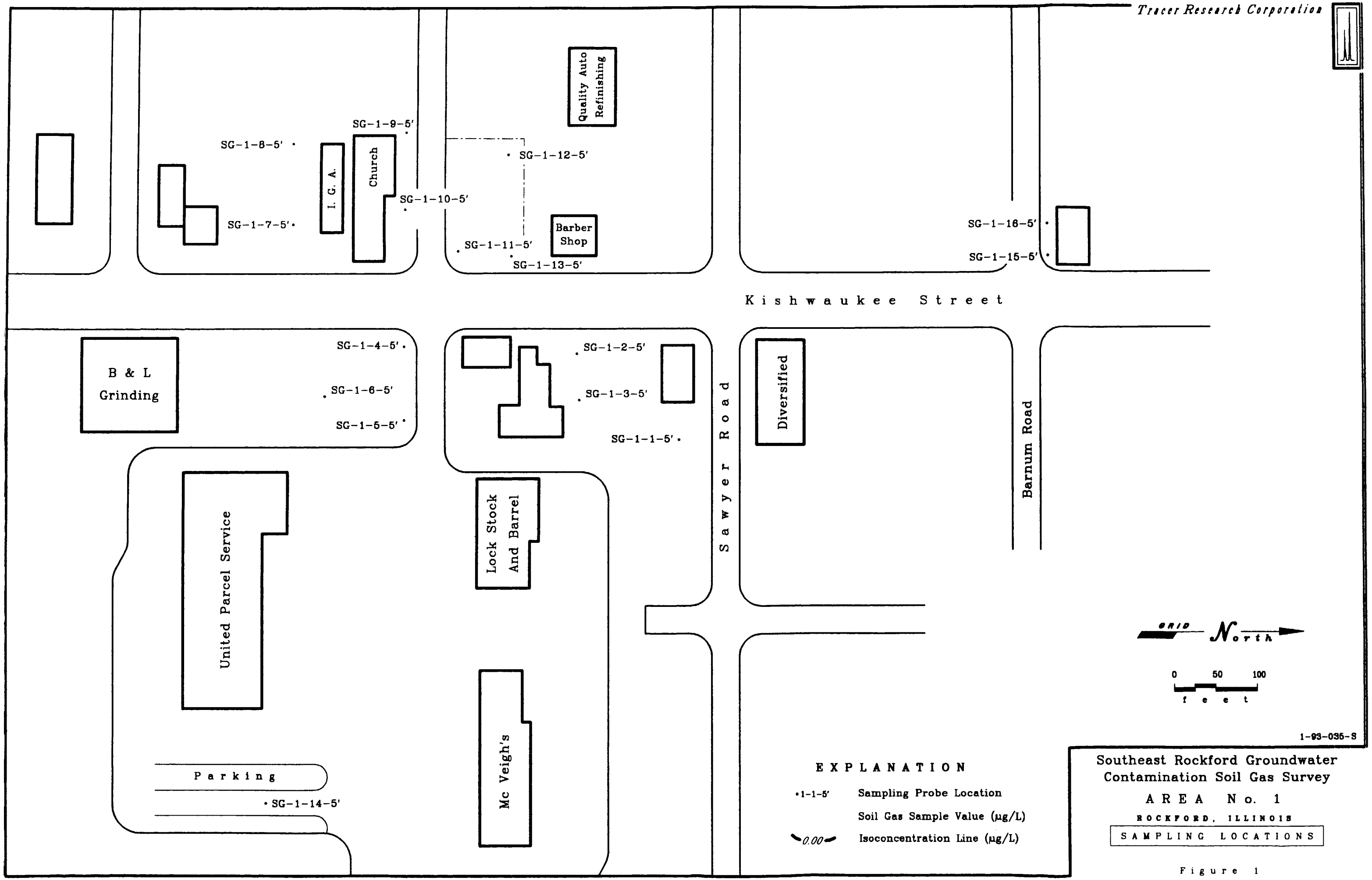

Tracer Research Corporation
Quality Auto Refinishing
SG-1-9-5'
SG-1-8-5'
I. G. A.
Church
SG-1-12-5'
SG-1-10-5'
SG-1-7-5'
Barber Shop
SG-1-11-5'
SG-1-13-5'
SG-1-16-5'
SG-1-15-5'
Kishwaukee Street
B & L Grinding
SG-1-4-5'
SG-1-6-5'
SG-1-5-5'
SG-1-2-5'
SG-1-3-5'
SG-1-1-5'
Sawyer Road
Diversified
Barnum Road
United Parcel Service
Lock Stock And Barrel
Mc Veigh's
Parking
SG-1-14-5'
GRID North
0 50 100
feet
1-93-036-S
EXPLANATION
•1-1-5' Sampling Probe Location
Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 1
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 1

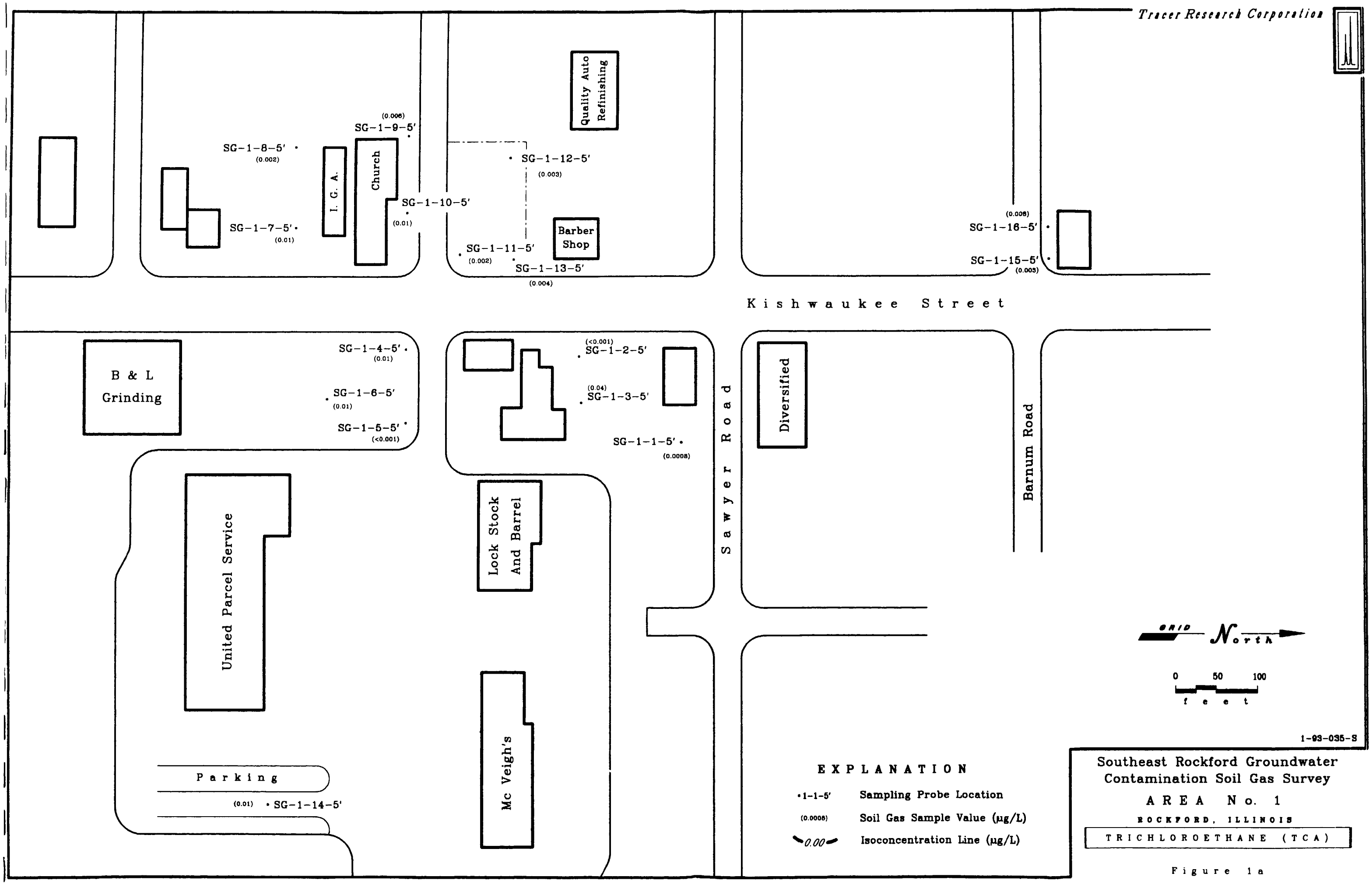

Tracer Research Corporation
Quality Auto Refinishing
(0.006)
SG-1-9-5'
SG-1-8-5'
(0.002)
I. G. A.
Church
SG-1-12-5'
(0.003)
SG-1-10-5'
(0.01)
SG-1-7-5'
(0.01)
Barber Shop
SG-1-11-5'
(0.002)
SG-1-13-5'
(0.004)
(0.008)
SG-1-16-5'
SG-1-15-5'
(0.003)
Kishwaukee Street
B & L Grinding
SG-1-4-5'
(0.01)
SG-1-6-5'
(0.01)
SG-1-5-5'
(<0.001)
(<0.001)
SG-1-2-5'
(0.04)
SG-1-3-5'
SG-1-1-5'
(0.0008)
Sawyer Road
Diversified
Barnum Road
United Parcel Service
Lock Stock And Barrel
Mc Veigh's
Parking
(0.01)
SG-1-14-5'
GRID North
0
50
100
feet
1-93-035-S
EXPLANATION
•1-1-5' Sampling Probe Location
(0.0008) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 1
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 1a

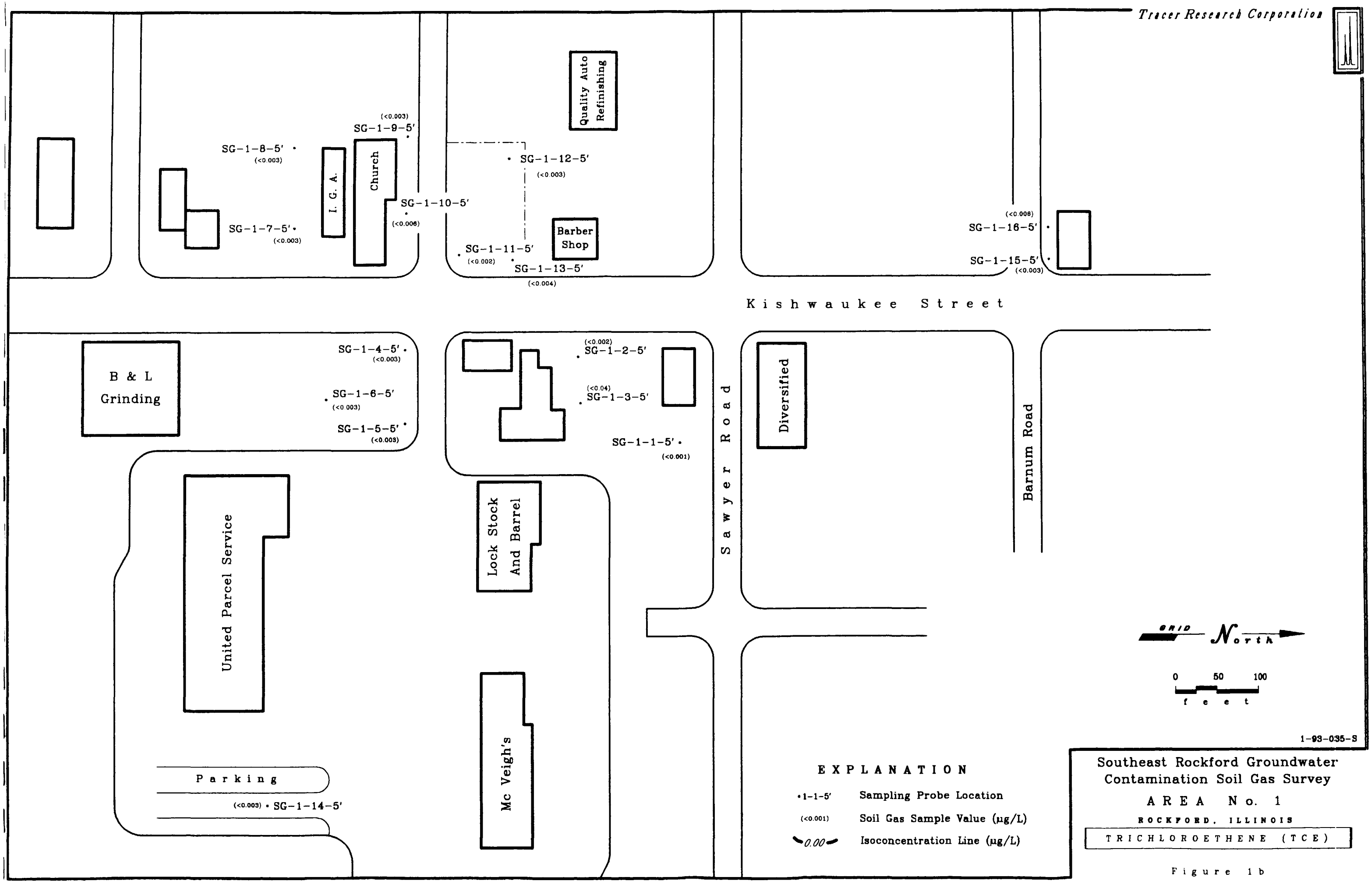
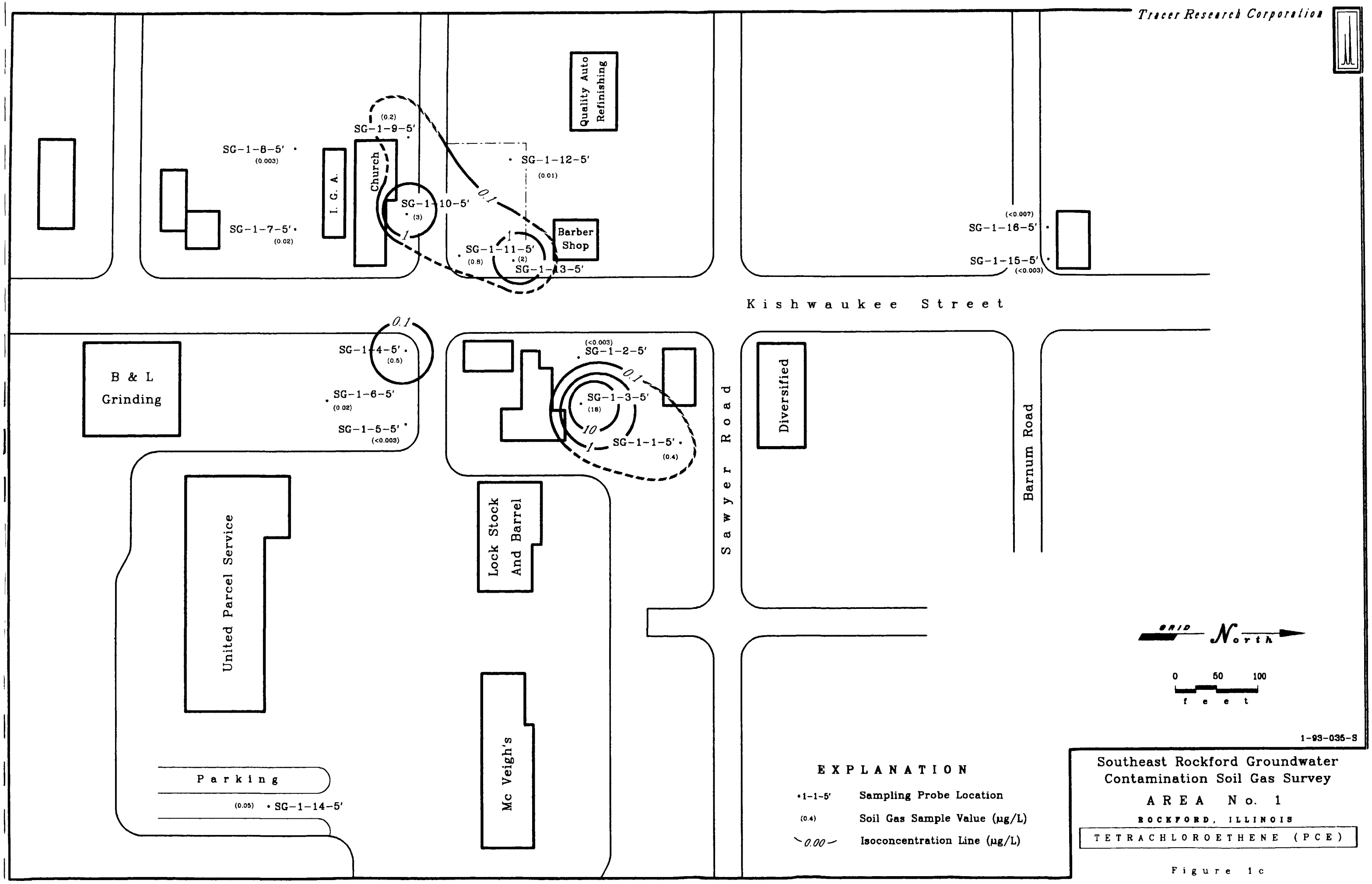

Tracer Research Corporation
Quality Auto Refinishing
(<0.003)
SG-1-9-5'
SG-1-8-5'
(<0.003)
I. G. A.
Church
SG-1-12-5'
(<0.003)
SG-1-10-5'
(<0.006)
SG-1-7-5'
(<0.003)
Barber Shop
SG-1-11-5'
(<0.002)
SG-1-13-5'
(<0.004)
(<0.008)
SG-1-16-5'
SG-1-15-5'
(<0.003)
Kishwaukee Street
B & L Grinding
SG-1-4-5'
(<0.003)
SG-1-6-5'
(<0.003)
SG-1-5-5'
(<0.003)
(<0.002)
SG-1-2-5'
(<0.04)
SG-1-3-5'
SG-1-1-5'
(<0.001)
Sawyer Road
Diversified
Barnum Road
United Parcel Service
Lock Stock And Barrel
Mc Veigh's
Parking
(<0.003)
SG-1-14-5'
GRID North
0 50 100
feet
1-93-035-S
EXPLANATION
•1-1-5' Sampling Probe Location
(<0.001) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 1
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 1b




Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 1

ROCKFORD, ILLINOIS

TETRACHLOROETHENE (PCE)

Figure 1c

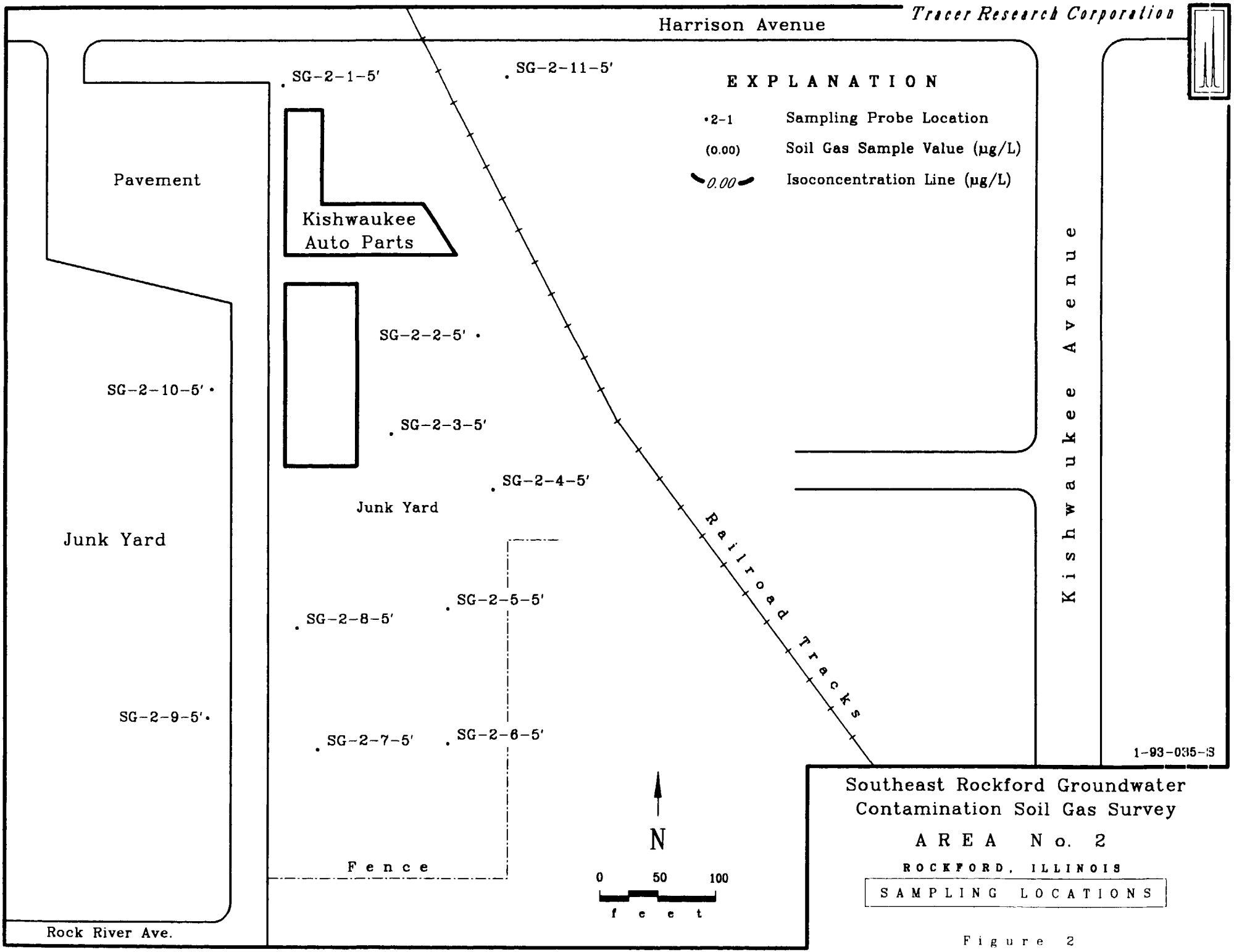

Tracer Research Corporation
Harrison Avenue
SG-2-1-5'
SG-2-11-5'
EXPLANATION
•2-1 Sampling Probe Location
(0.00) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Pavement
Kishwaukee Auto Parts
SG-2-2-5'
SG-2-10-5'
SG-2-3-5'
SG-2-4-5'
Junk Yard
Junk Yard
Railroad Tracks
Kishwaukee Avenue
SG-2-5-5'
SG-2-8-5'
SG-2-9-5'
SG-2-7-5'
SG-2-6-5'
1-93-035-3
N
0 50 100
feet
Fence
Rock River Ave.
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 2
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 2

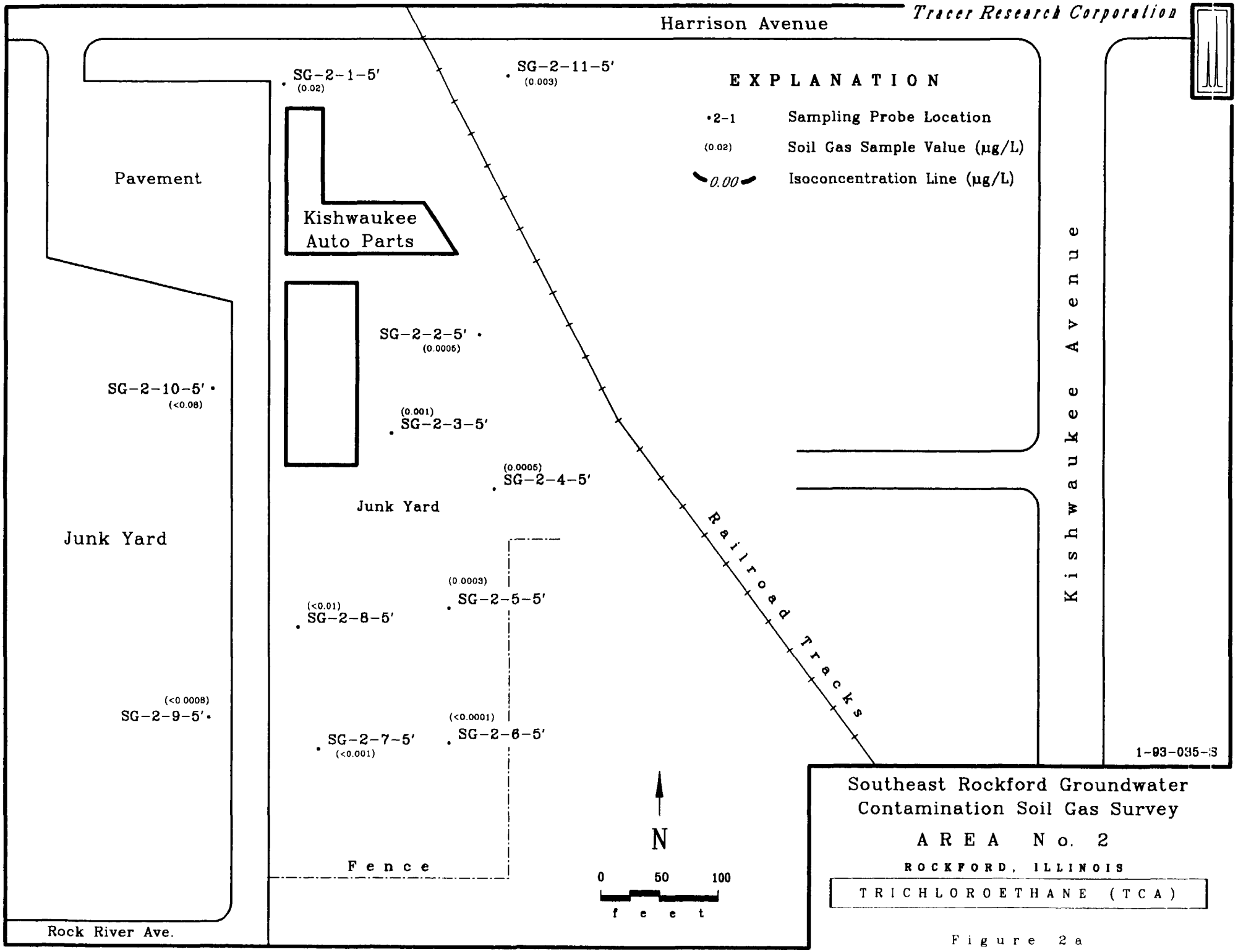

Tracer Research Corporation
Harrison Avenue
SG-2-1-5'
(0.02)
SG-2-11-5'
(0.003)
EXPLANATION
•2-1 Sampling Probe Location
(0.02) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Pavement
Kishwaukee Auto Parts
SG-2-2-5'
(0.0005)
SG-2-10-5'
(<0.08)
(0.001)
SG-2-3-5'
(0.0005)
SG-2-4-5'
Junk Yard
Junk Yard
Railroad Tracks
Kishwaukee Avenue
(0.0003)
SG-2-5-5'
(<0.01)
SG-2-8-5'
(<0.0008)
SG-2-9-5'
(<0.0001)
SG-2-6-5'
SG-2-7-5'
(<0.001)
Fence
N
0 50 100
feet
Rock River Ave.
1-93-035-3
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 2
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 2a

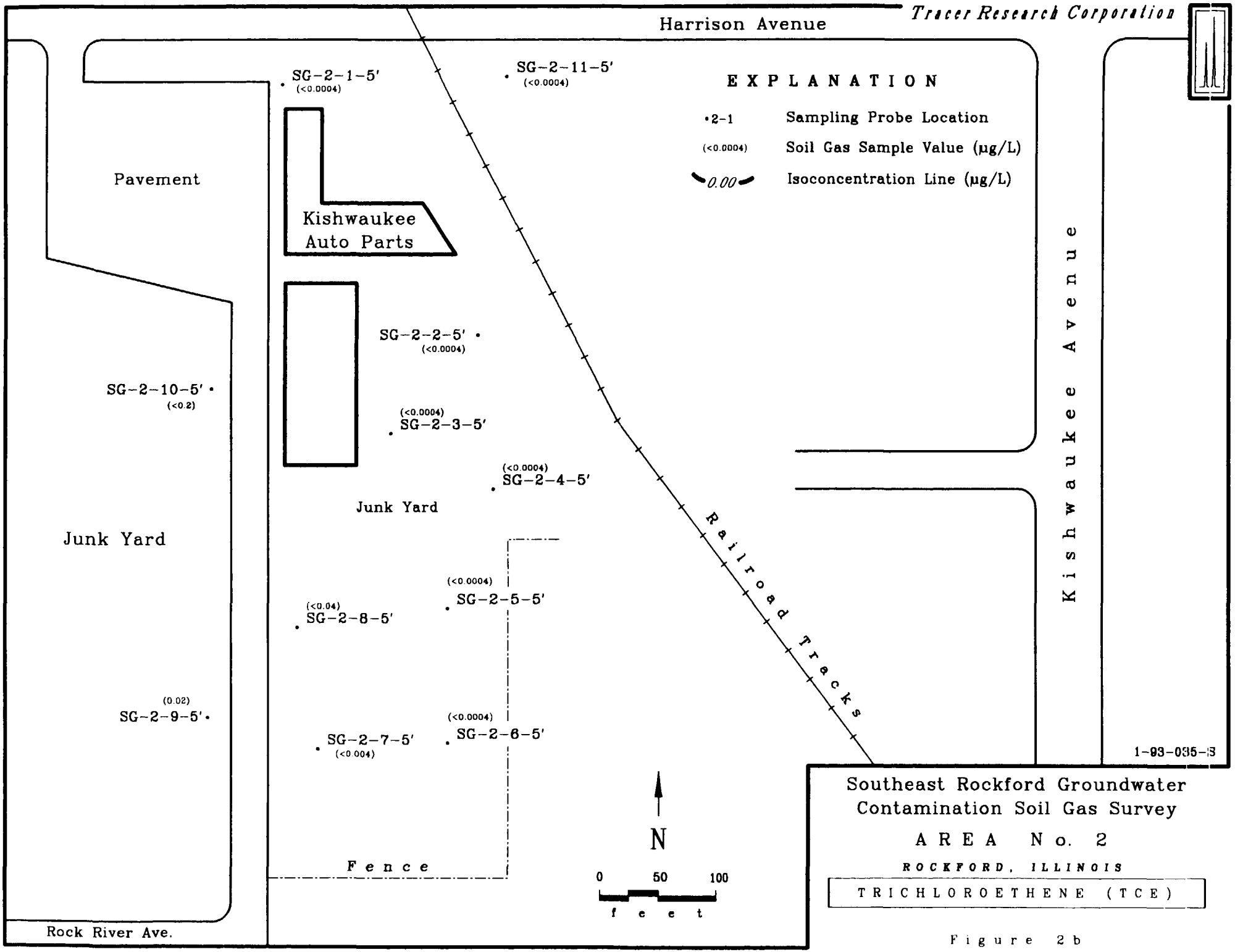

Tracer Research Corporation
Harrison Avenue
SG-2-1-5'
(<0.0004)
SG-2-11-5'
(<0.0004)
EXPLANATION
•2-1 Sampling Probe Location
(<0.0004) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Pavement
Kishwaukee Auto Parts
SG-2-2-5'
(<0.0004)
SG-2-10-5'
(<0.2)
(<0.0004)
SG-2-3-5'
(<0.0004)
SG-2-4-5'
Junk Yard
Junk Yard
Railroad Tracks
Kishwaukee Avenue
(<0.0004)
SG-2-5-5'
(<0.04)
SG-2-8-5'
(0.02)
SG-2-9-5'
(<0.0004)
SG-2-6-5'
SG-2-7-5'
(<0.004)
Fence
N
0 50 100
feet
1-93-035-3
Rock River Ave.
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 2
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 2b

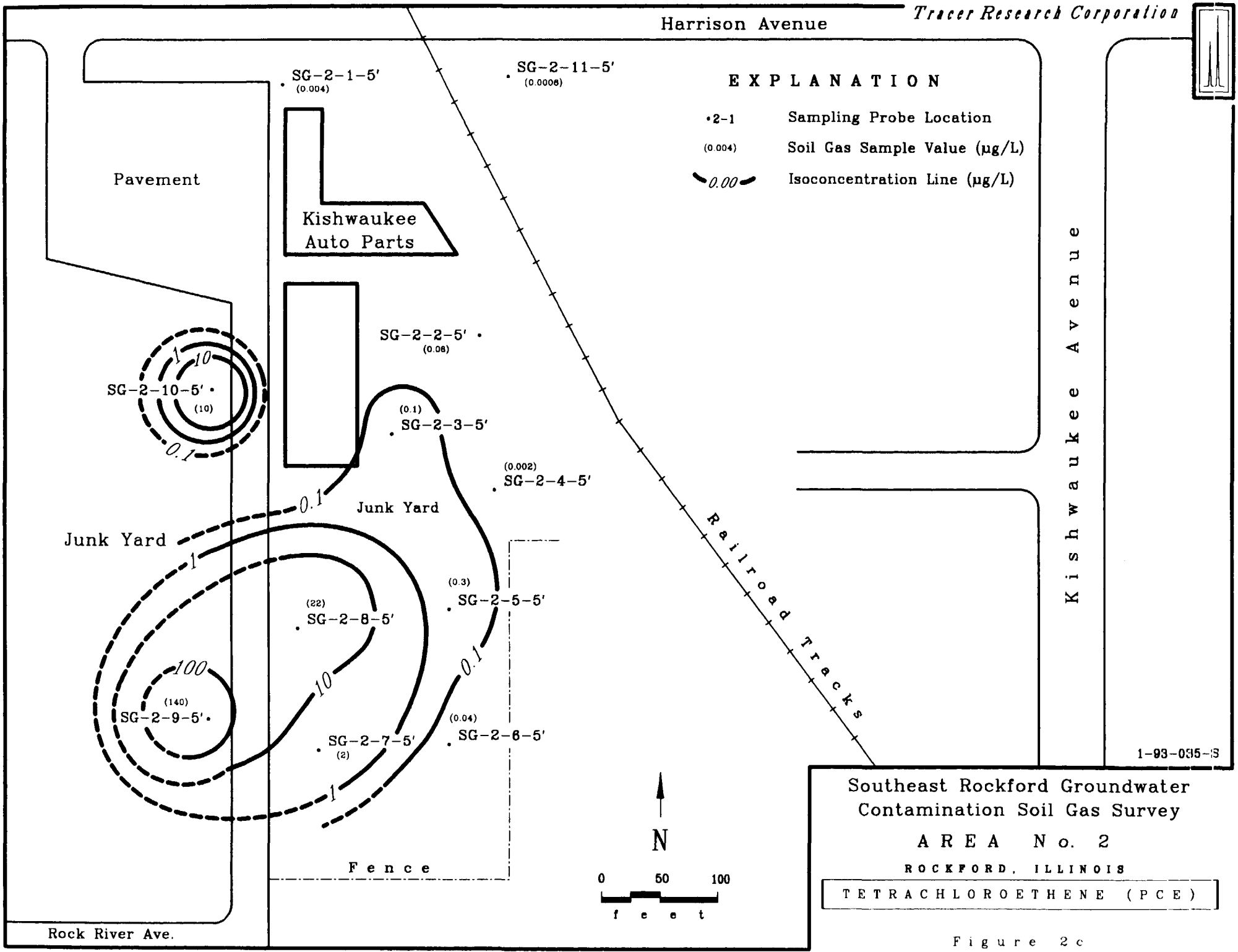
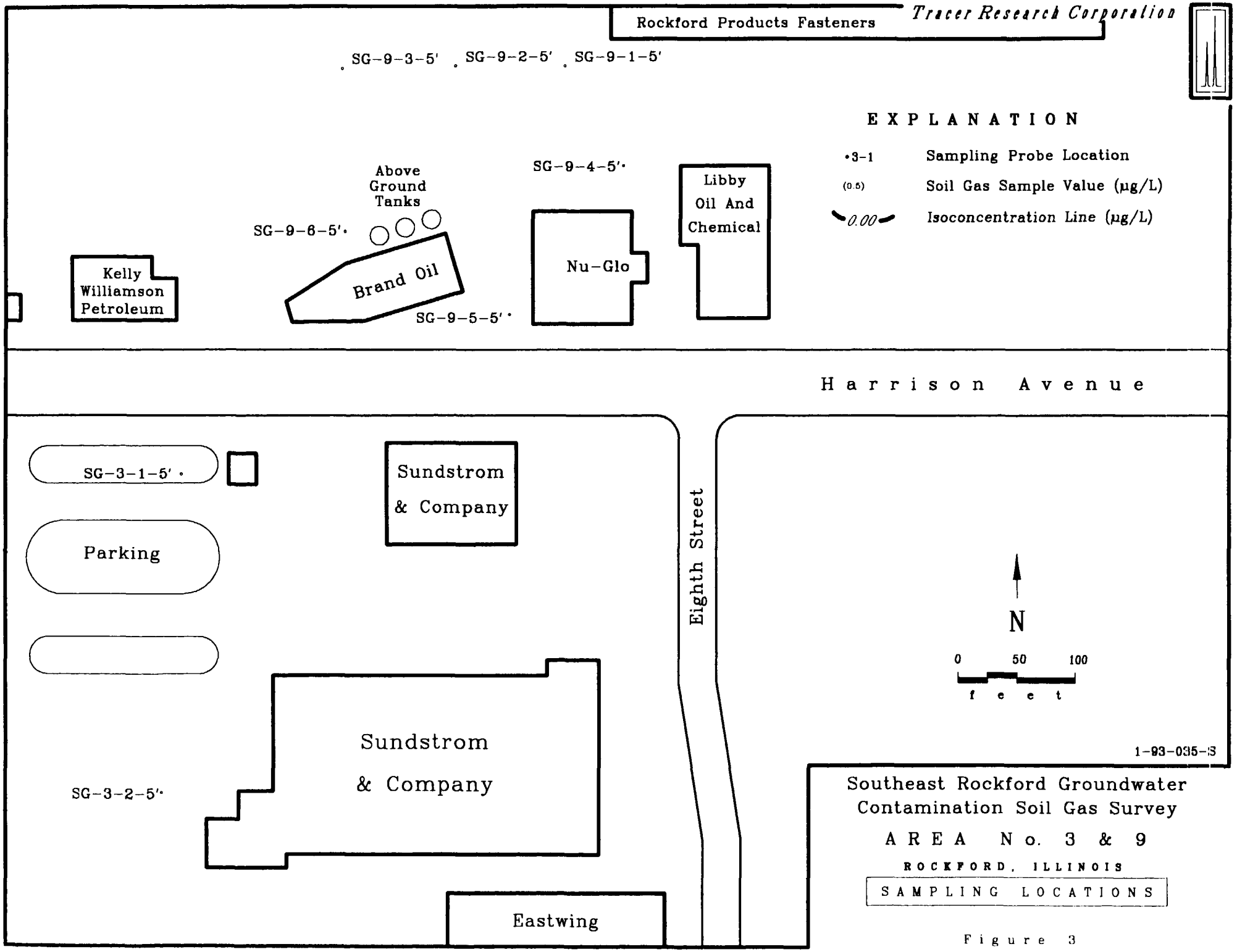

Tracer Research Corporation
Harrison Avenue
SG-2-1-5'
(0.004)
SG-2-11-5'
(0.0006)
EXPLANATION
•2-1 Sampling Probe Location
(0.004) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Pavement
Kishwaukee Auto Parts
SG-2-2-5'
(0.08)
SG-2-10-5'
(10)
1
10
0.1
(0.1)
SG-2-3-5'
(0.002)
SG-2-4-5'
0.1
Junk Yard
Junk Yard
1
(0.3)
SG-2-5-5'
(22)
SG-2-8-5'
100
(140)
SG-2-9-5'
10
0.1
(0.04)
SG-2-6-5'
SG-2-7-5'
(2)
1
Railroad Tracks
Kishwaukee Avenue
Fence
N
0 50 100
feet
Rock River Ave.
1-93-035-S
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 2
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 2c




Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 3 & 9

ROCKFORD, ILLINOIS

SAMPLING LOCATIONS

Figure 3

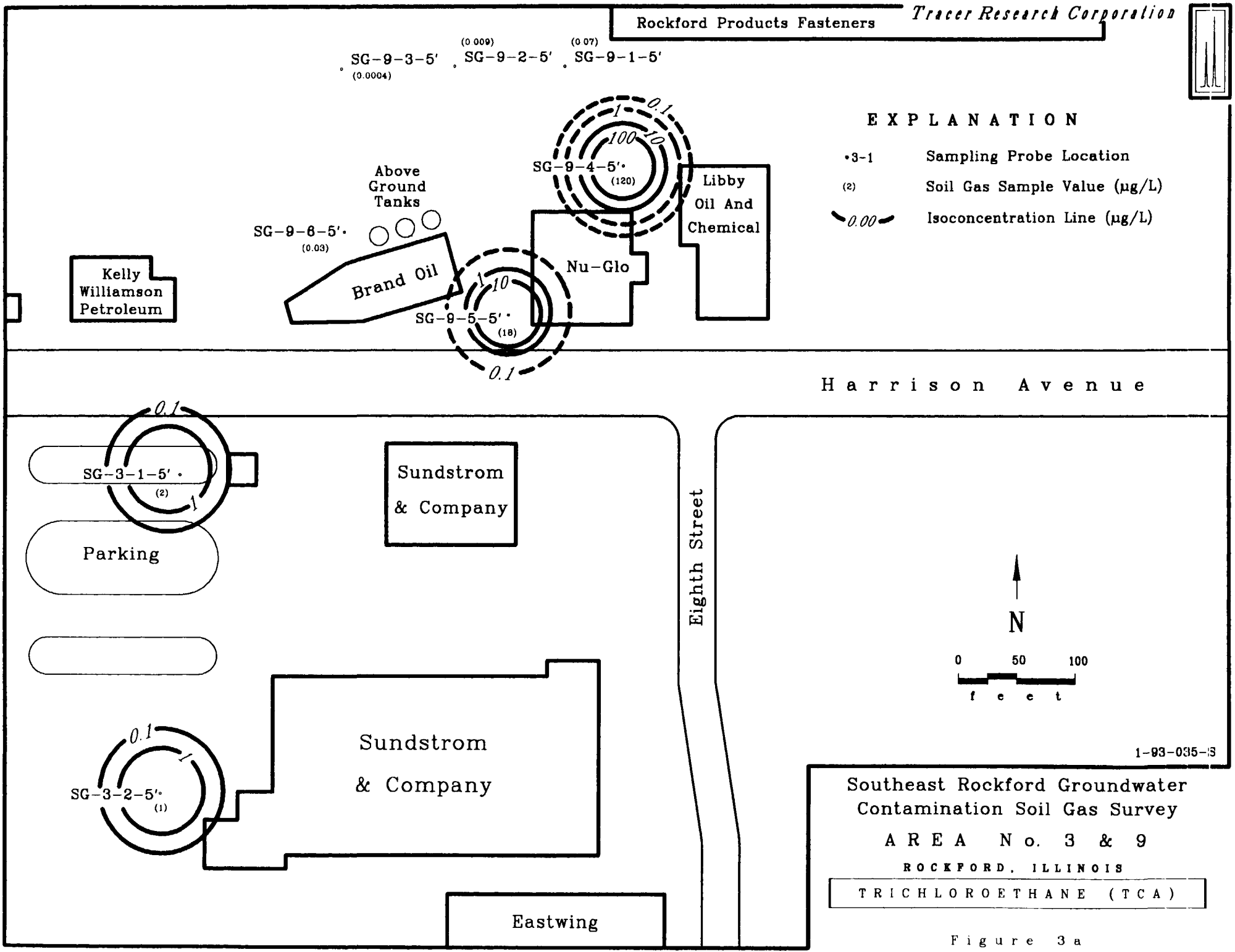

Rockford Products Fasteners
Tracer Research Corporation
SG-9-3-5'
(0.0004)
(0.009)
SG-9-2-5'
(0.07)
SG-9-1-5'
EXPLANATION
•3-1 Sampling Probe Location
(2) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Above Ground Tanks
SG-9-6-5'
(0.03)
Brand Oil
SG-9-4-5'
(120)
Libby Oil And Chemical
Nu-Glo
SG-9-5-5'
(18)
Kelly Williamson Petroleum
Harrison Avenue
SG-3-1-5'
(2)
Parking
Sundstrom & Company
Eighth Street
N
0 50 100
feet
SG-3-2-5'
(1)
Sundstrom & Company
Eastwing
1-93-035-B
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 3 & 9
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 3a

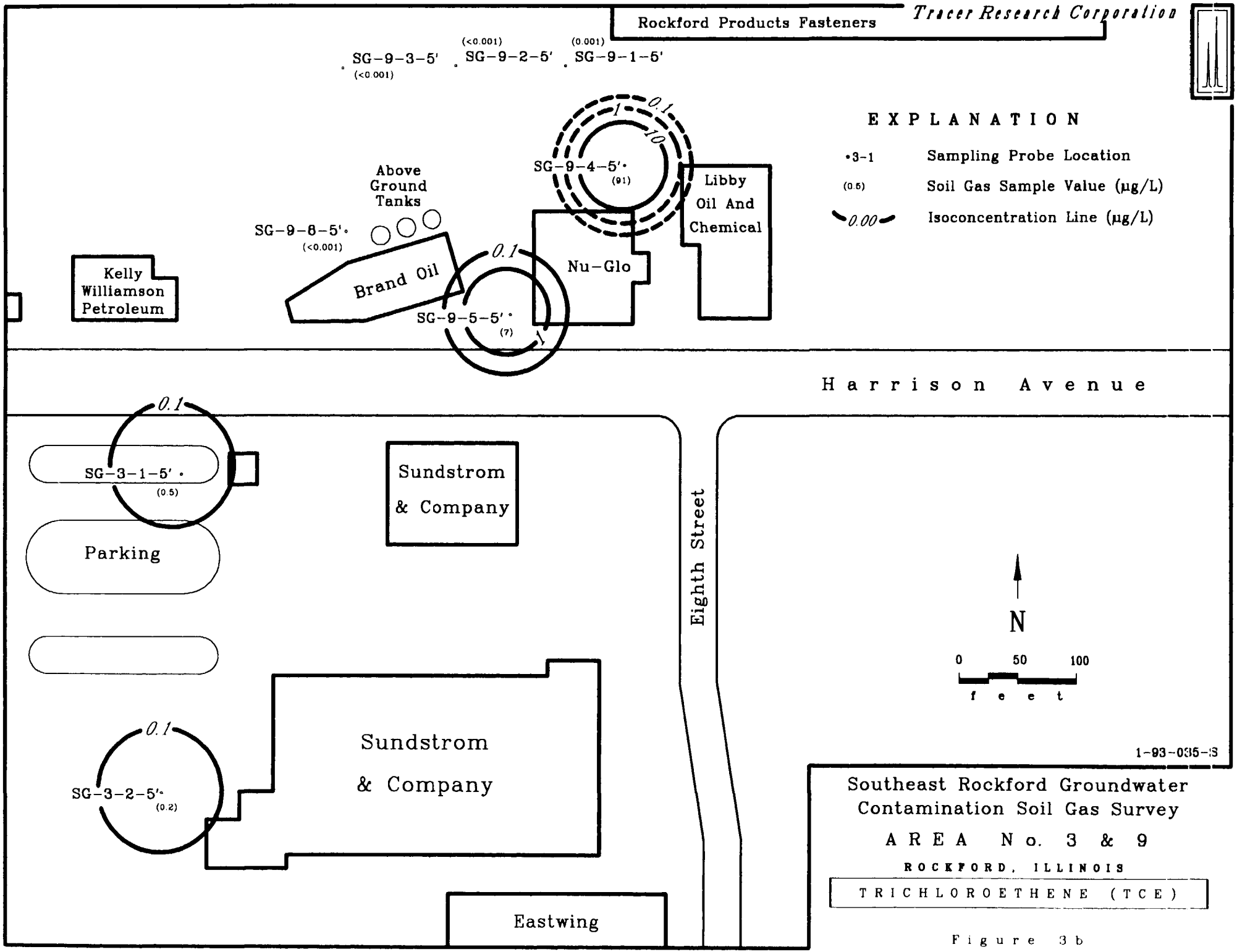

Tracer Research Corporation
Rockford Products Fasteners
SG-9-3-5' (<0.001)
SG-9-2-5' (<0.001)
SG-9-1-5' (0.001)
SG-9-4-5' (91)
0.1
1
10
Above Ground Tanks
SG-9-6-5' (<0.001)
Brand Oil
SG-9-5-5' (7)
Nu-Glo
Libby Oil And Chemical
Kelly Williamson Petroleum
EXPLANATION
•3-1 Sampling Probe Location
(0.5) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Harrison Avenue
SG-3-1-5' (0.5)
Parking
Sundstrom & Company
Eighth Street
N
0 50 100
feet
SG-3-2-5' (0.2)
Sundstrom & Company
Eastwing
1-93-035-S
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 3 & 9
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 3b

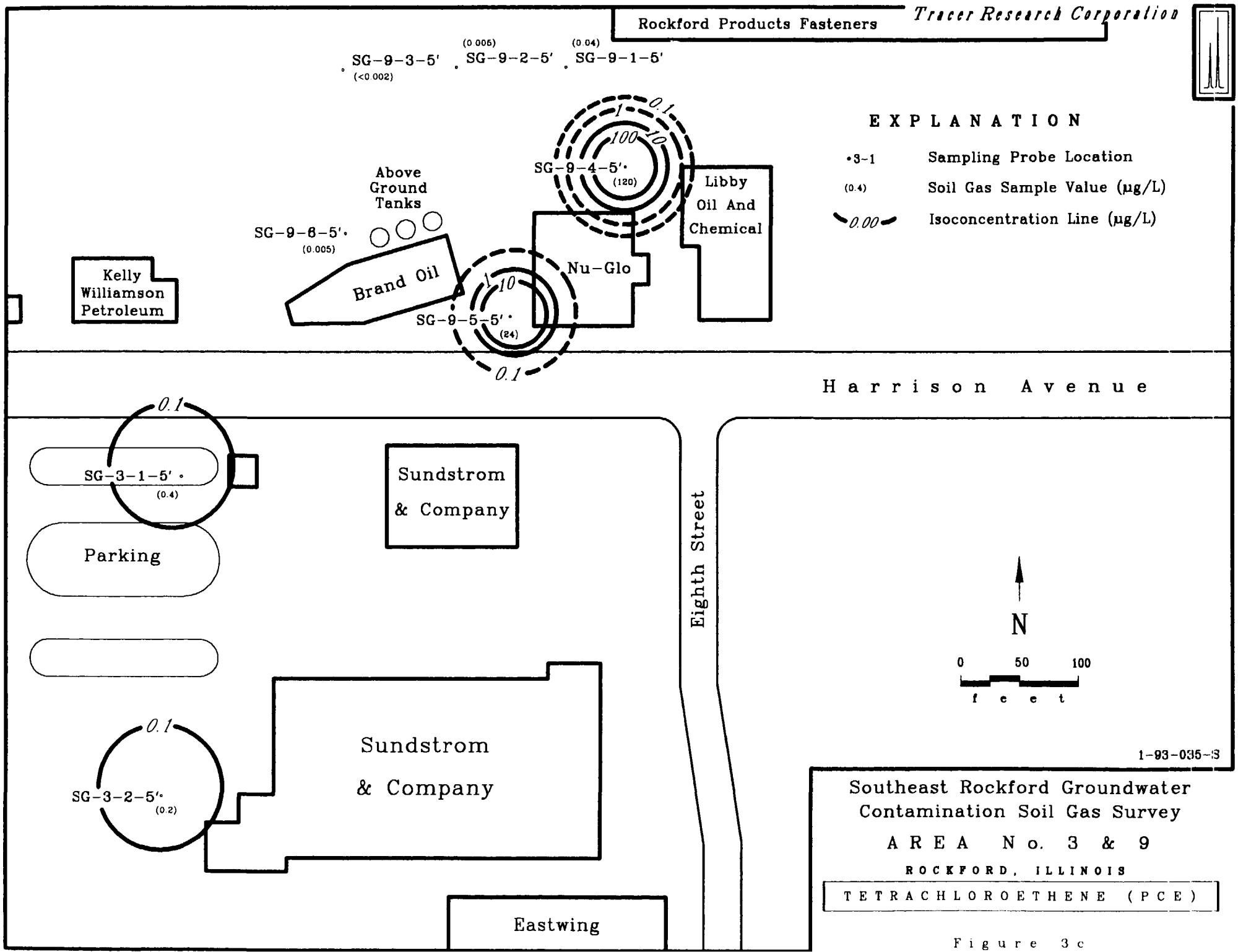
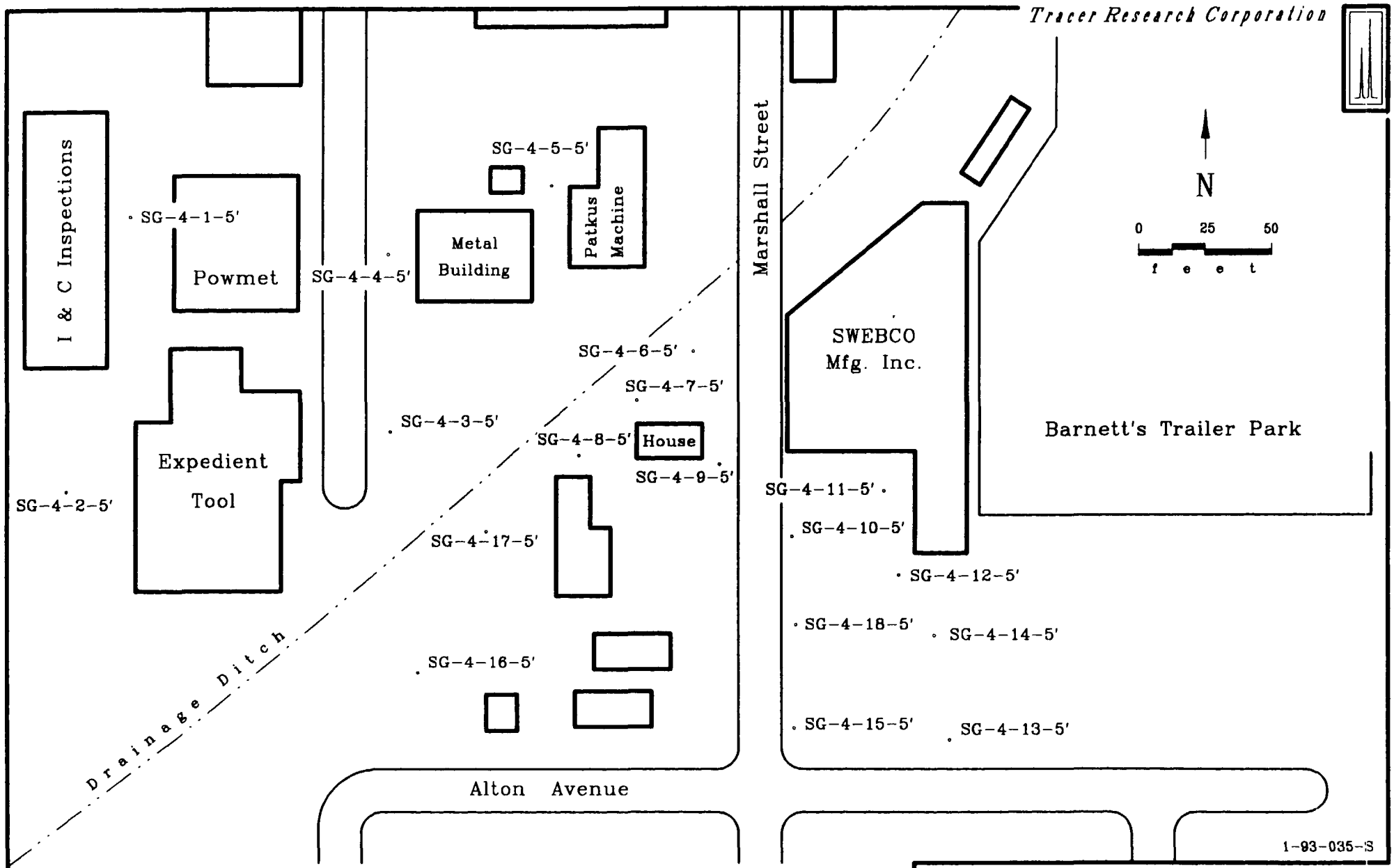

Rockford Products Fasteners
Tracer Research Corporation
SG-9-3-5'
(<0.002)
(0.005)
SG-9-2-5'
(0.04)
SG-9-1-5'
EXPLANATION
•3-1 Sampling Probe Location
(0.4) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Above Ground Tanks
SG-9-4-5'
(120)
Libby Oil And Chemical
SG-9-6-5'
(0.005)
Brand Oil
Nu-Glo
Kelly Williamson Petroleum
SG-9-5-5'
(24)
Harrison Avenue
SG-3-1-5'
(0.4)
Sundstrom & Company
Parking
Eighth Street
N
0 50 100
feet
SG-3-2-5'
(0.2)
Sundstrom & Company
Eastwing
1-93-035-3
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 3 & 9
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 3c




**EXPLANATION**

| | |
|---|---|
| •4-1 | Sampling Probe Location |
| (0.0000) | Soil Gas Sample Value (µg/L) |
| 0.00 | Isoconcentration Line (µg/L) |

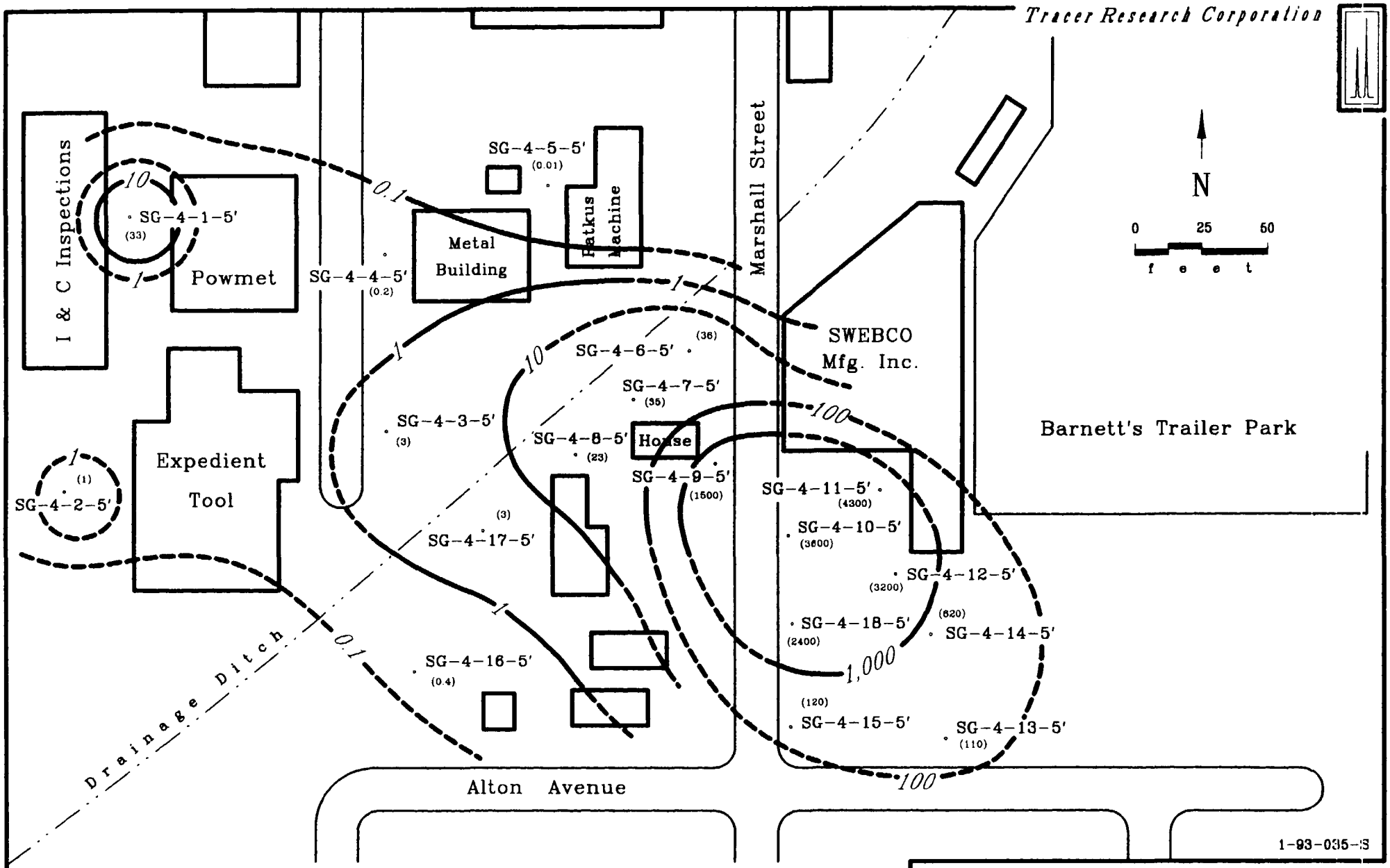
Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 4

ROCKFORD, ILLINOIS

SAMPLING LOCATIONS

Figure 4




**EXPLANATION**

- •4-1 Sampling Probe Location
- (33) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

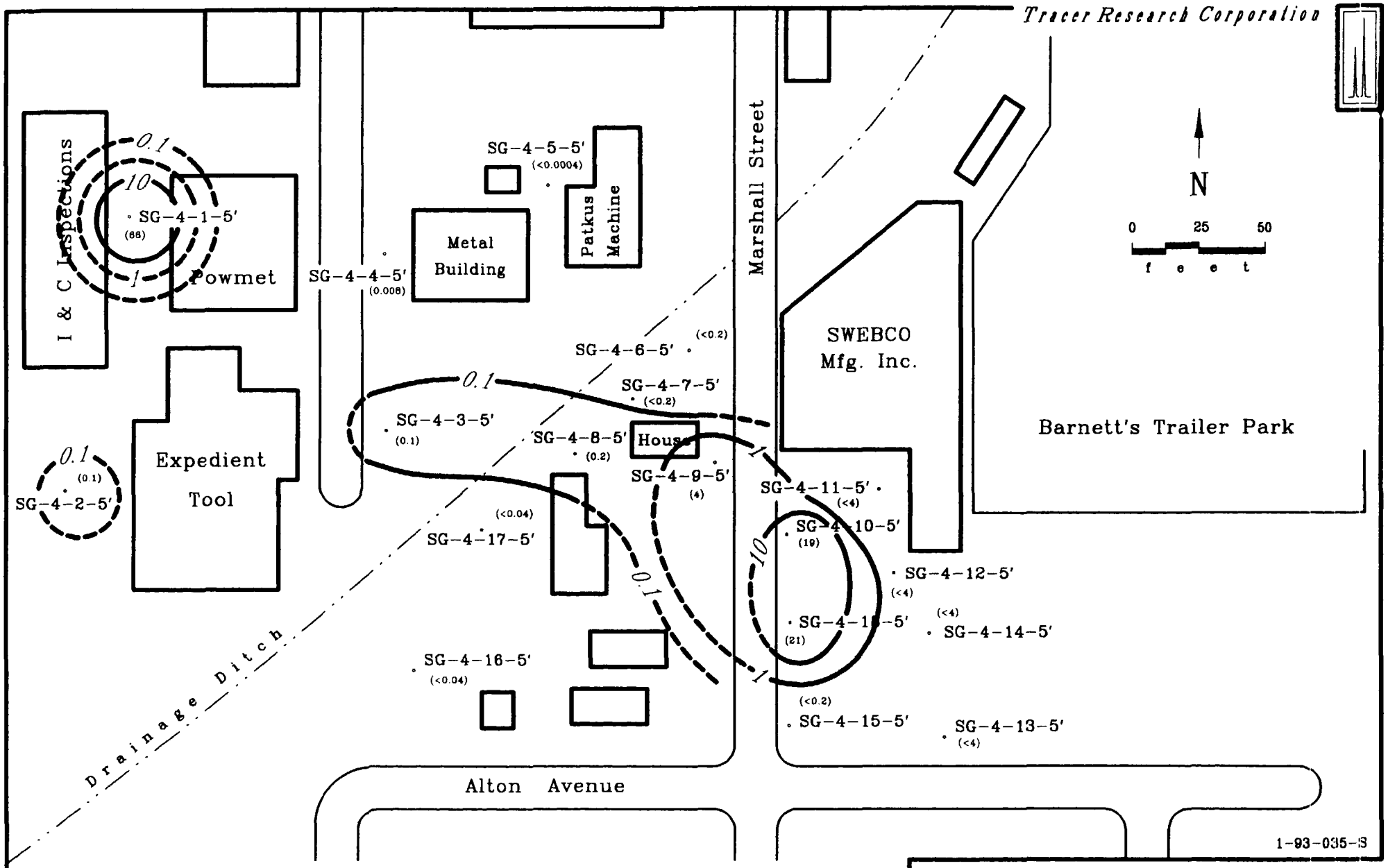
Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 4

ROCKFORD, ILLINOIS

TRICHLOROETHANE (TCA)

Figure 4a




**EXPLANATION**

- •4-1 Sampling Probe Location
- (66) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

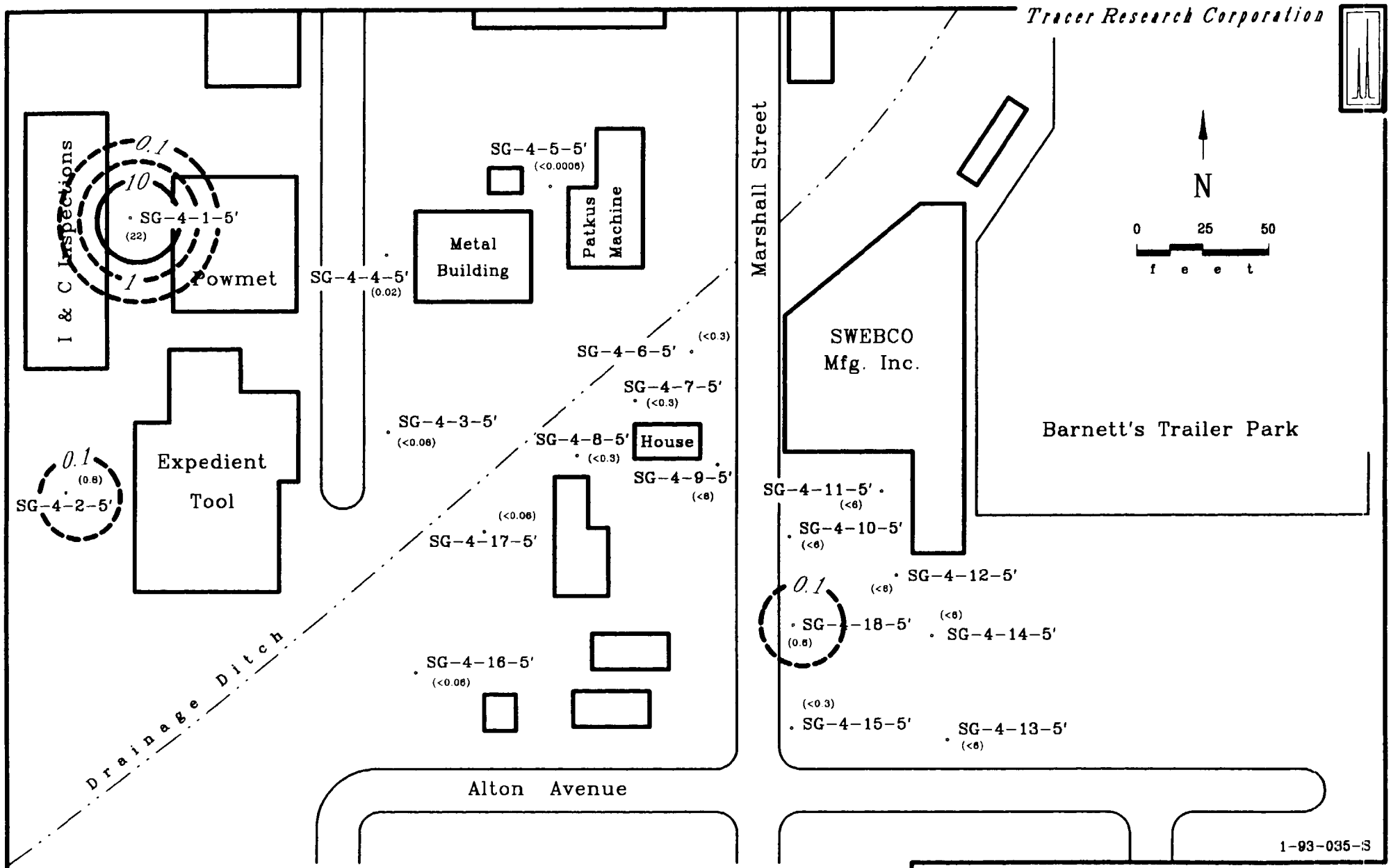
Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 4

ROCKFORD, ILLINOIS

TRICHLOROETHENE (TCE)

Figure 4b




**EXPLANATION**

- •4-1 Sampling Probe Location
- (22) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 4

ROCKFORD, ILLINOIS

TETRACHLOROETHENE (PCE)

Figure 4c

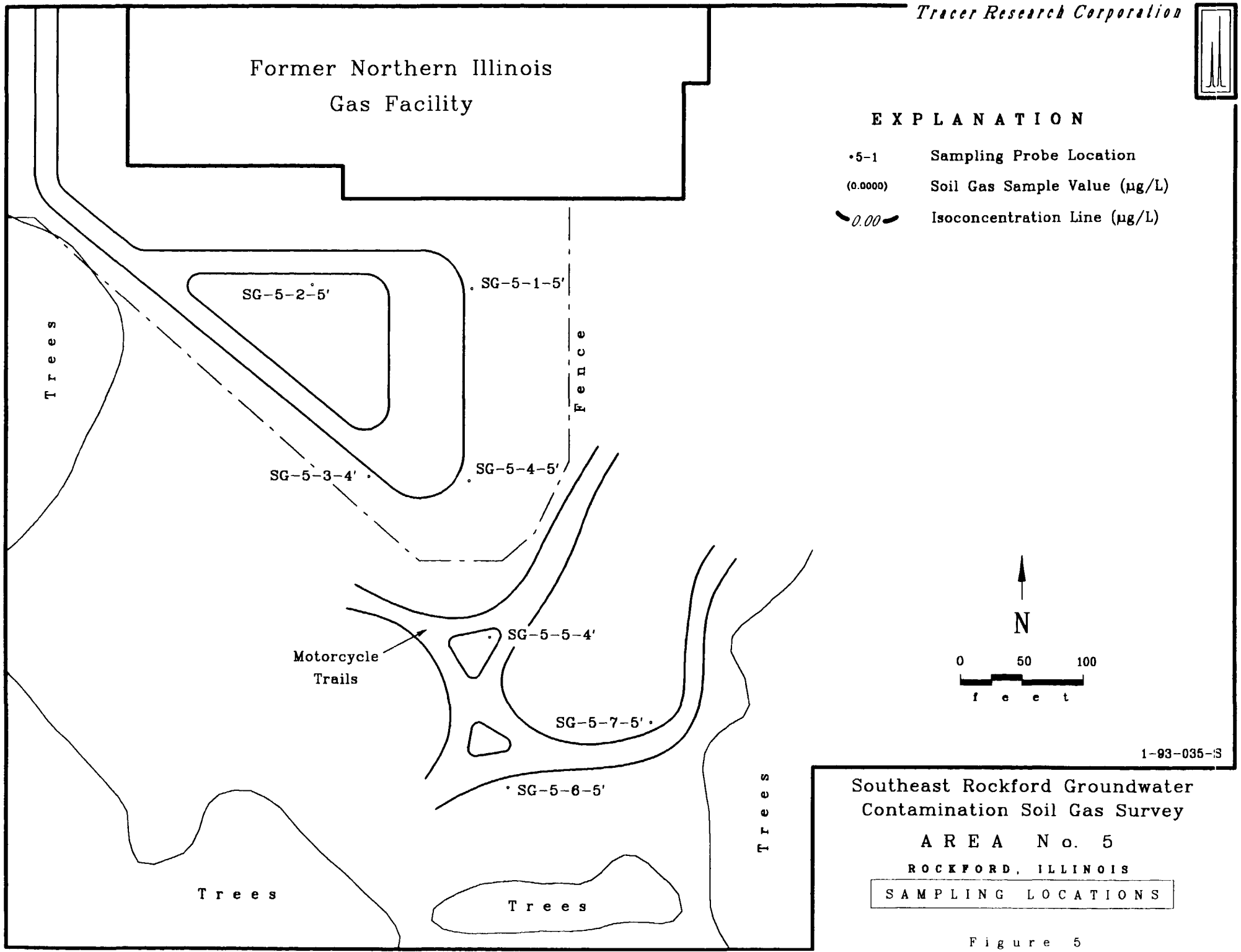

Tracer Research Corporation
Former Northern Illinois
Gas Facility
EXPLANATION
•5-1 Sampling Probe Location
(0.0000) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
SG-5-1-5'
SG-5-2-5'
SG-5-3-4'
SG-5-4-5'
SG-5-5-4'
SG-5-6-5'
SG-5-7-5'
Fence
Trees
Trees
Trees
Trees
Motorcycle
Trails
N
0 50 100
feet
1-93-035-S
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 5
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 5

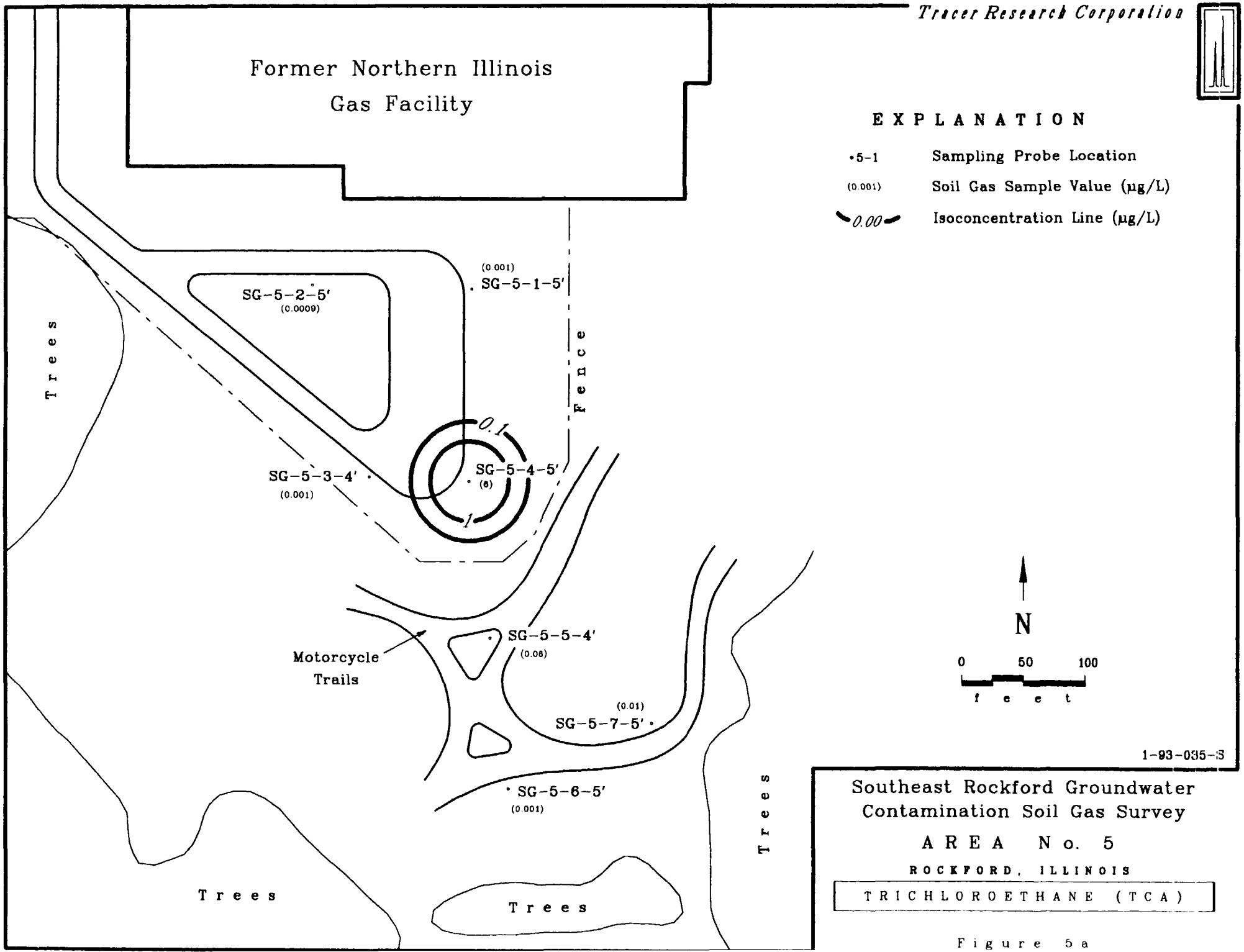

Tracer Research Corporation
Former Northern Illinois
Gas Facility
EXPLANATION
•5-1 Sampling Probe Location
(0.001) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
(0.001)
SG-5-1-5'
SG-5-2-5'
(0.0009)
Fence
Trees
0.1
SG-5-4-5'
(6)
SG-5-3-4'
(0.001)
1
SG-5-5-4'
(0.08)
Motorcycle
Trails
(0.01)
SG-5-7-5'
SG-5-6-5'
(0.001)
Trees
Trees
Trees
N
0
50
100
feet
1-93-035-S
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 5
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 5a

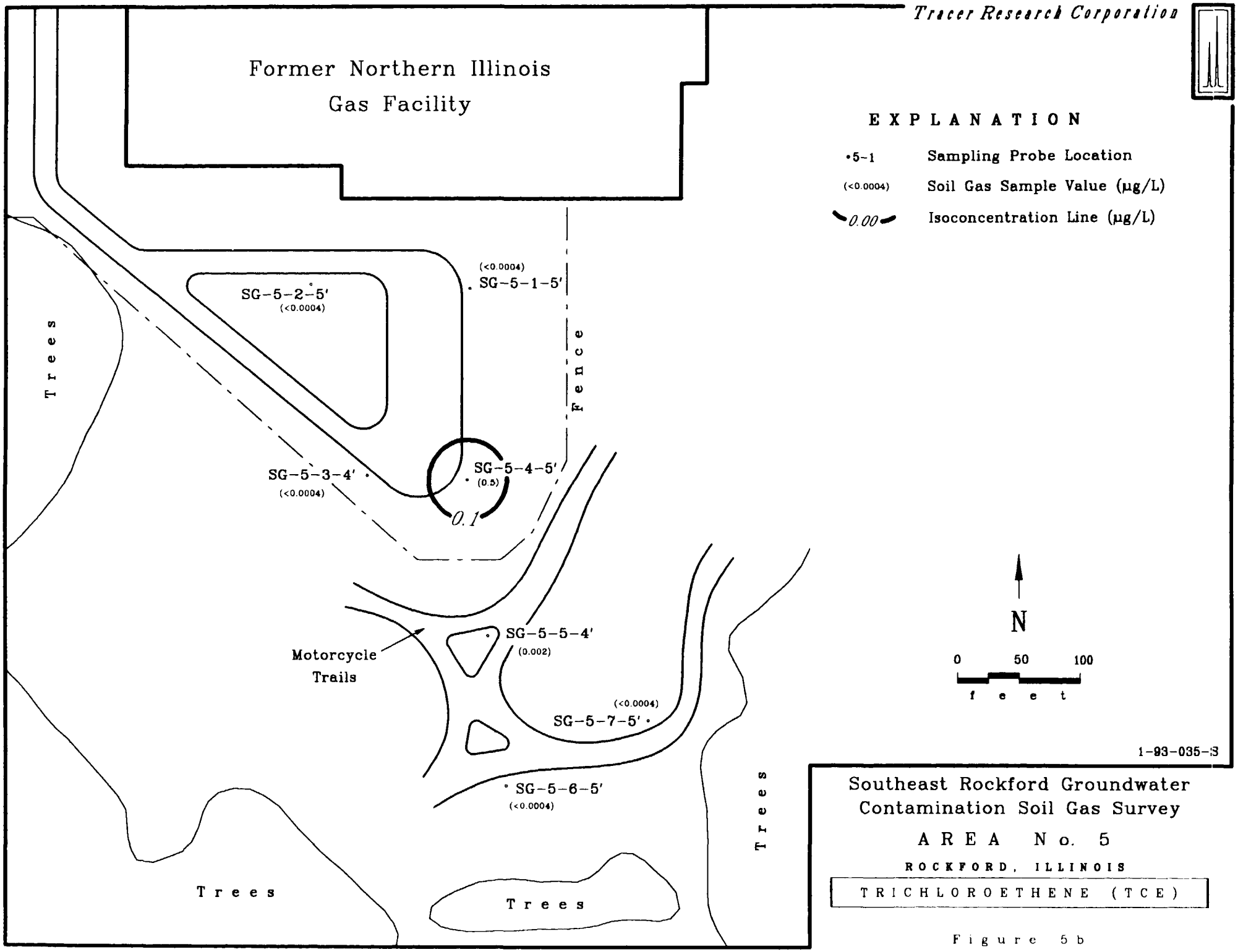

Tracer Research Corporation
Former Northern Illinois
Gas Facility
EXPLANATION
•5-1 Sampling Probe Location
(<0.0004) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
(<0.0004)
SG-5-1-5'
SG-5-2-5'
(<0.0004)
Fence
Trees
SG-5-3-4'
(<0.0004)
SG-5-4-5'
(0.5)
0.1
SG-5-5-4'
(0.002)
Motorcycle
Trails
(<0.0004)
SG-5-7-5'
SG-5-6-5'
(<0.0004)
Trees
Trees
Trees
N
0 50 100
feet
1-93-035-3
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 5
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 5b

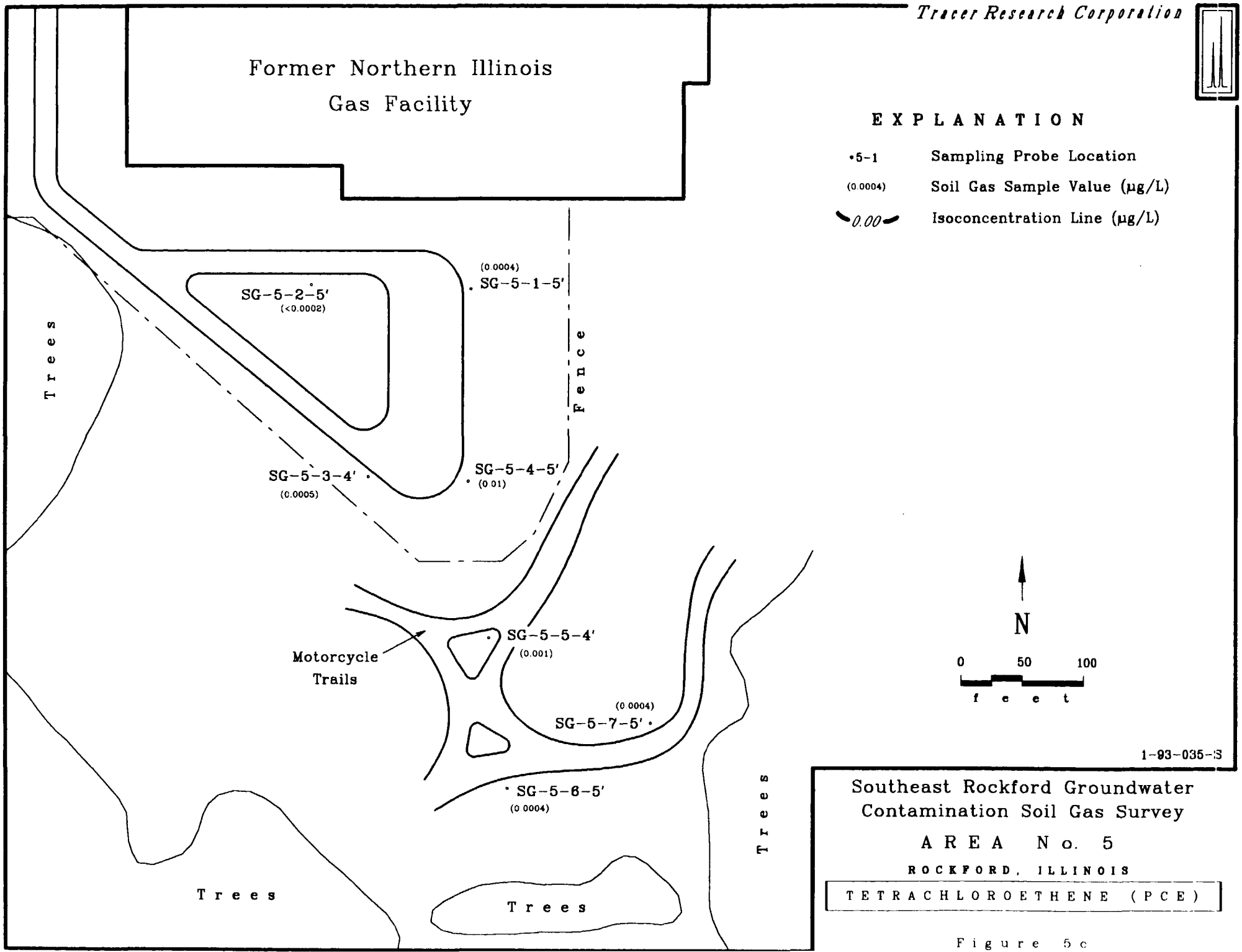

Tracer Research Corporation
Former Northern Illinois
Gas Facility
EXPLANATION
•5-1 Sampling Probe Location
(0.0004) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
(0.0004)
SG-5-1-5'
SG-5-2-5'
(<0.0002)
Fence
Trees
SG-5-3-4'
(0.0005)
SG-5-4-5'
(0.01)
SG-5-5-4'
(0.001)
Motorcycle
Trails
(0.0004)
SG-5-7-5'
SG-5-6-5'
(0.0004)
Trees
Trees
Trees
N
0 50 100
feet
1-93-035-3
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 5
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 5c

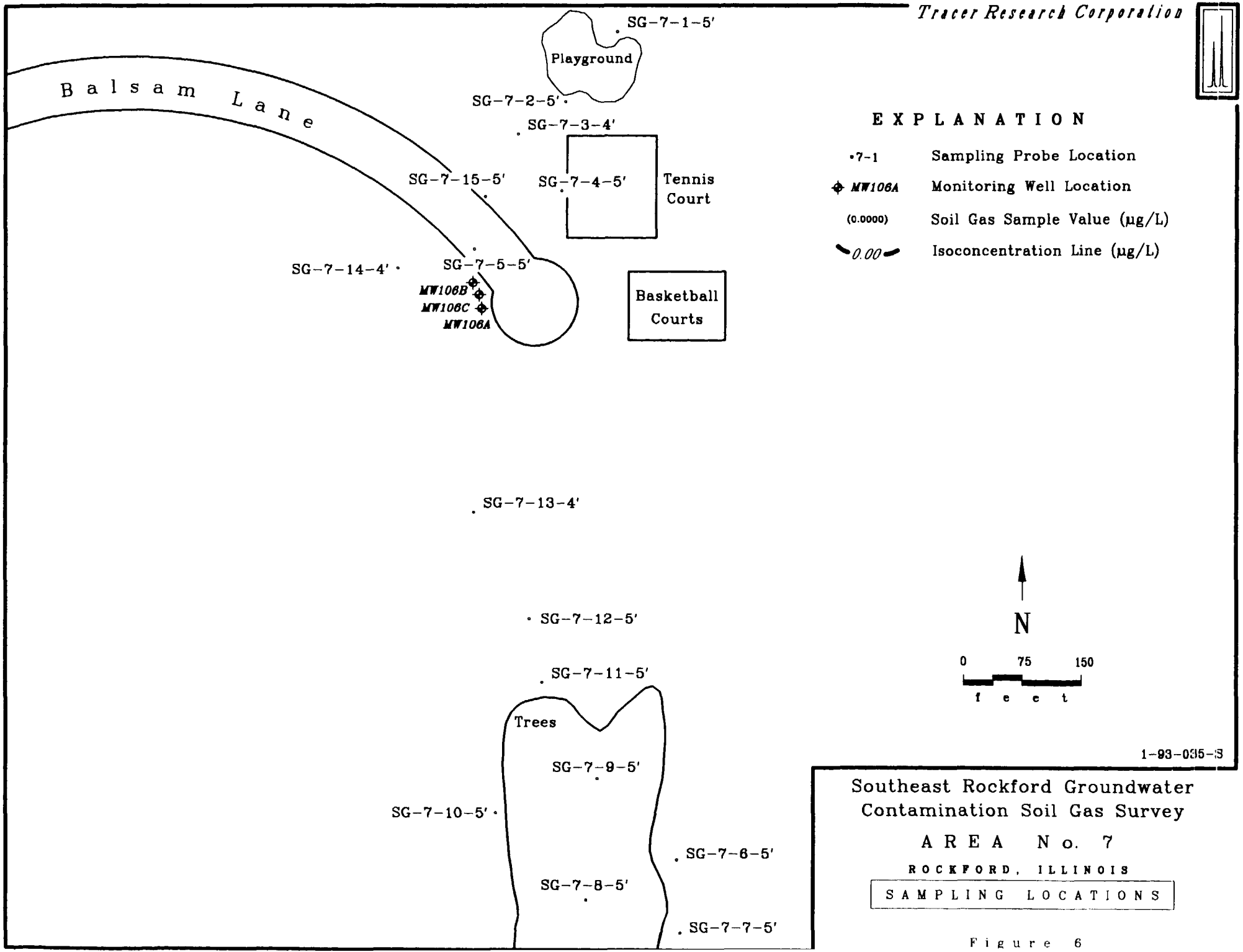

Tracer Research Corporation
Balsam Lane
Playground
SG-7-1-5'
SG-7-2-5'
SG-7-3-4'
SG-7-4-5'
Tennis Court
SG-7-15-5'
SG-7-14-4'
SG-7-5-5'
MW106B
MW106C
MW106A
Basketball Courts
SG-7-13-4'
SG-7-12-5'
SG-7-11-5'
Trees
SG-7-9-5'
SG-7-10-5'
SG-7-6-5'
SG-7-8-5'
SG-7-7-5'
EXPLANATION
•7-1 Sampling Probe Location
MW106A Monitoring Well Location
(0.0000) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 75 150
feet
1-93-035-3
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 7
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 6

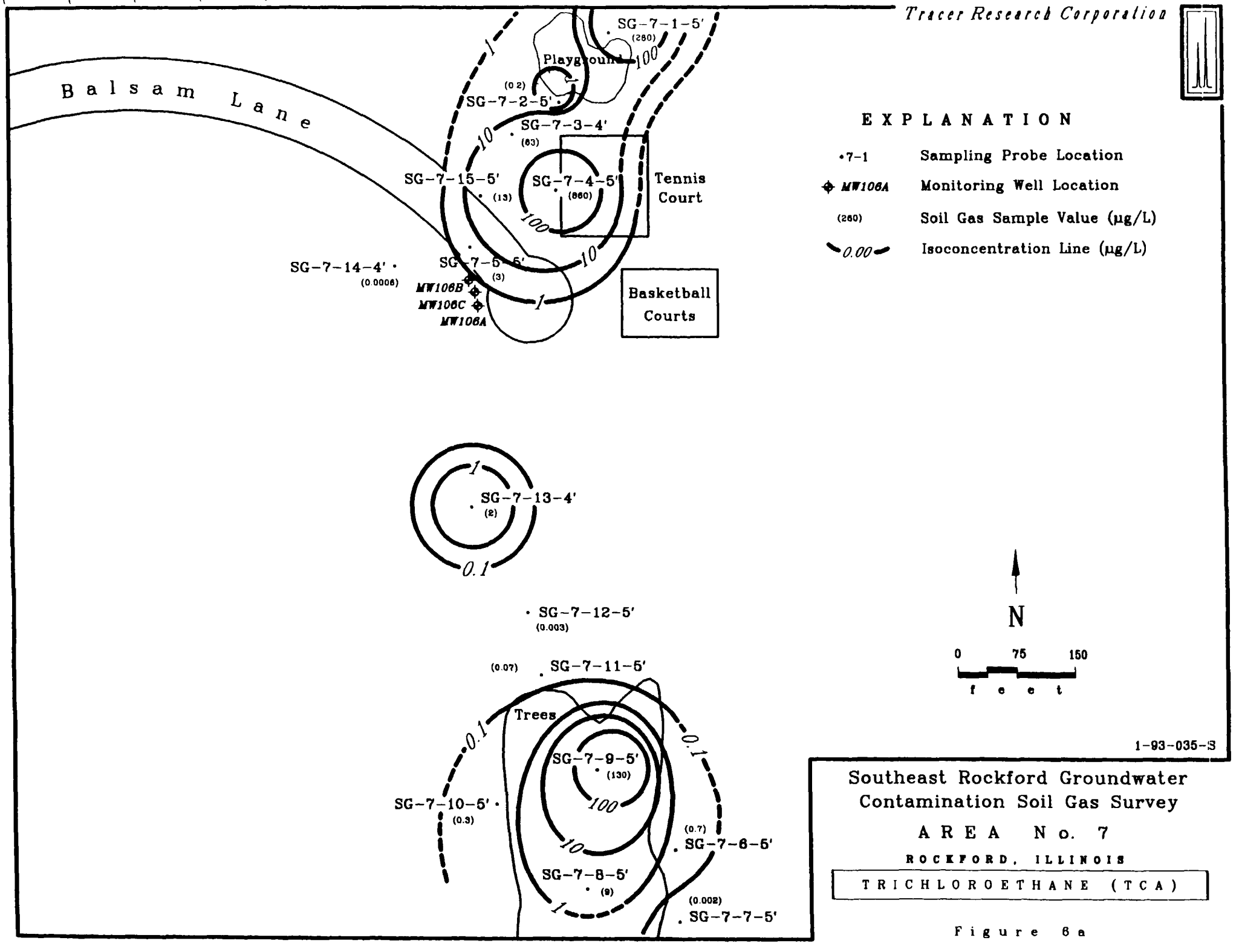

Tracer Research Corporation
Balsam Lane
Playground
SG-7-1-5'
(280)
100
1
(0.2)
SG-7-2-5'
SG-7-3-4'
(63)
10
SG-7-15-5'
(13)
SG-7-4-5'
(860)
Tennis Court
100
10
SG-7-14-4'
(0.0006)
SG-7-5-5'
(3)
MW106B
MW106C
MW106A
1
Basketball Courts
1
SG-7-13-4'
(2)
0.1
SG-7-12-5'
(0.003)
(0.07)
SG-7-11-5'
Trees
0.1
0.1
SG-7-9-5'
(130)
100
SG-7-10-5'
(0.3)
10
(0.7)
SG-7-6-5'
SG-7-8-5'
(9)
1
(0.002)
SG-7-7-5'
EXPLANATION
•7-1 Sampling Probe Location
MW106A Monitoring Well Location
(260) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 75 150
feet
1-93-035-S
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 7
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 6a

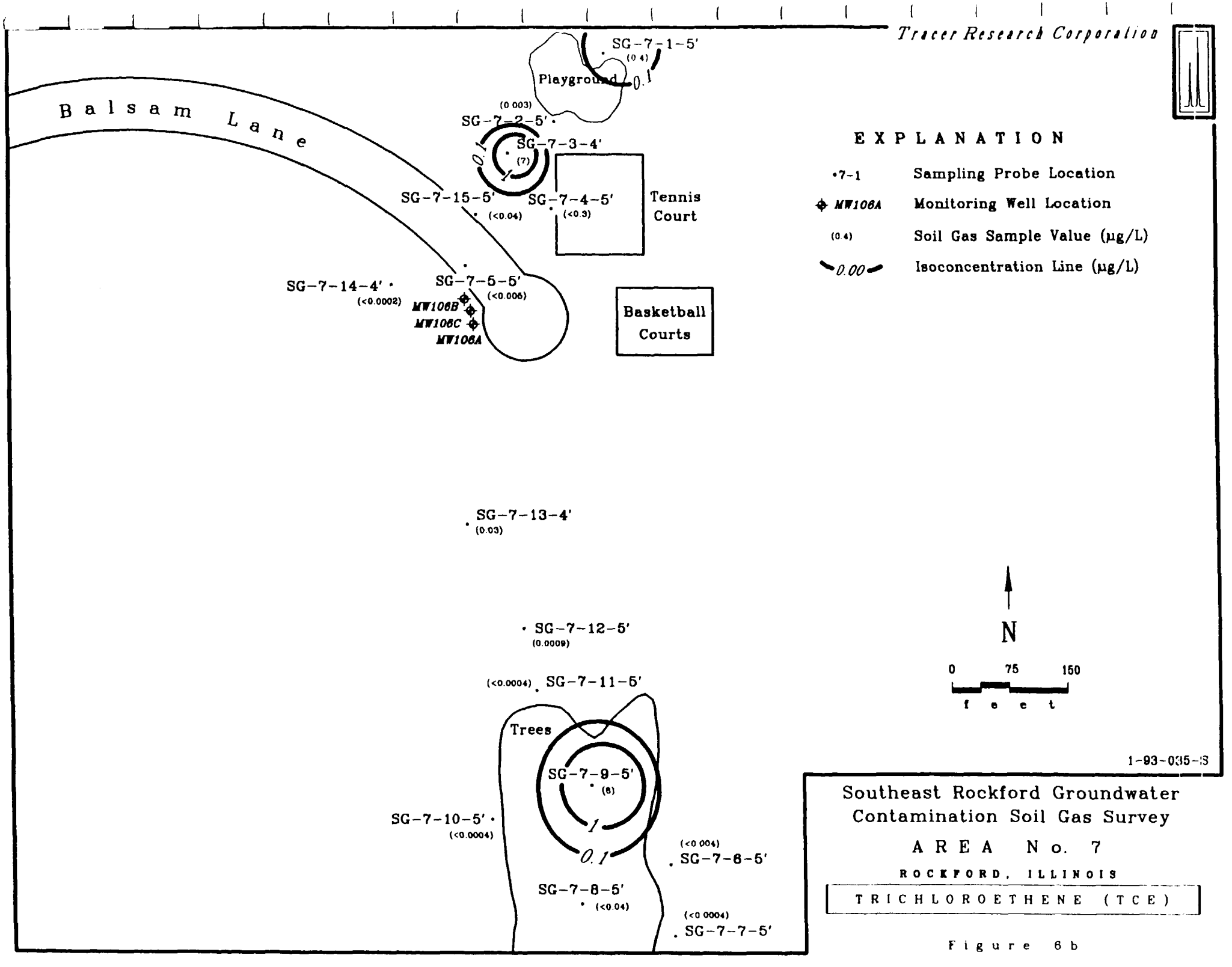
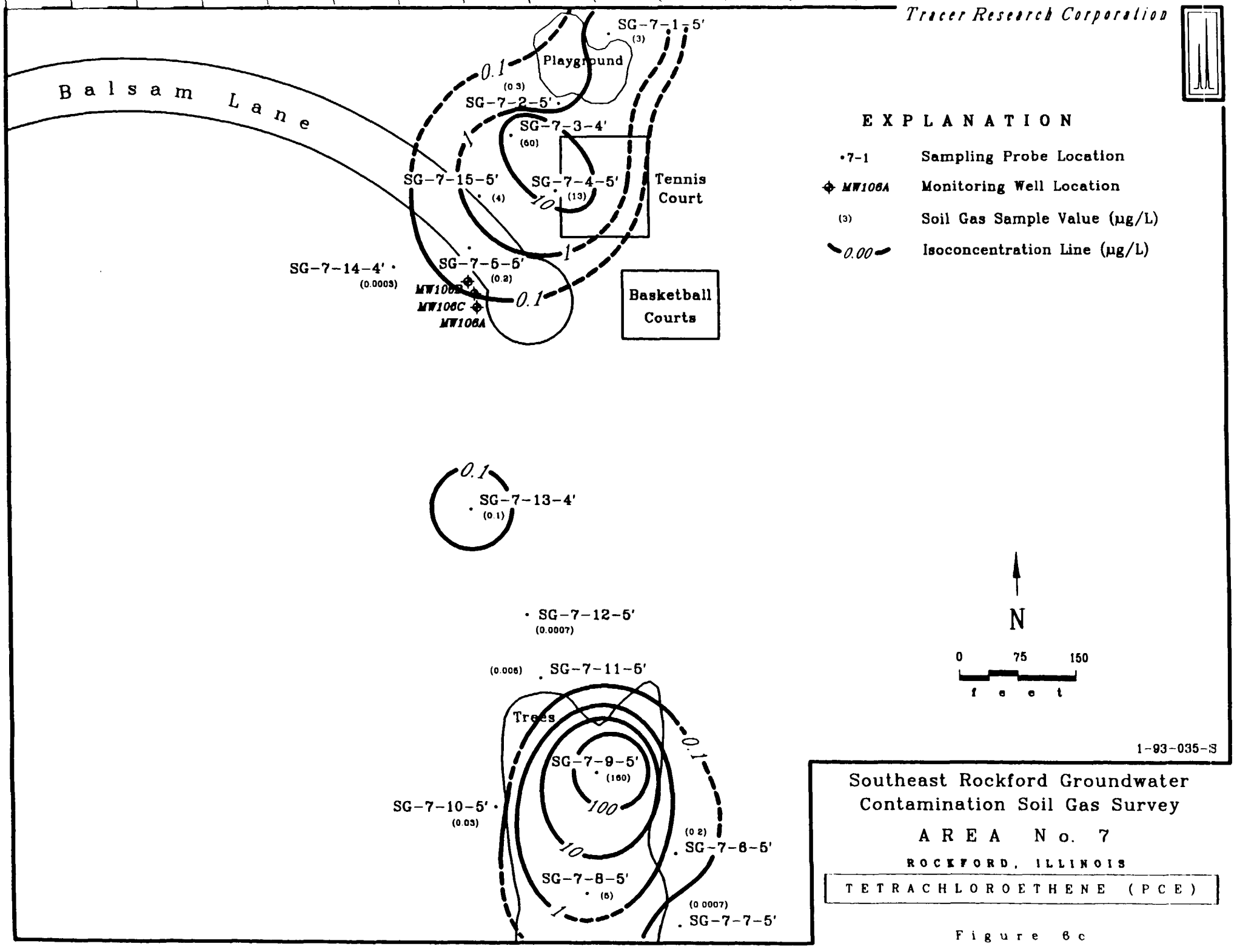

Tracer Research Corporation
Balsam Lane
Playground
SG-7-1-5'
(0.4)
0.1
(0.003)
SG-7-2-5'
SG-7-3-4'
(7)
0.1
1
SG-7-15-5'
(<0.04)
SG-7-4-5'
(<0.3)
Tennis Court
SG-7-14-4'
(<0.0002)
SG-7-5-5'
(<0.006)
MW106B
MW106C
MW106A
Basketball Courts
SG-7-13-4'
(0.03)
SG-7-12-5'
(0.0009)
(<0.0004)
SG-7-11-5'
Trees
SG-7-9-5'
(8)
1
0.1
SG-7-10-5'
(<0.0004)
(<0.004)
SG-7-6-5'
SG-7-8-5'
(<0.04)
(<0.0004)
SG-7-7-5'
EXPLANATION
•7-1 Sampling Probe Location
MW106A Monitoring Well Location
(0.4) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 75 150
feet
1-93-035-S
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 7
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 6b



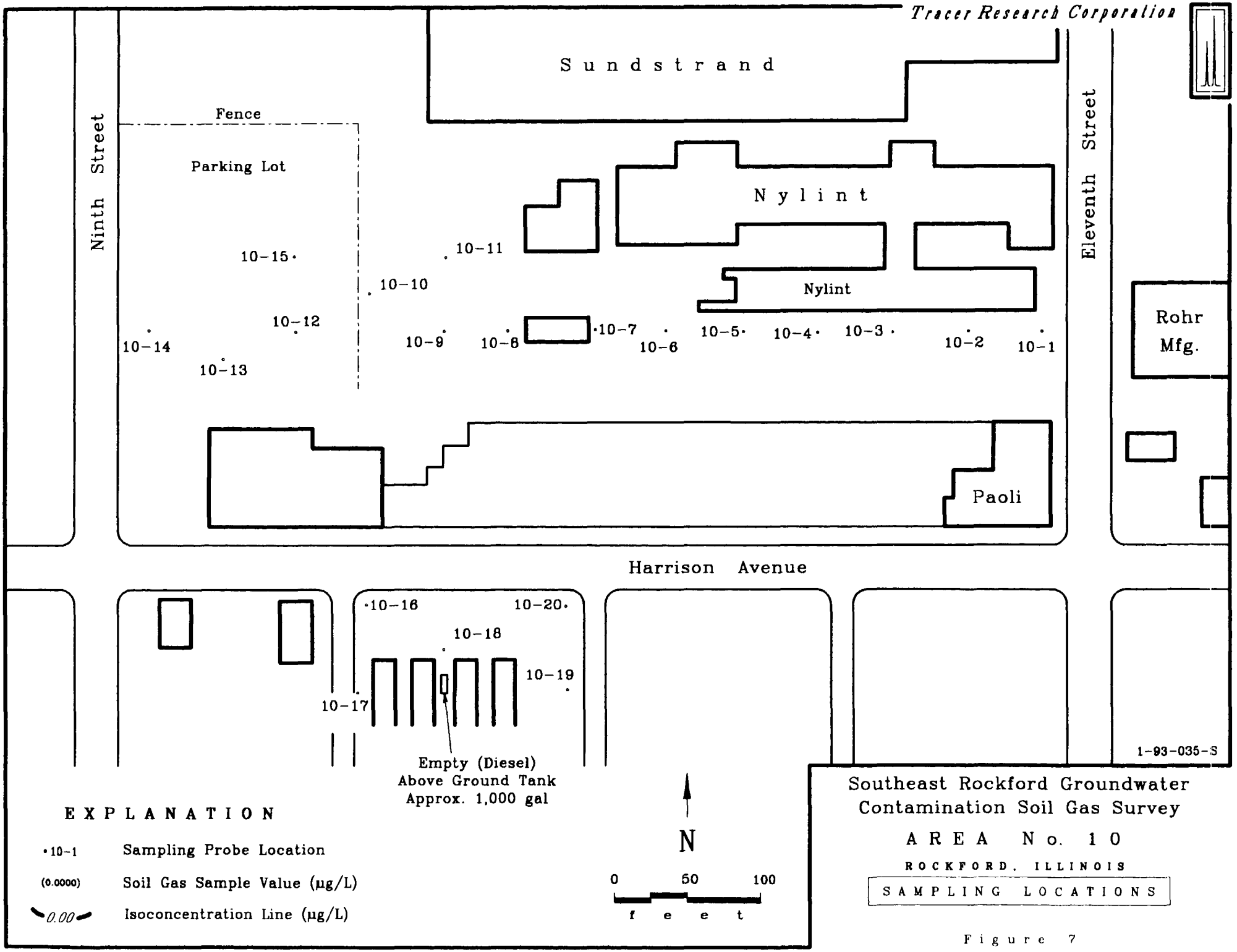

Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 7

ROCKFORD, ILLINOIS

TETRACHLOROETHENE (PCE)

Figure 6c




Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 10

ROCKFORD, ILLINOIS

SAMPLING LOCATIONS

Figure 7

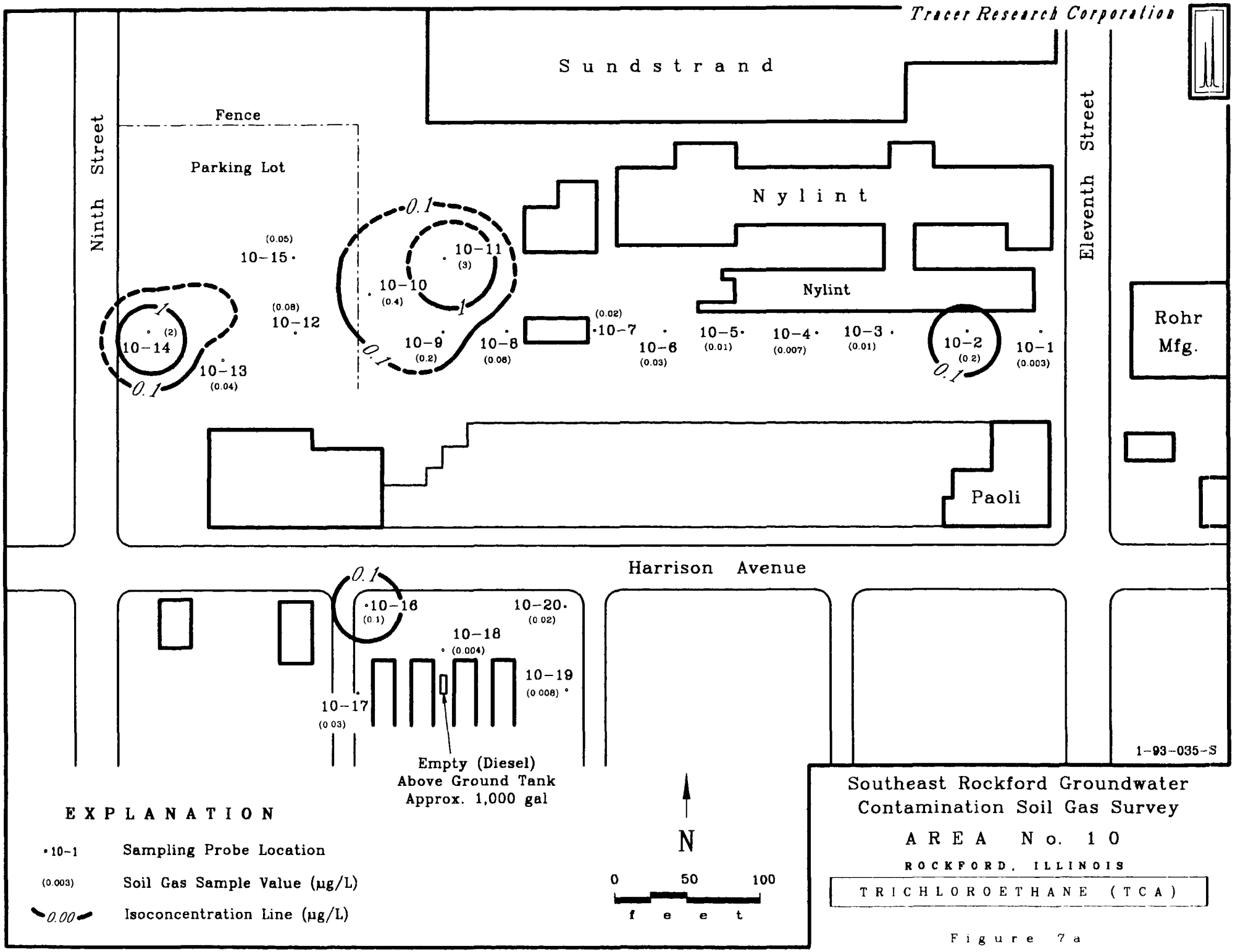

Tracer Research Corporation
Sundstrand
Fence
Parking Lot
Ninth Street
Eleventh Street
Nylint
Nylint
Rohr Mfg.
Paoli
Harrison Avenue
0.1
1
10-14 (2)
10-13 (0.04)
(0.05) 10-15
(0.08) 10-12
10-11 (3)
10-10 (0.4)
10-9 (0.2)
10-8 (0.06)
(0.02) 10-7
10-6 (0.03)
10-5 (0.01)
10-4 (0.007)
10-3 (0.01)
10-2 (0.2)
10-1 (0.003)
10-16 (0.1)
10-20 (0.02)
10-18 (0.004)
10-19 (0.008)
10-17 (0.03)
Empty (Diesel)
Above Ground Tank
Approx. 1,000 gal
1-93-035-S
EXPLANATION
•10-1 Sampling Probe Location
(0.003) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 50 100
feet
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 10
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 7a

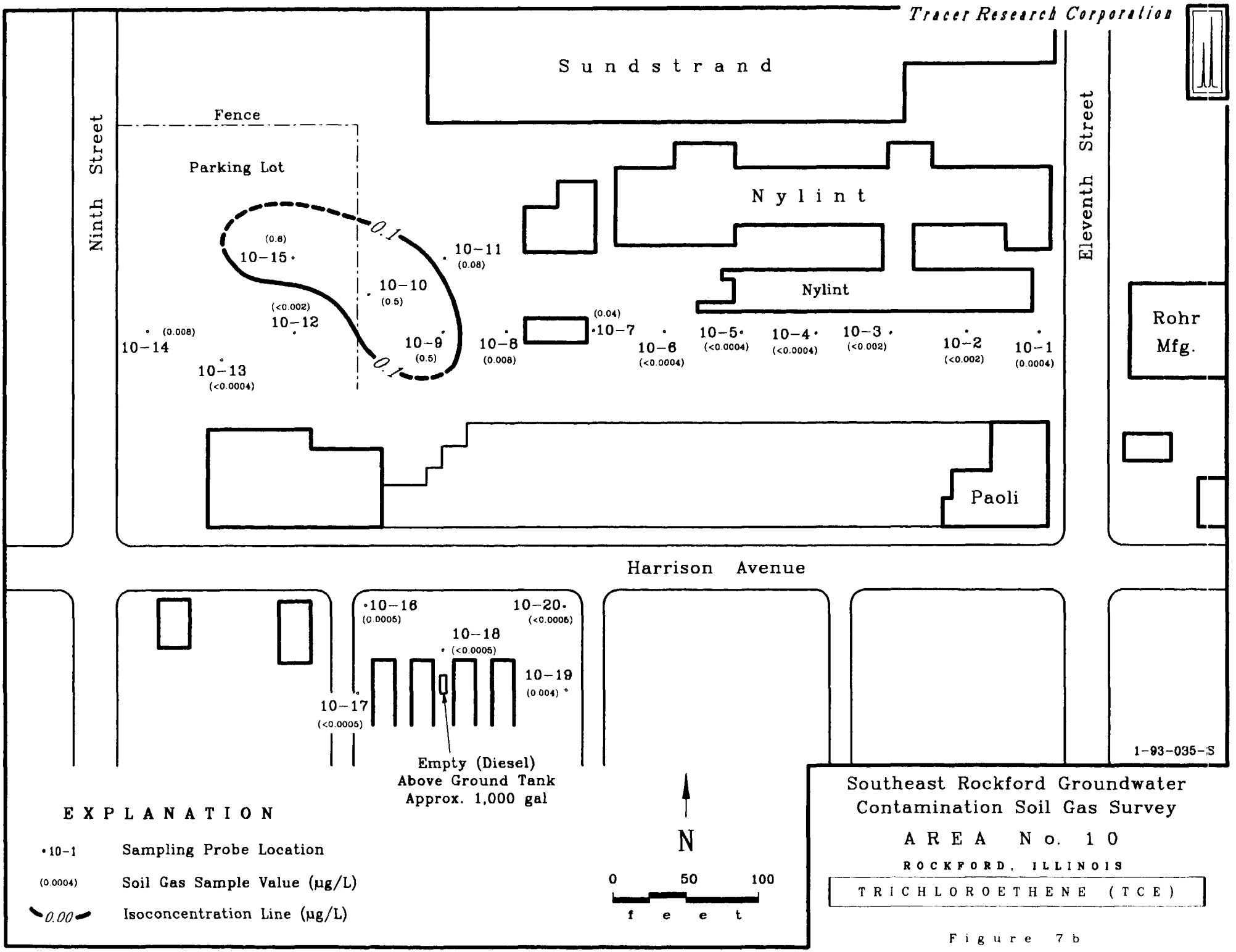

Tracer Research Corporation
Sundstrand
Ninth Street
Eleventh Street
Fence
Parking Lot
Nylint
Nylint
Rohr Mfg.
Paoli
Harrison Avenue
0.1
0.1
10-15 (0.6)
10-11 (0.08)
10-10 (0.5)
10-12 (<0.002)
10-14 (0.008)
10-13 (<0.0004)
10-9 (0.5)
10-8 (0.008)
10-7 (0.04)
10-6 (<0.0004)
10-5 (<0.0004)
10-4 (<0.0004)
10-3 (<0.002)
10-2 (<0.002)
10-1 (0.0004)
10-16 (0.0005)
10-20 (<0.0005)
10-18 (<0.0005)
10-19 (0.004)
10-17 (<0.0005)
Empty (Diesel)
Above Ground Tank
Approx. 1,000 gal
1-93-035-S
EXPLANATION
•10-1 Sampling Probe Location
(0.0004) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 50 100
feet
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 10
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 7b

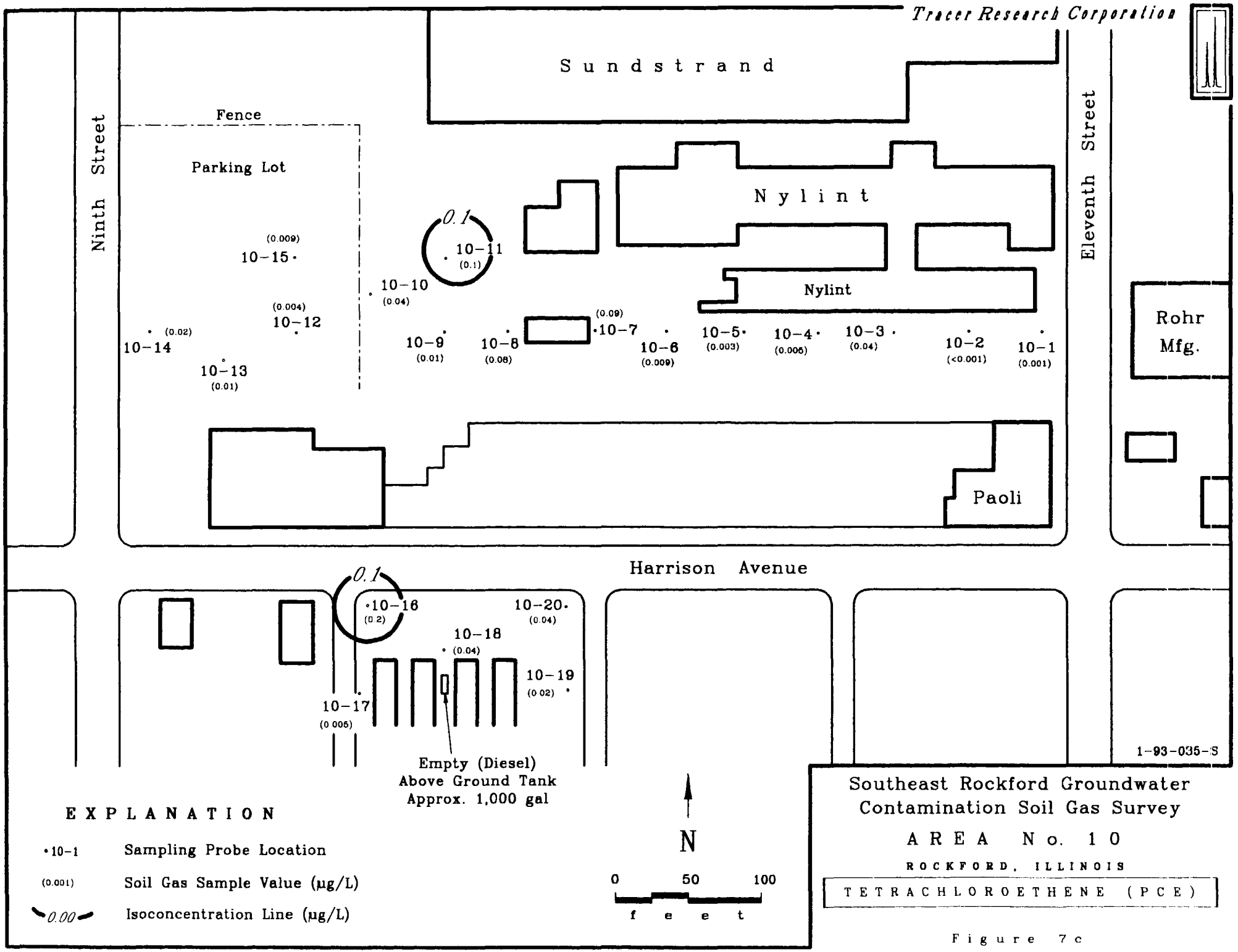

Tracer Research Corporation
Sundstrand
Fence
Parking Lot
Ninth Street
Eleventh Street
Nylint
Nylint
Rohr Mfg.
Paoli
Harrison Avenue
0.1
10-11 (0.1)
10-10 (0.04)
(0.009) 10-15
(0.004) 10-12
(0.02) 10-14
10-13 (0.01)
10-9 (0.01)
10-8 (0.08)
(0.09) 10-7
10-6 (0.009)
10-5 (0.003)
10-4 (0.006)
10-3 (0.04)
10-2 (<0.001)
10-1 (0.001)
0.1
10-16 (0.2)
10-20 (0.04)
10-18 (0.04)
10-19 (0.02)
10-17 (0.005)
Empty (Diesel) Above Ground Tank Approx. 1,000 gal
1-93-035-S
EXPLANATION
•10-1 Sampling Probe Location
(0.001) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 50 100
feet
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 10
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 7c

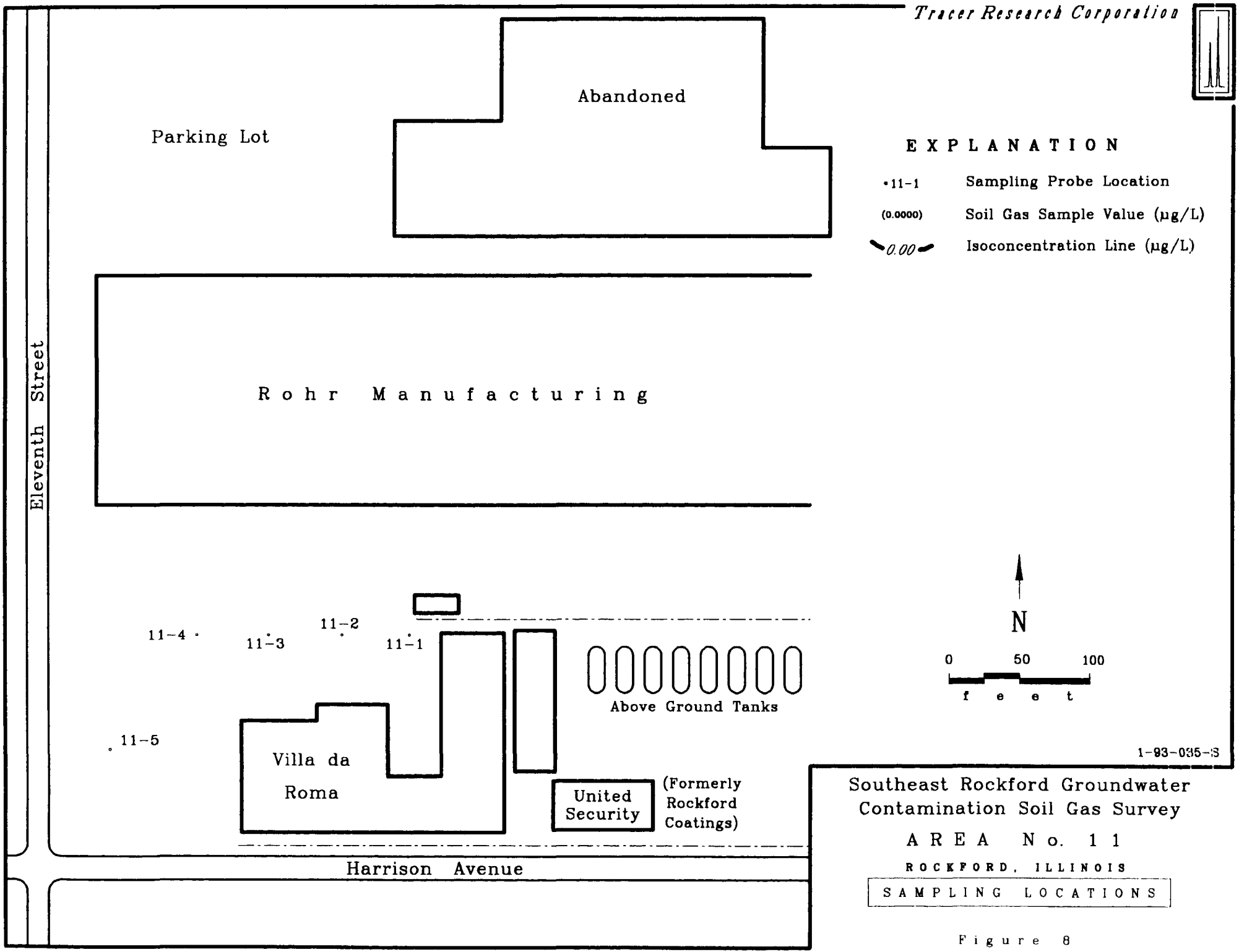

Tracer Research Corporation
Abandoned
Parking Lot
EXPLANATION
•11-1 Sampling Probe Location
(0.0000) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Eleventh Street
Rohr Manufacturing
N
0 50 100
feet
11-4
11-3
11-2
11-1
11-5
Above Ground Tanks
Villa da Roma
United Security
(Formerly Rockford Coatings)
Harrison Avenue
1-93-035-3
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 11
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 8

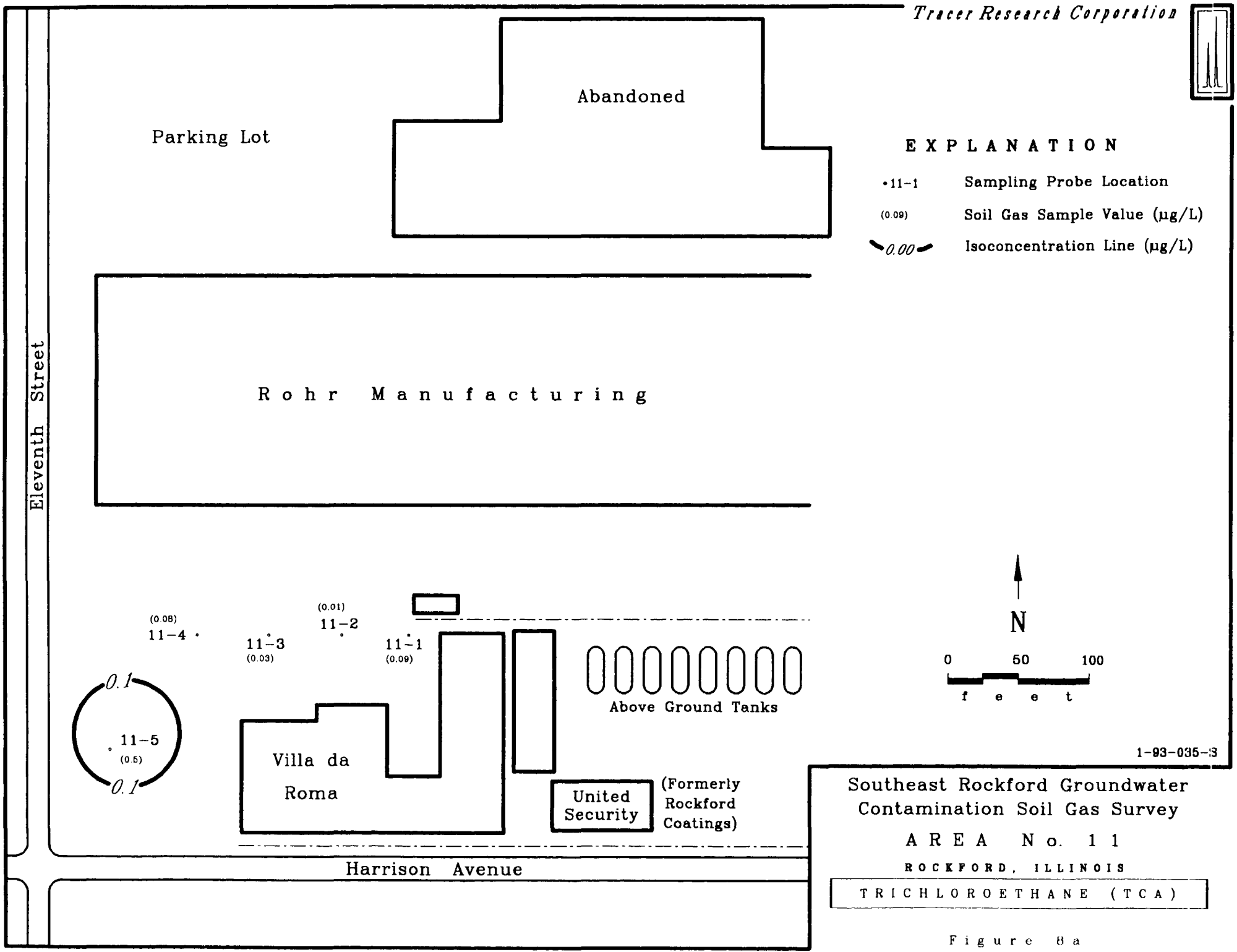

Tracer Research Corporation
Abandoned
Parking Lot
EXPLANATION
•11-1 Sampling Probe Location
(0.09) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Rohr Manufacturing
Eleventh Street
N
0 50 100
feet
(0.08)
11-4
11-3
(0.03)
(0.01)
11-2
11-1
(0.09)
0.1
11-5
(0.5)
0.1
Villa da Roma
Above Ground Tanks
United Security
(Formerly Rockford Coatings)
Harrison Avenue
1-93-035-3
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 11
ROCKFORD, ILLINOIS
TRICHLOROETHANE (TCA)

Figure 8a

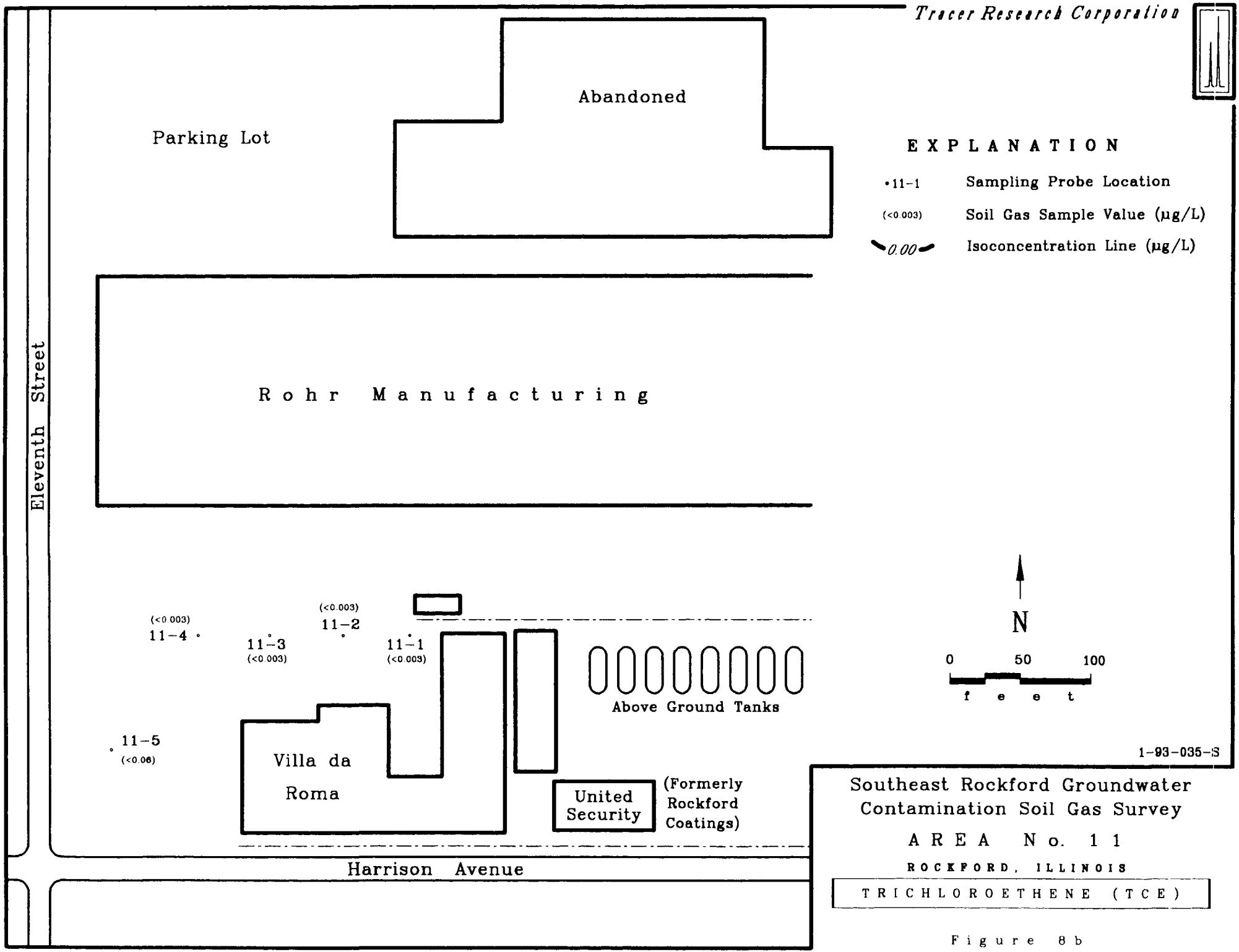

Tracer Research Corporation
Abandoned
Parking Lot
EXPLANATION
•11-1 Sampling Probe Location
(<0.003) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Rohr Manufacturing
Eleventh Street
N
0 50 100
feet
(<0.003)
11-4
11-3
(<0.003)
(<0.003)
11-2
11-1
(<0.003)
Above Ground Tanks
11-5
(<0.06)
Villa da Roma
United Security
(Formerly Rockford Coatings)
Harrison Avenue
1-93-035-S
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 11
ROCKFORD, ILLINOIS
TRICHLOROETHENE (TCE)

Figure 8b

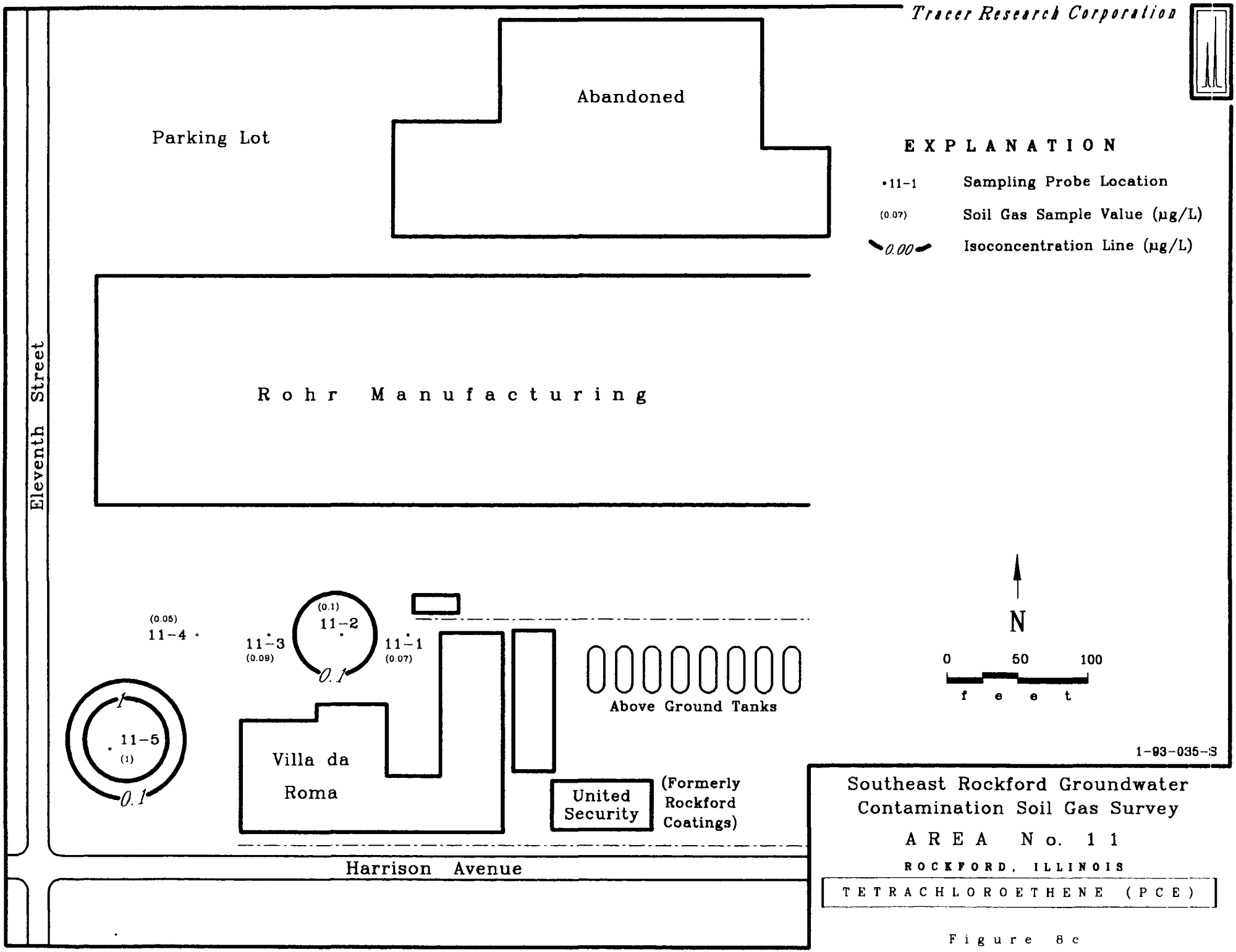

Tracer Research Corporation
Abandoned
Parking Lot
EXPLANATION
•11-1 Sampling Probe Location
(0.07) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
Eleventh Street
Rohr Manufacturing
N
0 50 100
feet
(0.05)
11-4
11-3
(0.09)
(0.1)
11-2
0.1
11-1
(0.07)
1
11-5
(1)
0.1
Villa da
Roma
Above Ground Tanks
United Security
(Formerly Rockford Coatings)
Harrison Avenue
1-93-035-S
Southeast Rockford Groundwater
Contamination Soil Gas Survey
AREA No. 11
ROCKFORD, ILLINOIS
TETRACHLOROETHENE (PCE)

Figure 8c

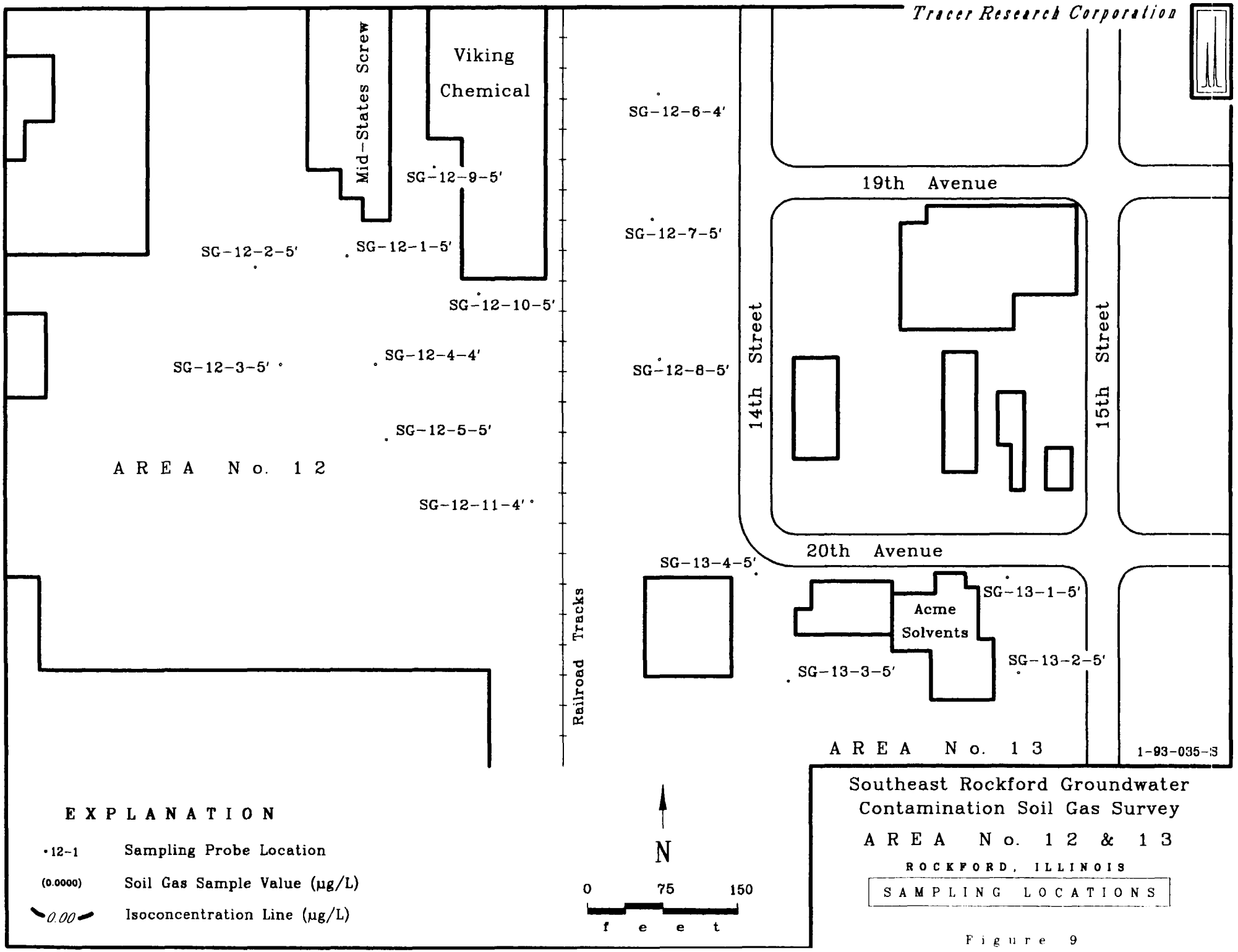
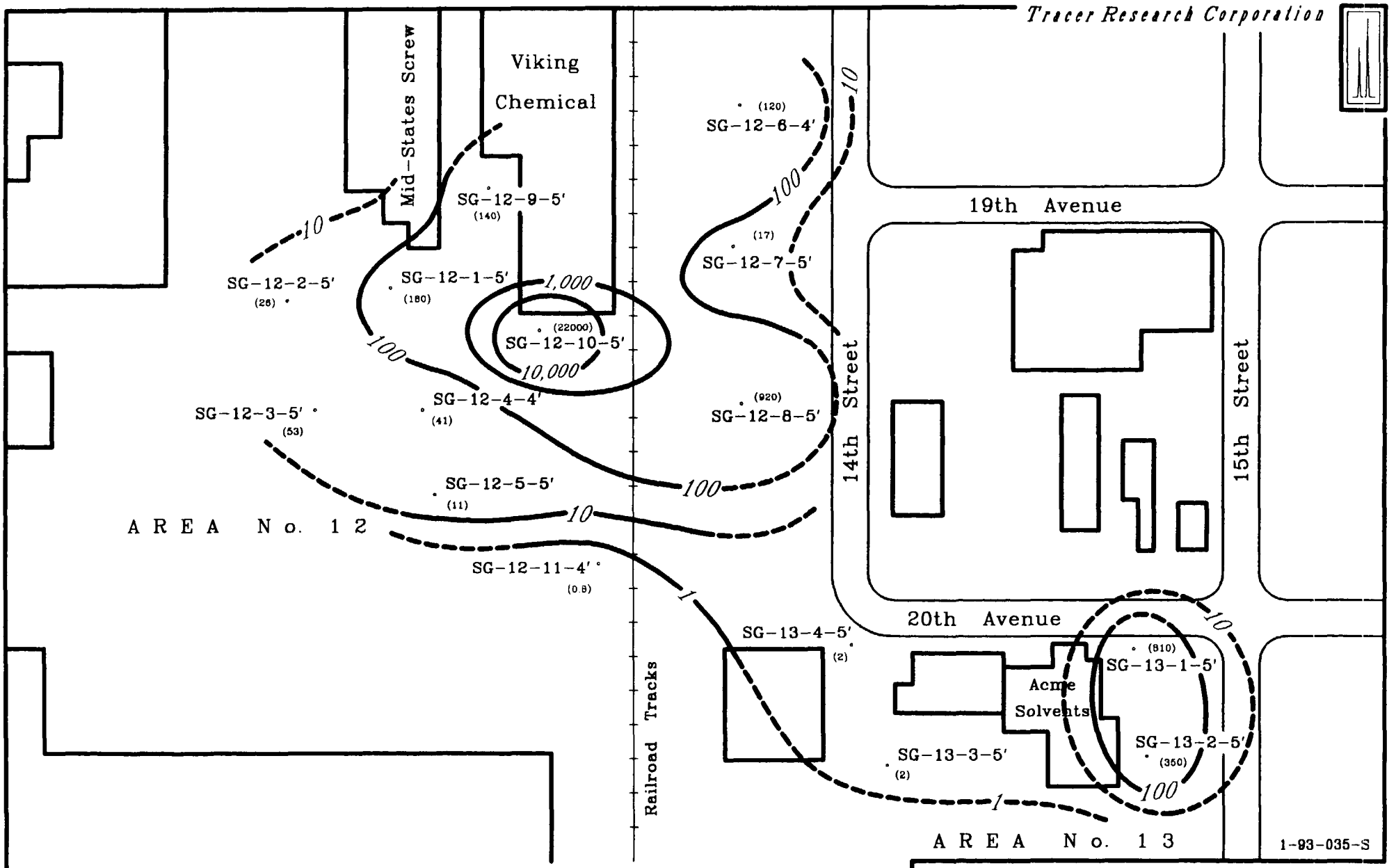

Tracer Research Corporation
Viking Chemical
Mid-States Screw
SG-12-6-4'
SG-12-9-5'
19th Avenue
SG-12-7-5'
SG-12-2-5'
SG-12-1-5'
SG-12-10-5'
14th Street
15th Street
SG-12-4-4'
SG-12-3-5'
SG-12-8-5'
SG-12-5-5'
AREA No. 12
SG-12-11-4'
20th Avenue
SG-13-4-5'
SG-13-1-5'
Acme Solvents
SG-13-2-5'
SG-13-3-5'
Railroad Tracks
AREA No. 13
1-93-035-3
EXPLANATION
•12-1 Sampling Probe Location
(0.0000) Soil Gas Sample Value (µg/L)
0.00 Isoconcentration Line (µg/L)
N
0 75 150
feet
Southeast Rockford Groundwater Contamination Soil Gas Survey
AREA No. 12 & 13
ROCKFORD, ILLINOIS
SAMPLING LOCATIONS

Figure 9




**EXPLANATION**

- •12-1 Sampling Probe Location
- (180) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

N

0 75 150
feet

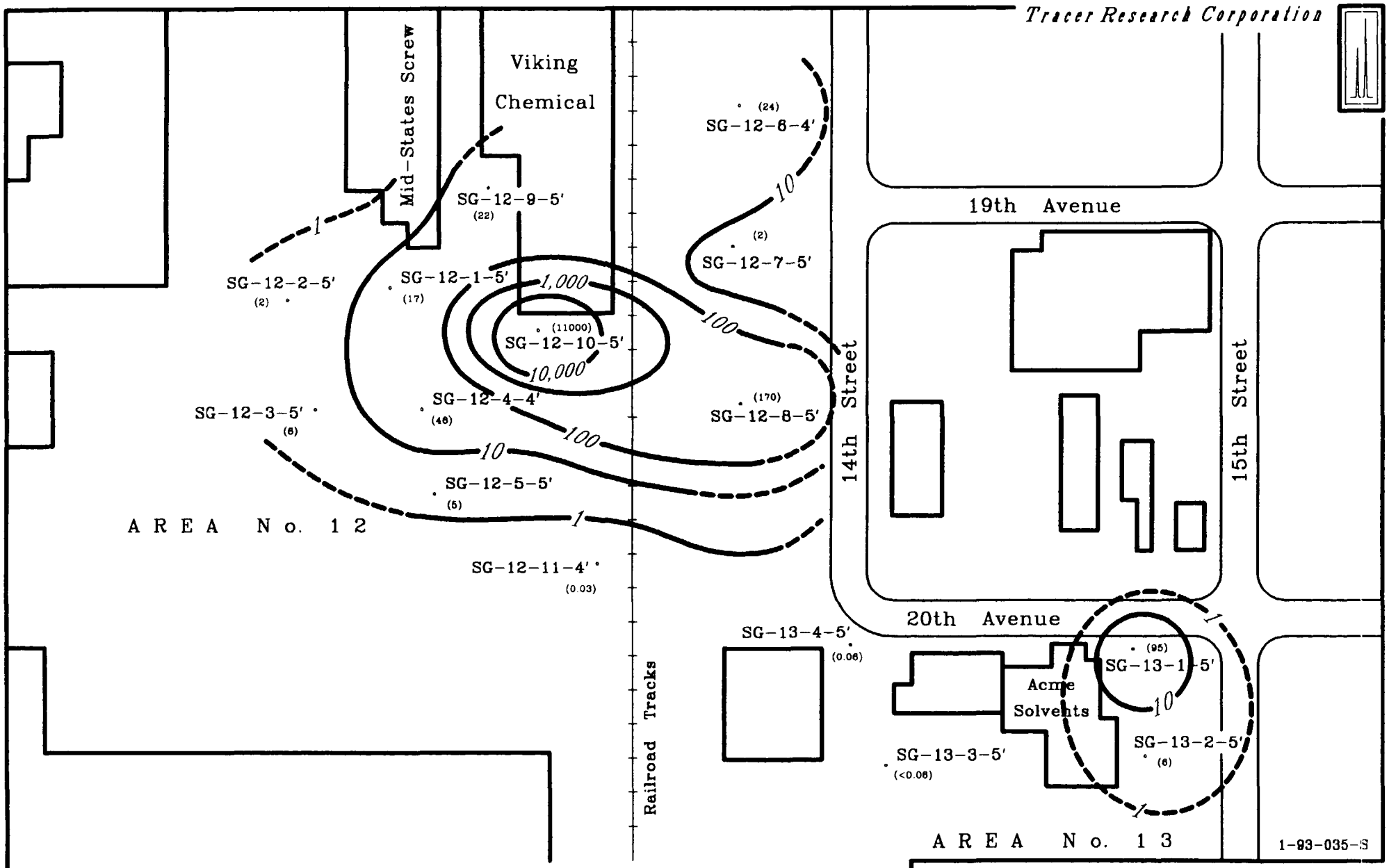
Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 12 & 13

ROCKFORD, ILLINOIS

TRICHLOROETHANE (TCA)

Figure 9a




**EXPLANATION**

- •12-1 Sampling Probe Location
- (17) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

N

0 75 150
feet

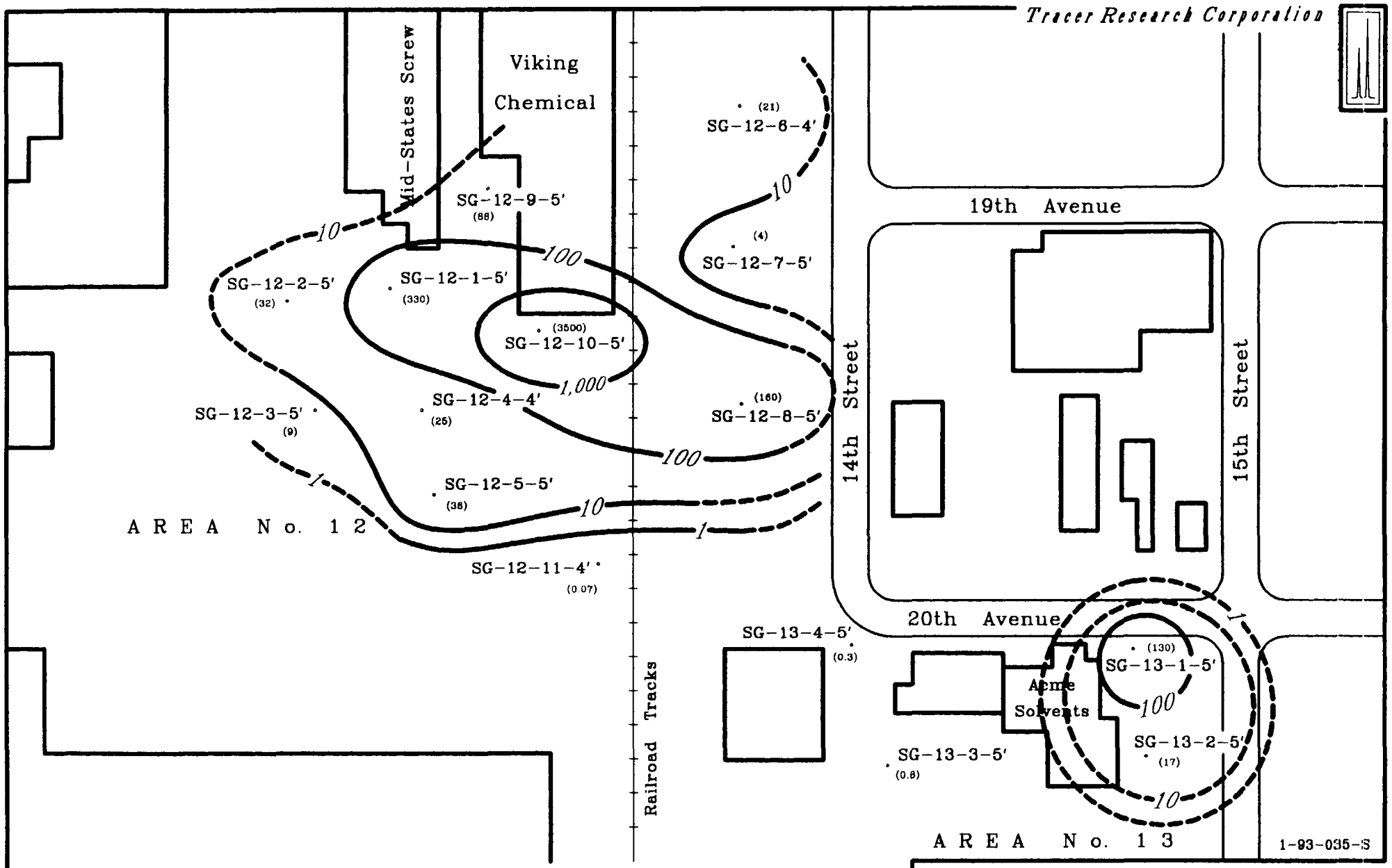
Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 12 & 13

ROCKFORD, ILLINOIS

TRICHLOROETHENE (TCE)

Figure 9b




**EXPLANATION**

- •12-1 Sampling Probe Location
- (330) Soil Gas Sample Value (µg/L)
- 0.00 Isoconcentration Line (µg/L)

N

0 75 150
feet

Southeast Rockford Groundwater Contamination Soil Gas Survey

AREA No. 12 & 13

ROCKFORD, ILLINOIS

TETRACHLOROETHENE (PCE)

Figure 9c

Tracer Research Corporation appreciates the opportunity of being of service to your organization. Because we are constantly striving to improve our service to you, we welcome any comments or suggestions you may have about how we can be more responsive to the needs of your organization. If you have any questions about the field work, analytical results, or this report, please give Wes Pierce a call at (602) 888-9400.

**Corporate Headquarters**
3855 North Business Center Drive
Tucson, Arizona 85705
Telephone: (602) 888-9400
Fax: (602) 293-1306

1555 Park Avenue, Suite E
Emeryville, California 94608
Telephone: (510) 654-0714
Fax: (510) 654-0797

1100 Northwest Loop 410, Suite 700
San Antonio, Texas 78213
Telephone: (512) 366-8823
Fax: (512) 545-2860

One Deerpark Road, Suite G
Monmouth Junction, New Jersey 08852
Telephone: (908) 274-1888
Fax: (908) 274-2922

65 Avenue Louise, Box 11
1050 Brussels, Belgium
Telephone: 32-2-535-7845
Fax: 32-2-535-7700

13, Alley 6, Lane 520, Hsueh-Fu Road
Chutung, Hsinchu, Taiwan, R.O.C.
Telephone: 886-3-582-1064
Fax: 886-3-582-1120

# SDMS US EPA REGION V
# FORMAT- OVERSIZED - 5
## IMAGERY INSERT FORM

The item(s) listed below are not available in SDMS. In order to view original document or document pages, contact the Superfund Records Center.

| | | | |
|---|---|---|---|
| **SITE NAME** | S E ROCKFORD GROUNDWATER | | |
| **DOC ID #** | 140916 | | |
| **DESCRIPTION OF ITEM(S)** | MAPS | | |
| **REASON WHY UNSCANNABLE** | _X_ **OVERSIZED** | **OR** | ____ **FORMAT** |
| **DATE OF ITEM(S)** | N/A | | |
| **NO. OF ITEMS** | 4 | | |
| **PHASE** | REM | | |
| **PRP** | S E ROCKFORD GROUNDWATER | | |
| **PHASE** (AR DOCUMENTS ONLY) | ___ **Remedial** ___ **Removal** ___ **Deletion Docket** ___ **AR**<br>____ **Original** ____ **Update #** ____ **Volume** ____ **of** ____ | | |
| **O.U.** | | | |
| **LOCATION** | **Box #** ____ **Folder #** ____ **Subsection** _K8_ | | |
| **COMMENT(S)** | | | |
| | | | |

# Appendix H

# APPENDIX H
# PHASE II ANALYTICAL DATA

**Data Qualifiers for Southeast Rockford Phase II Remedial Investigation**

Organic Qualifiers

R Data rejected. The presence or absence of the analyte cannot be verified.

J Indicates an estimated value. The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

C Initial or continuing calibration violation

E This flag identifies compounds whose concentrations exceed the calibrated range of the GC/MS instrument for that specific analysis. The sample is typically diluted into the calibration range and re-analyzed (See "D").

D If one or more compounds have a response greater than the full scale calibrated range, the sample or extract must be diluted and re-analyzed until the diluted aliquot falls within the calibrated range. A "D" qualifier indicates that the sample has been diluted.

U Indicates a compound was analyzed but not detected above the reported sample quantitation limit. The sample quantitation limit must be corrected for dilution and for percent moisture. For a soil sample, the value must also be adjusted for percent moisture.

B Indicates laboratory blank contamination is present.

UJ Analyte was not detected above the reported sample quantitation limit, however the reported quantitation limit is approximate.

Inorganic Qualifiers

B Indicates that the reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection Limit (IDL).

E The reported value is estimated because of the presence of interference.

M Duplicate injection precision not met.

N Spiked sample recovery not within control limits.

S The reported value was determined by the Method of Standard Additions (MSA)

W Post-digestion spike for Furnace AA analysis is out of control limits, while sample absorbence is less than 50 % of spike absorbence.

* Duplicate analysis not within control limits.

+ Correlation coefficient for the MSA is less than 0.995.

# APPENDIX H1
# TEST PIT SOIL

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | 06-17-93 | 06-17-93 | 06-17-93 | 06-16-93 |
| Sample Number | TP1-SS3 | TP1-SS4 | TP1-SS5 | TP1-SS6 | TP2-SS3 |
| Organic Traffic Report Number | 7939E04-06 | 7939E04-07 | 7939E04-08 | 7939E04-09 | 7939E04-01 |
| Volatile Organics (mg/kg) | | | | | |
| Chloromethane | 5 U | 5 U | 5 U | 5 U | 5 U |
| Bromomethane | 5 U | 5 U | 5 U | 5 U | 5 U |
| Vinyl Chloride | 5 U | 5 U | 5 U | 5 U | 5 U |
| Chloroethane | 5 U | 5 U | 5 U | 5 U | 5 U |
| Methylene Chloride | 15 UB | 1 JB | 15 UB | 16 UB | 10 UB |
| Acetone | 28 UB | 5 U | 21 UB | 19 UB | 5 UB |
| Carbon Disulfide | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,1-Dichloroethene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,1-Dichloroethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,2-Dichloroethene (total) | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Chloroform | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,2-Dichloroethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 2-Butanone | 5 U | 5 U | 5 U | 5 U | 5 U |
| 1,1,1-Trichloroethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 4 |
| Carbon Tetrachloride | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Vinyl Acetate | 5 U | 5 U | 5 U | 5 U | 5 U |
| Bromodichloromethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,2-Dichloropropane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| cis-1,3-Dichloropropene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Tricloroethene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 3 |
| Dibromochloromethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 1,1,2-Trichloroethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Benzene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| trans-1,3-Dichloropropene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Bromoform | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| 4-Methyl-2-Pentanone | 5 U | 5 U | 5 U | 5 U | 5 U |
| 2-Hexanone | 5 U | 5 U | 5 U | 5 U | 5 U |
| Tetrachloroethene | 0.5 J | 2.5 U | 2.5 U | 2.5 U | 22 |
| 1,1,2,2-Tetrachloroethane | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Toluene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Chlorobenzene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| Ethylbenzene | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-16-93 | |
| Sample Number | TP1-SS3 | | TP1-SS4 | | TP1-SS5 | | TP1-SS6 | | TP2-SS3 | |
| Organic Traffic Report Number | 7939E04-06 | | 7939E04-07 | | 7939E04-08 | | 7939E04-09 | | 7939E04-01 | |
| Styrene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Xylene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Semivolatile Organics (mg/kg) | | | | | | | | | | |
| Phenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| bis(2-Chloroethyl)Ether | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Chlorophenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,3-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,4-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzyl Alcohol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,2-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Methylphenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| bis(2-chloroisopropyl)ether | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Methylphenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| N-Nitroso-di-n-propylamine | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachloroethane | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Nitrobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Isophorone | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Nitrophenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dimethylphenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzoic Acid | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| bis(2-Chloroethoxy)methane | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dichlorophenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,2,4-Trichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Naphthalene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chloroaniline | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobutadiene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chloro-3-methylphenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Methylnaphthalene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorocyclopentadiene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4,6-Trichlorophenol | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4,5-Trichlorophenol | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| 2-Chloronaphthalene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-16-93 | |
| Sample Number | TP1-SS3 | | TP1-SS4 | | TP1-SS5 | | TP1-SS6 | | TP2-SS3 | |
| Organic Traffic Report Number | 7939E04-06 | | 7939E04-07 | | 7939E04-08 | | 7939E04-09 | | 7939E04-01 | |
| 2-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Dimethylphthalate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Acenaphthylene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,6-Dinitrotoluene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 3-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Acenaphthene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dinitrophenol | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| 4-Nitrophenol | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Dibenzofuran | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dinitrotoluene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Diethylphthalate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chlorophenyl-phenylether | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Fluorene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| 4,6-Dinitro-2-methylphenol | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| N-Nitrosodiphenylamine (1) | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Bromophenyl-phenylether | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Alpha-BHC | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Beta-BHC | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Pentachlorophenol | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Gamma-BHC (Lindane) | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Phenanthrene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Anthracene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Delta-BHC | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlor | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Aldrin | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Di-n-Butylphthalate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlor Epoxide | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Monochlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Dichlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Trichlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| Date Sampled | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-16-93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | TP1-SS3 | | TP1-SS4 | | TP1-SS5 | | TP1-SS6 | | TP2-SS3 | |
| Organic Traffic Report Number | 7939E04-06 | | 7939E04-07 | | 7939E04-08 | | 7939E04-09 | | 7939E04-01 | |
| Tetrachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Pyrene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Gamma Chlordane | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan I | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Alpha-Chlordane | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Pentachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| 4,4'-DDE | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Dieldrin | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Endrin | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan II | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4,4'-DDD | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U | 100 | U |
| Butylbenzylphthalate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan Sulfate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| 4,4'-DDT | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Endrin Ketone | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo(a)anthracene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Methoxychlor | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Chrysene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Octachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U | 200 | U |
| 3,3'-Dichlorobenzidine | 40 | U | 40 | U | 40 | U | 40 | U | 40 | U |
| bis(2-Ethylhexyl)Phthalate | 20 | U | 20 | U | 20 | U | 20 | U | 2 | J |
| Nonachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U | 200 | U |
| Decachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U | 200 | U |
| Di-n-Octyl Phthalate | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (b) fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (k) fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (a) pyrene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Ideno (1,2,3-cd) pyrene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Dibenzo (a,h) anthracene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (g,h,i) perylene | 20 | U | 20 | U | 20 | U | 20 | U | 20 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-17-93 | | 06-16-93 | |
| Sample Number | TP1-SS3 | | TP1-SS4 | | TP1-SS5 | | TP1-SS6 | | TP2-SS3 | |
| Organic Traffic Report Number | 7939E04-06 | | 7939E04-07 | | 7939E04-08 | | 7939E04-09 | | 7939E04-01 | |
| Pesticides & PCBs (mg/kg) | | | | | | | | | | |
| Toxaphene | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| Aroclor-1016 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1221 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1232 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1242 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1248 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1254 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Aroclor-1260 | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-16-93 | 06-16-93 | 06-16-93 | 06-16-93 |
| Sample Number | TP2-SS3(D) | TP2-SS4 | TP2-SS5 | TP2-SS6 |
| Organic Traffic Report Number | 7939E04-02 | 7939E04-03 | 7939E04-04 | 7939E04-05 |

| Volatile Organics (mg/kg) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chloromethane | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromomethane | 5 | U | 5 | U | 5 | U | 5 | U |
| Vinyl Chloride | 5 | U | 5 | U | 5 | U | 5 | U |
| Chloroethane | 5 | U | 5 | U | 5 | U | 5 | U |
| Methylene Chloride | 10 | UB | 10 | B | 10 | JB | 10 | UB |
| Acetone | 4 | JB | 4 | JB | 6 | JB | 5 | UB |
| Carbon Disulfide | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,1-Dichloroethene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,1-Dichloroethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,2-Dichloroethene (total) | 2.5 | U | 2.5 | U | 2.5 | U | 3 | J |
| Chloroform | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,2-Dichloroethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 1,1,1-Trichloroethane | 2.5 | U | 2.5 | U | 2.5 | U | 2 | J |
| Carbon Tetrachloride | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Vinyl Acetate | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromodichloromethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,2-Dichloropropane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| cis-1,3-Dichloropropene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Tricloroethene | 2.5 | U | 2.5 | U | 2.5 | U | 10 | U |
| Dibromochloromethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 1,1,2-Trichloroethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Benzene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| trans-1,3-Dichloropropene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Bromoform | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 3 | | 1 | J | 2 | J | 29 | U |
| 1,1,2,2-Tetrachloroethane | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Toluene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Chlorobenzene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Ethylbenzene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-16-93 | | 06-16-93 | | 06-16-93 | | 06-16-93 | |
| Sample Number | TP2-SS3(D) | | TP2-SS4 | | TP2-SS5 | | TP2-SS6 | |
| Organic Traffic Report Number | 7939E04-02 | | 7939E04-03 | | 7939E04-04 | | 7939E04-05 | |
| Styrene | 2.5 | U | 2.5 | U | 2.5 | U | 2.5 | U |
| Xylene | 2.5 | U | 2.5 | U | 2 | J | 2.5 | U |
| Semivolatile Organics (mg/kg) | | | | | | | | |
| Phenol | 20 | U | 20 | U | 20 | U | 20 | U |
| bis(2-Chloroethyl)Ether | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Chlorophenol | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,3-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,4-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzyl Alcohol | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,2-Dichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Methylphenol | 20 | U | 20 | U | 20 | U | 20 | U |
| bis(2-chloroisopropyl)ether | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Methylphenol | 20 | U | 20 | U | 20 | U | 20 | U |
| N-Nitroso-di-n-propylamine | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachloroethane | 20 | U | 20 | U | 20 | U | 20 | U |
| Nitrobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| Isophorone | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Nitrophenol | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dimethylphenol | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzoic Acid | 100 | U | 100 | U | 100 | U | 100 | U |
| bis(2-Chloroethoxy)methane | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dichlorophenol | 20 | U | 20 | U | 20 | U | 20 | U |
| 1,2,4-Trichlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| Naphthalene | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chloroaniline | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobutadiene | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chloro-3-methylphenol | 20 | U | 20 | U | 20 | U | 20 | U |
| 2-Methylnaphthalene | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorocyclopentadiene | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4,6-Trichlorophenol | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4,5-Trichlorophenol | 100 | U | 100 | U | 100 | U | 100 | U |
| 2-Chloronaphthalene | 20 | U | 20 | U | 20 | U | 20 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Date Sampled | 06-16-93 | | 06-16-93 | | 06-16-93 | | 06-16-93 | |
| Sample Number | TP2-SS3(D) | | TP2-SS4 | | TP2-SS5 | | TP2-SS6 | |
| Organic Traffic Report Number | 7939E04-02 | | 7939E04-03 | | 7939E04-04 | | 7939E04-05 | |
| 2-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U |
| Dimethylphthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| Acenaphthylene | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,6-Dinitrotoluene | 20 | U | 20 | U | 20 | U | 20 | U |
| 3-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U |
| Acenaphthene | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dinitrophenol | 100 | U | 100 | U | 100 | U | 100 | U |
| 4-Nitrophenol | 100 | U | 100 | U | 100 | U | 100 | U |
| Dibenzofuran | 20 | U | 20 | U | 20 | U | 20 | U |
| 2,4-Dinitrotoluene | 20 | U | 20 | U | 20 | U | 20 | U |
| Diethylphthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Chlorophenyl-phenylether | 20 | U | 20 | U | 20 | U | 20 | U |
| Fluorene | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Nitroaniline | 100 | U | 100 | U | 100 | U | 100 | U |
| 4,6-Dinitro-2-methylphenol | 100 | U | 100 | U | 100 | U | 100 | U |
| N-Nitrosodiphenylamine (1) | 20 | U | 20 | U | 20 | U | 20 | U |
| 4-Bromophenyl-phenylether | 20 | U | 20 | U | 20 | U | 20 | U |
| Alpha-BHC | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobenzene | 20 | U | 20 | U | 20 | U | 20 | U |
| Beta-BHC | 20 | U | 20 | U | 20 | U | 20 | U |
| Pentachlorophenol | 100 | U | 100 | U | 100 | U | 100 | U |
| Gamma-BHC (Lindane) | 20 | U | 20 | U | 20 | U | 20 | U |
| Phenanthrene | 20 | U | 20 | U | 20 | U | 20 | U |
| Anthracene | 20 | U | 20 | U | 20 | U | 20 | U |
| Delta-BHC | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlor | 20 | U | 20 | U | 20 | U | 20 | U |
| Aldrin | 20 | U | 20 | U | 20 | U | 20 | U |
| Di-n-Butylphthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| Fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlor Epoxide | 20 | U | 20 | U | 20 | U | 20 | U |
| Monochlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| Dichlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| Trichlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-16-93 | 06-16-93 | 06-16-93 | 06-16-93 |
| Sample Number | TP2-SS3(D) | TP2-SS4 | TP2-SS5 | TP2-SS6 |
| Organic Traffic Report Number | 7939E04-02 | 7939E04-03 | 7939E04-04 | 7939E04-05 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Tetrachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| Pyrene | 20 | U | 20 | U | 20 | U | 20 | U |
| Gamma Chlordane | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan I | 20 | U | 20 | U | 20 | U | 20 | U |
| Alpha-Chlordane | 20 | U | 20 | U | 20 | U | 20 | U |
| Pentachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| 4,4'-DDE | 20 | U | 20 | U | 20 | U | 20 | U |
| Dieldrin | 20 | U | 20 | U | 20 | U | 20 | U |
| Hexachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| Endrin | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan II | 20 | U | 20 | U | 20 | U | 20 | U |
| 4,4'-DDD | 20 | U | 20 | U | 20 | U | 20 | U |
| Heptachlorobiphenyl | 100 | U | 100 | U | 100 | U | 100 | U |
| Butylbenzylphthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| Endosulfan Sulfate | 20 | U | 20 | U | 20 | U | 20 | U |
| 4,4'-DDT | 20 | U | 20 | U | 20 | U | 20 | U |
| Endrin Ketone | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo(a)anthracene | 20 | U | 20 | U | 20 | U | 20 | U |
| Methoxychlor | 20 | U | 20 | U | 20 | U | 20 | U |
| Chrysene | 20 | U | 20 | U | 20 | U | 20 | U |
| Octachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U |
| 3,3'-Dichlorobenzidine | 40 | U | 40 | U | 40 | U | 40 | U |
| bis(2-Ethylhexyl)Phthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| Nonachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U |
| Decachlorobiphenyl | 200 | U | 200 | U | 200 | U | 200 | U |
| Di-n-Octyl Phthalate | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (b) fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (k) fluoranthene | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (a) pyrene | 20 | U | 20 | U | 20 | U | 20 | U |
| Ideno (1,2,3-cd) pyrene | 20 | U | 20 | U | 20 | U | 20 | U |
| Dibenzo (a,h) anthracene | 20 | U | 20 | U | 20 | U | 20 | U |
| Benzo (g,h,i) perylene | 20 | U | 20 | U | 20 | U | 20 | U |

# Appendix H-1: Test Pit Soil Data (Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-16-93 | 06-16-93 | 06-16-93 | 06-16-93 |
| Sample Number | TP2-SS3(D) | TP2-SS4 | TP2-SS5 | TP2-SS6 |
| Organic Traffic Report Number | 7939E04-02 | 7939E04-03 | 7939E04-04 | 7939E04-05 |
| Pesticides & PCBs (mg/kg) | | | | |
| Toxaphene | 50 U | 50 U | 50 U | 50 U |
| Aroclor-1016 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1221 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1232 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1242 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1248 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1254 | 10 U | 10 U | 10 U | 10 U |
| Aroclor-1260 | 10 U | 10 U | 10 U | 10 U |

# Appendix H-1: Test Pit Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | | 06-17-93 | | 06-17-96 | | 06-17-93 | | 06-16-93 | |
| Sample Number | TP1-SS3 | | TP1-SS4 | | TP1-SS5 | | TP1-SS6 | | TP2-SS3 | |
| Inorganic Traffic Report Number | 7939E05-06 | | 7939E05-07 | | 7939E05-08 | | 7939E05-09 | | 7939E05-01 | |
| Inorganic Soils (mg/kg) | | | | | | | | | | |
| Aluminum | 6890 | | 10500 | | 10800 | | 4990 | | 7060 | |
| Antinomy | 11.2 | U | 11.2 | U | 11.2 | U | 11.2 | U | 11.2 | U |
| Arsenic | 3 | BW | 3.6 | BW | 3.5 | B | 2.9 | B | 3.2 | B |
| Barium | 49.7 | B | 70.7 | B | 63.2 | B | 21.8 | B | 48.1 | B |
| Beryllium | 0.52 | B | 0.79 | B | 0.58 | B | 0.63 | B | 0.42 | B |
| Cadmium | 1.6 | U | 1.6 | U | 1.6 | U | 1.6 | U | 1.6 | U |
| Calcium | 1080 | | 1420 | | 8530 | | 24400 | | 3290 | |
| Chromium | 10 | B | 11.9 | | 14.3 | | 12.7 | | 10.8 | |
| Cobalt | 3.8 | B | 5.3 | B | 3.2 | U | 3.4 | B | 4.2 | B |
| Copper | 6.4 | B | 7.8 | B | 5.2 | B | 9.4 | B | 12.4 | B |
| Iron | 7120 | | 12300 | | 9700 | | 7340 | | 7840 | |
| Lead | 18.4 | U | 18.4 | U | 21.7 | B | 18.4 | U | 20.3 | B |
| Magnesium | 1270 | | 1870 | | 5800 | | 15100 | | 2200 | |
| Manganese | 225 | | 334 | | 329 | | 91.3 | | 49.5 | |
| Mercury | 0.3 | U | 0.3 | U | 0.3 | U | 0.3 | U | 0.3 | U |
| Nickel | 7.5 | B | 8.1 | B | 12.2 | B | 8.6 | B | 8.5 | B |
| Selenium | 1.2 | UW | 1.2 | U | 1.2 | UW | 1.2 | U | 1.2 | U |
| Silver | 2 | U | 2 | U | 2 | U | 3.5 | B | 2 | U |
| Sodium | 673 | J | 666 | J | 640 | J | 655 | J | 592 | J |
| Thallium | 2 | U | 2 | U | 2 | U | 2 | UW | 2 | U |
| Vanidium | 14.6 | B | 22.7 | | 23.1 | | 14.2 | B | 18.5 | B |
| Zinc | 21.3 | | 35.1 | | 30.3 | | 23.8 | | 28.1 | |
| Cyanide | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U |

# Appendix H-1: Test Pit Soil Data (Inorganics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-16-93 | 06-16-93 | 06-16-93 | 06-16-93 |
| Sample Number | TP2-SS3(D) | TP2-SS4 | TP2-SS5 | TP2-SS6 |
| Inorganic Traffic Report Number | 7939E05-02 | 7939E05-03 | 7939E05-04 | 7939E05-05 |

Inorganic Soils (mg/kg)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aluminum | 8660 | | 7360 | | 1540 | | 9310 | |
| Antinomy | 11.2 | U | 11.2 | U | 11.2 | U | 11.2 | U |
| Arsenic | 6.9 | B | 4.8 | B | 2 | B | 9.2 | B |
| Barium | 249 | | 73.7 | B | 6.4 | B | 322 | |
| Beryllium | 0.9 | B | 0.42 | B | 0.42 | B | 0.95 | B |
| Cadmium | 1.6 | U | 1.6 | U | 1.6 | U | 1.6 | U |
| Calcium | 12200 | | 13100 | | 34100 | | 14900 | |
| Chromium | 48.8 | | 42.6 | | 3.6 | U | 46.2 | |
| Cobalt | 7.2 | B | 4.5 | B | 3.2 | U | 6 | B |
| Copper | 70.4 | | 734 | | 7.1 | B | 144 | |
| Iron | 17300 | | 14300 | | 3420 | | 49100 | |
| Lead | 233 | | 56.1 | | 18.4 | U | 507 | |
| Magnesium | 4270 | | 7400 | | 20000 | | 5400 | |
| Manganese | 150 | | 217 | | 105 | | 306 | |
| Mercury | 1.3 | | 0.3 | U | 0.3 | U | 0.3 | U |
| Nickel | 21.4 | | 27.7 | | 4.6 | B | 28 | |
| Selenium | 1.2 | UW | 1.2 | UW | 1.2 | UW | 1.2 | UW |
| Silver | 2.2 | B | 2 | U | 2 | U | 2 | U |
| Sodium | 507 | J | 658 | J | 425 | J | 717 | J |
| Thallium | 2 | U | 2 | U | 2 | UW | 2 | U |
| Vanidium | 19.7 | B | 18.6 | B | 4.8 | B | 38.2 | |
| Zinc | 276 | | 711 | | 13.8 | | 1020 | |
| Cyanide | 1.2 | U | 1.2 | U | 1.2 | U | 1.2 | U |

# Appendix H-1: Test Pit Soil Data (TCLP Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/17/93 | | 6/17/93 | | 6/16/93 | | 6/16/93 | | 6/16/93 | |
| Sample Number | TP1-SS1 | | TP1-SS2 | | TP2-SS1 | | TP2-SS1(D) | | TP2-SS2 | |
| Organic Traffic Report Number | 7939E02-04 | | 7939E02-05 | | 7939E02-01 | | 7930E02-02 | | 7939E02-03 | |
| Volatile Organics (ug/L) | | | | | | | | | | |
| Vinyl Chloride | 53 | U | 53 | U | 53 | U | 53 | U | 53 | U |
| Methylene Chloride | 61 | | 55 | | 61 | | 70 | | 68 | |
| Carbon Disulfide | 26 | U | 26 | U | 26 | U | 26 | U | 26 | U |
| Acrylonitrile | 250 | U | 250 | U | 250 | U | 250 | U | 250 | U |
| 1,1-Dichloroethene | 26 | U | 26 | U | 26 | U | 26 | U | 26 | U |
| Chloroform | 29 | U | 29 | U | 29 | U | 29 | U | 29 | U |
| 1,2-Dichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Methyl Ethyl Ketone | 54 | U | 54 | U | 54 | U | 54 | U | 54 | U |
| 1,1,1-Trichloroethane | 28 | U | 28 | U | 1300 | D | 960 | D | 28 | U |
| Carbon Tetrachloride | 26 | U | 26 | U | 26 | U | 26 | U | 26 | U |
| Tricloroethene | 25 | U | 25 | U | 1100 | D | 940 | D | 44 | |
| 1,1,2-Trichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Benzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Tetrachloroethene | 25 | U | 25 | U | 3200 | D | 3100 | D | 340 | |
| 1,1,1,2-Tetrachloroethane | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| 1,1,2,2-Tetrachloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Toluene | 24 | J | 32 | | 260 | | 230 | | 28 | U |
| Chlorobenzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Semivolatile Organics (ug/L) | | | | | | | | | | |
| Pyridine | 160 | U | 160 | U | 220 | U | 160 | U | 160 | U |
| Phenol | 27 | U | 27 | U | 39 | U | 27 | U | 27 | U |
| bis(2-Chloroethyl)Ether | 29 | U | 29 | U | 41 | U | 29 | U | 29 | U |
| 1,4-Dichlorobenzene | 40 | U | 40 | U | 58 | U | 40 | U | 40 | U |
| 1,2-Dichlorobenzene | 38 | U | 38 | U | 56 | J | 65 | | 38 | U |
| o-Cresol | 25 | U | 25 | U | 36 | U | 25 | U | 25 | U |
| m,p-Cresol | 25 | U | 25 | U | 36 | U | 25 | U | 25 | U |
| Hexachloroethane | 50 | U | 50 | U | 72 | U | 50 | U | 50 | U |
| Nitrobenzene | 24 | U | 24 | U | 35 | U | 24 | U | 24 | U |
| Hexachlorobutadiene | 50 | U | 50 | U | 72 | U | 50 | U | 50 | U |
| 2,4,6-Trichlorophenol | 24 | U | 24 | U | 35 | U | 24 | U | 24 | U |
| 2,4,5-Trichlorophenol | 120 | U | 120 | U | 170 | U | 120 | U | 120 | U |

# Appendix H-1: Test Pit Soil Data (TCLP Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/17/93 | | 6/17/93 | | 6/16/93 | | 6/16/93 | | 6/16/93 | |
| Sample Number | TP1-SS1 | | TP1-SS2 | | TP2-SS1 | | TP2-SS1(D) | | TP2-SS2 | |
| Organic Traffic Report Number | 7939E02-04 | | 7939E02-05 | | 7939E02-01 | | 7930E02-02 | | 7939E02-03 | |
| 2,4-Dinitrotoluene | 30 | U | 30 | U | 43 | U | 30 | U | 30 | U |
| Hexachlorobenzene | 24 | U | 24 | U | 35 | U | 24 | U | 24 | U |
| Pentachlorophenol | 110 | U | 110 | U | 150 | U | 110 | U | 110 | U |

# Appendix H-1: Test Pit Soil Data (TCLP Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-17-93 | | 06-16-93 | | 06-16-93 | | 06-16-93 | | 06-16-93 | |
| Sample Number | TP1-SS1 | | TP1-SS2 | | TP2-SS1 | | TP2-SS1(D) | | TP2-SS2 | |
| Inorganic Traffic Report Number | 7939E03-04 | | 7939E03-05 | | 7939E03-01 | | 7939E03-02 | | 7939E03-03 | |
| TCLP Inorganics (ug/L) | | | | | | | | | | |
| Arsenic | 18.5 | U | 18.5 | U | 18.5 | U | 16.8 | U | 18.5 | UW |
| Barium | 454 | B | 482 | B | 574 | B | 264 | B | 974 | B |
| Cadmium | 33.7 | U | 33.7 | U | 33.7 | U | 33.7 | UN | 33.7 | U |
| Chromium | 48.2 | U | 92.9 | B | 48.2 | U | 40.8 | U | 48.2 | U |
| Lead | 222 | UJ | 222 | UJ | 222 | UJ | 277 | UJ | 222 | UJ |
| Mercury | 1.8 | U | 1.8 | U | 1.8 | U | 1.7 | U | 1.8 | U |
| Selenium | 10.7 | U | 10.7 | U | 10.7 | UW | 11 | UW | 10.7 | U |
| Silver | 37.2 | U | 37.2 | U | 37.2 | U | 37.9 | U | 37.2 | U |

# APPENDIX H2
# TEST PIT AIR

# Appendix H-2A: Test Pit Air Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6-17-93 | | 6-17-93 | | 6-17-93 | | 6-17-93 | | 6-17-93 | |
| Sample Number | TP1-108-U1 | | TP1-137-U2 | | TP1-408-U3 | | TP1-179-01(1) | | TP1-193-01(2) | |
| Organic Traffic Report Number | 7939E01-12 | | 7939E01-13 | | 7939E01-14 | | 7939E01-15 | | 7939E01-16 | |
| *Volatile Organics (ng/OC)* | | | | | | | | | | |
| Chloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromomethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Vinyl Chloride | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Chloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Methylene Chloride | 25 | UB | 76 | BJ | 25 | UB | 36 | BJ | 130 | B |
| Acetone | 66 | BJ | 110 | BJ | 67 | B | 69 | BJ | 120 | BJ |
| Carbon Disulfide | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1-Dichloroethene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1-Dichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 110 | J |
| 1,2-Dichloroethene (total) | 25 | U | 25 | U | 25 | U | 25 | U | 110 | J |
| Chloroform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 110 | J |
| 2-Butanone | 25 | UB | 50 | UB | 50 | UB | 25 | UB | 25 | UB |
| 1,1,1-Trichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 110 | J |
| Carbon Tetrachloride | 25 | U | 25 | U | 3 | J | 25 | U | 4 | J |
| Bromodichloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloropropane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Cis-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Trichloroethene | 25 | U | 25 | U | 25 | U | 3 | J | 110 | J |
| Dibromochloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1,2-Trichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 98 | J |
| Benzene | 25 | U | 25 | U | 25 | U | 25 | U | 120 | J |
| Trans-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromoform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Methyl-2-Pentanone | 50 | U | 50 | U | 50 | U | 50 | U | 110 | J |
| 2-Hexanone | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| Tetrachloroethene | 25 | U | 25 | U | 25 | U | 25 | U | 110 | J |
| 1,1,2,2-Tetrachloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 85 | BJ |
| Toluene | 25 | U | 25 | U | 44 | J | 25 | U | 120 | J |
| Chlorobenzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Ethylbenzene | 25 | U | 25 | U | 25 | U | 6 | J | 25 | U |
| Styrene | 25 | U | 25 | U | 25 | U | 25 | UB | 25 | U |
| Xylene (total) | 25 | UB | 25 | UB | 25 | UB | 30 | BJ | 200 | BJ |

# Appendix H-2A: Test Pit Air Data (Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 6-17-93 | 6-17-93 | 6-17-93 | 6-17-93 | 34137 |
| Sample Number | TP1-150-02 | TP1-105-02(D) | TP1-120-03 | TP1-125-04 | TP1-409-D5 |
| Organic Traffic Report Number | 7939E01-17 | 7939E01-18 | 7939E01-19 | 7939E01-20 | 7939E01-21 |
| *Volatile Organics (ng/OC)* | | | | | |
| Chloromethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Bromomethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Vinyl Chloride | 25 U | 25 U | 25 U | 25 U | 25 U |
| Chloroethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Methylene Chloride | 14 BJ | 7 BJ | 25 UB | 25 UJ | 25 UJ |
| Acetone | 110 BJ | 61 BJ | 130 BJ | 76 BJ | 100 BJ |
| Carbon Disulfide | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,1-Dichloroethene | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,1-Dichloroethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,2-Dichloroethene (total) | 25 U | 25 U | 30 J | 25 U | 25 U |
| Chloroform | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,2-Dichloroethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Butanone | 50 U | 25 UB | 25 UB | 25 UB | 25 UB |
| 1,1,1-Trichloroethane | 25 U | 25 U | 97 J | 25 U | 25 U |
| Carbon Tetrachloride | 25 U | 5 J | 5 J | 25 U | 4 J |
| Bromodichloromethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,2-Dichloropropane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Cis-1,3-Dichloropropene | 25 U | 25 U | 25 U | 25 U | 25 U |
| Trichloroethene | 25 U | 25 U | 41 J | 25 U | 25 U |
| Dibromochloromethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| 1,1,2-Trichloroethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Benzene | 10 J | 25 U | 25 U | 25 U | 25 U |
| Trans-1,3-Dichloropropene | 25 U | 25 U | 25 U | 25 U | 25 U |
| Bromoform | 25 U | 25 U | 25 U | 25 U | 25 U |
| 4-Methyl-2-Pentanone | 50 U | 50 U | 50 U | 50 U | 50 U |
| 2-Hexanone | 50 U | 50 U | 50 U | 50 U | 50 U |
| Tetrachloroethene | 25 U | 25 U | 30 J | 25 U | 25 U |
| 1,1,2,2-Tetrachloroethane | 25 U | 25 U | 25 U | 25 U | 25 U |
| Toluene | 25 U | 25 U | 25 U | 25 U | 25 U |
| Chlorobenzene | 25 U | 25 U | 25 U | 25 U | 25 U |
| Ethylbenzene | 25 U | 25 U | 3 J | 25 U | 25 U |
| Styrene | 25 U | 25 U | 25 UB | 25 U | 25 U |
| Xylene (total) | 25 UB | 25 UB | 25 UB | 25 U | 25 UB |

# Appendix H-2A: Test Pit Air Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 34137 | | 6-16-93 | | 6-16-93 | | 6-16-93 | | 6-16-93 | |
| Sample Number | TP1-42-BL | | TP2-182-U1 | | TP2-136-U2 | | TP2-97-U3 | | TP2-199-01(1) | |
| Organic Traffic Report Number | 7939E01-22 | | 7939E01-01 | | 7939E01-02 | | 7939E01-03 | | 7939E01-04 | |
| *Volatile Organics (ng/OC)* | | | | | | | | | | |
| Chloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromomethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Vinyl Chloride | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Chloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Methylene Chloride | 25 | UB | 25 | UB | 25 | UB | 25 | UB | 53 | B |
| Acetone | 25 | UB | 34 | U | 25 | UB | 25 | UB | 27 | UB |
| Carbon Disulfide | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1-Dichloroethene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1-Dichloroethane | 310 | | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloroethene (total) | 290 | | 25 | U | 25 | U | 25 | U | 83 | J |
| Chloroform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloroethane | 290 | | 25 | U | 25 | U | 25 | U | 25 | U |
| 2-Butanone | 50 | U | 14 | J | 50 | UB | 14 | J | 18 | |
| 1,1,1-Trichloroethane | 270 | | 57 | J | 25 | U | 25 | U | 750 | J |
| Carbon Tetrachloride | 25 | U | 4 | J | 5 | J | 4 | J | 25 | U |
| Bromodichloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloropropane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Cis-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Trichloroethene | 270 | | 25 | U | 25 | U | 25 | U | 240 | J |
| Dibromochloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1,2-Trichloroethane | 250 | | 25 | U | 25 | U | 25 | U | 25 | U |
| Benzene | 280 | | 25 | U | 25 | U | 25 | U | 25 | U |
| Trans-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromoform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Methyl-2-Pentanone | 200 | | 50 | U | 50 | U | 50 | U | 50 | U |
| 2-Hexanone | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| Tetrachloroethene | 290 | | 35 | B | 25 | UB | 5 | BJ | 580 | B |
| 1,1,2,2-Tetrachloroethane | 210 | B | 25 | U | 25 | U | 25 | U | 25 | U |
| Toluene | 340 | | 25 | U | 25 | U | 25 | U | 38 | BJ |
| Chlorobenzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Ethylbenzene | 25 | U | 3 | J | 25 | U | 25 | U | 14 | J |
| Styrene | 25 | U | 25 | UB | 25 | UB | 25 | U | 25 | UB |
| Xylene (total) | 520 | B | 25 | UB | 25 | UB | 25 | UB | 69 | BJ |

# Appendix H-2A: Test Pit Air Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6-16-93 | | 6-16-93 | | 6-16-93 | | 6-16-93 | | 6-16-93 | |
| Sample Number | TP2-70-01(2) | | TP2-178-02 | | TP2-403-02(D) | | TP2-151-03 | | TP2-400-04 | |
| Organic Traffic Report Number | 7939E01-05 | | 7939E01-06 | | 7939E01-07 | | 7939E01-08 | | 7939E01-09 | |
| *Volatile Organics (ng/OC)* | | | | | | | | | | |
| Chloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromomethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Vinyl Chloride | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Chloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Methylene Chloride | 25 | UB | 25 | UB | 79 | BJ | 25 | UB | 46 | BJ |
| Acetone | 25 | UB | 25 | UB | 32 | BJ | 31 | BJ | 28 | BJ |
| Carbon Disulfide | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1-Dichloroethene | 12 | J | 12 | J | 11 | J | 25 | U | 25 | U |
| 1,1-Dichloroethane | 25 | U | 26 | J | 26 | J | 25 | U | 25 | U |
| 1,2-Dichloroethene (total) | 290 | J | 380 | J | 390 | J | 25 | U | 25 | U |
| Chloroform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 2-Butanone | 25 | U | 50 | U | 50 | U | 16 | J | 50 | U |
| 1,1,1-Trichloroethane | 2000 | E | 2400 | E | 2300 | E | 47 | J | 31 | J |
| Carbon Tetrachloride | 25 | U | 4 | J | 5 | | 5 | J | 5 | J |
| Bromodichloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,2-Dichloropropane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Cis-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Trichloroethene | 840 | J | 1100 | EJ | 1200 | EJ | 25 | U | 25 | U |
| Dibromochloromethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 1,1,2-Trichloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Benzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Trans-1,3-Dichloropropene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Bromoform | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Methyl-2-Pentanone | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| 2-Hexanone | 50 | U | 50 | U | 50 | U | 50 | U | 50 | U |
| Tetrachloroethene | 2100 | BE | 2500 | BE | 2600 | BE | 72 | B | 25 | UB |
| 1,1,2,2-Tetrachloroethane | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Toluene | 53 | BJ | 97 | BJ | 1000 | BJ | 51 | BJ | 520 | BJ |
| Chlorobenzene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Ethylbenzene | 39 | | 47 | | 48 | | 3 | J | 25 | U |
| Styrene | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Xylene (total) | 210 | BJ | 260 | BJ | 270 | BJ | 25 | UB | 25 | UB |

# Appendix H-2A: Test Pit Air Data (Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 6-16-93 | | 6-16-93 | |
| Sample Number | TP2-103-05 | | TP2-119-BL | |
| Organic Traffic Report Number | 7939E01-10 | | 7939E01-11 | |
| *Volatile Organics (ng/OC)* | | | | |
| Chloromethane | 25 | U | 25 | U |
| Bromomethane | 25 | U | 25 | U |
| Vinyl Chloride | 25 | U | 25 | U |
| Chloroethane | 25 | U | 25 | U |
| Methylene Chloride | 25 | UB | 8 | BJ |
| Acetone | 49 | BJ | 50 | U |
| Carbon Disulfide | 25 | U | 25 | U |
| 1,1-Dichloroethene | 4 | J | 25 | U |
| 1,1-Dichloroethane | 120 | J | 25 | U |
| 1,2-Dichloroethene (total) | 190 | J | 25 | U |
| Chloroform | 25 | U | 25 | U |
| 1,2-Dichloroethane | 110 | J | 25 | U |
| 2-Butanone | 50 | UB | 50 | U |
| 1,1,1-Trichloroethane | 800 | J | 25 | U |
| Carbon Tetrachloride | 5 | J | 25 | U |
| Bromodichloromethane | 25 | U | 25 | U |
| 1,2-Dichloropropane | 25 | U | 25 | U |
| Cis-1,3-Dichloropropene | 25 | U | 25 | U |
| Trichloroethene | 330 | J | 25 | U |
| Dibromochloromethane | 25 | U | 25 | U |
| 1,1,2-Trichloroethane | 100 | J | 25 | U |
| Benzene | 120 | J | 25 | U |
| Trans-1,3-Dichloropropene | 25 | U | 25 | U |
| Bromoform | 25 | U | 25 | U |
| 4-Methyl-2-Pentanone | 110 | J | 50 | U |
| 2-Hexanone | 50 | U | 50 | U |
| Tetrachloroethene | 900 | | 25 | UB |
| 1,1,2,2-Tetrachloroethane | 86 | BJ | 25 | U |
| Toluene | 180 | J | 25 | UB |
| Chlorobenzene | 25 | U | 25 | U |
| Ethylbenzene | 13 | | 25 | U |
| Styrene | 25 | U | 25 | U |
| Xylene (total) | 260 | BJ | 25 | U |

## TABLE H-2b

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-108-U1 Pump 1772 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 90 | 101.65 | 101.28 | 101.47 | 1000 | 9.13 | 742.76 | 28.89 | 8.81 | 66 | 7.492 | 58.08 | 3.156 |
| Benzene | 90 | 101.65 | 101.28 | 101.47 | 1000 | 9.13 | 742.76 | 28.89 | 8.81 | 8 | 0.908 | 78.11 | 0.284 |
| PCE | 90 | 101.65 | 101.28 | 101.47 | 1000 | 9.13 | 742.76 | 28.89 | 8.81 | 4 | 0.454 | 165.83 | 0.067 |
| 1,1,2,2 TCA | 90 | 101.65 | 101.28 | 101.47 | 1000 | 9.13 | 742.76 | 28.89 | 8.81 | 25 | 2.838 | 167.85 | 0.414 |
| Toluene | 90 | 101.65 | 101.28 | 101.47 | 1000 | 9.13 | 742.76 | 28.89 | 8.81 | 5 | 0.568 | 92.14 | 0.151 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-137-U2 Pump 1472 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 76 | 8.522 | 84.93 | 2.455 |
| Acetone | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 110 | 12.335 | 58.08 | 5.196 |
| 1,1,1 TCA | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 4 | 0.449 | 133.40 | 0.082 |
| Benzene | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 12 | 1.346 | 78.11 | 0.421 |
| PCE | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 3 | 0.336 | 165.83 | 0.050 |
| Toluene | 90 | 101.94 | 103.48 | 102.71 | 1000 | 9.24 | 742.76 | 28.89 | 8.92 | 10 | 1.121 | 92.14 | 0.298 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-408-U3 Pump 1775 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 67 | 7.76 | 58.08 | 3.27 |
| TCA | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 6 | 0.70 | 133.40 | 0.13 |
| Carbon Tetrachloride | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 3 | 0.35 | 153.82 | 0.06 |
| Benzene | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 10 | 1.16 | 78.11 | 0.36 |
| PCE | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 3 | 0.35 | 165.83 | 0.05 |
| Toluene | 90 | 99.37 | 99.42 | 99.39 | 1000 | 8.95 | 742.76 | 28.89 | 8.63 | 44 | 5.10 | 92.14 | 1.35 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-179-01(1) 1814 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 36 | 4.17 | 84.93 | 1.20 |
| Acetone | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 69 | 8.00 | 58.08 | 3.37 |
| TCE | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 3 | 0.35 | 131.39 | 0.06 |
| Benzene | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 12 | 1.39 | 78.11 | 0.44 |
| Toluene | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 18 | 2.09 | 92.14 | 0.55 |
| Ethylbenzene | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 6 | 0.70 | 106.17 | 0.16 |
| Xylene (total) | 90 | 100.88 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 30 | 3.48 | 106.17 | 0.80 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-193-01(2) Pump 1814 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 130 | 15.075 | 84.93 | 4.342 |
| Acetone | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 120 | 13.915 | 58.08 | 5.861 |
| 1,1 DCA | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 98.96 | 3.153 |
| 1,2 DCE (total) | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 96.94 | 3.219 |
| 1,2 DCA | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 98.96 | 3.153 |
| 1,1,1 TCA | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 133.40 | 2.339 |
| Carbon Tetrachloride | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 4 | 0.464 | 153.82 | 0.074 |
| TCE | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 131.39 | 2.375 |
| 1,1,2 TCA | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 98 | 11.364 | 133.4 | 2.084 |
| Benzene | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 120 | 13.915 | 78.11 | 4.358 |
| 4-Methyl-2-Pentanone | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 100.16 | 3.116 |
| PCE | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 110 | 12.756 | 165.83 | 1.882 |
| 1,1,2,2 TCA | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 85 | 9.857 | 167.85 | 1.437 |
| Toluene | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 120 | 13.915 | 92.14 | 3.695 |
| Xylene (total) | 90 | 100.882 | 97.76 | 99.32 | 1000 | 8.94 | 742.76 | 28.89 | 8.62 | 200 | 23.192 | 106.17 | 5.344 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-150-02 Pump 3414 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 14 | 1.70 | 84.93 | 0.49 |
| Acetone | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 110 | 13.34 | 58.08 | 5.62 |
| 1,1,1 TCA | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 9 | 1.09 | 133.40 | 0.20 |
| Benzene | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 10 | 1.21 | 78.11 | 0.38 |
| PCE | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 4 | 0.48 | 165.83 | 0.07 |
| Toluene | 90 | 99.40 | 90.59 | 95.00 | 1000 | 8.55 | 742.76 | 28.89 | 8.25 | 12 | 1.45 | 92.14 | 0.39 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-105-02(D) Pump 2069 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 7 | 0.79 | 84.93 | 0.23 |
| Acetone | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 61 | 6.85 | 58.08 | 2.89 |
| 1,1,1 TCA | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 9 | 1.01 | 133.40 | 0.19 |
| Carbon Tetrachloride | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 5 | 0.56 | 153.82 | 0.09 |
| Benzene | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 7 | 0.79 | 78.11 | 0.25 |
| PCE | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 4 | 0.45 | 165.83 | 0.07 |
| Toluene | 90 | 102.04 | 103.04 | 102.54 | 1000 | 9.23 | 742.76 | 28.89 | 8.90 | 8 | 0.90 | 92.14 | 0.24 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-120-03 Pump 1764 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 130 | 15.58 | 58.08 | 6.56 |
| 1,2 DCE (total) | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 30 | 3.60 | 96.94 | 0.91 |
| 1,1,1 TCA | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 97 | 11.63 | 133.40 | 2.13 |
| Carbon Tetrachloride | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 5 | 0.60 | 153.82 | 0.10 |
| TCE | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 41 | 4.91 | 131.39 | 0.91 |
| Benzene | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 15 | 1.80 | 78.11 | 0.56 |
| PCE | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 30 | 3.60 | 165.83 | 0.53 |
| Toluene | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 19 | 2.28 | 92.14 | 0.60 |
| Ethylbenzene | 90 | 98.11 | 94.09 | 96.10 | 1000 | 8.65 | 742.76 | 28.89 | 8.34 | 3 | 0.36 | 106.17 | 0.08 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-125-04 Pump 10933 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 90 | 101.29 | 102 | 101.64 | 1000 | 9.15 | 742.76 | 28.89 | 8.83 | 76 | 8.61 | 58.08 | 3.63 |
| Benzene | 90 | 101.29 | 102 | 101.64 | 1000 | 9.15 | 742.76 | 28.89 | 8.83 | 8 | 0.91 | 78.11 | 0.28 |
| Toluene | 90 | 101.29 | 102 | 101.64 | 1000 | 9.15 | 742.76 | 28.89 | 8.83 | 4 | 0.45 | 92.14 | 0.12 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-409-D5 Pump 10236 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 100 | 11.93 | 58.08 | 5.03 |
| 1,1,1 TCA | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 7 | 0.84 | 133.40 | 0.15 |
| Carbon Tetrachloride | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 4 | 0.48 | 153.82 | 0.08 |
| Benzene | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 7 | 0.84 | 78.11 | 0.26 |
| PCE | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 4 | 0.48 | 165.83 | 0.07 |
| Toluene | 90 | 101.13 | 91.92 | 96.52 | 1000 | 8.69 | 742.76 | 28.89 | 8.38 | 9 | 1.07 | 92.14 | 0.29 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP1-42-BL BLANK | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1 DCA | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 310 | n/a | 98.96 | n/a |
| 1,2 DCE (total) | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 290 | n/a | 96.94 | n/a |
| 1,2 DCA | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 290 | n/a | 98.96 | n/a |
| 1,1,1 TCA | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 270 | n/a | 133.40 | n/a |
| TCE | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 270 | n/a | 131.39 | n/a |
| 1,1,2 TCA | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 250 | n/a | 78.11 | n/a |
| Benzene | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 280 | n/a | 165.83 | n/a |
| 4-Methyl-2-Pentanone | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 200 | n/a | 100.16 | n/a |
| PCE | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 290 | n/a | 92.14 | n/a |
| 1,1,2,2 TCA | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 210 | n/a | 167.85 | n/a |
| Toluene | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 340 | n/a | 92.14 | n/a |
| Xylene (total) | n/a | n/a | n/a | n/a | 1000 | n/a | 742.76 | 28.89 | n/a | 520 | n/a | 106.17 | n/a |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-182-U1 Pump 1764 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 34 | 3.29 | 58.08 | 1.39 |
| 1,2 DCE (total) | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 3 | 0.29 | 96.94 | 0.07 |
| 2-Butanone | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 14 | 1.36 | 72.11 | 0.46 |
| TCA | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 57 | 5.52 | 133.40 | 1.01 |
| Carbon Tetrachloride | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 4 | 0.39 | 153.82 | 0.06 |
| TCE | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 11 | 1.07 | 131.39 | 0.20 |
| Benzene | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 17 | 1.65 | 78.11 | 0.52 |
| PCE | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 35 | 3.39 | 165.83 | 0.50 |
| Toluene | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 21 | 2.03 | 92.14 | 0.54 |
| Ethylbenzene | 120 | 98.86 | 76.56 | 87.71 | 1000 | 10.53 | 742.44 | 23.71 | 10.33 | 3 | 0.29 | 106.17 | 0.07 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-136-U2 Pump 10933 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCA | 120 | 99.61 | 93.96 | 96.78 | 1000 | 11.61 | 742.44 | 23.71 | 11.40 | 14 | 1.23 | 133.40 | 0.23 |
| Carbon Tetrachloride | 120 | 99.61 | 93.96 | 96.78 | 1000 | 11.61 | 742.44 | 23.71 | 11.40 | 5 | 0.44 | 153.82 | 0.07 |
| Benzene | 120 | 99.61 | 93.96 | 96.78 | 1000 | 11.61 | 742.44 | 23.71 | 11.40 | 15 | 1.32 | 78.11 | 0.41 |
| Toluene | 120 | 99.61 | 93.96 | 96.78 | 1000 | 11.61 | 742.44 | 23.71 | 11.40 | 20 | 1.76 | 92.14 | 0.47 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-97-U3 Pump 2069 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2-Butanone | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 14 | 1.18 | 134.40 | 0.22 |
| TCA | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 13 | 1.10 | 133.40 | 0.20 |
| Carbon Tetrachloride | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 4 | 0.34 | 153.82 | 0.05 |
| Benzene | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 11 | 0.93 | 78.11 | 0.29 |
| PCE | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 5 | 0.42 | 165.83 | 0.06 |
| Toluene | 120 | 99.66 | 101.58 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 16 | 1.35 | 92.14 | 0.36 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2199-01(1) Pump 3414 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 27 | 2.28 | 58.08 | 0.96 |
| Methylene Chloride | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 53 | 4.47 | 84.93 | 1.29 |
| 1,1 DCA | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 5 | 0.42 | 98.96 | 0.10 |
| 1,2 DCE (total) | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 83 | 7.01 | 96.94 | 1.77 |
| 2-Butanone | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 18 | 1.52 | 134.40 | 0.28 |
| TCA | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 750 | 63.31 | 133.40 | 11.61 |
| TCE | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 240 | 20.26 | 131.39 | 3.77 |
| Benzene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 12 | 1.01 | 78.11 | 0.32 |
| PCE | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 580 | 48.96 | 165.83 | 7.22 |
| Toluene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 38 | 3.21 | 92.14 | 0.85 |
| Ethylbenzene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 14 | 1.18 | 106.17 | 0.27 |
| Xylene (total) | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 69 | 5.82 | 106.17 | 1.34 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-70-01(2) Pump 3414 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 12 | 1.01 | 84.93 | 0.29 |
| Acetone | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 19 | 1.60 | 58.08 | 0.68 |
| 1,1 DCA | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 290 | 24.48 | 98.96 | 6.05 |
| 1,2 DCE (total) | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 2000 | 168.82 | 96.94 | 42.60 |
| 2-Butanone | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 840 | 70.91 | 72.11 | 24.06 |
| TCE | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 14 | 1.18 | 131.39 | 0.22 |
| Benzene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 2100 | 177.26 | 78.11 | 55.52 |
| Toluene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 53 | 4.47 | 92.14 | 1.19 |
| Ethylbenzene | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 39 | 3.29 | 106.17 | 0.76 |
| Xylene (total) | 120 | 99.99 | 101.25 | 100.62 | 1000 | 12.07 | 742.44 | 23.71 | 11.85 | 210 | 17.73 | 106.17 | 4.08 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-178-02 8414 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1, DCE | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 12 | 1.06 | 96.54 | 0.27 |
| 1,1, DCA | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 26 | 2.29 | 98.96 | 0.57 |
| 1,2 DCE (total) | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 380 | 33.52 | 96.94 | 8.46 |
| TCA | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 2400 | 211.69 | 133.40 | 38.82 |
| Carbon Tetrachloride | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 4 | 0.35 | 153.82 | 0.06 |
| TCE | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 1100 | 97.02 | 131.39 | 18.07 |
| Benzene | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 15 | 1.32 | 78.11 | 0.41 |
| PCE | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 2500 | 220.51 | 165.83 | 32.53 |
| Toluene | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 97 | 8.56 | 92.14 | 2.27 |
| Ethylbenzene | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.34 | 47 | 4.15 | 106.17 | 0.96 |
| Xylene (total) | 120 | 97 | 95.59 | 96.30 | 1000 | 11.56 | 742.44 | 23.71 | 11.59 | 260 | 22.43 | 106.17 | 5.17 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-403-02(D) Pump 1772 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 79 | 6.75 | 84.93 | 1.95 |
| Acetone | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 32 | 2.74 | 58.08 | 1.15 |
| 1,1 DCE | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 11 | 0.94 | 96.94 | 0.24 |
| 1,1 DCA | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 26 | 2.22 | 98.96 | 0.55 |
| 1,2 DCE (total) | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 390 | 33.34 | 96.94 | 8.41 |
| TCA | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 2300 | 196.64 | 133.40 | 36.06 |
| Carbon Tetrachloride | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 5 | 0.43 | 153.82 | 0.07 |
| TCE | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 1200 | 102.59 | 131.39 | 19.10 |
| Benzene | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 14 | 1.20 | 78.11 | 0.37 |
| PCE | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 2600 | 222.29 | 165.83 | 32.79 |
| Toluene | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 1000 | 85.50 | 92.14 | 22.70 |
| Ethylbenzene | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 48 | 4.10 | 106.17 | 0.95 |
| Xylene (total) | 120 | 101.28 | 97.41 | 99.35 | 1000 | 11.92 | 742.44 | 23.71 | 11.70 | 270 | 23.08 | 106.17 | 5.32 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-151-03 Pump 1775 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 31 | 2.63 | 58.08 | 1.11 |
| 1,2 DCE (total) | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 3 | 0.25 | 96.94 | 0.06 |
| 1,2 DCA | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 16 | 1.36 | 98.96 | 0.34 |
| 2-Butanone | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 47 | 3.98 | 72.11 | 1.35 |
| TCA | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 5 | 0.42 | 133.40 | 0.08 |
| Carbon Tetrachloride | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 11 | 0.93 | 153.82 | 0.15 |
| TCE | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 31 | 2.63 | 131.39 | 0.49 |
| Benzene | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 11 | 0.93 | 78.11 | 0.29 |
| PCE | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 72 | 6.10 | 165.83 | 0.90 |
| Toluene | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 51 | 4.32 | 92.14 | 1.15 |
| Ethylbenzene | 120 | 100.85 | 99.54 | 100.20 | 1000 | 12.02 | 742.44 | 23.71 | 11.80 | 3 | 0.25 | 106.17 | 0.06 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-400-04 Pump 1472 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 46 | 3.93 | 84.93 | 1.13 |
| Acetone | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 28 | 2.39 | 58.08 | 1.01 |
| TCA | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 31 | 2.65 | 133.40 | 0.49 |
| Carbon Tetrachloride | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 5 | 0.43 | 153.82 | 0.07 |
| Benzene | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 17 | 1.45 | 78.11 | 0.45 |
| Toluene | 120 | 99.46 | 99.33 | 99.40 | 1000 | 11.93 | 742.44 | 23.71 | 11.70 | 520 | 44.43 | 92.14 | 11.80 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-103-05 1814 | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Acetone | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 49 | 5.02 | 58.08 | 2.11 |
| 1,1, DCE | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 4 | 0.41 | 96.54 | 0.10 |
| 1,1, DCA | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 120 | 12.29 | 98.96 | 3.04 |
| 1,2 DCE (total) | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 190 | 19.45 | 96.94 | 4.91 |
| 1,2 DCA | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 110 | 11.26 | 98.96 | 2.78 |
| TCA | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 800 | 81.91 | 133.40 | 15.02 |
| Carbon Tetrachloride | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 5 | 0.51 | 153.82 | 0.08 |
| TCE | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 330 | 33.79 | 131.39 | 6.29 |
| 1,1,2 TCA | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 100 | 10.24 | 133.40 | 1.88 |
| Benzene | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 120 | 12.29 | 78.11 | 3.85 |
| 4-Methyl-2-Pentanone | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 110 | 11.26 | 100.16 | 2.75 |
| PCE | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 900 | 92.15 | 165.83 | 13.59 |
| 1,1,2,2 TCA | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 86 | 8.81 | 167.85 | 1.28 |
| Toluene | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 180 | 18.43 | 92.14 | 4.89 |
| Ethylbenzene | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 9.77 | 13 | 1.33 | 106.17 | 0.31 |
| Xylene (total) | 120 | 98.34 | 67.57 | 82.96 | 1000 | 9.95 | 742.44 | 23.71 | 11.59 | 260 | 22.43 | 106.17 | 5.17 |

## TABLE H-2b (continued)

### TEST PIT AIR SAMPLES CONVERTED TO PPBV

Equations:

Ca = Xa / Vs

Vs = Vm x (Pa / 760) x [298.15 / (273.15 + ta)]

Vm = (T x Qa) / 1000

Ca (ppbv) = Ca x (24.464 / MWa)

| TP2-119-BL BLANK | T (minutes) | Qa - initial (ml/min) | Qa - final (ml/min) | Qa - ave. (ml/min) | 1000 | Vm (liters) | Pa (mm Hg) | ta (C) | Vs (liters) | Xa (ng) | Ca (ng/m3) | MWa | Ca (ppbv) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methylene Chloride | 120 | n/a | n/a | n/a | 1000 | n/a | 742.44 | 23.71 | n/a | 8 | n/a | 106.17 | n/a |

**TABLE H-2c**
**SUMMARY OF TEST PIT AIR SAMPLE RESULTS IN PPBV**

| Chemical | TP1 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 108-U1 | 137-U2 | 408-U3 | 179-01(1) | 193-01 (2) | 150-02 | 105-02 (D) | 120-03 | 125-04 | 409-05 |
| Acetone | 3.16 | 5.20 | 3.27 | 3.37 | 5.86 | 5.62 | 2.89 | 6.56 | 3.63 | 5.03 |
| Benzene | 0.28 | 0.42 | 0.36 | 0.44 | 4.36 | 0.38 | 0.25 | 0.56 | 0.28 | 0.26 |
| 2-Butanone | | | | | | | | | | |
| Carbon Tetrachloride | | | 0.06 | | 0.07 | | 0.09 | 0.10 | | 0.08 |
| 1,1-DCA | | | | | 3.15 | | | | | |
| 1,2-DCA | | | | | 3.15 | | | | | |
| 1,1-DCE | | | | | | | | | | |
| 1,2-DCE | | | | | 3.22 | | | 0.91 | | |
| Ethylbenzene | | | | 0.16 | | | | 0.08 | | |
| Methylene Chloride | | 2.46 | | 1.20 | 4.34 | 0.49 | 0.23 | | | |
| 4-Methyl-2-Pentanone | | | | | 3.12 | | | | | |
| PCE | 0.07 | 0.05 | 0.05 | | 1.88 | 0.07 | 0.07 | 0.53 | | 0.07 |
| Toluene | 0.15 | 0.30 | 1.35 | 0.55 | 3.70 | 0.39 | 0.24 | 0.60 | 0.12 | 0.29 |
| 1,1,1-TCA | | 0.08 | 0.13 | | 2.34 | 0.20 | 0.19 | 2.13 | | 0.15 |
| 1,1,2-TCA | | | | | 2.08 | | | | | |
| 1,1,2,2-Tetrachloroethane | 0.41 | | | | 1.44 | | | | | |
| TCE | | | | 0.06 | 2.38 | | | 0.91 | | |
| Xylene | | | | 0.80 | 5.34 | | | | | |

**TABLE H-2c**
**SUMMARY OF TEST PIT AIR SAMPLE RESULTS IN PPBV (continued)**

| Chemical | TP2 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 182-U1 | 136-U2 | 97-U3 | 199-01 (1) | 70-01(2) | 178-02 | 403-02 (D) | 151-03 | 400-04 | 103-05 |
| Acetone | 1.39 | | | 0.96 | 0.68 | | 1.15 | 1.11 | 1.01 | 2.11 |
| Benzene | 0.52 | 0.41 | 0.29 | 0.32 | 55.52 | 0.41 | 0.37 | 0.29 | 0.45 | 3.85 |
| 2-Butanone | 0.46 | | 0.22 | 0.28 | 24.06 | | | 1.35 | | |
| Carbon Tetrachloride | 0.06 | 0.07 | 0.05 | | | 0.06 | 0.07 | 0.15 | 0.07 | 0.08 |
| 1,1-DCA | | | | 0.10 | 6.05 | 0.57 | 0.55 | | | 3.04 |
| 1,2-DCA | | | | | | | | 0.34 | | 2.78 |
| 1,1-DCE | | | | | | 0.27 | 0.24 | | | 0.10 |
| 1,2-DCE | 0.07 | | | 1.77 | 42.60 | 8.46 | 8.41 | 0.06 | | 4.91 |
| Ethylbenzene | 0.07 | | | 0.27 | 0.76 | 0.96 | 0.95 | 0.06 | | 0.31 |
| Methylene Chloride | | | | 1.29 | 0.29 | | 1.95 | | 1.13 | |
| 4-Methyl-2-Pentanone | | | | | | | | | | 2.75 |
| PCE | 0.50 | | 0.06 | 7.22 | | 32.53 | 32.79 | 0.90 | | 13.59 |
| Toluene | 0.54 | 0.47 | 0.36 | 0.85 | 1.19 | 2.27 | 22.70 | 1.15 | 11.80 | 4.89 |
| 1,1,1-TCA | 1.01 | 0.23 | 0.20 | 11.61 | | 38.82 | 36.06 | 0.08 | 0.49 | 15.02 |
| 1,1,2-TCA | | | | | | | | | | 1.88 |
| 1,1,2,2-Tetrachloroethane | | | | | | | | | | 1.28 |
| TCE | 0.20 | | | 3.77 | 0.22 | 18.07 | 19.10 | 0.49 | | 6.29 |
| Xylene | | | | 1.34 | 4.08 | 5.17 | 5.32 | | | 5.17 |

**TABLE H-2d**
**OCCUPATIONAL HEALTH STANDARDS**

| Chemical | REL (1) | | PEL (1) | | TLV (2) | | Carcinogen |
|---|---|---|---|---|---|---|---|
| | TWA (ppm) | Short-term (ppm) | TWA (ppm) | Short-term (ppm) | TWA (ppm) | Short-term (ppm) | |
| Acetone | 250 | NA | 750 | 1000 | 750 | 1000 | |
| Benzene | 0.1 | 1 | 1 | 5 | 10 | NA | NIOSH, ACGIH (A2) |
| 2-Butanone | 200 | 300 | 200 | 300 | 200 | 300 | |
| Carbon Tetrachloride | NA | 2 | 2 | NA | 5 | NA | NIOSH, ACGIH (A2) |
| 1,1-DCA | 100 | NA | 100 | NA | 200 | 250 | |
| 1,2-DCA | 1 | 2 | 1 | 2 | 10 | NA | NIOSH |
| 1,1-DCE | NA | NA | NA | NA | 5 | 20 | |
| 1,2-DCE | 200 | NA | 200 | NA | 200 | NA | |
| Ethylbenzene | 100 | 125 | 100 | 125 | 100 | 125 | |
| Methylene Chloride | LFC | NA | 500 | 1000 (C) | 50 | NA | NIOSH, ACGIH (A2) |
| 4-Methyl-2-Pentanone | NA | NA | NA | NA | NA | NA | |
| PCE | Minimize | NA | 25 | NA | 50 | 200 | NIOSH |
| Toluene | 100 | 150 | 100 | 150 | 100 | 150 | |
| 1,1,1-TCA | NA | 350 (C) | 350 | 450 | 350 | 450 | |
| 1,12-TCA | 10 | NA | 10 | NA | 10 | NA | NIOSH |
| 1,1,2,2-Tetrachloroethane | 1 | NA | 1 | NA | 1 | NA | NIOSH |
| TCE | 25 | NA | 50 | 200 | 50 | 200 | NIOSH |
| Xylene | 100 | 150 | 100 | 150 | 100 | 150 | |

Notes:

(1): NIOSH Pocket Guide to Chemical Hazards. 1990. USDHHS. Washington, D.C.
(2): ACGIH Threshold Limit Values. 1991. ACGIH. Cincinnati, OH.
REL: Recommended Exposure Limit
PEL: Permissible Exposure Limit
TLV: Threshold Limit Value
TWA: Time-weighted average (over an 8 hour period)
LFC: Lowest Feasible Concentration
C: Ceiling value
NA: Not available

# APPENDIX H3
# SURFACE SOIL

# Appendix H-3: Surface Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Organic Traffic Report Number | EXS08 | | EXS09 | | EXR99 | | EXS01 | | EXS02 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Bromomethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Vinyl Chloride | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Chloroethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Methylene Chloride | 12 | J | 18 | | 13 | | 31 | | 11 | J |
| Acetone | 11 | UJ | 11 | U | 10 | J | 28 | | 8 | J |
| Carbon Disulfide | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,1-Dichloroethene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,1-Dichloroethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,2-Dichloroethene (total) | 11 | UJ | 3 | J | 11 | U | 11 | U | 12 | U |
| Chloroform | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,2-Dichloroethane | 17 | J | 11 | U | 11 | U | 11 | U | 12 | U |
| 2-Butanone | 11 | UJ | 11 | U | 11 | UJ | 11 | UB | 17 | UJ |
| 1,1,1-Trichloroethane | 7 | J | 110 | | 11 | U | 11 | U | 10 | J |
| Carbon Tetrachloride | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Bromodichloromethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,2-Dichloropropane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| cis-1,3-Dichloropropene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Trichloroethene | 11 | UJ | 25 | | 11 | U | 11 | U | 12 | U |
| Dibromochloromethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 1,1,2-Trichloroethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Benzene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| trans-1,3-Dichloropropene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Bromoform | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 4-Methyl-2-Pentanone | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| 2-Hexanone | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Tetrachloroethene | 11 | UJ | 11 | U | 11 | U | 11 | U | 7 | J |
| 1,1,2,2-Tetrachloroethane | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Toluene | 11 | J | 3 | J | 11 | U | 11 | U | 12 | U |
| Chlorobenzene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |

# Appendix H-3: Surface Soil Data (Organics)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Organic Traffic Report Number | EXS08 | | EXS09 | | EXR99 | | EXS01 | | EXS02 | |
| Ethylbenzene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Styrene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| Xylene | 11 | UJ | 11 | U | 11 | U | 11 | U | 12 | U |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| bis(2-Chloroethyl)Ether | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 2-Chlorophenol | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 1,3-Dichlorobenzene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 1,4-Dichlorobenzene | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 1,2-Dichlorobenzene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2-Methylphenol | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 2,2'-oxybis(1-Chloropropane) | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 4-Methylphenol | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| N-Nitroso-Di-n-Propylamine | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| Hexachloroethane | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| Nitrobenzene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Isophorone | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 2-Nitrophenol | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| 2,4-Dimethylphenol | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| bis(2-Chloroethoxy)Methane | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dichlorophenol | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 1,2,4-Trichlorobenzene | 360 | U | 360 | U | 370 | U | 370 | UJ | 370 | U |
| Naphthalene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 4-Chloroaniline | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Hexachlorobutadiene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 4-Chloro-3-Methylphenol | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2-Methylnaphthalene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Hexachlorocyclopentadiene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,4,6-Trichlorophenol | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,4,5-Trichlorophenol | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |

# Appendix H-3: Surface Soil Data (Organics)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Organic Traffic Report Number | EXS08 | | EXS09 | | EXR99 | | EXS01 | | EXS02 | |
| 2-Chloronaphthalene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2-Nitroaniline | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| Dimethylphthalate | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Acenaphthylene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,6-Dinitrotoluene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 3-Nitroaniline | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| Acenaphthene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dinitrophenol | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| 4-Nitrophenol | 870 | U | 880 | U | 900 | U | 910 | UJ | 910 | U |
| Dibenzofuran | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dinitrotoluene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Diethylphthalate | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 4-Chlorophenyl-phenylether | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Fluorene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 4-Nitroaniline | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| 4,6-Dinitro-2-Methylphenol | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| N-Nitrosodiphenylamine (1) | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 4-Bromophenyl-phenylether | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Hexachlorobenzene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Pentachlorophenol | 870 | U | 880 | U | 900 | U | 910 | U | 910 | U |
| Phenanthrene | 150 | J | 360 | U | 370 | U | 370 | U | 370 | U |
| Anthracene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Carbazole | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Di-n-Butylphthalate | 360 | UB | 360 | UB | 370 | UB | 370 | UB | 370 | UB |
| Fluoranthene | 170 | J | 160 | J | 370 | U | 370 | U | 370 | U |
| Pyrene | 160 | J | 130 | J | 370 | U | 370 | U | 370 | U |
| Butylbenzylphthalate | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Benzo(a)anthracene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Chrysene | 110 | J | 100 | J | 370 | U | 370 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 1400 | | 340 | J | 85 | J | 240 | J | 140 | J |

# Appendix H-3: Surface Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Organic Traffic Report Number | EXS08 | | EXS09 | | EXR99 | | EXS01 | | EXS02 | |
| Di-n-Octyl Phthalate | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Benzo (b) Fluoranthene | 110 | J | 110 | J | 370 | U | 370 | U | 370 | U |
| Benzo (k) Fluoranthene | 84 | J | 84 | J | 370 | U | 370 | U | 370 | U |
| Benzo (a) Pyrene | 140 | J | 360 | U | 370 | U | 370 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| Benzo (g,h,i) Perylene | 360 | U | 360 | U | 370 | U | 370 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| beta-BHC | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| delta-BHC | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Heptachlor | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Aldrin | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 2 | PJ | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Endosulfan I | 1.8 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Dieldrin | 3.6 | U | 3.6 | U | 3.7 | U | 3.7 | U | 36 | |
| 4,4'-DDE | 3.9 | PJ | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| Endrin | 3.6 | U | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| Endosulfan II | 3.6 | U | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDD | 4.3 | PJ | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| Endosulfan sulfate | 3.6 | U | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDT | 22 | | 4.7 | PJ | 3.7 | U | 3.7 | U | 5.8 | |
| Methoxychlor | 18 | U | 19 | U | 19 | U | 19 | U | 20 | U |
| Endrin ketone | 3.6 | U | 3.6 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| Endrin aldehyde | 17 | PJ | 9.8 | | 3.7 | U | 3.7 | U | 5.1 | PJ |
| alpha-Chlordane | 3.9 | PJ | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 2.7 | PJ | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Toxaphene | 180 | U | 190 | U | 190 | U | 190 | U | 200 | U |
| Aroclor-1016 | 36 | U | 36 | U | 37 | U | 37 | U | 38 | U |

# Appendix H-3: Surface Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Organic Traffic Report Number | EXS08 | | EXS09 | | EXR99 | | EXS01 | | EXS02 | |
| Aroclor-1221 | 73 | U | 74 | U | 76 | U | 76 | U | 78 | U |
| Aroclor-1232 | 36 | U | 36 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1242 | 36 | U | 36 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1248 | 36 | U | 36 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1254 | 36 | U | 36 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1260 | 100 | | 36 | U | 37 | U | 37 | U | 38 | U |

# Appendix H-3: Surface Soil Data (Organics)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS03 | | EXS04 | | EXS05 | | EXS06 | | EXS07 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Bromomethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Vinyl Chloride | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Chloroethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Methylene Chloride | 4 | J | 33 | J | 5 | J | 6 | J | 5 | J |
| Acetone | 17 | | 62 | J | 11 | U | 12 | | 11 | U |
| Carbon Disulfide | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethane | 11 | U | 8 | J | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethene (total) | 11 | U | 220 | J | 11 | U | 11 | U | 11 | U |
| Chloroform | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethane | 8 | J | 12 | UJ | 11 | U | 7 | J | 10 | J |
| 2-Butanone | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1,1-Trichloroethane | 11 | U | 40 | J | 11 | U | 11 | U | 7 | J |
| Carbon Tetrachloride | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Bromodichloromethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloropropane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| cis-1,3-Dichloropropene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Trichloroethene | 11 | U | 140 | J | 4 | J | 11 | U | 11 | U |
| Dibromochloromethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1,2-Trichloroethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Benzene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| trans-1,3-Dichloropropene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Bromoform | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 4-Methyl-2-Pentanone | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| 2-Hexanone | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Tetrachloroethene | 11 | U | 400 | D | 75 | | 5 | J | 21 | |
| 1,1,2,2-Tetrachloroethane | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Toluene | 7 | J | 4 | J | 11 | U | 3 | J | 14 | |
| Chlorobenzene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |

# Appendix H-3: Surface Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS03 | | EXS04 | | EXS05 | | EXS06 | | EXS07 | |
| Ethylbenzene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Styrene | 11 | U | 12 | UJ | 11 | U | 11 | U | 11 | U |
| Xylene | 11 | U | 12 | UJ | 11 | U | 11 | U | 3 | J |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| bis(2-Chloroethyl)Ether | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2-Chlorophenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 1,3-Dichlorobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 1,4-Dichlorobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 1,2-Dichlorobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2-Methylphenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,2'-oxybis(1-Chloropropane) | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Methylphenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| N-Nitroso-Di-n-Propylamine | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Hexachloroethane | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Nitrobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Isophorone | 360 | U | 150 | J | 380 | U | 370 | U | 380 | U |
| 2-Nitrophenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4-Dimethylphenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| bis(2-Chloroethoxy)Methane | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4-Dichlorophenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 1,2,4-Trichlorobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Naphthalene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Chloroaniline | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Hexachlorobutadiene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Chloro-3-Methylphenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2-Methylnaphthalene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Hexachlorocyclopentadiene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4,6-Trichlorophenol | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4,5-Trichlorophenol | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |

# Appendix H-3: Surface Soil Data (Organics)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS03 | | EXS04 | | EXS05 | | EXS06 | | EXS07 | |
| 2-Chloronaphthalene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2-Nitroaniline | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| Dimethylphthalate | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Acenaphthylene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,6-Dinitrotoluene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 3-Nitroaniline | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| Acenaphthene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4-Dinitrophenol | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| 4-Nitrophenol | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| Dibenzofuran | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 2,4-Dinitrotoluene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Diethylphthalate | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Chlorophenyl-phenylether | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Fluorene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Nitroaniline | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| 4,6-Dinitro-2-Methylphenol | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| N-Nitrosodiphenylamine (1) | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 4-Bromophenyl-phenylether | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Hexachlorobenzene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Pentachlorophenol | 880 | U | 940 | U | 920 | U | 890 | U | 920 | U |
| Phenanthrene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Anthracene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Carbazole | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Di-n-Butylphthalate | 360 | U | 390 | UB | 380 | UB | 370 | UB | 380 | U |
| Fluoranthene | 360 | U | 390 | U | 380 | U | 42 | J | 380 | U |
| Pyrene | 360 | U | 390 | U | 380 | U | 37 | J | 380 | U |
| Butylbenzylphthalate | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| 3,3'-Dichlorobenzidine | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Benzo(a)anthracene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Chrysene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| bis(2-Ethylhexyl)Phthalate | 170 | J | 570 | | 310 | J | 330 | J | 110 | J |

# Appendix H-3: Surface Soil Data (Organics)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS03 | | EXS04 | | EXS05 | | EXS06 | | EXS07 | |
| Di-n-Octyl Phthalate | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Benzo (b) Fluoranthene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Benzo (k) Fluoranthene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Benzo (a) Pyrene | 360 | U | 170 | J | 380 | U | 370 | U | 380 | U |
| Ideno (1,2,3-cd) Pyrene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Dibenzo (a,h) Anthracene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| Benzo (g,h,i) Perylene | 360 | U | 390 | U | 380 | U | 370 | U | 380 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| beta-BHC | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| delta-BHC | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| Aldrin | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| Endosulfan I | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| Dieldrin | 3.7 | U | 5.3 | PJ | 23 | | 3.7 | U | 3.8 | U |
| 4,4'-DDE | 3.7 | U | 13 | D | 3.8 | U | 3.7 | U | 3.8 | U |
| Endrin | 3.7 | U | 3.9 | U | 3.8 | U | 3.7 | U | 3.8 | R |
| Endosulfan II | 3.7 | U | 15 | PJ | 3.8 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDD | 3.7 | U | 3.9 | U | 3.8 | U | 3.7 | U | 3.8 | U |
| Endosulfan sulfate | 3.7 | U | 3.9 | U | 3.8 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDT | 3.7 | U | 35 | PJ | 3.8 | U | 12 | PJ | 3.8 | U |
| Methoxychlor | 19 | U | 20 | U | 20 | U | 19 | U | 20 | U |
| Endrin ketone | 3.7 | U | 3.9 | U | 3.8 | U | 3.7 | U | 3.8 | U |
| Endrin aldehyde | 3.7 | U | 33 | | 8.2 | PJ | 8.5 | PJ | 3.8 | U |
| alpha-Chlordane | 1.9 | U | 2 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 1.9 | U | 20 | | 2 | U | 1.9 | U | 2 | U |
| Toxaphene | 190 | U | 200 | U | 200 | U | 190 | U | 200 | U |
| Aroclor-1016 | 37 | U | 39 | U | 38 | U | 37 | U | 38 | U |

# Appendix H-3: Surface Soil Data (Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS03 | | EXS04 | | EXS05 | | EXS06 | | EXS07 | |
| Aroclor-1221 | 76 | U | 79 | U | 77 | U | 74 | U | 77 | U |
| Aroclor-1232 | 37 | U | 39 | U | 38 | U | 37 | U | 38 | U |
| Aroclor-1242 | 37 | U | 39 | U | 38 | U | 37 | U | 38 | U |
| Aroclor-1248 | 37 | U | 39 | U | 38 | U | 37 | U | 38 | U |
| Aroclor-1254 | 37 | U | 39 | U | 38 | U | 37 | U | 38 | U |
| Aroclor-1260 | 37 | U | 450 | PJ | 38 | U | 37 | U | 38 | U |

# Appendix H-3: Surface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | | SS7-2 | |
| Inorganic Traffic Report Number | MEWJ98 | | MEWJ99 | | MEWJ90 | | MEWJ91 | | MEWJ92 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 11500 | | 7580 | | 12700 | | 14000 | | 15800 | |
| Antimony | 7.6 | BNJ | 7.3 | BNJ | 11.6 | BNJ | 9.4 | BNJ | 11.8 | BNJ |
| Arsenic | 4.1 | | 3.5 | | 4.9 | | 4.9 | | 5.8 | |
| Barium | 216 | | 55.8 | | 77.7 | | 82 | | 140 | |
| Beryllium | 0.43 | B | 0.28 | B | 0.36 | B | 0.33 | B | 0.43 | B |
| Cadmium | 7.4 | NJ | 1.5 | NJ | 0.46 | UNJ | 0.46 | UNJ | 0.46 | UNJ |
| Calcium | 27000 | | 22900 | | 1960 | | 2010 | | 27100 | |
| Chromium | 57.5 | | 12.9 | | 15.5 | | 16 | | 18.7 | |
| Cobalt | 5.1 | B | 3.2 | B | 6.2 | B | 5.8 | B | 6.2 | B |
| Copper | 42.6 | *J | 14.3 | *J | 16.3 | *J | 16.7 | *J | 18.6 | *J |
| Iron | 12300 | | 9150 | | 14200 | | 14400 | | 15300 | |
| Lead | 92 | | 46.3 | | 9.7 | | 10 | | 19.9 | |
| Magnesium | 16500 | | 13400 | | 2360 | | 2450 | | 17400 | |
| Manganese | 452 | | 360 | | 499 | | 452 | | 573 | |
| Mercury | 0.11 | U | 0.11 | U | 0.11 | U | 0.11 | U | 0.12 | U |
| Nickel | 18.8 | | 8.5 | B | 12.7 | | 13.3 | | 13.4 | |
| Potassium | 1140 | | 778 | B | 979 | B | 1180 | | 1550 | |
| Selenium | 1.2 | | 0.88 | U | 0.92 | B | 1 | B | 0.99 | B |
| Silver | 0.94 | B | 0.66 | U | 0.69 | U | 0.68 | U | 0.69 | U |
| Sodium | 147 | B | 198 | B | 117 | B | 124 | B | 161 | B |
| Thallium | 1.9 | B | 1.5 | U | 2.1 | B | 1.6 | U | 1.6 | U |
| Vanadium | 29.4 | | 22.1 | | 27.5 | | 31.3 | | 35.9 | |
| Zinc | 554 | | 64.3 | | 36.4 | | 35.7 | | 80.5 | |
| Cyanide | 4.8 | | 0.55 | U | 0.57 | U | 0.57 | U | 0.58 | U |

# Appendix H-3: Surface Soil Data (Inorganics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | 9/22/93 | 9/22/93 | 9/22/93 | 9/22/93 |
| Sample Number | SS7-3 | SS7-10 | SS7-21 | SS7-23 | SS134C |
| Inorganic Traffic Report Number | MEWJ93 | MEWJ94 | MEWJ95 | MEWJ96 | MEWJ97 |

*Inorganics (mg/kg)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Aluminum | 13300 | | 14100 | | 14200 | | 13400 | | 13100 | |
| Antimony | 9.6 | BNJ | 12.4 | BNJ | 12.7 | BNJ | 10.7 | BNJ | 9.5 | BNJ |
| Arsenic | 5.1 | | 5.2 | | 6.2 | | 5.1 | | 3.7 | |
| Barium | 76.9 | | 260 | | 161 | | 114 | | 56.6 | |
| Beryllium | 0.4 | B | 0.42 | B | 0.47 | B | 0.32 | B | 0.33 | B |
| Cadmium | 0.45 | UNJ | 1.6 | NJ | 0.46 | UNJ | 0.45 | UNJ | 0.46 | UNJ |
| Calcium | 3160 | | 1990 | | 7250 | | 7180 | | 1950 | |
| Chromium | 15.8 | | 55.1 | | 46.6 | | 31.5 | | 15.4 | |
| Cobalt | 5.9 | B | 11.3 | B | 6.9 | B | 5.9 | B | 4.8 | B |
| Copper | 16.1 | *J | 148 | *J | 30.9 | *J | 34.7 | *J | 15.7 | *J |
| Iron | 14500 | | 18600 | | 16600 | | 17000 | | 14200 | |
| Lead | 13.5 | | 180 | | 217 | | 151 | | 11.5 | |
| Magnesium | 2870 | | 2110 | | 4830 | | 4770 | | 2270 | |
| Manganese | 487 | | 433 | | 631 | | 435 | | 376 | |
| Mercury | 0.11 | U | 2.2 | | 0.11 | U | 0.11 | | 0.11 | U |
| Nickel | 12.7 | | 49.1 | | 14.8 | | 16.5 | | 13.6 | |
| Potassium | 1160 | | 1320 | | 1550 | | 1270 | | 1380 | |
| Selenium | 0.98 | B | 1.2 | | 1.4 | | 1.4 | | 0.92 | U |
| Silver | 0.68 | U | 1.4 | B | 0.69 | U | 0.67 | U | 0.69 | U |
| Sodium | 104 | B | 115 | B | 130 | B | 178 | B | 130 | B |
| Thallium | 1.9 | B | 1.6 | U | 1.6 | U | 1.6 | U | 1.6 | U |
| Vanadium | 30.4 | | 31.1 | | 36.4 | | 32.4 | | 27.3 | |
| Zinc | 38.1 | | 177 | | 151 | | 108 | | 33.1 | |
| Cyanide | 0.57 | U | 2.9 | | 0.57 | U | 0.56 | U | 0.57 | U |

# APPENDIX H4
# SUBSURFACE SOIL (VOC'S)

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 6/30/93 | 6/30/93 | 6/30/93 | 6/30/93 | 6/28/93 |
|---|---|---|---|---|---|
| Sample Number | SB2-1C | SB2-2C | SB2-3D | SB2-3D(D) | SB4-1D |
| Organic Traffic Report Number | EXR46 | EXR47 | EXR48 | EXR49 | EXR35 |
| *Volatile Organics (ug/kg)* | | | | | |
| Chloromethane | 11 U | 11 U | 12 UB | 12 UB | 11 U |
| Bromomethane | 11 U | 11 U | 12 UB | 12 UB | 11 UB |
| Vinyl Chloride | 11 U | 11 U | 12 U | 12 U | 11 U |
| Chloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| Methylene Chloride | 11 U | 11 U | 12 U | 12 U | 11 UB |
| Acetone | 11 U | 7 J | 12 U | 12 U | 11 UB |
| Carbon Disulfide | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,1-Dichloroethene | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,1-Dichloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,2-Dichloroethene (total) | 11 U | 11 U | 4 J | 12 U | 11 U |
| Chloroform | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,2-Dichloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| 2-Butanone | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,1,1-Trichloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| Carbon Tetrachloride | 11 U | 11 U | 12 U | 12 U | 11 U |
| Bromodichloromethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,2-Dichloropropane | 11 U | 11 U | 12 U | 12 U | 11 U |
| cis-1,3-Dichloropropene | 11 U | 11 U | 12 U | 12 U | 11 U |
| Trichloroethene | 11 U | 11 U | 12 UB | 12 UB | 11 U |
| Dibromochloromethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| 1,1,2-Trichloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| Benzene | 11 U | 11 U | 12 UB | 12 UB | 11 U |
| trans-1,3-Dichloropropene | 11 U | 11 U | 12 U | 12 U | 11 U |
| Bromoform | 11 U | 11 U | 12 U | 12 U | 11 U |
| 4-Methyl-2-Pentanone | 11 U | 11 U | 12 U | 12 U | 11 U |
| 2-Hexanone | 11 U | 11 U | 12 U | 12 U | 11 U |
| Tetrachloroethene | 4 J | 11 U | 82 B | 19 B | 11 U |
| 1,1,2,2-Tetrachloroethane | 11 U | 11 U | 12 U | 12 U | 11 U |
| Toluene | 11 U | 4 J | 12 UB | 12 UB | 11 U |
| Chlorobenzene | 11 U | 11 U | 12 UB | 12 UB | 11 U |
| Ethylbenzene | 11 U | 11 U | 12 U | 12 U | 11 U |
| Styrene | 11 U | 11 U | 12 UB | 12 UB | 11 U |
| Xylene | 11 U | 11 U | 12 UB | 12 U | 11 U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/28/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | |
| Sample Number | SB4-1F | | SB4-2A | | SB4-2D | | SB4-3E | | SB4-3E(D) | |
| Organic Traffic Report Number | EXR36 | | EXR37 | | EXR38 | | EXR39 | | EXR40 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Bromomethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Vinyl Chloride | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Chloroethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Methylene Chloride | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Acetone | 28000 | U | 11 | U | 5 | J | 7 | J | 6 | J |
| Carbon Disulfide | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,1-Dichloroethene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,1-Dichloroethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,2-Dichloroethene (total) | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Chloroform | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,2-Dichloroethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 2-Butanone | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,1,1-Trichloroethane | 360000 | | 11 | U | 5 | J | 10 | U | 10 | U |
| Carbon Tetrachloride | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Bromodichloromethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,2-Dichloropropane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| cis-1,3-Dichloropropene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Trichloroethene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Dibromochloromethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 1,1,2-Trichloroethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Benzene | 28000 | U | 11 | U | 10 | U | 2 | J | 10 | U |
| trans-1,3-Dichloropropene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Bromoform | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 4-Methyl-2-Pentanone | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| 2-Hexanone | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Tetrachloroethene | 28000 | U | 11 | U | 10 | U | 1 | J | 10 | U |
| 1,1,2,2-Tetrachloroethane | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Toluene | 28000 | U | 11 | U | 10 | U | 41 | | 26 | |
| Chlorobenzene | 28000 | U | 11 | U | 10 | U | 2 | J | 2 | J |
| Ethylbenzene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Styrene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |
| Xylene | 28000 | U | 11 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/21/93 | | 6/21/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-4E | | SB4-5E | | SB4-5F | | SB7-1E | | SB7-1F | |
| Organic Traffic Report Number | EXR41 | | EXR42 | | EXR43 | | EXR04 | | EXR05 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Bromomethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Vinyl Chloride | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Chloroethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Methylene Chloride | 10 | U | 10 | U | 14000 | U | 11 | UB | 12 | UB |
| Acetone | 10 | U | 9 | J | 14000 | U | 8 | J | 22 | |
| Carbon Disulfide | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,1-Dichloroethene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,1-Dichloroethane | 10 | U | 10 | U | 14000 | U | 23 | | 2 | J |
| 1,2-Dichloroethene (total) | 10 | U | 10 | U | 14000 | U | 170 | | 99 | |
| Chloroform | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,2-Dichloroethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 2-Butanone | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,1,1-Trichloroethane | 9 | J | 6 | J | 190000 | | 79 | | 22 | |
| Carbon Tetrachloride | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Bromodichloromethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,2-Dichloropropane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| cis-1,3-Dichloropropene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Trichloroethene | 10 | U | 10 | U | 14000 | U | 2 | J | 12 | U |
| Dibromochloromethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 1,1,2-Trichloroethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Benzene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| trans-1,3-Dichloropropene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Bromoform | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 4-Methyl-2-Pentanone | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| 2-Hexanone | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Tetrachloroethene | 10 | U | 10 | U | 14000 | U | 6 | J | 2 | J |
| 1,1,2,2-Tetrachloroethane | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Toluene | 2 | J | 12 | | 14000 | U | 1 | J | 12 | U |
| Chlorobenzene | 2 | J | 10 | U | 14000 | U | 11 | U | 12 | U |
| Ethylbenzene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Styrene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |
| Xylene | 10 | U | 10 | U | 14000 | U | 11 | U | 12 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/21/93 | | 6/21/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
| Sample Number | SB7-2D | | SB7-2F | | SB7-3F | | SB7-3G | | SB7-4E | |
| Organic Traffic Report Number | EXR07 | | EXR06 | | EXR08 | | EXR09 | | EXR10 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Bromomethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Vinyl Chloride | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Chloroethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Methylene Chloride | 11 | UB | 11 | UB | 12 | UB | 11 | UB | 1400 | UB |
| Acetone | 11 | UB | 11 | UB | 14 | B | 11 | U | 1400 | U |
| Carbon Disulfide | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,1-Dichloroethene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,1-Dichloroethane | 13 | | 13 | | 10 | J | 29 | | 1400 | U |
| 1,2-Dichloroethene (total) | 130 | | 12 | | 39 | | 56 | | 700 | J |
| Chloroform | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,2-Dichloroethane | 11 | U | 29 | | 12 | U | 11 | U | 1400 | U |
| 2-Butanone | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,1,1-Trichloroethane | 110 | | 57 | | 62 | | 55 | | 6500 | |
| Carbon Tetrachloride | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Bromodichloromethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,2-Dichloropropane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| cis-1,3-Dichloropropene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Trichloroethene | 11 | U | 8 | J | 11 | J | 7 | J | 2400 | |
| Dibromochloromethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 1,1,2-Trichloroethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Benzene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| trans-1,3-Dichloropropene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Bromoform | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| 4-Methyl-2-Pentanone | 11 | U | 3 | J | 12 | U | 11 | U | 1400 | U |
| 2-Hexanone | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Tetrachloroethene | 5 | J | 3 | J | 27 | | 10 | J | 17000 | |
| 1,1,2,2-Tetrachloroethane | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Toluene | 13 | | 13 | | 2 | J | 9 | J | 2000 | |
| Chlorobenzene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Ethylbenzene | 6 | J | 11 | U | 12 | U | 11 | U | 990 | J |
| Styrene | 11 | U | 11 | U | 12 | U | 11 | U | 1400 | U |
| Xylene | 32 | | 2 | J | 12 | U | 11 | U | 6200 | |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-4H | | SB7-5B | | SB7-5E | | SB7-5E(D) | | SB7-6F | |
| Organic Traffic Report Number | EXR11 | | EXR12 | | EXR13 | | EXR14 | | EXR15 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Bromomethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Vinyl Chloride | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Chloroethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Methylene Chloride | 12 | UB | 11 | UB | 1400 | UB | 1400 | UB | 14 | UB |
| Acetone | 18 | | 10 | BJ | 1400 | U | 1400 | U | 25 | |
| Carbon Disulfide | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,1-Dichloroethene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,1-Dichloroethane | 18 | | 11 | U | 1400 | U | 240 | J | 14 | U |
| 1,2-Dichloroethene (total) | 130 | | 5 | J | 1700 | | 8800 | | 64 | |
| Chloroform | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,2-Dichloroethane | 2 | J | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 2-Butanone | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,1,1-Trichloroethane | 220 | | 11 | | 5300 | | 26000 | | 35 | |
| Carbon Tetrachloride | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Bromodichloromethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,2-Dichloropropane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| cis-1,3-Dichloropropene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Trichloroethene | 66 | | 3 | J | 630 | J | 3000 | | 2 | J |
| Dibromochloromethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 1,1,2-Trichloroethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Benzene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| trans-1,3-Dichloropropene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Bromoform | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 4-Methyl-2-Pentanone | 11 | J | 11 | U | 1400 | U | 1400 | U | 14 | U |
| 2-Hexanone | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Tetrachloroethene | 95 | | 29 | | 8400 | | 24000 | | 32 | |
| 1,1,2,2-Tetrachloroethane | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Toluene | 77 | | 23 | | 320 | J | 1000 | J | 8 | J |
| Chlorobenzene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Ethylbenzene | 9 | J | 2 | J | 520 | J | 1300 | J | 13 | J |
| Styrene | 12 | U | 11 | U | 1400 | U | 1400 | U | 14 | U |
| Xylene | 49 | | 11 | | 3400 | | 8900 | | 88 | |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 6/22/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-6H | | SB7-7F | | SB7-7I | | SB7-8D | | SB7-8I | |
| Organic Traffic Report Number | EXR16 | | EXR18 | | EXR-17 | | EXR19 | | EXR20 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Bromomethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Vinyl Chloride | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Chloroethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Methylene Chloride | 14 | UB | 1300 | UB | 56 | UB | 27000 | UB | 1300 | UB |
| Acetone | 10 | J | 1300 | U | 140 | | 27000 | U | 1300 | U |
| Carbon Disulfide | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,1-Dichloroethene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,1-Dichloroethane | 14 | U | 1300 | U | 18 | J | 27000 | U | 1300 | U |
| 1,2-Dichloroethene (total) | 9 | J | 970 | J | 260 | | 15000 | J | 1300 | U |
| Chloroform | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,2-Dichloroethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 2-Butanone | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,1,1-Trichloroethane | 14 | J | 25000 | | 530 | | 380000 | | 190 | J |
| Carbon Tetrachloride | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Bromodichloromethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,2-Dichloropropane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| cis-1,3-Dichloropropene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Trichloroethene | 14 | U | 10000 | | 340 | | 130000 | | 150 | J |
| Dibromochloromethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 1,1,2-Trichloroethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Benzene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| trans-1,3-Dichloropropene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Bromoform | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 4-Methyl-2-Pentanone | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| 2-Hexanone | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Tetrachloroethene | 14 | J | 24000 | | 920 | | 260000 | | 1200 | J |
| 1,1,2,2-Tetrachloroethane | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Toluene | 2 | J | 2100 | | 140 | | 23000 | J | 1300 | U |
| Chlorobenzene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Ethylbenzene | 14 | U | 2900 | | 120 | | 31000 | | 200 | J |
| Styrene | 14 | U | 1300 | U | 56 | U | 27000 | U | 1300 | U |
| Xylene | 11 | J | 18000 | | 930 | | 180000 | | 1200 | J |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/24/93 | | 6/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-9E | | SB7-9J | | SB7-10A | | SB7-11D | | SB7-12D | |
| Organic Traffic Report Number | EXR21 | | EXR22 | | EXR23 | | EXR25 | | EXR26 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Bromomethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Vinyl Chloride | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Chloroethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Methylene Chloride | 6600 | UB | 11 | UB | 7100 | U | 12 | UB | 12 | UB |
| Acetone | 6600 | U | 11 | U | 7100 | U | 23 | | 9 | J |
| Carbon Disulfide | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,1-Dichloroethene | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,1-Dichloroethane | 6600 | U | 11 | U | 7100 | U | 7 | J | 12 | U |
| 1,2-Dichloroethene (total) | 7200 | | 4 | J | 49000 | | 240 | | 1 | J |
| Chloroform | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,2-Dichloroethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 2-Butanone | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,1,1-Trichloroethane | 66000 | | 5 | J | 110000 | | 100 | | 21 | |
| Carbon Tetrachloride | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Bromodichloromethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,2-Dichloropropane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| cis-1,3-Dichloropropene | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Trichloroethene | 58000 | | 6 | J | 5500 | J | 8 | J | 3 | J |
| Dibromochloromethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 1,1,2-Trichloroethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Benzene | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| trans-1,3-Dichloropropene | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Bromoform | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 4-Methyl-2-Pentanone | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| 2-Hexanone | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Tetrachloroethene | 100000 | | 7 | J | 16000 | | 5 | J | 12 | |
| 1,1,2,2-Tetrachloroethane | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Toluene | 12000 | | 1 | J | 23000 | | 4 | J | 1 | J |
| Chlorobenzene | 6600 | U | 11 | U | 7100 | U | 12 | U | 12 | U |
| Ethylbenzene | 14000 | | 11 | U | 26000 | | 1 | J | 12 | U |
| Styrene | 6600 | U | 11 | U | 1600 | J | 12 | U | 12 | U |
| Xylene | 100000 | | 6 | J | 210000 | | 5 | J | 12 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/24/93 | | 6/24/93 | | 6/24/93 | | 6/29/93 | | 6/29/93 | |
| Sample Number | SB7-12D(D) | | SB7-13E | | SB7-13E(D) | | SB7-14C | | SB7-14D | |
| Organic Traffic Report Number | EXR27 | | EXR28 | | EXR29 | | EXR44 | | EXR45 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Bromomethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Vinyl Chloride | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Chloroethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Methylene Chloride | 11 | UB | 11 | UB | 11 | UB | 11 | U | 1300 | U |
| Acetone | 18 | | 11 | U | 11 | U | 11 | U | 1300 | U |
| Carbon Disulfide | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,1-Dichloroethene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,1-Dichloroethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,2-Dichloroethene (total) | 2 | J | 11 | U | 11 | J | 35 | | 1300 | U |
| Chloroform | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,2-Dichloroethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 2-Butanone | 11 | U | 11 | U | 11 | U | 11 | U | 1500 | BJ |
| 1,1,1-Trichloroethane | 32 | | 11 | U | 130 | | 8 | J | 770 | J |
| Carbon Tetrachloride | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Bromodichloromethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,2-Dichloropropane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| cis-1,3-Dichloropropene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Trichloroethene | 4 | J | 11 | U | 8 | J | 11 | U | 1300 | U |
| Dibromochloromethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 1,1,2-Trichloroethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Benzene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| trans-1,3-Dichloropropene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Bromoform | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 4-Methyl-2-Pentanone | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| 2-Hexanone | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Tetrachloroethene | 9 | J | 2 | J | 35 | | 49 | | 24000 | |
| 1,1,2,2-Tetrachloroethane | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Toluene | 2 | J | 4 | J | 2 | J | 19 | | 1300 | U |
| Chlorobenzene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Ethylbenzene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Styrene | 11 | U | 11 | U | 11 | U | 11 | U | 1300 | U |
| Xylene | 11 | U | 11 | U | 11 | U | 11 | U | 2300 | |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 9/23/93 | | 9/23/93 | | 10/12/93 | | 10/13/93 | | 10/14/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-15A | | SB7-17A | | SB7-19B | | SB7-22D | | SB7-23G | |
| Organic Traffic Report Number | EXS10 | | EXS11 | | EXT08 | | EXT09 | | EXT10 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Bromomethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Vinyl Chloride | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Chloroethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Methylene Chloride | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Acetone | 11 | J | 11 | | 1400 | U | 1300 | U | 8 | J |
| Carbon Disulfide | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 1,1-Dichloroethene | 11 | U | 8 | J | 1400 | U | 1300 | U | 11 | U |
| 1,1-Dichloroethane | 11 | U | 12 | | 1400 | U | 1300 | U | 11 | U |
| 1,2-Dichloroethene (total) | 11 | U | 61 | | 1400 | U | 10000 | | 11 | U |
| Chloroform | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 1,2-Dichloroethane | 11 | U | 5 | J | 1400 | U | 1300 | U | 11 | U |
| 2-Butanone | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 1,1,1-Trichloroethane | 11 | U | 280 | D | 2200 | | 30000 | D | 11 | U |
| Carbon Tetrachloride | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Bromodichloromethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 1,2-Dichloropropane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| cis-1,3-Dichloropropene | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Trichloroethene | 11 | U | 48 | | 1400 | U | 960 | J | 11 | U |
| Dibromochloromethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 1,1,2-Trichloroethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Benzene | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| trans-1,3-Dichloropropene | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Bromoform | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 4-Methyl-2-Pentanone | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| 2-Hexanone | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Tetrachloroethene | 11 | U | 200 | | 1400 | U | 8800 | | 14 | |
| 1,1,2,2-Tetrachloroethane | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Toluene | 11 | U | 11 | U | 250 | J | 1500 | | 11 | U |
| Chlorobenzene | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Ethylbenzene | 11 | U | 11 | U | 1700 | | 4400 | | 11 | U |
| Styrene | 11 | U | 11 | U | 1400 | U | 1300 | U | 11 | U |
| Xylene | 11 | U | 11 | U | 13000 | | 19000 | | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 9/24/93 | | 9/24/93 | | 7/13/93 | | 7/13/93 | | 8/25/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-24A | | SB7-24B | | SB9-1F | | SB9-1F(D) | | SB11-1G | |
| Organic Traffic Report Number | EXS12 | | EXS13 | | EXR56 | | EXR57 | | EXR76 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Bromomethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Vinyl Chloride | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Chloroethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Methylene Chloride | 26000 | U | 12 | | 10 | U | 10 | U | 55000 | U |
| Acetone | 8400 | J | 27 | | 10 | UB | 10 | UB | 55000 | U |
| Carbon Disulfide | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| 1,1-Dichloroethene | 26000 | U | 4 | J | 10 | U | 10 | U | 55000 | U |
| 1,1-Dichloroethane | 26000 | U | 190 | | 10 | U | 10 | U | 55000 | U |
| 1,2-Dichloroethene (total) | 26000 | U | 9 | J | 10 | U | 10 | U | 55000 | U |
| Chloroform | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| 1,2-Dichloroethane | 26000 | U | 180 | | 10 | U | 10 | U | 55000 | U |
| 2-Butanone | 35000 | UJ | 13 | | 10 | U | 10 | U | 55000 | U |
| 1,1,1-Trichloroethane | 360000 | | 51 | | 10 | U | 10 | U | 55000 | U |
| Carbon Tetrachloride | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Bromodichloromethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| 1,2-Dichloropropane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| cis-1,3-Dichloropropene | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Trichloroethene | 24000 | J | 21 | | 10 | U | 10 | U | 55000 | U |
| Dibromochloromethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| 1,1,2-Trichloroethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Benzene | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| trans-1,3-Dichloropropene | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Bromoform | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| 4-Methyl-2-Pentanone | 26000 | U | 82 | | 10 | U | 10 | U | 55000 | U |
| 2-Hexanone | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Tetrachloroethene | 110000 | | 22 | | 5 | J | 5 | J | 55000 | U |
| 1,1,2,2-Tetrachloroethane | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Toluene | 26000 | U | 4 | J | 10 | U | 10 | U | 930000 | |
| Chlorobenzene | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Ethylbenzene | 15000 | J | 11 | U | 10 | U | 10 | U | 56000 | |
| Styrene | 26000 | U | 11 | U | 10 | U | 10 | U | 55000 | U |
| Xylene | 110000 | | 19 | | 10 | U | 10 | U | 200000 | |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/26/93 | | 8/27/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-1J | | SB11-1J(D) | | SB11-2D | | SB11-3D | | SB11-4G | |
| Organic Traffic Report Number | EXR77 | | EXR78 | | EXR79 | | EXR80 | | EXR83 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Bromomethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Vinyl Chloride | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Chloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Methylene Chloride | 13 | | 1 | J | 12 | U | 3 | J | 27000 | U |
| Acetone | 44 | | 11 | UB | 9 | J | 8 | J | 27000 | U |
| Carbon Disulfide | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,1-Dichloroethene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,1-Dichloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,2-Dichloroethene (total) | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Chloroform | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,2-Dichloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 2-Butanone | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,1,1-Trichloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Carbon Tetrachloride | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Bromodichloromethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,2-Dichloropropane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| cis-1,3-Dichloropropene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Trichloroethene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Dibromochloromethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 1,1,2-Trichloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Benzene | 12 | U | 11 | UB | 12 | U | 12 | U | 27000 | U |
| trans-1,3-Dichloropropene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Bromoform | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 4-Methyl-2-Pentanone | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| 2-Hexanone | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Tetrachloroethene | 12 | U | 11 | U | 12 | U | 46 | | 27000 | U |
| 1,1,2,2-Tetrachloroethane | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Toluene | 130 | | 11 | UB | 2 | J | 1 | J | 290000 | |
| Chlorobenzene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Ethylbenzene | 6 | J | 11 | U | 12 | U | 3 | J | 27000 | U |
| Styrene | 12 | U | 11 | U | 12 | U | 12 | U | 27000 | U |
| Xylene | 21 | | 11 | U | 12 | U | 8 | J | 17000 | J |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/27/93 | | 8/26/93 | | 8/26/93 | | 8/31/93 | | 8/31/93 | |
| Sample Number | SB11-4L | | SB11-5H | | SB11-5K | | SB11-6G | | SB11-6I | |
| Organic Traffic Report Number | EXR84 | | EXR81 | | EXR82 | | EXR88 | | EXR89 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Bromomethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Vinyl Chloride | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Chloroethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Methylene Chloride | 3 | J | 27000 | U | 24 | U | 24 | BJ | 30 | BJ |
| Acetone | 11 | UB | 27000 | U | 24 | UB | 7 | J | 6 | J |
| Carbon Disulfide | 11 | U | 27000 | U | 24 | U | 12 | U | 1 | J |
| 1,1-Dichloroethene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,1-Dichloroethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,2-Dichloroethene (total) | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Chloroform | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,2-Dichloroethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 2-Butanone | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,1,1-Trichloroethane | 2 | J | 27000 | U | 24 | U | 12 | U | 3 | J |
| Carbon Tetrachloride | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Bromodichloromethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,2-Dichloropropane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| cis-1,3-Dichloropropene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Trichloroethene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Dibromochloromethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,1,2-Trichloroethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Benzene | 5 | J | 27000 | U | 24 | UB | 12 | U | 12 | U |
| trans-1,3-Dichloropropene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Bromoform | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 4-Methyl-2-Pentanone | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 2-Hexanone | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Tetrachloroethene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| 1,1,2,2-Tetrachloroethane | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Toluene | 72 | JB | 230000 | J | 24 | UB | 9 | J | 2 | J |
| Chlorobenzene | 11 | U | 27000 | UJ | 24 | U | 12 | U | 12 | U |
| Ethylbenzene | 11 | U | 150000 | | 24 | U | 12 | U | 12 | U |
| Styrene | 11 | U | 27000 | U | 24 | U | 12 | U | 12 | U |
| Xylene | 15 | | 530000 | | 760 | | 12 | U | 12 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/1/93 | | 9/1/93 | | 8/30/93 | | 8/30/93 | | 8/30/93 | |
| Sample Number | SB11-7G | | SB11-7K | | SB11-8G | | SB11-8I | | SB11-8I(D) | |
| Organic Traffic Report Number | EXR91 | | EXR92 | | EXR85 | | EXR86 | | EXR87 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Bromomethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Vinyl Chloride | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Chloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Methylene Chloride | 1300 | UB | 12 | UB | 2200 | | 2100 | | 2900 | |
| Acetone | 1300 | UB | 18 | UB | 1400 | U | 1500 | U | 1500 | U |
| Carbon Disulfide | 1300 | U | 2 | J | 1400 | U | 1500 | U | 1500 | U |
| 1,1-Dichloroethene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,1-Dichloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,2-Dichloroethene (total) | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Chloroform | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,2-Dichloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 2-Butanone | 1300 | U | 12 | UB | 1400 | U | 1500 | U | 1500 | U |
| 1,1,1-Trichloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Carbon Tetrachloride | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Bromodichloromethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,2-Dichloropropane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| cis-1,3-Dichloropropene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Trichloroethene | 410 | J | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Dibromochloromethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,1,2-Trichloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Benzene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| trans-1,3-Dichloropropene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Bromoform | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 4-Methyl-2-Pentanone | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 2-Hexanone | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Tetrachloroethene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| 1,1,2,2-Tetrachloroethane | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Toluene | 150000 | D | 3 | J | 43000 | D | 1500 | U | 1500 | U |
| Chlorobenzene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Ethylbenzene | 64000 | D | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Styrene | 1300 | U | 12 | U | 1400 | U | 1500 | U | 1500 | U |
| Xylene | 310000 | D | 8 | J | 2000 | | 1500 | U | 1500 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/31/93 | | 9/1/93 | | 9/1/93 | | 12/1/93 | | 12/1/93 | |
| Sample Number | SB11-9G | | SB11-10G | | SB11-10J | | SB12-1D | | SB12-1H | |
| Organic Traffic Report Number | EXR90 | | EXR93 | | EXR94 | | EXT40 | | EXT41 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Bromomethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Vinyl Chloride | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Chloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Methylene Chloride | 53 | BJ | 1400 | UB | 11 | UB | 11 | U | 310 | J |
| Acetone | 12 | U | 1400 | U | 16 | UB | 11 | U | 1400 | U |
| Carbon Disulfide | 3 | J | 1400 | U | 2 | J | 11 | U | 1400 | U |
| 1,1-Dichloroethene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 1,1-Dichloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 1,2-Dichloroethene (total) | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Chloroform | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 1,2-Dichloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 2-Butanone | 12 | U | 1400 | U | 11 | UB | 11 | U | 7400 | J |
| 1,1,1-Trichloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Carbon Tetrachloride | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Bromodichloromethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 1,2-Dichloropropane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| cis-1,3-Dichloropropene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Trichloroethene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Dibromochloromethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 1,1,2-Trichloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Benzene | 12 | U | 1500 | | 11 | U | 11 | U | 1400 | U |
| trans-1,3-Dichloropropene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Bromoform | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 4-Methyl-2-Pentanone | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| 2-Hexanone | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Tetrachloroethene | 12 | U | 1400 | U | 11 | U | 130 | | 250 | J |
| 1,1,2,2-Tetrachloroethane | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Toluene | 12 | U | 1400000 | D | 12 | | 11 | U | 1400 | U |
| Chlorobenzene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Ethylbenzene | 12 | U | 590000 | D | 2 | J | 11 | U | 1400 | U |
| Styrene | 12 | U | 1400 | U | 11 | U | 11 | U | 1400 | U |
| Xylene | 12 | U | 2300000 | D | 23 | | 11 | U | 180 | J |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/1/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-2A | | SB12-2H | | SB12-3B | | SB12-3B(D) | | SB12-3H | |
| Organic Traffic Report Number | EXT38 | | EXT39 | | EXT42 | | EXT43 | | EXT44 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Bromomethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Vinyl Chloride | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Chloroethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Methylene Chloride | 3 | J | 4 | J | 5200 | U | 1300 | U | 420 | J |
| Acetone | 33 | | 100 | | 13000 | J | 18000 | | 1400 | U |
| Carbon Disulfide | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,1-Dichloroethene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,1-Dichloroethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,2-Dichloroethene (total) | 1 | J | 3 | J | 5200 | U | 170 | J | 1400 | U |
| Chloroform | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,2-Dichloroethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 2-Butanone | 12 | U | 12 | U | 5200 | U | 10000 | J | 5600 | J |
| 1,1,1-Trichloroethane | 2 | J | 4 | J | 880 | J | 1200 | J | 160 | J |
| Carbon Tetrachloride | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Bromodichloromethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,2-Dichloropropane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| cis-1,3-Dichloropropene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Trichloroethene | 3 | J | 10 | J | 7200 | | 4200 | | 490 | J |
| Dibromochloromethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 1,1,2-Trichloroethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Benzene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| trans-1,3-Dichloropropene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Bromoform | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| 4-Methyl-2-Pentanone | 12 | U | 12 | U | 5200 | U | 1800 | | 840 | J |
| 2-Hexanone | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Tetrachloroethene | 39 | | 120 | | 82000 | | 14000 | | 930 | J |
| 1,1,2,2-Tetrachloroethane | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Toluene | 2 | J | 6 | J | 12000 | | 3300 | | 220 | J |
| Chlorobenzene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Ethylbenzene | 12 | U | 6 | J | 17000 | | 2800 | | 1400 | U |
| Styrene | 12 | U | 12 | U | 5200 | U | 1300 | U | 1400 | U |
| Xylene | 1 | J | 33 | | 94000 | | 16000 | | 420 | J |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | |
| Sample Number | SB12-4F | | SB12-4H | | SB12-5D | | SB12-5F | | SB12-5F(D) | |
| Organic Traffic Report Number | EXT45 | | EXT46 | | EXT47 | | EXT48 | | EXT49 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Bromomethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Vinyl Chloride | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Chloroethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Methylene Chloride | 1 | J | 13 | | 4 | J | 1 | J | | |
| Acetone | 14 | B | 73 | | 15 | B | 26 | | | |
| Carbon Disulfide | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,1-Dichloroethene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,1-Dichloroethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,2-Dichloroethene (total) | 10 | U | 16 | | 12 | U | 10 | U | | |
| Chloroform | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,2-Dichloroethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 2-Butanone | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,1,1-Trichloroethane | 10 | U | 18 | | 12 | U | 10 | U | | |
| Carbon Tetrachloride | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Bromodichloromethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,2-Dichloropropane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| cis-1,3-Dichloropropene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Trichloroethene | 10 | U | 71 | | 12 | U | 10 | U | | |
| Dibromochloromethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 1,1,2-Trichloroethane | 10 | U | 3 | J | 12 | U | 10 | U | | |
| Benzene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| trans-1,3-Dichloropropene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Bromoform | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 4-Methyl-2-Pentanone | 10 | U | 12 | U | 12 | U | 10 | U | | |
| 2-Hexanone | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Tetrachloroethene | 2 | J | 64 | | 2 | J | 9 | J | | |
| 1,1,2,2-Tetrachloroethane | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Toluene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Chlorobenzene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Ethylbenzene | 10 | U | 12 | U | 1 | J | 10 | U | | |
| Styrene | 10 | U | 12 | U | 12 | U | 10 | U | | |
| Xylene | 10 | U | 12 | U | 12 | U | 10 | U | | |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | | 6/25/93 | |
| Sample Number | SB12-6F | | SB12-6H | | SB12-7F | | SB12-7H | | SB14-1G | |
| Organic Traffic Report Number | EXT50 | | EXT51 | | EXT52 | | EXT53 | | EXR30 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Bromomethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Vinyl Chloride | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Chloroethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Methylene Chloride | 1 | J | 4 | J | 2 | J | 6 | J | 11 | UB |
| Acetone | 21 | | 51 | | 36 | | 70 | | 19 | |
| Carbon Disulfide | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethene (total) | 10 | U | 11 | U | 11 | U | 11 | U | 2 | J |
| Chloroform | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 2-Butanone | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,1,1-Trichloroethane | 2 | J | 11 | U | 11 | U | 2 | J | 2 | J |
| Carbon Tetrachloride | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Bromodichloromethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloropropane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| cis-1,3-Dichloropropene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Trichloroethene | 3 | J | 2 | J | 11 | U | 6 | J | 11 | U |
| Dibromochloromethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 1,1,2-Trichloroethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Benzene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| trans-1,3-Dichloropropene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Bromoform | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 4-Methyl-2-Pentanone | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| 2-Hexanone | 10 | U | 11 | U | 11 | U | 11 | U | 4 | J |
| Tetrachloroethene | 22 | | 6 | J | 8 | J | 16 | | 11 | U |
| 1,1,2,2-Tetrachloroethane | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Toluene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Chlorobenzene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Ethylbenzene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Styrene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |
| Xylene | 10 | U | 11 | U | 11 | U | 11 | U | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 6/28/93 | 6/28/93 | 6/28/93 | 6/28/93 | 8/23/93 |
| Sample Number | SB14-2E | SB14-3A | SB14-3C | SB14-4F | SB112A |
| Organic Traffic Report Number | EXR31 | EXR32 | EXR33 | EXR34 | EXR74 |
| *Volatile Organics (ug/kg)* | | | | | |
| Chloromethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| Bromomethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| Vinyl Chloride | 10 U | 11 U | 10 U | 12 U | 11 U |
| Chloroethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| Methylene Chloride | 10 UB | 11 UB | 10 UB | 12 UB | 7 J |
| Acetone | 9 J | 45 | 33 | 27 | 17 |
| Carbon Disulfide | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,1-Dichloroethene | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,1-Dichloroethane | 10 U | 6 J | 10 U | 12 U | 11 U |
| 1,2-Dichloroethene (total) | 10 U | 48 | 10 U | 12 U | 11 U |
| Chloroform | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,2-Dichloroethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| 2-Butanone | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,1,1-Trichloroethane | 10 U | 6 J | 10 U | 12 U | 11 U |
| Carbon Tetrachloride | 10 U | 11 U | 10 U | 12 U | 11 U |
| Bromodichloromethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,2-Dichloropropane | 10 U | 11 U | 10 U | 12 U | 11 U |
| cis-1,3-Dichloropropene | 10 U | 11 U | 10 U | 12 U | 11 U |
| Trichloroethene | 10 U | 4 J | 10 U | 12 U | 11 U |
| Dibromochloromethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| 1,1,2-Trichloroethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| Benzene | 10 U | 11 U | 10 U | 12 U | 11 U |
| trans-1,3-Dichloropropene | 10 U | 11 U | 10 U | 12 U | 11 U |
| Bromoform | 10 U | 11 U | 10 U | 12 U | 11 U |
| 4-Methyl-2-Pentanone | 10 U | 11 U | 10 U | 12 U | 11 U |
| 2-Hexanone | 10 U | 11 U | 10 U | 12 U | 11 U |
| Tetrachloroethene | 10 U | 4 J | 2 J | 12 U | 11 U |
| 1,1,2,2-Tetrachloroethane | 10 U | 11 U | 10 U | 12 U | 11 U |
| Toluene | 10 U | 11 U | 10 U | 4 J | 11 U |
| Chlorobenzene | 10 U | 11 U | 10 U | 12 U | 11 U |
| Ethylbenzene | 10 U | 11 U | 10 U | 12 U | 11 U |
| Styrene | 10 U | 11 U | 10 U | 12 U | 11 U |
| Xylene | 10 U | 11 U | 10 U | 12 U | 11 U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/24/93 | | 9/8/93 | | 8/2/93 | | 8/3/93 | | 8/11/93 | |
| Sample Number | SB112B | | SB112C | | SB114A | | SB114B | | SB114C | |
| Organic Traffic Report Number | EXR75 | | EXR97 | | EXR61 | | EXR62 | | EXR66 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Bromomethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Vinyl Chloride | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Chloroethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Methylene Chloride | 12 | U | 12 | UB | 12 | U | 12 | U | 16 | UB |
| Acetone | 7 | J | 12 | UB | 12 | U | 10 | J | 22 | UB |
| Carbon Disulfide | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,1-Dichloroethene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,1-Dichloroethane | 12 | U | 12 | U | 12 | U | 12 | U | 3 | J |
| 1,2-Dichloroethene (total) | 12 | U | 12 | U | 12 | U | 12 | U | 4 | J |
| Chloroform | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,2-Dichloroethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 2-Butanone | 12 | U | 12 | UB | 12 | U | 12 | U | 12 | U |
| 1,1,1-Trichloroethane | 31 | | 12 | U | 6 | J | 12 | U | 5 | J |
| Carbon Tetrachloride | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Bromodichloromethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,2-Dichloropropane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| cis-1,3-Dichloropropene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Trichloroethene | 12 | U | 12 | U | 12 | U | 12 | U | 3 | J |
| Dibromochloromethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,1,2-Trichloroethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Benzene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| trans-1,3-Dichloropropene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Bromoform | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 4-Methyl-2-Pentanone | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 2-Hexanone | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Tetrachloroethene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| 1,1,2,2-Tetrachloroethane | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Toluene | 12 | U | 12 | UB | 12 | U | 12 | U | 12 | U |
| Chlorobenzene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Ethylbenzene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Styrene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |
| Xylene | 12 | U | 12 | U | 12 | U | 12 | U | 12 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 7/7/93 | 7/7/93 | 7/7/93 | 7/11/93 | 7/11/93 |
| Sample Number | SB119A | SB119B | SB119C | SB126A | SB126B |
| Organic Traffic Report Number | EXR50 | EXR51 | EXR52 | EXR53 | EXR54 |
| *Volatile Organics (ug/kg)* | | | | | |
| Chloromethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Bromomethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Vinyl Chloride | 12 U | 12 U | 12 U | 12 U | 12 U |
| Chloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Methylene Chloride | 12 UB | 12 UB | 12 UB | 10 UB | 10 UB |
| Acetone | 12 U | 12 U | 12 U | 10 UB | 10 UB |
| Carbon Disulfide | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,1-Dichloroethene | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,1-Dichloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,2-Dichloroethene (total) | 12 U | 12 U | 12 U | 12 U | 12 U |
| Chloroform | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,2-Dichloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| 2-Butanone | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,1,1-Trichloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Carbon Tetrachloride | 12 U | 12 U | 12 U | 12 U | 12 U |
| Bromodichloromethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,2-Dichloropropane | 12 U | 12 U | 12 U | 12 U | 12 U |
| cis-1,3-Dichloropropene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Trichloroethene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Dibromochloromethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,1,2-Trichloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Benzene | 12 U | 12 U | 12 U | 12 U | 12 U |
| trans-1,3-Dichloropropene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Bromoform | 12 U | 12 U | 12 U | 12 U | 12 U |
| 4-Methyl-2-Pentanone | 12 U | 12 U | 12 U | 12 U | 12 U |
| 2-Hexanone | 12 U | 12 U | 12 U | 12 U | 12 U |
| Tetrachloroethene | 12 U | 12 U | 12 U | 12 U | 12 U |
| 1,1,2,2-Tetrachloroethane | 12 U | 12 U | 12 U | 12 U | 12 U |
| Toluene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Chlorobenzene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Ethylbenzene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Styrene | 12 U | 12 U | 12 U | 12 U | 12 U |
| Xylene | 12 U | 12 U | 12 U | 12 U | 12 U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| Date Sampled | 7/12/93 | | 9/1/93 | | 9/1/93 | | 7/24/93 | | 7/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB126C | | SB128A | | SB128B | | SB130E | | SB130G | |
| Organic Traffic Report Number | EXR55 | | EXR95 | | EXR96 | | EXR58 | | EXR59 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Bromomethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Vinyl Chloride | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Chloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Methylene Chloride | 11 | U | 1400 | UB | 12 | UB | 14 | UB | 13 | UB |
| Acetone | 10 | UB | 1400 | UB | 14 | UB | 12 | UB | 11 | UB |
| Carbon Disulfide | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,1-Dichloroethene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,1-Dichloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,2-Dichloroethene (total) | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Chloroform | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,2-Dichloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 2-Butanone | 11 | U | 1400 | U | 12 | UB | 12 | U | 11 | U |
| 1,1,1-Trichloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Carbon Tetrachloride | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Bromodichloromethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,2-Dichloropropane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| cis-1,3-Dichloropropene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Trichloroethene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Dibromochloromethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,1,2-Trichloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Benzene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| trans-1,3-Dichloropropene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Bromoform | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 4-Methyl-2-Pentanone | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 2-Hexanone | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Tetrachloroethene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| 1,1,2,2-Tetrachloroethane | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Toluene | 11 | U | 470000 | D | 23 | | 12 | U | 11 | U |
| Chlorobenzene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Ethylbenzene | 11 | U | 240000 | D | 45 | | 12 | U | 11 | U |
| Styrene | 11 | U | 1400 | U | 12 | U | 12 | U | 11 | U |
| Xylene | 11 | U | 980000 | D | 190 | | 12 | U | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 7/24/93 | 8/17/93 | 8/17/93 | 8/17/93 | 8/19/93 |
| Sample Number | SB130H | SB133B | SB133D | SB133H | SB134A |
| Organic Traffic Report Number | EXR60 | EXR67 | EXR68 | EXR69 | EXR71 |
| *Volatile Organics (ug/kg)* | | | | | |
| Chloromethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| Bromomethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| Vinyl Chloride | 11 U | 12 U | 12 U | 12 U | 11 U |
| Chloroethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| Methylene Chloride | 10 UB | 20 | 8 J | 7 J | 6 J |
| Acetone | 11 U | 25 B | 25 | 9 J | 10 J |
| Carbon Disulfide | 11 U | 12 U | 2 J | 2 J | 2 J |
| 1,1-Dichloroethene | 11 U | 12 U | 12 U | 2 J | 3 J |
| 1,1-Dichloroethane | 11 U | 12 U | 12 U | 12 J | 39 |
| 1,2-Dichloroethene (total) | 11 U | 12 U | 12 U | 43 | 1300 U |
| Chloroform | 11 U | 12 U | 12 U | 12 U | 11 U |
| 1,2-Dichloroethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| 2-Butanone | 11 U | 12 U | 2 J | 3 J | 11 U |
| 1,1,1-Trichloroethane | 3 J | 12 U | 1 J | 70 | 580 JD |
| Carbon Tetrachloride | 11 U | 12 U | 12 U | 12 U | 11 U |
| Bromodichloromethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| 1,2-Dichloropropane | 11 U | 12 U | 12 U | 12 U | 11 U |
| cis-1,3-Dichloropropene | 11 U | 12 U | 12 U | 12 U | 11 U |
| Trichloroethene | 11 U | 12 U | 12 U | 38 | 590 JD |
| Dibromochloromethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| 1,1,2-Trichloroethane | 11 U | 12 U | 12 U | 12 U | 4 J |
| Benzene | 11 U | 12 U | 12 U | 12 U | 11 U |
| trans-1,3-Dichloropropene | 11 U | 12 U | 12 U | 12 U | 11 U |
| Bromoform | 11 U | 12 U | 12 U | 12 U | 11 U |
| 4-Methyl-2-Pentanone | 11 U | 12 U | 12 U | 12 U | 11 U |
| 2-Hexanone | 11 U | 12 U | 12 U | 12 U | 11 U |
| Tetrachloroethene | 11 U | 12 U | 12 U | 58 | 1500 D |
| 1,1,2,2-Tetrachloroethane | 11 U | 12 U | 12 U | 12 U | 11 U |
| Toluene | 11 U | 12 U | 12 U | 12 U | 1 J |
| Chlorobenzene | 11 U | 12 U | 12 U | 12 U | 11 U |
| Ethylbenzene | 11 U | 12 U | 12 U | 12 U | 11 U |
| Styrene | 11 U | 12 U | 12 U | 12 U | 11 U |
| Xylene | 11 U | 12 U | 12 U | 12 U | 11 U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/19/93 | | 8/20/93 | | 8/17/93 | | 8/10/93 | | 8/10/93 | |
| Sample Number | SB134B | | SB134C | | SB135F | | SB138F | | SB138G | |
| Organic Traffic Report Number | EXR72 | | EXR73 | | EXR70 | | EXR63 | | EXR64 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Bromomethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Vinyl Chloride | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Chloroethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Methylene Chloride | 13 | | 9 | J | 6 | J | 16 | UB | 10 | UB |
| Acetone | 94 | | 19 | | 7 | J | 20 | UB | 14 | UB |
| Carbon Disulfide | 2 | J | 2 | J | 2 | J | 12 | U | 11 | U |
| 1,1-Dichloroethene | 11 | J | 11 | U | 8 | J | 12 | U | 11 | U |
| 1,1-Dichloroethane | 58 | | 2 | J | 11 | J | 12 | U | 11 | U |
| 1,2-Dichloroethene (total) | 350 | | 15 | | 130 | | 12 | U | 11 | U |
| Chloroform | 13 | U | 2 | J | 11 | U | 12 | U | 11 | U |
| 1,2-Dichloroethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| 2-Butanone | 12 | J | 3 | J | 11 | U | 12 | U | 11 | U |
| 1,1,1-Trichloroethane | 1200 | JD | 43 | | 110 | D | 12 | U | 11 | U |
| Carbon Tetrachloride | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Bromodichloromethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| 1,2-Dichloropropane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| cis-1,3-Dichloropropene | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Trichloroethene | 8 | J | 13 | | 15 | | 12 | U | 11 | U |
| Dibromochloromethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| 1,1,2-Trichloroethane | 7 | J | 11 | U | 11 | U | 12 | U | 11 | U |
| Benzene | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| trans-1,3-Dichloropropene | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Bromoform | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| 4-Methyl-2-Pentanone | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| 2-Hexanone | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Tetrachloroethene | 31 | | 29 | | 130 | | 12 | U | 11 | U |
| 1,1,2,2-Tetrachloroethane | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Toluene | 230 | | 2 | J | 11 | U | 12 | U | 11 | U |
| Chlorobenzene | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Ethylbenzene | 290 | E | 3 | J | 11 | U | 12 | U | 11 | U |
| Styrene | 13 | U | 11 | U | 11 | U | 12 | U | 11 | U |
| Xylene | 1100 | JD | 16 | | 11 | U | 12 | U | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/10/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SB138H | | SS4-7 | | SS4-8 | | SS7-1 | | SS7-1(D) | |
| Organic Traffic Report Number | EXR65 | | EXS08 | | EXS09 | | EXR99 | | EXS01 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Bromomethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Vinyl Chloride | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Chloroethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Methylene Chloride | 12 | UB | 12 | J | 18 | | 13 | | 31 | |
| Acetone | 12 | UB | 11 | UJ | 11 | U | 10 | J | 28 | |
| Carbon Disulfide | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1-Dichloroethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethene (total) | 12 | U | 11 | UJ | 3 | J | 11 | U | 11 | U |
| Chloroform | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloroethane | 12 | U | 17 | J | 11 | U | 11 | U | 11 | U |
| 2-Butanone | 12 | U | 11 | UJ | 11 | U | 11 | UJ | 11 | UB |
| 1,1,1-Trichloroethane | 12 | U | 7 | J | 110 | | 11 | U | 11 | U |
| Carbon Tetrachloride | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Bromodichloromethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,2-Dichloropropane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| cis-1,3-Dichloropropene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Trichloroethene | 12 | U | 11 | UJ | 25 | | 11 | U | 11 | U |
| Dibromochloromethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1,2-Trichloroethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Benzene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| trans-1,3-Dichloropropene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Bromoform | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 4-Methyl-2-Pentanone | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 2-Hexanone | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Tetrachloroethene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| 1,1,2,2-Tetrachloroethane | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Toluene | 12 | U | 11 | J | 3 | J | 11 | U | 11 | U |
| Chlorobenzene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Ethylbenzene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Styrene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |
| Xylene | 12 | U | 11 | UJ | 11 | U | 11 | U | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-2 | | SS7-3 | | SS7-10 | | SS7-21 | | SS7-23 | |
| Organic Traffic Report Number | EXS02 | | EXS03 | | EXS04 | | EXS05 | | EXS06 | |
| *Volatile Organics (ug/kg)* | | | | | | | | | | |
| Chloromethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Bromomethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Vinyl Chloride | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Chloroethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Methylene Chloride | 11 | J | 4 | J | 33 | J | 5 | J | 6 | J |
| Acetone | 8 | J | 17 | | 62 | J | 11 | U | 12 | |
| Carbon Disulfide | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,1-Dichloroethene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,1-Dichloroethane | 12 | U | 11 | U | 8 | J | 11 | U | 11 | U |
| 1,2-Dichloroethene (total) | 12 | U | 11 | U | 220 | J | 11 | U | 11 | U |
| Chloroform | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,2-Dichloroethane | 12 | U | 8 | J | 12 | UJ | 11 | U | 7 | J |
| 2-Butanone | 17 | UJ | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,1,1-Trichloroethane | 10 | J | 11 | U | 40 | J | 11 | U | 11 | U |
| Carbon Tetrachloride | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Bromodichloromethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,2-Dichloropropane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| cis-1,3-Dichloropropene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Trichloroethene | 12 | U | 11 | U | 140 | J | 4 | J | 11 | U |
| Dibromochloromethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 1,1,2-Trichloroethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Benzene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| trans-1,3-Dichloropropene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Bromoform | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 4-Methyl-2-Pentanone | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| 2-Hexanone | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Tetrachloroethene | 7 | J | 11 | U | 400 | D | 75 | | 5 | J |
| 1,1,2,2-Tetrachloroethane | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Toluene | 12 | U | 7 | J | 4 | J | 11 | U | 3 | J |
| Chlorobenzene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Ethylbenzene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Styrene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |
| Xylene | 12 | U | 11 | U | 12 | UJ | 11 | U | 11 | U |

# Appendix H-4: Subsurface Soil Data (Volatile Organics)

| | |
|---|---|
| Date Sampled | 9/22/93 |
| Sample Number | SS134C |
| Organic Traffic Report Number | EXS07 |

| *Volatile Organics (ug/kg)* | | |
|---|---|---|
| Chloromethane | 11 | U |
| Bromomethane | 11 | U |
| Vinyl Chloride | 11 | U |
| Chloroethane | 11 | U |
| Methylene Chloride | 5 | J |
| Acetone | 11 | U |
| Carbon Disulfide | 11 | U |
| 1,1-Dichloroethene | 11 | U |
| 1,1-Dichloroethane | 11 | U |
| 1,2-Dichloroethene (total) | 11 | U |
| Chloroform | 11 | U |
| 1,2-Dichloroethane | 10 | J |
| 2-Butanone | 11 | U |
| 1,1,1-Trichloroethane | 7 | J |
| Carbon Tetrachloride | 11 | U |
| Bromodichloromethane | 11 | U |
| 1,2-Dichloropropane | 11 | U |
| cis-1,3-Dichloropropene | 11 | U |
| Trichloroethene | 11 | U |
| Dibromochloromethane | 11 | U |
| 1,1,2-Trichloroethane | 11 | U |
| Benzene | 11 | U |
| trans-1,3-Dichloropropene | 11 | U |
| Bromoform | 11 | U |
| 4-Methyl-2-Pentanone | 11 | U |
| 2-Hexanone | 11 | U |
| Tetrachloroethene | 21 | |
| 1,1,2,2-Tetrachloroethane | 11 | U |
| Toluene | 14 | |
| Chlorobenzene | 11 | U |
| Ethylbenzene | 11 | U |
| Styrene | 11 | U |
| Xylene | 3 | J |

# APPENDIX H5
# SUBSURFACE SOIL (SEMIVOLATILES AND PESTICIDES)

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/28/93 | |
| Sample Number | SB2-1C | | SB2-2C | | SB2-3D | | SB2-3D(D) | | SB4-1D | |
| Organic Traffic Report Number | EXR46 | | EXR47 | | EXR48 | | EXR49 | | EXR35 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| bis(2-Chloroethyl)Ether | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2-Chlorophenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 1,3-Dichlorobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 1,4-Dichlorobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 1,2-Dichlorobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2-Methylphenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,2'-oxybis(1-Chloropropane) | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Methylphenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| N-Nitroso-Di-n-Propylamine | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Hexachloroethane | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Nitrobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Isophorone | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2-Nitrophenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4-Dimethylphenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| bis(2-Chloroethoxy)Methane | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4-Dichlorophenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 1,2,4-Trichlorobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Naphthalene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Chloroaniline | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Hexachlorobutadiene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Chloro-3-Methylphenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2-Methylnaphthalene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Hexachlorocyclopentadiene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4,6-Trichlorophenol | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4,5-Trichlorophenol | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| 2-Chloronaphthalene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2-Nitroaniline | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| Dimethylphthalate | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Acenaphthylene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,6-Dinitrotoluene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB2-1C | | SB2-2C | | SB2-3D | | SB2-3D(D) | | SB4-1D | |
| Organic Traffic Report Number | EXR46 | | EXR47 | | EXR48 | | EXR49 | | EXR35 | |
| 3-Nitroaniline | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| Acenaphthene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4-Dinitrophenol | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| 4-Nitrophenol | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| Dibenzofuran | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 2,4-Dinitrotoluene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Diethylphthalate | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Chlorophenyl-phenylether | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Fluorene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Nitroaniline | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| 4,6-Dinitro-2-Methylphenol | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| N-Nitrosodiphenylamine (1) | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 4-Bromophenyl-phenylether | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Hexachlorobenzene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Pentachlorophenol | 860 | U | 880 | U | 940 | U | 940 | U | 840 | U |
| Phenanthrene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Anthracene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Carbazole | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Di-n-Butylphthalate | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Fluoranthene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Pyrene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Butylbenzylphthalate | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| 3,3'-Dichlorobenzidine | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Benzo(a)anthracene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Chrysene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| bis(2-Ethylhexyl)Phthalate | 100 | J | 38 | J | 390 | U | 390 | U | 260 | J |
| Di-n-Octyl Phthalate | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Benzo (b) Fluoranthene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Benzo (k) Fluoranthene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Benzo (a) Pyrene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Ideno (1,2,3-cd) Pyrene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| Dibenzo (a,h) Anthracene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB2-1C | | SB2-2C | | SB2-3D | | SB2-3D(D) | | SB4-1D | |
| Organic Traffic Report Number | EXR46 | | EXR47 | | EXR48 | | EXR49 | | EXR35 | |
| Benzo (g,h,i) Perylene | 350 | U | 360 | U | 390 | U | 390 | U | 350 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.8 | U | 1.9 | U | 2 | U | 0.13 | JP | 1.8 | U |
| beta-BHC | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| delta-BHC | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| gamma-BHC (Lindane) | 0.13 | JP | 1.9 | U | 2 | U | 2 | U | 0.14 | JP |
| Heptachlor | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| Aldrin | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| Heptachlor epoxide | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| Endosulfan I | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| Dieldrin | 3.5 | U | 1.9 | UB | 2 | UB | 2 | UB | 1.8 | UB |
| 4,4'-DDE | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| Endrin | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| Endosulfan II | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 0.2 | J |
| 4,4'-DDD | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| Endosulfan sulfate | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| 4,4'-DDT | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| Methoxychlor | 18 | U | 19 | U | 20 | U | 20 | U | 18 | U |
| Endrin ketone | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| Endrin aldehyde | 3.5 | U | 3.6 | U | 3.9 | U | 3.9 | U | 3.5 | U |
| alpha-Chlordane | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| gamma-Chlordane | 1.8 | U | 1.9 | U | 2 | U | 2 | U | 1.8 | U |
| Toxaphene | 180 | U | 190 | U | 200 | U | 200 | U | 180 | U |
| Aroclor-1016 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |
| Aroclor-1221 | 72 | U | 74 | U | 79 | U | 79 | U | 71 | U |
| Aroclor-1232 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |
| Aroclor-1242 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |
| Aroclor-1248 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |
| Aroclor-1254 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |
| Aroclor-1260 | 35 | U | 36 | U | 39 | U | 39 | U | 35 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/28/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | |
| Sample Number | SB4-1F | | SB4-2A | | SB4-2D | | SB4-3E | | SB4-3E(D) | |
| Organic Traffic Report Number | EXR36 | | EXR37 | | EXR38 | | EXR39 | | EXR40 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| bis(2-Chloroethyl)Ether | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2-Chlorophenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 1,3-Dichlorobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 1,4-Dichlorobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 1,2-Dichlorobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2-Methylphenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,2'-oxybis(1-Chloropropane) | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Methylphenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| N-Nitroso-Di-n-Propylamine | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Hexachloroethane | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Nitrobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Isophorone | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2-Nitrophenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4-Dimethylphenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| bis(2-Chloroethoxy)Methane | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4-Dichlorophenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 1,2,4-Trichlorobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Naphthalene | 3000 | J | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Chloroaniline | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Hexachlorobutadiene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Chloro-3-Methylphenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2-Methylnaphthalene | 1600 | J | 370 | U | 340 | U | 340 | U | 340 | U |
| Hexachlorocyclopentadiene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4,6-Trichlorophenol | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4,5-Trichlorophenol | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| 2-Chloronaphthalene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2-Nitroaniline | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| Dimethylphthalate | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Acenaphthylene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,6-Dinitrotoluene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/28/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-1F | | SB4-2A | | SB4-2D | | SB4-3E | | SB4-3E(D) | |
| Organic Traffic Report Number | EXR36 | | EXR37 | | EXR38 | | EXR39 | | EXR40 | |
| 3-Nitroaniline | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| Acenaphthene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4-Dinitrophenol | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| 4-Nitrophenol | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| Dibenzofuran | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 2,4-Dinitrotoluene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Diethylphthalate | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Chlorophenyl-phenylether | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Fluorene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Nitroaniline | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| 4,6-Dinitro-2-Methylphenol | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| N-Nitrosodiphenylamine (1) | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 4-Bromophenyl-phenylether | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Hexachlorobenzene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Pentachlorophenol | 29000 | U | 890 | U | 820 | U | 820 | U | 820 | U |
| Phenanthrene | 580 | J | 370 | U | 340 | U | 340 | U | 340 | U |
| Anthracene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Carbazole | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Di-n-Butylphthalate | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Fluoranthene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Pyrene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Butylbenzylphthalate | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| 3,3'-Dichlorobenzidine | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Benzo(a)anthracene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Chrysene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| bis(2-Ethylhexyl)Phthalate | 11000 | U | 370 | U | 53 | J | 340 | U | 340 | U |
| Di-n-Octyl Phthalate | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Benzo (b) Fluoranthene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Benzo (k) Fluoranthene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Benzo (a) Pyrene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Ideno (1,2,3-cd) Pyrene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| Dibenzo (a,h) Anthracene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/28/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-1F | | SB4-2A | | SB4-2D | | SB4-3E | | SB4-3E(D) | |
| Organic Traffic Report Number | EXR36 | | EXR37 | | EXR38 | | EXR39 | | EXR40 | |
| Benzo (g,h,i) Perylene | 11000 | U | 370 | U | 340 | U | 340 | U | 340 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2.8 | PJ | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| beta-BHC | 5.9 | J | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| delta-BHC | 1.8 | JP | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| gamma-BHC (Lindane) | 1.6 | JP | 0.12 | JP | 1.8 | U | 1.8 | U | 1.7 | U |
| Heptachlor | 1.6 | JP | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| Aldrin | 2.3 | PJ | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| Heptachlor epoxide | 2 | U | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| Endosulfan I | 5.7 | PJ | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| Dieldrin | 3.8 | U | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| 4,4'-DDE | 3.8 | U | 3.7 | U | 3.4 | U | 0.34 | P | 3.4 | U |
| Endrin | 3.8 | UB | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| Endosulfan II | 0.18 | JP | 0.22 | JP | 3.4 | U | 3.4 | U | 3.4 | UB |
| 4,4'-DDD | 3.8 | U | 0.24 | JP | 3.4 | U | 3.4 | U | 3.4 | U |
| Endosulfan sulfate | 3.8 | U | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| 4,4'-DDT | 3.8 | U | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| Methoxychlor | 3.7 | J | 19 | U | 18 | U | 18 | U | 17 | U |
| Endrin ketone | 3.8 | U | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| Endrin aldehyde | 0.78 | JP | 3.7 | U | 3.4 | U | 3.4 | U | 3.4 | U |
| alpha-Chlordane | 2 | U | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| gamma-Chlordane | 2 | U | 1.9 | U | 1.8 | U | 1.8 | U | 1.7 | U |
| Toxaphene | 200 | U | 190 | U | 180 | U | 180 | U | 170 | U |
| Aroclor-1016 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |
| Aroclor-1221 | 77 | U | 74 | U | 69 | U | 69 | U | 68 | U |
| Aroclor-1232 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |
| Aroclor-1242 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |
| Aroclor-1248 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |
| Aroclor-1254 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |
| Aroclor-1260 | 38 | U | 37 | U | 34 | U | 34 | U | 34 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/21/93 | | 6/21/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-4E | | SB4-5E | | SB4-5F | | SB7-1E | | SB7-1F | |
| Organic Traffic Report Number | EXR41 | | EXR42 | | EXR43 | | EXR04 | | EXR05 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| bis(2-Chloroethyl)Ether | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2-Chlorophenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 1,3-Dichlorobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 1,4-Dichlorobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 1,2-Dichlorobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2-Methylphenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,2'-oxybis(1-Chloropropane) | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 4-Methylphenol | 340 | U | 340 | U | 12000 | U | 31 | J | 67 | J |
| N-Nitroso-Di-n-Propylamine | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Hexachloroethane | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Nitrobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Isophorone | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2-Nitrophenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4-Dimethylphenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| bis(2-Chloroethoxy)Methane | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4-Dichlorophenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 1,2,4-Trichlorobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Naphthalene | 340 | U | 340 | U | 470 | J | 370 | U | 390 | U |
| 4-Chloroaniline | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Hexachlorobutadiene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 4-Chloro-3-Methylphenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2-Methylnaphthalene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Hexachlorocyclopentadiene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4,6-Trichlorophenol | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4,5-Trichlorophenol | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| 2-Chloronaphthalene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2-Nitroaniline | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| Dimethylphthalate | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Acenaphthylene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,6-Dinitrotoluene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/21/93 | | 6/21/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-4E | | SB4-5E | | SB4-5F | | SB7-1E | | SB7-1F | |
| Organic Traffic Report Number | EXR41 | | EXR42 | | EXR43 | | EXR04 | | EXR05 | |
| 3-Nitroaniline | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| Acenaphthene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4-Dinitrophenol | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| 4-Nitrophenol | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| Dibenzofuran | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 2,4-Dinitrotoluene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Diethylphthalate | 340 | U | 340 | U | 12000 | U | 27 | BJ | 390 | U |
| 4-Chlorophenyl-phenylether | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Fluorene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 4-Nitroaniline | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| 4,6-Dinitro-2-Methylphenol | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| N-Nitrosodiphenylamine (1) | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 4-Bromophenyl-phenylether | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Hexachlorobenzene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Pentachlorophenol | 820 | U | 820 | U | 29000 | U | 900 | U | 940 | U |
| Phenanthrene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Anthracene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Carbazole | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Di-n-Butylphthalate | 340 | U | 340 | U | 12000 | U | 34 | BJ | 30 | BJ |
| Fluoranthene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Pyrene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Butylbenzylphthalate | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Benzo(a)anthracene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Chrysene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 150 | J | 23 | J | 12000 | U | 100 | J | 100 | J |
| Di-n-Octyl Phthalate | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Benzo (b) Fluoranthene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Benzo (k) Fluoranthene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Benzo (a) Pyrene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/21/93 | | 6/21/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB4-4E | | SB4-5E | | SB4-5F | | SB7-1E | | SB7-1F | |
| Organic Traffic Report Number | EXR41 | | EXR42 | | EXR43 | | EXR04 | | EXR05 | |
| Benzo (g,h,i) Perylene | 340 | U | 340 | U | 12000 | U | 370 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.8 | U | 1.8 | U | 4 | J | 1.9 | U | 2 | U |
| beta-BHC | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| delta-BHC | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor | 1.8 | U | 1.8 | U | 5.2 | PJ | 1.9 | U | 2 | U |
| Aldrin | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| Endosulfan I | 1.8 | U | 1.8 | U | 5.6 | PJ | 1.9 | U | 2 | U |
| Dieldrin | 1.8 | UB | 1.8 | UB | 3.8 | U | 3.7 | U | 3.9 | U |
| 4,4'-DDE | 0.31 | P | 0.21 | JP | 3.8 | U | 3.7 | U | 3.9 | U |
| Endrin | 3.4 | U | 3.4 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endosulfan II | 3.4 | U | 0.17 | JP | 0.44 | JP | 3.7 | U | 3.9 | U |
| 4,4'-DDD | 3.4 | U | 3.4 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endosulfan sulfate | 3.4 | U | 3.4 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| 4,4'-DDT | 3.4 | U | 3.4 | U | 0.59 | JP | 3.7 | U | 3.9 | U |
| Methoxychlor | 18 | U | 18 | U | 20 | U | 19 | U | 20 | U |
| Endrin ketone | 3.4 | U | 3.4 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endrin aldehyde | 3.4 | U | 3.4 | U | 1.5 | JP | 3.7 | U | 3.9 | U |
| alpha-Chlordane | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 1.8 | U | 1.8 | U | 2 | U | 1.9 | U | 2 | U |
| Toxaphene | 180 | U | 180 | U | 200 | U | 190 | U | 200 | U |
| Aroclor-1016 | 34 | U | 34 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1221 | 69 | U | 69 | U | 78 | U | 75 | U | 79 | U |
| Aroclor-1232 | 34 | U | 34 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1242 | 34 | U | 34 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1248 | 34 | U | 34 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1254 | 34 | U | 34 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1260 | 34 | U | 34 | U | 38 | U | 58 | P | 39 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 6/21/93 | 6/21/93 | 6/22/93 | 6/22/93 | 6/22/93 |
| Sample Number | SB7-2D | SB7-2F | SB7-3F | SB7-3G | SB7-4E |
| Organic Traffic Report Number | EXR07 | EXR06 | EXR08 | EXR09 | EXR10 |
| *Semivolatile Organics (ug/kg)* | | | | | |
| Phenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| bis(2-Chloroethyl)Ether | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2-Chlorophenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 1,3-Dichlorobenzene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 1,4-Dichlorobenzene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 1,2-Dichlorobenzene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2-Methylphenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,2'-oxybis(1-Chloropropane) | 370 U | 350 U | 380 U | 370 U | 370 U |
| 4-Methylphenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| N-Nitroso-Di-n-Propylamine | 370 U | 350 U | 380 U | 370 U | 370 U |
| Hexachloroethane | 370 U | 350 U | 380 U | 370 U | 370 U |
| Nitrobenzene | 370 U | 350 U | 380 U | 370 U | 370 U |
| Isophorone | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2-Nitrophenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,4-Dimethylphenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| bis(2-Chloroethoxy)Methane | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,4-Dichlorophenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 1,2,4-Trichlorobenzene | 370 U | 350 U | 380 U | 370 U | 370 U |
| Naphthalene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 4-Chloroaniline | 370 U | 350 U | 380 U | 370 U | 370 U |
| Hexachlorobutadiene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 4-Chloro-3-Methylphenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2-Methylnaphthalene | 370 U | 350 U | 380 U | 370 U | 370 U |
| Hexachlorocyclopentadiene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,4,6-Trichlorophenol | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,4,5-Trichlorophenol | 890 U | 860 U | 930 U | 910 U | 910 U |
| 2-Chloronaphthalene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2-Nitroaniline | 890 U | 860 U | 930 U | 910 U | 910 U |
| Dimethylphthalate | 370 U | 350 U | 380 U | 370 U | 370 U |
| Acenaphthylene | 370 U | 350 U | 380 U | 370 U | 370 U |
| 2,6-Dinitrotoluene | 370 U | 350 U | 380 U | 370 U | 370 U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/21/93 | | 6/21/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-2D | | SB7-2F | | SB7-3F | | SB7-3G | | SB7-4E | |
| Organic Traffic Report Number | EXR07 | | EXR06 | | EXR08 | | EXR09 | | EXR10 | |
| 3-Nitroaniline | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| Acenaphthene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| 2,4-Dinitrophenol | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| 4-Nitrophenol | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| Dibenzofuran | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| 2,4-Dinitrotoluene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Diethylphthalate | 370 | U | 350 | U | 380 | U | 31 | BJ | 370 | U |
| 4-Chlorophenyl-phenylether | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Fluorene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| 4-Nitroaniline | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| 4,6-Dinitro-2-Methylphenol | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| N-Nitrosodiphenylamine (1) | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| 4-Bromophenyl-phenylether | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Hexachlorobenzene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Pentachlorophenol | 890 | U | 860 | U | 930 | U | 910 | U | 910 | U |
| Phenanthrene | 370 | U | 350 | U | 380 | U | 370 | U | 43 | J |
| Anthracene | 370 | U | 350 | U | 380 | U | 370 | U | 43 | J |
| Carbazole | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Di-n-Butylphthalate | 28 | BJ | 33 | BJ | 31 | BJ | 67 | BJ | 79 | BJ |
| Fluoranthene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Pyrene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Butylbenzylphthalate | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Benzo(a)anthracene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Chrysene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 45 | J | 65 | J | 170 | J | 46 | J | 350 | J |
| Di-n-Octyl Phthalate | 370 | U | 350 | U | 23 | J | 370 | U | 370 | U |
| Benzo (b) Fluoranthene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Benzo (k) Fluoranthene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Benzo (a) Pyrene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/21/93 | | 6/21/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-2D | | SB7-2F | | SB7-3F | | SB7-3G | | SB7-4E | |
| Organic Traffic Report Number | EXR07 | | EXR06 | | EXR08 | | EXR09 | | EXR10 | |
| Benzo (g,h,i) Perylene | 370 | U | 350 | U | 380 | U | 370 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| beta-BHC | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| delta-BHC | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| gamma-BHC (Lindane) | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Heptachlor | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Aldrin | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Heptachlor epoxide | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Endosulfan I | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Dieldrin | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDE | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endrin | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endosulfan II | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDD | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endosulfan sulfate | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDT | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Methoxychlor | 19 | U | 18 | U | 20 | U | 19 | U | 19 | U |
| Endrin ketone | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endrin aldehyde | 3.7 | U | 3.5 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| alpha-Chlordane | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| gamma-Chlordane | 1.9 | U | 1.8 | U | 2 | U | 1.9 | U | 1.9 | U |
| Toxaphene | 190 | U | 180 | U | 200 | U | 190 | U | 190 | U |
| Aroclor-1016 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1221 | 74 | U | 72 | U | 78 | U | 76 | U | 76 | U |
| Aroclor-1232 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1242 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1248 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1254 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1260 | 37 | U | 35 | U | 38 | U | 37 | U | 37 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
| Sample Number | SB7-4H | | SB7-5B | | SB7-5E | | SB7-5E(D) | | SB7-6F | |
| Organic Traffic Report Number | EXR11 | | EXR12 | | EXR13 | | EXR14 | | EXR15 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| bis(2-Chloroethyl)Ether | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2-Chlorophenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 1,3-Dichlorobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 1,4-Dichlorobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 1,2-Dichlorobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2-Methylphenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,2'-oxybis(1-Chloropropane) | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 4-Methylphenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| N-Nitroso-Di-n-Propylamine | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Hexachloroethane | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Nitrobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Isophorone | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2-Nitrophenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4-Dimethylphenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| bis(2-Chloroethoxy)Methane | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4-Dichlorophenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 1,2,4-Trichlorobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Naphthalene | 400 | U | 360 | U | 12000 | U | 11000 | U | 160 | J |
| 4-Chloroaniline | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Hexachlorobutadiene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 4-Chloro-3-Methylphenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2-Methylnaphthalene | 400 | U | 360 | U | 12000 | U | 11000 | U | 55 | J |
| Hexachlorocyclopentadiene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4,6-Trichlorophenol | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4,5-Trichlorophenol | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| 2-Chloronaphthalene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2-Nitroaniline | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| Dimethylphthalate | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Acenaphthylene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,6-Dinitrotoluene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-4H | | SB7-5B | | SB7-5E | | SB7-5E(D) | | SB7-6F | |
| Organic Traffic Report Number | EXR11 | | EXR12 | | EXR13 | | EXR14 | | EXR15 | |
| 3-Nitroaniline | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| Acenaphthene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4-Dinitrophenol | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| 4-Nitrophenol | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| Dibenzofuran | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 2,4-Dinitrotoluene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Diethylphthalate | 45 | BJ | 33 | BJ | 12000 | U | 11000 | U | 29 | J |
| 4-Chlorophenyl-phenylether | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Fluorene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 4-Nitroaniline | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| 4,6-Dinitro-2-Methylphenol | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| N-Nitrosodiphenylamine (1) | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 4-Bromophenyl-phenylether | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Hexachlorobenzene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Pentachlorophenol | 960 | U | 880 | U | 29000 | U | 28000 | U | 900 | U |
| Phenanthrene | 35 | J | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Anthracene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Carbazole | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Di-n-Butylphthalate | 87 | BJ | 49 | BJ | 650 | JH | 790 | JH | 79 | J |
| Fluoranthene | 22 | J | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Pyrene | 24 | J | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Butylbenzylphthalate | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Benzo(a)anthracene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Chrysene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 330 | J | 110 | J | 12000 | U | 630 | JH | 110 | J |
| Di-n-Octyl Phthalate | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Benzo (b) Fluoranthene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Benzo (k) Fluoranthene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Benzo (a) Pyrene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-4H | | SB7-5B | | SB7-5E | | SB7-5E(D) | | SB7-6F | |
| Organic Traffic Report Number | EXR11 | | EXR12 | | EXR13 | | EXR14 | | EXR15 | |
| Benzo (g,h,i) Perylene | 400 | U | 360 | U | 12000 | U | 11000 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| beta-BHC | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| delta-BHC | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| gamma-BHC (Lindane) | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Heptachlor | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Aldrin | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Heptachlor epoxide | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Endosulfan I | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Dieldrin | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDE | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endrin | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endosulfan II | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDD | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endosulfan sulfate | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDT | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Methoxychlor | 20 | U | 19 | U | 20 | U | 19 | U | 19 | U |
| Endrin ketone | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| Endrin aldehyde | 4 | U | 3.6 | U | 3.8 | U | 3.7 | U | 3.7 | U |
| alpha-Chlordane | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| gamma-Chlordane | 2 | U | 1.9 | U | 2 | U | 1.9 | U | 1.9 | U |
| Toxaphene | 200 | U | 190 | U | 200 | U | 190 | U | 190 | U |
| Aroclor-1016 | 40 | U | 36 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1221 | 81 | U | 74 | U | 78 | U | 76 | U | 75 | U |
| Aroclor-1232 | 40 | U | 36 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1242 | 40 | U | 36 | U | 170 | | 140 | | 37 | JP |
| Aroclor-1248 | 40 | U | 36 | U | 38 | U | 37 | U | 37 | U |
| Aroclor-1254 | 40 | U | 36 | U | 38 | U | 37 | U | 13 | J |
| Aroclor-1260 | 40 | U | 36 | U | 38 | U | 37 | U | 37 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/22/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | |
| Sample Number | SB7-6H | | SB7-7F | | SB7-7I | | SB7-8D | | SB7-9E | |
| Organic Traffic Report Number | EXR16 | | EXR18 | | EXR-17 | | EXR19 | | EXR21 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| bis(2-Chloroethyl)Ether | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2-Chlorophenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 1,3-Dichlorobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 1,4-Dichlorobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 1,2-Dichlorobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2-Methylphenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,2'-oxybis(1-Chloropropane) | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 4-Methylphenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| N-Nitroso-Di-n-Propylamine | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Hexachloroethane | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Nitrobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Isophorone | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2-Nitrophenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4-Dimethylphenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| bis(2-Chloroethoxy)Methane | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4-Dichlorophenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 1,2,4-Trichlorobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Naphthalene | 61 | J | 3800 | J | 55 | J | 11000 | | 13000 | |
| 4-Chloroaniline | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Hexachlorobutadiene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 4-Chloro-3-Methylphenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2-Methylnaphthalene | 53 | J | 2500 | J | 35 | J | 7300 | | 5700 | J |
| Hexachlorocyclopentadiene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4,6-Trichlorophenol | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4,5-Trichlorophenol | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| 2-Chloronaphthalene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2-Nitroaniline | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| Dimethylphthalate | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Acenaphthylene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,6-Dinitrotoluene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/22/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-6H | | SB7-7F | | SB7-7I | | SB7-8D | | SB7-9E | |
| Organic Traffic Report Number | EXR16 | | EXR18 | | EXR-17 | | EXR19 | | EXR21 | |
| 3-Nitroaniline | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| Acenaphthene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4-Dinitrophenol | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| 4-Nitrophenol | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| Dibenzofuran | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 2,4-Dinitrotoluene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Diethylphthalate | 29 | J | 1800 | J | 41 | BJ | 1900 | U | 11000 | U |
| 4-Chlorophenyl-phenylether | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Fluorene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 4-Nitroaniline | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| 4,6-Dinitro-2-Methylphenol | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 4-Bromophenyl-phenylether | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Hexachlorobenzene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Pentachlorophenol | 920 | U | 27000 | U | 900 | U | 4500 | U | 27000 | U |
| Phenanthrene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Anthracene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Carbazole | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Di-n-Butylphthalate | 100 | J | 1400 | J | 84 | BJ | 840 | BJ | 1700 | J |
| Fluoranthene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Pyrene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Butylbenzylphthalate | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Benzo(a)anthracene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Chrysene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| bis(2-Ethylhexyl)Phthalate | 85 | J | 11000 | U | 57 | J | 1900 | U | 11000 | U |
| Di-n-Octyl Phthalate | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Benzo (b) Fluoranthene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Benzo (k) Fluoranthene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Benzo (a) Pyrene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/22/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-6H | | SB7-7F | | SB7-7I | | SB7-8D | | SB7-9E | |
| Organic Traffic Report Number | EXR16 | | EXR18 | | EXR-17 | | EXR19 | | EXR21 | |
| Benzo (g,h,i) Perylene | 380 | U | 11000 | U | 370 | U | 1900 | U | 11000 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| beta-BHC | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| delta-BHC | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| gamma-BHC (Lindane) | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Heptachlor | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Aldrin | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Heptachlor epoxide | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Endosulfan I | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Dieldrin | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| 4,4'-DDE | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| Endrin | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| Endosulfan II | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| 4,4'-DDD | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| Endosulfan sulfate | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| 4,4'-DDT | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| Methoxychlor | 20 | U | 92 | U | 19 | U | 480 | U | 470 | U |
| Endrin ketone | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| Endrin aldehyde | 3.8 | U | 18 | U | 3.7 | U | 93 | U | 91 | U |
| alpha-Chlordane | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| gamma-Chlordane | 2 | U | 9.2 | U | 1.9 | U | 48 | U | 47 | U |
| Toxaphene | 200 | U | 920 | U | 190 | U | 4800 | U | 4700 | U |
| Aroclor-1016 | 38 | U | 180 | U | 37 | U | 930 | U | 910 | U |
| Aroclor-1221 | 77 | U | 360 | U | 75 | U | 1900 | U | 1800 | U |
| Aroclor-1232 | 38 | U | 250 | P | 37 | U | 490 | JP | 910 | U |
| Aroclor-1242 | 21 | JP | 180 | U | 37 | U | 930 | U | 910 | U |
| Aroclor-1248 | 38 | U | 180 | U | 37 | U | 930 | U | 910 | U |
| Aroclor-1254 | 7.8 | J | 410 | P | 8.9 | JP | 1400 | P | 2500 | |
| Aroclor-1260 | 38 | U | 180 | U | 37 | U | 930 | U | 910 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/23/93 | | 6/23/93 | | 6/24/93 | | 6/24/93 | | 6/24/93 | |
| Sample Number | SB7-9J | | SB7-10A | | SB7-11D | | SB7-12D | | SB7-12D(D) | |
| Organic Traffic Report Number | EXR22 | | EXR23 | | EXR25 | | EXR26 | | EXR27 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Chloroethyl)Ether | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2-Chlorophenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 1,3-Dichlorobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 1,4-Dichlorobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 1,2-Dichlorobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2-Methylphenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,2'-oxybis(1-Chloropropane) | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 4-Methylphenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| N-Nitroso-Di-n-Propylamine | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Hexachloroethane | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Nitrobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Isophorone | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2-Nitrophenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dimethylphenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Chloroethoxy)Methane | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dichlorophenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 1,2,4-Trichlorobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Naphthalene | 31 | J | 15000 | | 380 | U | 380 | U | 370 | U |
| 4-Chloroaniline | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Hexachlorobutadiene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 4-Chloro-3-Methylphenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2-Methylnaphthalene | 370 | U | 10000 | J | 380 | U | 380 | U | 370 | U |
| Hexachlorocyclopentadiene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4,6-Trichlorophenol | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4,5-Trichlorophenol | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| 2-Chloronaphthalene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2-Nitroaniline | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| Dimethylphthalate | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Acenaphthylene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,6-Dinitrotoluene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/23/93 | | 6/23/93 | | 6/24/93 | | 6/24/93 | | 6/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-9J | | SB7-10A | | SB7-11D | | SB7-12D | | SB7-12D(D) | |
| Organic Traffic Report Number | EXR22 | | EXR23 | | EXR25 | | EXR26 | | EXR27 | |
| 3-Nitroaniline | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| Acenaphthene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dinitrophenol | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| 4-Nitrophenol | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| Dibenzofuran | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dinitrotoluene | 370 | U | 1500 | J | 380 | U | 380 | U | 370 | U |
| Diethylphthalate | 21 | BJ | 12000 | U | 32 | BJ | 30 | BJ | 26 | BJ |
| 4-Chlorophenyl-phenylether | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Fluorene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 4-Nitroaniline | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| 4,6-Dinitro-2-Methylphenol | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| N-Nitrosodiphenylamine (1) | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 4-Bromophenyl-phenylether | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Hexachlorobenzene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Pentachlorophenol | 910 | U | 30000 | U | 930 | U | 930 | U | 910 | U |
| Phenanthrene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Anthracene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Carbazole | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Di-n-Butylphthalate | 40 | BJ | 2100 | J | 42 | BJ | 43 | BJ | 38 | BJ |
| Fluoranthene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Pyrene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Butylbenzylphthalate | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Benzo(a)anthracene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Chrysene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 44 | J | 12000 | U | 90 | J | 91 | J | 110 | J |
| Di-n-Octyl Phthalate | 370 | U | 12000 | U | 380 | U | 22 | J | 29 | J |
| Benzo (b) Fluoranthene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Benzo (k) Fluoranthene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Benzo (a) Pyrene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/23/93 | | 6/23/93 | | 6/24/93 | | 6/24/93 | | 6/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-9J | | SB7-10A | | SB7-11D | | SB7-12D | | SB7-12D(D) | |
| Organic Traffic Report Number | EXR22 | | EXR23 | | EXR25 | | EXR26 | | EXR27 | |
| Benzo (g,h,i) Perylene | 370 | U | 12000 | U | 380 | U | 380 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| beta-BHC | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| delta-BHC | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| gamma-BHC (Lindane) | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Heptachlor | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Aldrin | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Heptachlor epoxide | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Endosulfan I | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Dieldrin | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDE | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endrin | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endosulfan II | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDD | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endosulfan sulfate | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDT | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Methoxychlor | 19 | U | 1000 | U | 20 | U | 20 | U | 19 | U |
| Endrin ketone | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endrin aldehyde | 3.7 | U | 200 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| alpha-Chlordane | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| gamma-Chlordane | 1.9 | U | 100 | U | 2 | U | 2 | U | 1.9 | U |
| Toxaphene | 190 | U | 10000 | U | 200 | U | 200 | U | 190 | U |
| Aroclor-1016 | 37 | U | 2000 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1221 | 76 | U | 4000 | U | 78 | U | 78 | U | 76 | U |
| Aroclor-1232 | 37 | U | 2000 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1242 | 37 | U | 2000 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1248 | 37 | U | 2000 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1254 | 5.6 | JP | 480 | JP | 38 | U | 38 | U | 37 | U |
| Aroclor-1260 | 37 | U | 2000 | U | 38 | U | 38 | U | 37 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 6/24/93 | 6/24/93 | 6/29/93 | 6/29/93 | 9/23/93 |
| Sample Number | SB7-13E | SB7-13E(D) | SB7-14C | SB7-14D | SB7-15A |
| Organic Traffic Report Number | EXR28 | EXR29 | EXR44 | EXR45 | EXS10 |
| *Semivolatile Organics (ug/kg)* | | | | | |
| Phenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| bis(2-Chloroethyl)Ether | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2-Chlorophenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 1,3-Dichlorobenzene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 1,4-Dichlorobenzene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 1,2-Dichlorobenzene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2-Methylphenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,2'-oxybis(1-Chloropropane) | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 4-Methylphenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| N-Nitroso-Di-n-Propylamine | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Hexachloroethane | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Nitrobenzene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Isophorone | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2-Nitrophenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,4-Dimethylphenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| bis(2-Chloroethoxy)Methane | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,4-Dichlorophenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 1,2,4-Trichlorobenzene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Naphthalene | 370 U | 370 U | 370 U | 710 J | 380 U |
| 4-Chloroaniline | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Hexachlorobutadiene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 4-Chloro-3-Methylphenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2-Methylnaphthalene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Hexachlorocyclopentadiene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,4,6-Trichlorophenol | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,4,5-Trichlorophenol | 910 U | 910 U | 890 U | 28000 U | 910 U |
| 2-Chloronaphthalene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2-Nitroaniline | 910 U | 910 U | 890 U | 28000 U | 910 U |
| Dimethylphthalate | 370 U | 370 U | 370 U | 11000 U | 380 U |
| Acenaphthylene | 370 U | 370 U | 370 U | 11000 U | 380 U |
| 2,6-Dinitrotoluene | 370 U | 370 U | 370 U | 11000 U | 380 U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/24/93 | | 6/24/93 | | 6/29/93 | | 6/29/93 | | 9/23/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-13E | | SB7-13E(D) | | SB7-14C | | SB7-14D | | SB7-15A | |
| Organic Traffic Report Number | EXR28 | | EXR29 | | EXR44 | | EXR45 | | EXS10 | |
| 3-Nitroaniline | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| Acenaphthene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| 2,4-Dinitrophenol | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| 4-Nitrophenol | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| Dibenzofuran | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| 2,4-Dinitrotoluene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Diethylphthalate | 64 | BJ | 370 | U | 370 | U | 11000 | U | 380 | U |
| 4-Chlorophenyl-phenylether | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Fluorene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| 4-Nitroaniline | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| 4,6-Dinitro-2-Methylphenol | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| N-Nitrosodiphenylamine (1) | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| 4-Bromophenyl-phenylether | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Hexachlorobenzene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Pentachlorophenol | 910 | U | 910 | U | 890 | U | 28000 | U | 910 | U |
| Phenanthrene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Anthracene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Carbazole | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Di-n-Butylphthalate | 41 | BJ | 44 | BJ | 370 | U | 11000 | U | 380 | UB |
| Fluoranthene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Pyrene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Butylbenzylphthalate | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| 3,3'-Dichlorobenzidine | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Benzo(a)anthracene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Chrysene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| bis(2-Ethylhexyl)Phthalate | 370 | U | 370 | U | 76 | J | 11000 | U | 120 | J |
| Di-n-Octyl Phthalate | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Benzo (b) Fluoranthene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Benzo (k) Fluoranthene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Benzo (a) Pyrene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Ideno (1,2,3-cd) Pyrene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| Dibenzo (a,h) Anthracene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/24/93 | | 6/24/93 | | 6/29/93 | | 6/29/93 | | 9/23/93 | |
| Sample Number | SB7-13E | | SB7-13E(D) | | SB7-14C | | SB7-14D | | SB7-15A | |
| Organic Traffic Report Number | EXR28 | | EXR29 | | EXR44 | | EXR45 | | EXS10 | |
| Benzo (g,h,i) Perylene | 370 | U | 370 | U | 370 | U | 11000 | U | 380 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 1.9 | U | 1.9 | U | 0.28 | JP | 2 | U |
| beta-BHC | 1.9 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| delta-BHC | 1.9 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 1.9 | U | 1.9 | U | 1.9 | U | 0.68 | J | 2 | U |
| Heptachlor | 1.9 | U | 1.9 | U | 1.9 | U | 0.13 | JP | 2 | U |
| Aldrin | 1.9 | U | 1.9 | U | 1.9 | U | 15 | | 2 | U |
| Heptachlor epoxide | 1.9 | U | 1.9 | U | 1.9 | U | 2.8 | P | 2 | U |
| Endosulfan I | 1.9 | U | 1.9 | U | 1.9 | U | 1.9 | U | 2 | U |
| Dieldrin | 3.7 | U | 3.7 | U | 3.7 | U | 2.1 | PBJ | 3.8 | U |
| 4,4'-DDE | 3.7 | U | 3.7 | U | 0.35 | P | 12 | | 3.8 | U |
| Endrin | 3.7 | U | 3.7 | U | 3.7 | U | 1.9 | UB | 3.8 | U |
| Endosulfan II | 3.7 | U | 3.7 | U | 3.7 | U | 6.2 | P | 3.8 | U |
| 4,4'-DDD | 3.7 | U | 3.7 | U | 3.7 | U | 1 | JP | 3.8 | U |
| Endosulfan sulfate | 3.7 | U | 3.7 | U | 3.7 | U | 0.33 | JP | 3.8 | U |
| 4,4'-DDT | 3.7 | U | 3.7 | U | 3.7 | U | 4 | P | 3.8 | U |
| Methoxychlor | 19 | U | 19 | U | 19 | U | 4.4 | JP | 20 | U |
| Endrin ketone | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 3.8 | U |
| Endrin aldehyde | 3.7 | U | 3.7 | U | 3.7 | U | 1.7 | JP | 3.8 | U |
| alpha-Chlordane | 1.9 | U | 1.9 | U | 1.9 | U | 9.8 | | 2 | U |
| gamma-Chlordane | 1.9 | U | 1.9 | U | 1.9 | U | 1.3 | JP | 2 | U |
| Toxaphene | 190 | U | 190 | U | 190 | U | 190 | U | 200 | U |
| Aroclor-1016 | 37 | U | 37 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1221 | 76 | U | 76 | U | 74 | U | 75 | U | 77 | U |
| Aroclor-1232 | 37 | U | 37 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1242 | 37 | U | 37 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1248 | 37 | U | 37 | U | 37 | U | 37 | U | 38 | U |
| Aroclor-1254 | 37 | U | 37 | U | 37 | U | 430 | C | 38 | U |
| Aroclor-1260 | 37 | U | 37 | U | 37 | U | 37 | U | 38 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 9/23/93 | | 9/24/93 | | 9/24/93 | | 7/13/93 | | 7/13/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-17A | | SB7-24A | | SB7-24B | | SB9-1F | | SB9-1F(D) | |
| Organic Traffic Report Number | EXS11 | | EXS12 | | EXS13 | | EXR56 | | EXR57 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| bis(2-Chloroethyl)Ether | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2-Chlorophenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 1,3-Dichlorobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 1,4-Dichlorobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 1,2-Dichlorobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2-Methylphenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,2'-oxybis(1-Chloropropane) | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 4-Methylphenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| N-Nitroso-Di-n-Propylamine | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Hexachloroethane | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Nitrobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Isophorone | 370 | U | 350 | U | 880 | | 350 | U | 350 | U |
| 2-Nitrophenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4-Dimethylphenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| bis(2-Chloroethoxy)Methane | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4-Dichlorophenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 1,2,4-Trichlorobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Naphthalene | 370 | U | 1000 | | 370 | U | 350 | U | 350 | U |
| 4-Chloroaniline | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Hexachlorobutadiene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 4-Chloro-3-Methylphenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2-Methylnaphthalene | 370 | U | 1100 | | 370 | U | 350 | U | 350 | U |
| Hexachlorocyclopentadiene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4,6-Trichlorophenol | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4,5-Trichlorophenol | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| 2-Chloronaphthalene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2-Nitroaniline | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| Dimethylphthalate | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Acenaphthylene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,6-Dinitrotoluene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/23/93 | | 9/24/93 | | 9/24/93 | | 7/13/93 | | 7/13/93 | |
| Sample Number | SB7-17A | | SB7-24A | | SB7-24B | | SB9-1F | | SB9-1F(D) | |
| Organic Traffic Report Number | EXS11 | | EXS12 | | EXS13 | | EXR56 | | EXR57 | |
| 3-Nitroaniline | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| Acenaphthene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4-Dinitrophenol | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| 4-Nitrophenol | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| Dibenzofuran | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 2,4-Dinitrotoluene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Diethylphthalate | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 4-Chlorophenyl-phenylether | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Fluorene | 370 | U | 130 | J | 370 | U | 350 | U | 350 | U |
| 4-Nitroaniline | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| 4,6-Dinitro-2-Methylphenol | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| N-Nitrosodiphenylamine (1) | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 4-Bromophenyl-phenylether | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Hexachlorobenzene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Pentachlorophenol | 890 | U | 850 | U | 910 | U | 840 | U | 840 | U |
| Phenanthrene | 370 | U | 140 | J | 370 | U | 350 | U | 350 | U |
| Anthracene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Carbazole | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Di-n-Butylphthalate | 370 | UB | 350 | UB | 370 | UB | 350 | UB | 350 | UB |
| Fluoranthene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Pyrene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Butylbenzylphthalate | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| 3,3'-Dichlorobenzidine | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Benzo(a)anthracene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Chrysene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| bis(2-Ethylhexyl)Phthalate | 130 | J | 1200 | | 240 | J | 350 | UB | 350 | UB |
| Di-n-Octyl Phthalate | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Benzo (b) Fluoranthene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Benzo (k) Fluoranthene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Benzo (a) Pyrene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Ideno (1,2,3-cd) Pyrene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| Dibenzo (a,h) Anthracene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 9/23/93 | | 9/24/93 | | 9/24/93 | | 7/13/93 | | 7/13/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB7-17A | | SB7-24A | | SB7-24B | | SB9-1F | | SB9-1F(D) | |
| Organic Traffic Report Number | EXS11 | | EXS12 | | EXS13 | | EXR56 | | EXR57 | |
| Benzo (g,h,i) Perylene | 370 | U | 350 | U | 370 | U | 350 | U | 350 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| beta-BHC | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| delta-BHC | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| gamma-BHC (Lindane) | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| Heptachlor | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| Aldrin | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| Heptachlor epoxide | 1.9 | U | 3.3 | PJ | 1.9 | U | 1.8 | U | 1.8 | U |
| Endosulfan I | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| Dieldrin | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| 4,4'-DDE | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| Endrin | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| Endosulfan II | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| 4,4'-DDD | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| Endosulfan sulfate | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| 4,4'-DDT | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| Methoxychlor | 19 | U | 18 | U | 33 | | 18 | U | 3.5 | UB |
| Endrin ketone | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| Endrin aldehyde | 3.7 | U | 3.5 | U | 3.7 | U | 3.5 | U | 3.5 | U |
| alpha-Chlordane | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| gamma-Chlordane | 1.9 | U | 1.8 | U | 1.9 | U | 1.8 | U | 1.8 | U |
| Toxaphene | 190 | U | 180 | U | 190 | U | 180 | U | 180 | U |
| Aroclor-1016 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |
| Aroclor-1221 | 75 | U | 71 | U | 76 | U | 70 | U | 70 | U |
| Aroclor-1232 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |
| Aroclor-1242 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |
| Aroclor-1248 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |
| Aroclor-1254 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |
| Aroclor-1260 | 37 | U | 35 | U | 37 | U | 35 | U | 35 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/26/93 | |
| Sample Number | SB11-1G | | SB11-1J | | SB11-1J(D) | | SB11-2D | | SB11-3D | |
| Organic Traffic Report Number | EXR76 | | EXR77 | | EXR78 | | EXR79 | | EXR80 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Chloroethyl)Ether | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2-Chlorophenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 1,3-Dichlorobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 1,4-Dichlorobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 1,2-Dichlorobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2-Methylphenol | 470 | | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,2'-oxybis(1-Chloropropane) | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 4-Methylphenol | 540 | | 390 | U | 380 | U | 390 | U | 390 | U |
| N-Nitroso-Di-n-Propylamine | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Hexachloroethane | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Nitrobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Isophorone | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2-Nitrophenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dimethylphenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Chloroethoxy)Methane | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dichlorophenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 1,2,4-Trichlorobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Naphthalene | 1400 | | 390 | U | 380 | U | 390 | U | 390 | U |
| 4-Chloroaniline | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorobutadiene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 4-Chloro-3-Methylphenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2-Methylnaphthalene | 52 | J | 390 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorocyclopentadiene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4,6-Trichlorophenol | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4,5-Trichlorophenol | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| 2-Chloronaphthalene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2-Nitroaniline | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| Dimethylphthalate | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Acenaphthylene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,6-Dinitrotoluene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/26/93 | |
| Sample Number | SB11-1G | | SB11-1J | | SB11-1J(D) | | SB11-2D | | SB11-3D | |
| Organic Traffic Report Number | EXR76 | | EXR77 | | EXR78 | | EXR79 | | EXR80 | |
| 3-Nitroaniline | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| Acenaphthene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrophenol | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| 4-Nitrophenol | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| Dibenzofuran | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrotoluene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Diethylphthalate | 380 | UB | 390 | U | 380 | UB | 390 | U | 390 | UB |
| 4-Chlorophenyl-phenylether | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Fluorene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 4-Nitroaniline | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| 4,6-Dinitro-2-Methylphenol | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 4-Bromophenyl-phenylether | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorobenzene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Pentachlorophenol | 920 | U | 950 | U | 910 | U | 940 | U | 940 | U |
| Phenanthrene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Anthracene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Carbazole | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Di-n-Butylphthalate | 380 | UB | 390 | U | 380 | U | 390 | U | 390 | U |
| Fluoranthene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Pyrene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Butylbenzylphthalate | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Benzo(a)anthracene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Chrysene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 560 | BJ | 390 | UB | 380 | UB | 390 | U | 390 | UB |
| Di-n-Octyl Phthalate | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Benzo (b) Fluoranthene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Benzo (k) Fluoranthene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Benzo (a) Pyrene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/26/93 | |
| Sample Number | SB11-1G | | SB11-1J | | SB11-1J(D) | | SB11-2D | | SB11-3D | |
| Organic Traffic Report Number | EXR76 | | EXR77 | | EXR78 | | EXR79 | | EXR80 | |
| Benzo (g,h,i) Perylene | 380 | U | 390 | U | 380 | U | 390 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 0.57 | JP | 2 | U | 1.9 | U | 2 | U | 2 | U |
| beta-BHC | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| delta-BHC | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| gamma-BHC (Lindane) | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Heptachlor | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Aldrin | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Heptachlor epoxide | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Endosulfan I | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Dieldrin | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDE | 0.26 | JP | 3.9 | U | 3.8 | U | 0.54 | JP | 0.68 | JP |
| Endrin | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endosulfan II | 0.34 | JP | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDD | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endosulfan sulfate | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDT | 0.56 | J | 3.9 | U | 3.8 | U | 0.3 | JP | 3.9 | U |
| Methoxychlor | 20 | U | 20 | U | 19 | U | 20 | U | 20 | U |
| Endrin ketone | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endrin aldehyde | 3.8 | U | 3.9 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| alpha-Chlordane | 0.18 | J | 2 | U | 1.9 | U | 2 | U | 2 | U |
| gamma-Chlordane | 2 | U | 2 | U | 1.9 | U | 2 | U | 2 | U |
| Toxaphene | 200 | U | 200 | U | 190 | U | 200 | U | 200 | U |
| Aroclor-1016 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1221 | 77 | U | 80 | U | 76 | U | 79 | U | 79 | U |
| Aroclor-1232 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1242 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1248 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1254 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1260 | 38 | U | 39 | U | 38 | U | 39 | U | 39 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 8/27/93 | 8/27/93 | 8/26/93 | 8/26/93 | 8/31/93 |
| Sample Number | SB11-4G | SB11-4L | SB11-5H | SB11-5K | SB11-6G |
| Organic Traffic Report Number | EXR83 | EXR84 | EXR81 | EXR82 | EXR88 |
| *Semivolatile Organics (ug/kg)* | | | | | |
| Phenol | 380 U | 350 U | 380 U | 390 U | 390 UB |
| bis(2-Chloroethyl)Ether | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2-Chlorophenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| 1,3-Dichlorobenzene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 1,4-Dichlorobenzene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 1,2-Dichlorobenzene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2-Methylphenol | 450 | 60 J | 380 U | 390 U | 120 J |
| 2,2'-oxybis(1-Chloropropane) | 380 U | 350 U | 380 U | 390 U | 390 U |
| 4-Methylphenol | 300 J | 350 U | 380 U | 390 U | 100 J |
| N-Nitroso-Di-n-Propylamine | 380 U | 350 U | 380 U | 390 U | 390 U |
| Hexachloroethane | 380 U | 350 U | 380 U | 390 U | 390 U |
| Nitrobenzene | 380 U | 350 U | 380 U | 390 U | 390 U |
| Isophorone | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2-Nitrophenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2,4-Dimethylphenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| bis(2-Chloroethoxy)Methane | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2,4-Dichlorophenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| 1,2,4-Trichlorobenzene | 380 U | 350 U | 380 U | 390 U | 390 U |
| Naphthalene | 80 J | 350 U | 150 J | 390 U | 390 U |
| 4-Chloroaniline | 380 U | 350 U | 380 U | 390 U | 390 U |
| Hexachlorobutadiene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 4-Chloro-3-Methylphenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2-Methylnaphthalene | 73 J | 350 U | 130 J | 390 U | 390 U |
| Hexachlorocyclopentadiene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2,4,6-Trichlorophenol | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2,4,5-Trichlorophenol | 910 U | 850 U | 910 U | 950 U | 950 U |
| 2-Chloronaphthalene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2-Nitroaniline | 910 U | 850 U | 910 U | 950 U | 950 U |
| Dimethylphthalate | 380 U | 350 U | 380 U | 390 U | 390 U |
| Acenaphthylene | 380 U | 350 U | 380 U | 390 U | 390 U |
| 2,6-Dinitrotoluene | 380 U | 350 U | 380 U | 390 U | 390 U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/27/93 | | 8/27/93 | | 8/26/93 | | 8/26/93 | | 8/31/93 | |
| Sample Number | SB11-4G | | SB11-4L | | SB11-5H | | SB11-5K | | SB11-6G | |
| Organic Traffic Report Number | EXR83 | | EXR84 | | EXR81 | | EXR82 | | EXR88 | |
| 3-Nitroaniline | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| Acenaphthene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrophenol | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| 4-Nitrophenol | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| Dibenzofuran | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrotoluene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Diethylphthalate | 380 | UB | 350 | UB | 380 | U | 390 | UB | 390 | U |
| 4-Chlorophenyl-phenylether | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Fluorene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| 4-Nitroaniline | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| 4,6-Dinitro-2-Methylphenol | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| 4-Bromophenyl-phenylether | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorobenzene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Pentachlorophenol | 910 | U | 850 | U | 910 | U | 950 | U | 950 | U |
| Phenanthrene | 21 | J | 350 | U | 380 | U | 16 | J | 390 | U |
| Anthracene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Carbazole | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Di-n-Butylphthalate | 380 | U | 350 | U | 380 | UB | 390 | U | 390 | UB |
| Fluoranthene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Pyrene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Butylbenzylphthalate | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Benzo(a)anthracene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Chrysene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 380 | UB | 350 | UB | 1300 | | 1100 | BJ | 390 | UB |
| Di-n-Octyl Phthalate | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Benzo (b) Fluoranthene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Benzo (k) Fluoranthene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Benzo (a) Pyrene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/27/93 | | 8/27/93 | | 8/26/93 | | 8/26/93 | | 8/31/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-4G | | SB11-4L | | SB11-5H | | SB11-5K | | SB11-6G | |
| Organic Traffic Report Number | EXR83 | | EXR84 | | EXR81 | | EXR82 | | EXR88 | |
| Benzo (g,h,i) Perylene | 380 | U | 350 | U | 380 | U | 390 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 0.23 | JP | 1.8 | U | 0.96 | JP | 2 | U | 2 | U |
| beta-BHC | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| delta-BHC | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| gamma-BHC (Lindane) | 1.9 | U | 0.18 | JP | 1.9 | U | 2 | U | 2 | U |
| Heptachlor | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| Aldrin | 1.9 | U | 1.8 | U | 0.29 | JP | 2 | U | 2 | U |
| Heptachlor epoxide | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| Endosulfan I | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| Dieldrin | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDE | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endrin | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endosulfan II | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDD | 0.29 | JP | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endosulfan sulfate | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDT | 3.8 | U | 3.5 | U | 0.43 | JP | 0.45 | JP | 3.9 | U |
| Methoxychlor | 19 | U | 18 | U | 19 | U | 20 | U | 20 | U |
| Endrin ketone | 3.8 | U | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endrin aldehyde | 0.49 | JP | 3.5 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| alpha-Chlordane | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| gamma-Chlordane | 1.9 | U | 1.8 | U | 1.9 | U | 2 | U | 2 | U |
| Toxaphene | 190 | U | 180 | U | 190 | U | 200 | U | 200 | U |
| Aroclor-1016 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |
| Aroclor-1221 | 76 | U | 71 | U | 76 | U | 80 | U | 80 | UJ |
| Aroclor-1232 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |
| Aroclor-1242 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |
| Aroclor-1248 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |
| Aroclor-1254 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |
| Aroclor-1260 | 38 | U | 35 | U | 38 | U | 39 | U | 39 | UJ |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/31/93 | | 9/1/93 | | 9/1/93 | | 8/30/93 | | 8/30/93 | |
| Sample Number | SB11-6I | | SB11-7G | | SB11-7K | | SB11-8G | | SB11-8I | |
| Organic Traffic Report Number | EXR89 | | EXR91 | | EXR92 | | EXR85 | | EXR86 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 390 | UB | 350 | U | 400 | UB | 370 | U | 400 | UB |
| bis(2-Chloroethyl)Ether | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2-Chlorophenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 1,3-Dichlorobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 1,4-Dichlorobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 1,2-Dichlorobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2-Methylphenol | 390 | U | 350 | U | 400 | U | 580 | | 400 | U |
| 2,2'-oxybis(1-Chloropropane) | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 4-Methylphenol | 390 | U | 350 | U | 400 | U | 640 | | 400 | U |
| N-Nitroso-Di-n-Propylamine | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Hexachloroethane | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Nitrobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Isophorone | 100 | J | 8800 | U | 400 | U | 370 | U | 400 | U |
| 2-Nitrophenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,4-Dimethylphenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| bis(2-Chloroethoxy)Methane | 390 | U | 230 | J | 400 | U | 370 | U | 400 | U |
| 2,4-Dichlorophenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 1,2,4-Trichlorobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Naphthalene | 390 | U | 1000 | | 400 | U | 370 | U | 400 | U |
| 4-Chloroaniline | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Hexachlorobutadiene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 4-Chloro-3-Methylphenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2-Methylnaphthalene | 390 | U | 120 | J | 400 | U | 370 | U | 400 | U |
| Hexachlorocyclopentadiene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,4,6-Trichlorophenol | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,4,5-Trichlorophenol | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| 2-Chloronaphthalene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2-Nitroaniline | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| Dimethylphthalate | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Acenaphthylene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,6-Dinitrotoluene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/31/93 | | 9/1/93 | | 9/1/93 | | 8/30/93 | | 8/30/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-6I | | SB11-7G | | SB11-7K | | SB11-8G | | SB11-8I | |
| Organic Traffic Report Number | EXR89 | | EXR91 | | EXR92 | | EXR85 | | EXR86 | |
| 3-Nitroaniline | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| Acenaphthene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,4-Dinitrophenol | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| 4-Nitrophenol | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| Dibenzofuran | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 2,4-Dinitrotoluene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Diethylphthalate | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 4-Chlorophenyl-phenylether | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Fluorene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 4-Nitroaniline | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| 4,6-Dinitro-2-Methylphenol | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| N-Nitrosodiphenylamine (1) | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 4-Bromophenyl-phenylether | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Hexachlorobenzene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Pentachlorophenol | 940 | U | 850 | U | 970 | U | 890 | U | 960 | U |
| Phenanthrene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Anthracene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Carbazole | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Di-n-Butylphthalate | 390 | UB | 350 | UB | 400 | UB | 370 | UB | 400 | UB |
| Fluoranthene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Pyrene | 390 | U | 350 | U | 400 | U | 63 | J | 400 | U |
| Butylbenzylphthalate | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| 3,3'-Dichlorobenzidine | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Benzo(a)anthracene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Chrysene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| bis(2-Ethylhexyl)Phthalate | 390 | UB | 690 | BJ | 400 | UB | 110 | J | 400 | UB |
| Di-n-Octyl Phthalate | 390 | U | 250 | J | 260 | J | 370 | U | 400 | U |
| Benzo (b) Fluoranthene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Benzo (k) Fluoranthene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Benzo (a) Pyrene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Ideno (1,2,3-cd) Pyrene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| Dibenzo (a,h) Anthracene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/31/93 | | 9/1/93 | | 9/1/93 | | 8/30/93 | | 8/30/93 | |
| Sample Number | SB11-6I | | SB11-7G | | SB11-7K | | SB11-8G | | SB11-8I | |
| Organic Traffic Report Number | EXR89 | | EXR91 | | EXR92 | | EXR85 | | EXR86 | |
| Benzo (g,h,i) Perylene | 390 | U | 350 | U | 400 | U | 370 | U | 400 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| beta-BHC | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| delta-BHC | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Heptachlor | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Aldrin | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Endosulfan I | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Dieldrin | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| 4,4'-DDE | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| Endrin | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| Endosulfan II | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| 4,4'-DDD | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| Endosulfan sulfate | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| 4,4'-DDT | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| Methoxychlor | 20 | U | 18 | U | 21 | U | 19 | U | 20 | U |
| Endrin ketone | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| Endrin aldehyde | 3.9 | U | 3.5 | U | 4 | U | 3.7 | U | 4 | U |
| alpha-Chlordane | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 2 | U | 1.8 | U | 2.1 | U | 1.9 | U | 2 | U |
| Toxaphene | 200 | U | 180 | U | 210 | U | 190 | U | 200 | U |
| Aroclor-1016 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |
| Aroclor-1221 | 79 | UJ | 71 | UJ | 82 | UJ | 74 | U | 80 | UJ |
| Aroclor-1232 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |
| Aroclor-1242 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |
| Aroclor-1248 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |
| Aroclor-1254 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |
| Aroclor-1260 | 39 | UJ | 35 | UJ | 40 | UJ | 37 | U | 40 | UJ |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/30/93 | | 8/31/93 | | 9/1/93 | | 9/1/93 | | 12/1/93 |
| Sample Number | SB11-8I(D) | | SB11-9G | | SB11-10G | | SB11-10J | | SB12-1D |
| Organic Traffic Report Number | EXR87 | | EXR90 | | EXR93 | | EXR94 | | EXT40 |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | |
| Phenol | 400 | U | 380 | UB | 370 | U | 370 | U | 370 | U |
| bis(2-Chloroethyl)Ether | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2-Chlorophenol | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 1,3-Dichlorobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 1,4-Dichlorobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 1,2-Dichlorobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2-Methylphenol | 160 | J | 380 | U | 370 | U | 120 | J | 370 | U |
| 2,2'-oxybis(1-Chloropropane) | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 4-Methylphenol | 400 | U | 380 | U | 370 | U | 61 | J | 370 | U |
| N-Nitroso-Di-n-Propylamine | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Hexachloroethane | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Nitrobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Isophorone | 400 | U | 380 | U | 1400 | DJ | 370 | U | 370 | U |
| 2-Nitrophenol | 400 | U | 380 | U | 1100 | DJ | 370 | U | 370 | U |
| 2,4-Dimethylphenol | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| bis(2-Chloroethoxy)Methane | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dichlorophenol | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 1,2,4-Trichlorobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Naphthalene | 400 | U | 380 | U | 1900 | DJ | 370 | U | 370 | U |
| 4-Chloroaniline | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Hexachlorobutadiene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 4-Chloro-3-Methylphenol | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2-Methylnaphthalene | 400 | U | 380 | U | 140 | J | 370 | U | 370 | U |
| Hexachlorocyclopentadiene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,4,6-Trichlorophenol | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,4,5-Trichlorophenol | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| 2-Chloronaphthalene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2-Nitroaniline | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| Dimethylphthalate | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Acenaphthylene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,6-Dinitrotoluene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/30/93 | | 8/31/93 | | 9/1/93 | | 9/1/93 | | 12/1/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-8I(D) | | SB11-9G | | SB11-10G | | SB11-10J | | SB12-1D | |
| Organic Traffic Report Number | EXR87 | | EXR90 | | EXR93 | | EXR94 | | EXT40 | |
| 3-Nitroaniline | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| Acenaphthene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dinitrophenol | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| 4-Nitrophenol | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| Dibenzofuran | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 2,4-Dinitrotoluene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Diethylphthalate | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 4-Chlorophenyl-phenylether | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Fluorene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 4-Nitroaniline | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| 4,6-Dinitro-2-Methylphenol | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| N-Nitrosodiphenylamine (1) | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 4-Bromophenyl-phenylether | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Hexachlorobenzene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Pentachlorophenol | 960 | U | 930 | U | 890 | U | 910 | U | 900 | U |
| Phenanthrene | 400 | U | 47 | J | 370 | U | 370 | U | 370 | U |
| Anthracene | 400 | U | 45 | J | 370 | U | 370 | U | 370 | U |
| Carbazole | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Di-n-Butylphthalate | 510 | BJ | 930 | UB | 370 | UB | 370 | UB | 370 | U |
| Fluoranthene | 400 | U | 49 | J | 370 | U | 370 | U | 370 | U |
| Pyrene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Butylbenzylphthalate | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Benzo(a)anthracene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Chrysene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 400 | U | 380 | UB | 720 | B | 370 | UB | 370 | UB |
| Di-n-Octyl Phthalate | 400 | U | 380 | U | 370 | U | 45 | J | 54 | J |
| Benzo (b) Fluoranthene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Benzo (k) Fluoranthene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Benzo (a) Pyrene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/30/93 | | 8/31/93 | | 9/1/93 | | 9/1/93 | | 12/1/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-8I(D) | | SB11-9G | | SB11-10G | | SB11-10J | | SB12-1D | |
| Organic Traffic Report Number | EXR87 | | EXR90 | | EXR93 | | EXR94 | | EXT40 | |
| Benzo (g,h,i) Perylene | 400 | U | 380 | U | 370 | U | 370 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| beta-BHC | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| delta-BHC | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| gamma-BHC (Lindane) | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Heptachlor | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Aldrin | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Heptachlor epoxide | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Endosulfan I | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Dieldrin | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDE | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Endrin | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Endosulfan II | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDD | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Endosulfan sulfate | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| 4,4'-DDT | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Methoxychlor | 20 | U | 20 | U | 19 | U | 19 | U | 19 | U |
| Endrin ketone | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Endrin aldehyde | 4 | U | 3.8 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| alpha-Chlordane | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| gamma-Chlordane | 2 | U | 2 | U | 1.9 | U | 1.9 | U | 1.9 | U |
| Toxaphene | 200 | U | 200 | U | 190 | U | 190 | U | 190 | U |
| Aroclor-1016 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |
| Aroclor-1221 | 81 | UJ | 78 | UJ | 74 | UJ | 76 | UJ | 75 | U |
| Aroclor-1232 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |
| Aroclor-1242 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |
| Aroclor-1248 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |
| Aroclor-1254 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |
| Aroclor-1260 | 40 | UJ | 38 | UJ | 37 | UJ | 37 | UJ | 37 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/2/93 | |
| Sample Number | SB12-1H | | SB12-2A | | SB12-2H | | SB12-3H | | SB12-4F | |
| Organic Traffic Report Number | EXT41 | | EXT38 | | EXT39 | | EXT44 | | EXT45 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| bis(2-Chloroethyl)Ether | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2-Chlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 1,3-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 1,4-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 1,2-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,2'-oxybis(1-Chloropropane) | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| N-Nitroso-Di-n-Propylamine | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Hexachloroethane | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Nitrobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Isophorone | 170 | J | 380 | U | 380 | U | 300 | J | 340 | U |
| 2-Nitrophenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,4-Dimethylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| bis(2-Chloroethoxy)Methane | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,4-Dichlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 1,2,4-Trichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Naphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Chloroaniline | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Hexachlorobutadiene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Chloro-3-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2-Methylnaphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Hexachlorocyclopentadiene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,4,6-Trichlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,4,5-Trichlorophenol | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| 2-Chloronaphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2-Nitroaniline | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| Dimethylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Acenaphthylene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,6-Dinitrotoluene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/2/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-1H | | SB12-2A | | SB12-2H | | SB12-3H | | SB12-4F | |
| Organic Traffic Report Number | EXT41 | | EXT38 | | EXT39 | | EXT44 | | EXT45 | |
| 3-Nitroaniline | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| Acenaphthene | 380 | U | 23 | J | 380 | U | 380 | U | 340 | U |
| 2,4-Dinitrophenol | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| 4-Nitrophenol | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| Dibenzofuran | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 2,4-Dinitrotoluene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Diethylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Chlorophenyl-phenylether | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Fluorene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Nitroaniline | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| 4,6-Dinitro-2-Methylphenol | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 4-Bromophenyl-phenylether | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Hexachlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Pentachlorophenol | 930 | U | 930 | U | 930 | U | 920 | U | 830 | U |
| Phenanthrene | 380 | U | 250 | J | 380 | U | 380 | U | 340 | U |
| Anthracene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Carbazole | 380 | U | 36 | J | 380 | U | 380 | U | 340 | U |
| Di-n-Butylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Fluoranthene | 380 | U | 250 | J | 380 | U | 380 | U | 340 | U |
| Pyrene | 380 | U | 390 | | 380 | U | 380 | U | 340 | U |
| Butylbenzylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Benzo(a)anthracene | 380 | U | 130 | J | 380 | U | 380 | U | 340 | U |
| Chrysene | 380 | U | 200 | J | 380 | U | 380 | U | 340 | U |
| bis(2-Ethylhexyl)Phthalate | 400 | BJ | 380 | UB | 380 | UB | 380 | UB | 340 | UB |
| Di-n-Octyl Phthalate | 70 | J | 65 | J | 26 | J | 39 | J | 35 | J |
| Benzo (b) Fluoranthene | 380 | U | 380 | J | 380 | U | 380 | U | 340 | U |
| Benzo (k) Fluoranthene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |
| Benzo (a) Pyrene | 380 | U | 190 | J | 380 | U | 380 | U | 340 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 270 | J | 380 | U | 380 | U | 340 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 380 | U | 380 | U | 380 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/1/93 | | 12/2/93 | |
| Sample Number | SB12-1H | | SB12-2A | | SB12-2H | | SB12-3H | | SB12-4F | |
| Organic Traffic Report Number | EXT41 | | EXT38 | | EXT39 | | EXT44 | | EXT45 | |
| Benzo (g,h,i) Perylene | 380 | U | 390 | | 380 | U | 380 | U | 340 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| beta-BHC | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| delta-BHC | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| gamma-BHC (Lindane) | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| Heptachlor | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| Aldrin | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| Heptachlor epoxide | 2 | U | 3.6 | PJ | 2 | U | 2 | U | 1.8 | U |
| Endosulfan I | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| Dieldrin | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| 4,4'-DDE | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| Endrin | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| Endosulfan II | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| 4,4'-DDD | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| Endosulfan sulfate | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| 4,4'-DDT | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| Methoxychlor | 20 | U | 20 | U | 20 | U | 20 | U | 18 | U |
| Endrin ketone | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| Endrin aldehyde | 3.8 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.4 | U |
| alpha-Chlordane | 2 | U | 2 | U | 2 | U | 2 | U | 1.8 | U |
| gamma-Chlordane | 2 | U | 2.5 | PJ | 2 | U | 2 | U | 1.8 | U |
| Toxaphene | 200 | U | 200 | U | 200 | U | 200 | U | 180 | U |
| Aroclor-1016 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |
| Aroclor-1221 | 78 | U | 78 | U | 78 | U | 77 | U | 70 | U |
| Aroclor-1232 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |
| Aroclor-1242 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |
| Aroclor-1248 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |
| Aroclor-1254 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |
| Aroclor-1260 | 38 | U | 38 | U | 38 | U | 38 | U | 34 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | |
| Sample Number | SB12-4H | | SB12-5D | | SB12-5F | | SB12-5F(D) | | SB12-6F | |
| Organic Traffic Report Number | EXT46 | | EXT47 | | EXT48 | | EXT49 | | EXT50 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| bis(2-Chloroethyl)Ether | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2-Chlorophenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 1,3-Dichlorobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 1,4-Dichlorobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 1,2-Dichlorobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2-Methylphenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,2'-oxybis(1-Chloropropane) | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Methylphenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| N-Nitroso-Di-n-Propylamine | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Hexachloroethane | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Nitrobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Isophorone | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2-Nitrophenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4-Dimethylphenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| bis(2-Chloroethoxy)Methane | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4-Dichlorophenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 1,2,4-Trichlorobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Naphthalene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Chloroaniline | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Hexachlorobutadiene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Chloro-3-Methylphenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2-Methylnaphthalene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Hexachlorocyclopentadiene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4,6-Trichlorophenol | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4,5-Trichlorophenol | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| 2-Chloronaphthalene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2-Nitroaniline | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| Dimethylphthalate | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Acenaphthylene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,6-Dinitrotoluene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-4H | | SB12-5D | | SB12-5F | | SB12-5F(D) | | SB12-6F | |
| Organic Traffic Report Number | EXT46 | | EXT47 | | EXT48 | | EXT49 | | EXT50 | |
| 3-Nitroaniline | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| Acenaphthene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4-Dinitrophenol | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| 4-Nitrophenol | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| Dibenzofuran | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 2,4-Dinitrotoluene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Diethylphthalate | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Chlorophenyl-phenylether | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Fluorene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Nitroaniline | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| 4,6-Dinitro-2-Methylphenol | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| N-Nitrosodiphenylamine (1) | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 4-Bromophenyl-phenylether | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Hexachlorobenzene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Pentachlorophenol | 950 | U | 940 | U | 830 | U | 840 | U | 830 | U |
| Phenanthrene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Anthracene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Carbazole | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Di-n-Butylphthalate | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Fluoranthene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Pyrene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Butylbenzylphthalate | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| 3,3'-Dichlorobenzidine | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Benzo(a)anthracene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Chrysene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| bis(2-Ethylhexyl)Phthalate | 390 | UB | 390 | UB | 340 | UB | 350 | UB | 340 | UB |
| Di-n-Octyl Phthalate | 28 | J | 110 | J | 23 | J | 35 | J | 42 | J |
| Benzo (b) Fluoranthene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Benzo (k) Fluoranthene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Benzo (a) Pyrene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Ideno (1,2,3-cd) Pyrene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| Dibenzo (a,h) Anthracene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | | 12/2/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-4H | | SB12-5D | | SB12-5F | | SB12-5F(D) | | SB12-6F | |
| Organic Traffic Report Number | EXT46 | | EXT47 | | EXT48 | | EXT49 | | EXT50 | |
| Benzo (g,h,i) Perylene | 390 | U | 390 | U | 340 | U | 350 | U | 340 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| beta-BHC | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| delta-BHC | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| gamma-BHC (Lindane) | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Heptachlor | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Aldrin | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Heptachlor epoxide | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Endosulfan I | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Dieldrin | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| 4,4'-DDE | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| Endrin | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| Endosulfan II | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| 4,4'-DDD | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| Endosulfan sulfate | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| 4,4'-DDT | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| Methoxychlor | 20 | U | 20 | U | 18 | U | 18 | U | 18 | U |
| Endrin ketone | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| Endrin aldehyde | 3.9 | U | 3.9 | U | 3.4 | U | 3.5 | U | 3.4 | U |
| alpha-Chlordane | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| gamma-Chlordane | 2 | U | 2 | U | 1.8 | U | 1.8 | U | 1.8 | U |
| Toxaphene | 200 | U | 200 | U | 180 | U | 180 | U | 180 | U |
| Aroclor-1016 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |
| Aroclor-1221 | 79 | U | 79 | U | 70 | U | 71 | U | 70 | U |
| Aroclor-1232 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |
| Aroclor-1242 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |
| Aroclor-1248 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |
| Aroclor-1254 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |
| Aroclor-1260 | 39 | U | 39 | U | 34 | U | 35 | U | 34 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/2/93 | | 12/2/93 | | 6/25/93 | | 6/28/93 | | 6/28/93 | |
| Sample Number | SB12-7F | | SB12-7H | | SB14-1G | | SB14-2E | | SB14-3A | |
| Organic Traffic Report Number | EXT52 | | EXT53 | | EXR30 | | EXR31 | | EXR32 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| bis(2-Chloroethyl)Ether | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2-Chlorophenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 1,3-Dichlorobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 1,4-Dichlorobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 1,2-Dichlorobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2-Methylphenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,2'-oxybis(1-Chloropropane) | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 4-Methylphenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| N-Nitroso-Di-n-Propylamine | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Hexachloroethane | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Nitrobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Isophorone | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2-Nitrophenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,4-Dimethylphenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| bis(2-Chloroethoxy)Methane | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,4-Dichlorophenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 1,2,4-Trichlorobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Naphthalene | 350 | U | 380 | U | 370 | U | 340 | U | 2800 | J |
| 4-Chloroaniline | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Hexachlorobutadiene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 4-Chloro-3-Methylphenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2-Methylnaphthalene | 350 | U | 380 | U | 370 | U | 340 | U | 800 | J |
| Hexachlorocyclopentadiene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,4,6-Trichlorophenol | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,4,5-Trichlorophenol | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| 2-Chloronaphthalene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2-Nitroaniline | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| Dimethylphthalate | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Acenaphthylene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,6-Dinitrotoluene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 12/2/93 | | 12/2/93 | | 6/25/93 | | 6/28/93 | | 6/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-7F | | SB12-7H | | SB14-1G | | SB14-2E | | SB14-3A | |
| Organic Traffic Report Number | EXT52 | | EXT53 | | EXR30 | | EXR31 | | EXR32 | |
| 3-Nitroaniline | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| Acenaphthene | 350 | U | 380 | U | 370 | U | 340 | U | 770 | J |
| 2,4-Dinitrophenol | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| 4-Nitrophenol | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| Dibenzofuran | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 2,4-Dinitrotoluene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Diethylphthalate | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 4-Chlorophenyl-phenylether | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Fluorene | 350 | U | 380 | U | 370 | U | 340 | U | 810 | J |
| 4-Nitroaniline | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| 4,6-Dinitro-2-Methylphenol | 850 | U | 920 | U | 910 | U | 820 | U | 8800 | U |
| N-Nitrosodiphenylamine (1) | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 4-Bromophenyl-phenylether | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Hexachlorobenzene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Pentachlorophenol | 850 | U | 920 | U | 170 | J | 820 | U | 8800 | U |
| Phenanthrene | 350 | U | 380 | U | 370 | U | 340 | U | 2400 | J |
| Anthracene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Carbazole | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Di-n-Butylphthalate | 350 | U | 380 | U | 31 | BJ | 37 | BJ | 3600 | U |
| Fluoranthene | 350 | U | 380 | U | 370 | U | 340 | U | 1100 | J |
| Pyrene | 350 | U | 380 | U | 370 | U | 340 | U | 1100 | J |
| Butylbenzylphthalate | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| 3,3'-Dichlorobenzidine | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Benzo(a)anthracene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Chrysene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| bis(2-Ethylhexyl)Phthalate | 350 | U | 380 | UB | 28 | J | 82 | J | 3600 | U |
| Di-n-Octyl Phthalate | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Benzo (b) Fluoranthene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Benzo (k) Fluoranthene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Benzo (a) Pyrene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Ideno (1,2,3-cd) Pyrene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| Dibenzo (a,h) Anthracene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 12/2/93 | | 12/2/93 | | 6/25/93 | | 6/28/93 | | 6/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB12-7F | | SB12-7H | | SB14-1G | | SB14-2E | | SB14-3A | |
| Organic Traffic Report Number | EXT52 | | EXT53 | | EXR30 | | EXR31 | | EXR32 | |
| Benzo (g,h,i) Perylene | 350 | U | 380 | U | 370 | U | 340 | U | 3600 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| beta-BHC | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| delta-BHC | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| gamma-BHC (Lindane) | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Heptachlor | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Aldrin | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Heptachlor epoxide | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Endosulfan I | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Dieldrin | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| 4,4'-DDE | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| Endrin | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| Endosulfan II | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| 4,4'-DDD | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| Endosulfan sulfate | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| 4,4'-DDT | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| Methoxychlor | 18 | U | 20 | U | 19 | U | 18 | U | 190 | U |
| Endrin ketone | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| Endrin aldehyde | 3.5 | U | 3.8 | U | 3.7 | U | 3.4 | U | 36 | U |
| alpha-Chlordane | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| gamma-Chlordane | 1.8 | U | 2 | U | 1.9 | U | 1.8 | U | 19 | U |
| Toxaphene | 180 | U | 200 | U | 190 | U | 180 | U | 1900 | U |
| Aroclor-1016 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |
| Aroclor-1221 | 71 | U | 77 | U | 76 | U | 69 | U | 740 | U |
| Aroclor-1232 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |
| Aroclor-1242 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |
| Aroclor-1248 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |
| Aroclor-1254 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |
| Aroclor-1260 | 35 | U | 38 | U | 37 | U | 34 | U | 360 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/28/93 | | 6/28/93 | | 9/8/93 | | 8/2/93 | | 8/3/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB14-3C | | SB14-4F | | SB112C | | SB114A | | SB114B | |
| Organic Traffic Report Number | EXR33 | | EXR34 | | EXR97 | | EXR61 | | EXR62 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Chloroethyl)Ether | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2-Chlorophenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 1,3-Dichlorobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 1,4-Dichlorobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 1,2-Dichlorobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2-Methylphenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,2'-oxybis(1-Chloropropane) | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 4-Methylphenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| N-Nitroso-Di-n-Propylamine | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Hexachloroethane | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Nitrobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Isophorone | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2-Nitrophenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dimethylphenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Chloroethoxy)Methane | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dichlorophenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 1,2,4-Trichlorobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Naphthalene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 4-Chloroaniline | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorobutadiene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 4-Chloro-3-Methylphenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2-Methylnaphthalene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorocyclopentadiene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4,6-Trichlorophenol | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4,5-Trichlorophenol | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| 2-Chloronaphthalene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2-Nitroaniline | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| Dimethylphthalate | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Acenaphthylene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,6-Dinitrotoluene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/28/93 | | 6/28/93 | | 9/8/93 | | 8/2/93 | | 8/3/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB14-3C | | SB14-4F | | SB112C | | SB114A | | SB114B | |
| Organic Traffic Report Number | EXR33 | | EXR34 | | EXR97 | | EXR61 | | EXR62 | |
| 3-Nitroaniline | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| Acenaphthene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrophenol | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| 4-Nitrophenol | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| Dibenzofuran | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 2,4-Dinitrotoluene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Diethylphthalate | 340 | U | 34 | J | 380 | U | 390 | U | 390 | U |
| 4-Chlorophenyl-phenylether | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Fluorene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 4-Nitroaniline | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| 4,6-Dinitro-2-Methylphenol | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| N-Nitrosodiphenylamine (1) | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 4-Bromophenyl-phenylether | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Hexachlorobenzene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Pentachlorophenol | 820 | U | 980 | U | 930 | U | 940 | U | 950 | U |
| Phenanthrene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Anthracene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Carbazole | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Di-n-Butylphthalate | 41 | BJ | 56 | BJ | 380 | U | 390 | U | 390 | U |
| Fluoranthene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Pyrene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Butylbenzylphthalate | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Benzo(a)anthracene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Chrysene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 46 | J | 63 | J | 380 | UB | 390 | U | 390 | U |
| Di-n-Octyl Phthalate | 340 | U | 400 | U | 20 | J | 390 | U | 390 | U |
| Benzo (b) Fluoranthene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Benzo (k) Fluoranthene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Benzo (a) Pyrene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 6/28/93 | | 6/28/93 | | 9/8/93 | | 8/2/93 | | 8/3/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB14-3C | | SB14-4F | | SB112C | | SB114A | | SB114B | |
| Organic Traffic Report Number | EXR33 | | EXR34 | | EXR97 | | EXR61 | | EXR62 | |
| Benzo (g,h,i) Perylene | 340 | U | 400 | U | 380 | U | 390 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| beta-BHC | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| delta-BHC | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| gamma-BHC (Lindane) | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Heptachlor | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Aldrin | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Heptachlor epoxide | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Endosulfan I | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Dieldrin | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDE | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endrin | 3.4 | U | 4 | U | 3.8 | U | 3.9 | R | 3.9 | R |
| Endosulfan II | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDD | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endosulfan sulfate | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDT | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Methoxychlor | 18 | U | 21 | U | 20 | U | 20 | U | 20 | U |
| Endrin ketone | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| Endrin aldehyde | 3.4 | U | 4 | U | 3.8 | U | 3.9 | U | 3.9 | U |
| alpha-Chlordane | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| gamma-Chlordane | 1.8 | U | 2.1 | U | 2 | U | 2 | U | 2 | U |
| Toxaphene | 180 | U | 210 | U | 200 | U | 200 | U | 200 | U |
| Aroclor-1016 | 34 | U | 40 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1221 | 69 | U | 82 | U | 78 | U | 80 | U | 80 | U |
| Aroclor-1232 | 34 | U | 40 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1242 | 34 | U | 40 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1248 | 34 | U | 40 | U | 38 | U | 39 | U | 15 | J |
| Aroclor-1254 | 34 | U | 40 | U | 38 | U | 39 | U | 39 | U |
| Aroclor-1260 | 34 | U | 40 | U | 38 | U | 17 | J | 19 | J |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/11/93 | | 7/7/93 | | 7/7/93 | | 7/7/93 | | 7/11/93 | |
| Sample Number | SB114C | | SB119A | | SB119B | | SB119C | | SB126A | |
| Organic Traffic Report Number | EXR66 | | EXR50 | | EXR51 | | EXR52 | | EXR53 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| bis(2-Chloroethyl)Ether | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2-Chlorophenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 1,3-Dichlorobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 1,4-Dichlorobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 1,2-Dichlorobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2-Methylphenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,2'-oxybis(1-Chloropropane) | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Methylphenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| N-Nitroso-Di-n-Propylamine | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Hexachloroethane | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Nitrobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Isophorone | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2-Nitrophenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4-Dimethylphenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| bis(2-Chloroethoxy)Methane | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4-Dichlorophenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 1,2,4-Trichlorobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Naphthalene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Chloroaniline | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Hexachlorobutadiene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Chloro-3-Methylphenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2-Methylnaphthalene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Hexachlorocyclopentadiene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4,6-Trichlorophenol | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4,5-Trichlorophenol | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| 2-Chloronaphthalene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2-Nitroaniline | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| Dimethylphthalate | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Acenaphthylene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,6-Dinitrotoluene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/11/93 | | 7/7/93 | | 7/7/93 | | 7/7/93 | | 7/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB114C | | SB119A | | SB119B | | SB119C | | SB126A | |
| Organic Traffic Report Number | EXR66 | | EXR50 | | EXR51 | | EXR52 | | EXR53 | |
| 3-Nitroaniline | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| Acenaphthene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4-Dinitrophenol | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| 4-Nitrophenol | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| Dibenzofuran | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 2,4-Dinitrotoluene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Diethylphthalate | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Chlorophenyl-phenylether | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Fluorene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Nitroaniline | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| 4,6-Dinitro-2-Methylphenol | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| N-Nitrosodiphenylamine (1) | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| 4-Bromophenyl-phenylether | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Hexachlorobenzene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Pentachlorophenol | 980 | U | 940 | U | 990 | U | 1000 | U | 950 | U |
| Phenanthrene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Anthracene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Carbazole | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Di-n-Butylphthalate | 400 | U | 390 | U | 410 | U | 410 | U | 390 | UB |
| Fluoranthene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Pyrene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Butylbenzylphthalate | 400 | U | 49 | J | 410 | U | 410 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Benzo(a)anthracene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Chrysene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 400 | U | 390 | UB | 410 | U | 410 | UB | 390 | UB |
| Di-n-Octyl Phthalate | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Benzo (b) Fluoranthene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Benzo (k) Fluoranthene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Benzo (a) Pyrene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/11/93 | | 7/7/93 | | 7/7/93 | | 7/7/93 | | 7/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB114C | | SB119A | | SB119B | | SB119C | | SB126A | |
| Organic Traffic Report Number | EXR66 | | EXR50 | | EXR51 | | EXR52 | | EXR53 | |
| Benzo (g,h,i) Perylene | 400 | U | 390 | U | 410 | U | 410 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| beta-BHC | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| delta-BHC | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| gamma-BHC (Lindane) | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Heptachlor | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Aldrin | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Heptachlor epoxide | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Endosulfan I | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Dieldrin | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| 4,4'-DDE | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| Endrin | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| Endosulfan II | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| 4,4'-DDD | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| Endosulfan sulfate | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| 4,4'-DDT | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| Methoxychlor | 21 | U | 20 | U | 21 | U | 21 | U | 3.9 | UB |
| Endrin ketone | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| Endrin aldehyde | 4 | U | 3.9 | U | 4.1 | U | 4.1 | U | 3.9 | U |
| alpha-Chlordane | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| gamma-Chlordane | 2.1 | U | 2.0 | U | 2.1 | U | 2.1 | U | 2 | U |
| Toxaphene | 210 | U | 200 | U | 210 | U | 210 | U | 200 | U |
| Aroclor-1016 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |
| Aroclor-1221 | 82 | U | 79 | U | 83 | U | 84 | U | 80 | U |
| Aroclor-1232 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |
| Aroclor-1242 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |
| Aroclor-1248 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |
| Aroclor-1254 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |
| Aroclor-1260 | 40 | U | 39 | U | 41 | U | 41 | U | 39 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 7/11/93 | | 9/1/93 | | 9/1/93 | | 7/24/93 | | 7/24/93 | |
| Sample Number | SB126B | | SB128A | | SB128B | | SB130E | | SB130G | |
| Organic Traffic Report Number | EXR54 | | EXR95 | | EXR96 | | EXR58 | | EXR59 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 390 | U | 370 | U | 390 | UB | 390 | U | 390 | U |
| bis(2-Chloroethyl)Ether | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2-Chlorophenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 1,3-Dichlorobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 1,4-Dichlorobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 1,2-Dichlorobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2-Methylphenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,2'-oxybis(1-Chloropropane) | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 4-Methylphenol | 390 | U | 190 | J | 390 | U | 390 | U | 390 | U |
| N-Nitroso-Di-n-Propylamine | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Hexachloroethane | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Nitrobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Isophorone | 390 | U | 210 | J | 390 | U | 390 | U | 390 | U |
| 2-Nitrophenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4-Dimethylphenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| bis(2-Chloroethoxy)Methane | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4-Dichlorophenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 1,2,4-Trichlorobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Naphthalene | 390 | U | 760 | | 390 | U | 390 | U | 390 | U |
| 4-Chloroaniline | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Hexachlorobutadiene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 4-Chloro-3-Methylphenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2-Methylnaphthalene | 390 | U | 200 | J | 390 | U | 390 | U | 390 | U |
| Hexachlorocyclopentadiene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4,6-Trichlorophenol | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4,5-Trichlorophenol | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| 2-Chloronaphthalene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2-Nitroaniline | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| Dimethylphthalate | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Acenaphthylene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,6-Dinitrotoluene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 7/11/93 | | 9/1/93 | | 9/1/93 | | 7/24/93 | | 7/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB126B | | SB128A | | SB128B | | SB130E | | SB130G | |
| Organic Traffic Report Number | EXR54 | | EXR95 | | EXR96 | | EXR58 | | EXR59 | |
| 3-Nitroaniline | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| Acenaphthene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4-Dinitrophenol | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| 4-Nitrophenol | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| Dibenzofuran | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 2,4-Dinitrotoluene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Diethylphthalate | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 4-Chlorophenyl-phenylether | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Fluorene | 390 | U | 62 | J | 390 | U | 390 | U | 390 | U |
| 4-Nitroaniline | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| 4,6-Dinitro-2-Methylphenol | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| N-Nitrosodiphenylamine (1) | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 4-Bromophenyl-phenylether | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Hexachlorobenzene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Pentachlorophenol | 950 | U | 890 | U | 950 | U | 940 | U | 950 | U |
| Phenanthrene | 34 | J | 130 | J | 390 | U | 390 | U | 390 | U |
| Anthracene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Carbazole | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Di-n-Butylphthalate | 390 | UB | 490 | BJ | 390 | UB | 390 | U | 390 | U |
| Fluoranthene | 43 | J | 99 | J | 390 | U | 390 | U | 390 | U |
| Pyrene | 33 | J | 58 | J | 390 | U | 390 | U | 390 | U |
| Butylbenzylphthalate | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Benzo(a)anthracene | 390 | U | 40 | J | 390 | U | 390 | U | 390 | U |
| Chrysene | 390 | U | 70 | J | 390 | U | 390 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 390 | UB | 370 | UB | 390 | UB | 390 | U | 390 | U |
| Di-n-Octyl Phthalate | 390 | U | 210 | J | 430 | | 390 | U | 390 | U |
| Benzo (b) Fluoranthene | 26 | J | 350 | J | 390 | U | 390 | U | 390 | U |
| Benzo (k) Fluoranthene | 390 | U | 160 | J | 390 | U | 390 | U | 390 | U |
| Benzo (a) Pyrene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Ideno (1,2,3-cd) Pyrene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 7/11/93 | | 9/1/93 | | 9/1/93 | | 7/24/93 | | 7/24/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB126B | | SB128A | | SB128B | | SB130E | | SB130G | |
| Organic Traffic Report Number | EXR54 | | EXR95 | | EXR96 | | EXR58 | | EXR59 | |
| Benzo (g,h,i) Perylene | 390 | U | 370 | U | 390 | U | 390 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| beta-BHC | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| delta-BHC | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| gamma-BHC (Lindane) | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Heptachlor | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Aldrin | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Heptachlor epoxide | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Endosulfan I | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Dieldrin | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDE | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Endrin | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Endosulfan II | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDD | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Endosulfan sulfate | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| 4,4'-DDT | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Methoxychlor | 3.9 | UB | 19 | U | 20 | U | 20 | UJ | 20 | UJ |
| Endrin ketone | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Endrin aldehyde | 3.9 | U | 3.7 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| alpha-Chlordane | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| gamma-Chlordane | 2 | U | 1.9 | U | 2 | U | 2 | U | 2 | U |
| Toxaphene | 200 | U | 190 | U | 200 | U | 200 | U | 200 | U |
| Aroclor-1016 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |
| Aroclor-1221 | 80 | U | 74 | UJ | 80 | UJ | 79 | U | 80 | U |
| Aroclor-1232 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |
| Aroclor-1242 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |
| Aroclor-1248 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |
| Aroclor-1254 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |
| Aroclor-1260 | 39 | U | 37 | UJ | 39 | UJ | 39 | U | 39 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 7/24/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | |
| Sample Number | SB130H | | SB133B | | SB133D | | SB133H | | SB135F | |
| Organic Traffic Report Number | EXR60 | | EXR67 | | EXR68 | | EXR69 | | EXR70 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | |
| Phenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Chloroethyl)Ether | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2-Chlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 1,3-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 1,4-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 1,2-Dichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,2'-oxybis(1-Chloropropane) | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| N-Nitroso-Di-n-Propylamine | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Hexachloroethane | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Nitrobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Isophorone | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2-Nitrophenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dimethylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Chloroethoxy)Methane | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dichlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 1,2,4-Trichlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Naphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Chloroaniline | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Hexachlorobutadiene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Chloro-3-Methylphenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2-Methylnaphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Hexachlorocyclopentadiene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4,6-Trichlorophenol | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4,5-Trichlorophenol | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| 2-Chloronaphthalene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2-Nitroaniline | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| Dimethylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Acenaphthylene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,6-Dinitrotoluene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 7/24/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB130H | | SB133B | | SB133D | | SB133H | | SB135F | |
| Organic Traffic Report Number | EXR60 | | EXR67 | | EXR68 | | EXR69 | | EXR70 | |
| 3-Nitroaniline | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| Acenaphthene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dinitrophenol | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| 4-Nitrophenol | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| Dibenzofuran | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 2,4-Dinitrotoluene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Diethylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Chlorophenyl-phenylether | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Fluorene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Nitroaniline | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| 4,6-Dinitro-2-Methylphenol | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 4-Bromophenyl-phenylether | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Hexachlorobenzene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Pentachlorophenol | 920 | U | 930 | U | 920 | U | 930 | U | 910 | U |
| Phenanthrene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Anthracene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Carbazole | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Di-n-Butylphthalate | 380 | U | 380 | UB | 380 | UB | 380 | UB | 370 | UB |
| Fluoranthene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Pyrene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Butylbenzylphthalate | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Benzo(a)anthracene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Chrysene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| bis(2-Ethylhexyl)Phthalate | 380 | U | 49 | J | 380 | U | 380 | U | 50 | J |
| Di-n-Octyl Phthalate | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Benzo (b) Fluoranthene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Benzo (k) Fluoranthene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Benzo (a) Pyrene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 7/24/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | | 8/17/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB130H | | SB133B | | SB133D | | SB133H | | SB135F | |
| Organic Traffic Report Number | EXR60 | | EXR67 | | EXR68 | | EXR69 | | EXR70 | |
| Benzo (g,h,i) Perylene | 380 | U | 380 | U | 380 | U | 380 | U | 370 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| beta-BHC | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| delta-BHC | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| gamma-BHC (Lindane) | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Heptachlor | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Aldrin | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Heptachlor epoxide | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Endosulfan I | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Dieldrin | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDE | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endrin | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endosulfan II | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDD | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endosulfan sulfate | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| 4,4'-DDT | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Methoxychlor | 20 | UJ | 20 | U | 38 | | 44 | | 24 | |
| Endrin ketone | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| Endrin aldehyde | 3.9 | U | 3.8 | U | 3.8 | U | 3.8 | U | 3.7 | U |
| alpha-Chlordane | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| gamma-Chlordane | 2 | U | 2 | U | 1.9 | U | 2 | U | 1.9 | U |
| Toxaphene | 200 | U | 200 | U | 190 | U | 200 | U | 190 | U |
| Aroclor-1016 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1221 | 80 | U | 78 | U | 77 | U | 78 | U | 76 | U |
| Aroclor-1232 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1242 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1248 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1254 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |
| Aroclor-1260 | 39 | U | 38 | U | 38 | U | 38 | U | 37 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 8/10/93 | | 8/10/93 | | 8/10/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | | | SB138F | | SB138G | | SB138H | | SS4-7 | | SS4-8 | |
| Organic Traffic Report Number | | | EXR63 | | EXR64 | | EXR65 | | EXS08 | | EXS09 | |
| *Semivolatile Organics (ug/kg)* | | | | | | | | | | | | |
| Phenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| bis(2-Chloroethyl)Ether | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2-Chlorophenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 1,3-Dichlorobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 1,4-Dichlorobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 1,2-Dichlorobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2-Methylphenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,2'-oxybis(1-Chloropropane) | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Methylphenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| N-Nitroso-Di-n-Propylamine | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Hexachloroethane | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Nitrobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Isophorone | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2-Nitrophenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4-Dimethylphenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| bis(2-Chloroethoxy)Methane | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4-Dichlorophenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 1,2,4-Trichlorobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Naphthalene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Chloroaniline | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Hexachlorobutadiene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Chloro-3-Methylphenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2-Methylnaphthalene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Hexachlorocyclopentadiene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4,6-Trichlorophenol | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4,5-Trichlorophenol | | | 860 | U | 940 | U | 870 | U | 880 | U |
| 2-Chloronaphthalene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2-Nitroaniline | | | 860 | U | 940 | U | 870 | U | 880 | U |
| Dimethylphthalate | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Acenaphthylene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,6-Dinitrotoluene | | | 350 | U | 390 | U | 360 | U | 360 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/10/93 | | 8/10/93 | | 8/10/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB138F | | SB138G | | SB138H | | SS4-7 | | SS4-8 | |
| Organic Traffic Report Number | EXR63 | | EXR64 | | EXR65 | | EXS08 | | EXS09 | |
| 3-Nitroaniline | | | 860 | U | 940 | U | 870 | U | 880 | U |
| Acenaphthene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4-Dinitrophenol | | | 860 | U | 940 | U | 870 | U | 880 | U |
| 4-Nitrophenol | | | 860 | U | 940 | U | 870 | U | 880 | U |
| Dibenzofuran | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 2,4-Dinitrotoluene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Diethylphthalate | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Chlorophenyl-phenylether | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Fluorene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Nitroaniline | | | 860 | U | 940 | U | 870 | U | 880 | U |
| 4,6-Dinitro-2-Methylphenol | | | 860 | U | 940 | U | 870 | U | 880 | U |
| N-Nitrosodiphenylamine (1) | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 4-Bromophenyl-phenylether | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Hexachlorobenzene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Pentachlorophenol | | | 860 | U | 940 | U | 870 | U | 880 | U |
| Phenanthrene | | | 350 | U | 390 | U | 150 | J | 360 | U |
| Anthracene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Carbazole | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Di-n-Butylphthalate | | | 350 | U | 390 | U | 360 | UB | 360 | UB |
| Fluoranthene | | | 350 | U | 390 | U | 170 | J | 160 | J |
| Pyrene | | | 350 | U | 390 | U | 160 | J | 130 | J |
| Butylbenzylphthalate | | | 350 | U | 390 | U | 360 | U | 360 | U |
| 3,3'-Dichlorobenzidine | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Benzo(a)anthracene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Chrysene | | | 350 | U | 390 | U | 110 | J | 100 | J |
| bis(2-Ethylhexyl)Phthalate | | | 350 | U | 390 | U | 1400 | | 340 | J |
| Di-n-Octyl Phthalate | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Benzo (b) Fluoranthene | | | 350 | U | 390 | U | 110 | J | 110 | J |
| Benzo (k) Fluoranthene | | | 350 | U | 390 | U | 84 | J | 84 | J |
| Benzo (a) Pyrene | | | 350 | U | 390 | U | 140 | J | 360 | U |
| Ideno (1,2,3-cd) Pyrene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| Dibenzo (a,h) Anthracene | | | 350 | U | 390 | U | 360 | U | 360 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 8/10/93 | | 8/10/93 | | 8/10/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB138F | | SB138G | | SB138H | | SS4-7 | | SS4-8 | |
| Organic Traffic Report Number | EXR63 | | EXR64 | | EXR65 | | EXS08 | | EXS09 | |
| Benzo (g,h,i) Perylene | | | 350 | U | 390 | U | 360 | U | 360 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| beta-BHC | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| delta-BHC | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| gamma-BHC (Lindane) | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| Heptachlor | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| Aldrin | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| Heptachlor epoxide | | | 1.8 | U | 2 | U | 2 | PJ | 1.9 | U |
| Endosulfan I | | | 1.8 | U | 2 | U | 1.8 | U | 1.9 | U |
| Dieldrin | | | 3.5 | U | 3.9 | U | 3.6 | U | 3.6 | U |
| 4,4'-DDE | | | 3.5 | U | 3.9 | U | 3.9 | PJ | 3.6 | U |
| Endrin | | | 3.5 | U | 3.9 | U | 3.6 | U | 3.6 | U |
| Endosulfan II | | | 3.5 | U | 3.9 | U | 3.6 | U | 3.6 | U |
| 4,4'-DDD | | | 3.5 | U | 3.9 | U | 4.3 | PJ | 3.6 | U |
| Endosulfan sulfate | | | 3.5 | U | 3.9 | U | 3.6 | U | 3.6 | U |
| 4,4'-DDT | | | 3.5 | U | 3.9 | U | 22 | | 4.7 | PJ |
| Methoxychlor | | | 18 | U | 20 | U | 18 | U | 19 | U |
| Endrin ketone | | | 3.5 | U | 3.9 | U | 3.6 | U | 3.6 | U |
| Endrin aldehyde | | | 3.5 | U | 3.9 | U | 17 | PJ | 9.8 | |
| alpha-Chlordane | | | 1.8 | U | 2 | U | 3.9 | PJ | 1.9 | U |
| gamma-Chlordane | | | 1.8 | U | 2 | U | 2.7 | PJ | 1.9 | U |
| Toxaphene | | | 180 | U | 200 | U | 180 | U | 190 | U |
| Aroclor-1016 | | | 35 | U | 39 | U | 36 | U | 36 | U |
| Aroclor-1221 | | | 72 | U | 79 | U | 73 | U | 74 | U |
| Aroclor-1232 | | | 35 | U | 39 | U | 36 | U | 36 | U |
| Aroclor-1242 | | | 35 | U | 39 | U | 36 | U | 36 | U |
| Aroclor-1248 | | | 35 | U | 39 | U | 36 | U | 36 | U |
| Aroclor-1254 | | | 35 | U | 39 | U | 36 | U | 36 | U |
| Aroclor-1260 | | | 35 | U | 39 | U | 100 | | 36 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | 9/22/93 | 9/22/93 | 9/22/93 | 9/22/93 |
| Sample Number | SS7-1 | SS7-1(D) | SS7-2 | SS7-3 | SS7-10 |
| Organic Traffic Report Number | EXR99 | EXS01 | EXS02 | EXS03 | EXS04 |
| *Semivolatile Organics (ug/kg)* | | | | | |
| Phenol | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| bis(2-Chloroethyl)Ether | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| 2-Chlorophenol | 370 U | 370 U | 370 U | 360 U | 390 U |
| 1,3-Dichlorobenzene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 1,4-Dichlorobenzene | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| 1,2-Dichlorobenzene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2-Methylphenol | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| 2,2'-oxybis(1-Chloropropane) | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| 4-Methylphenol | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| N-Nitroso-Di-n-Propylamine | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| Hexachloroethane | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| Nitrobenzene | 370 U | 370 U | 370 U | 360 U | 390 U |
| Isophorone | 370 U | 370 UJ | 370 U | 360 U | 150 J |
| 2-Nitrophenol | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| 2,4-Dimethylphenol | 370 U | 370 U | 370 U | 360 U | 390 U |
| bis(2-Chloroethoxy)Methane | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2,4-Dichlorophenol | 370 U | 370 U | 370 U | 360 U | 390 U |
| 1,2,4-Trichlorobenzene | 370 U | 370 UJ | 370 U | 360 U | 390 U |
| Naphthalene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 4-Chloroaniline | 370 U | 370 U | 370 U | 360 U | 390 U |
| Hexachlorobutadiene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 4-Chloro-3-Methylphenol | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2-Methylnaphthalene | 370 U | 370 U | 370 U | 360 U | 390 U |
| Hexachlorocyclopentadiene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2,4,6-Trichlorophenol | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2,4,5-Trichlorophenol | 900 U | 910 U | 910 U | 880 U | 940 U |
| 2-Chloronaphthalene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2-Nitroaniline | 900 U | 910 U | 910 U | 880 U | 940 U |
| Dimethylphthalate | 370 U | 370 U | 370 U | 360 U | 390 U |
| Acenaphthylene | 370 U | 370 U | 370 U | 360 U | 390 U |
| 2,6-Dinitrotoluene | 370 U | 370 U | 370 U | 360 U | 390 U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS7-1 | | SS7-1(D) | | SS7-2 | | SS7-3 | | SS7-10 | |
| Organic Traffic Report Number | EXR99 | | EXS01 | | EXS02 | | EXS03 | | EXS04 | |
| 3-Nitroaniline | 900 | U | 910 | U | 910 | U | 880 | U | 940 | U |
| Acenaphthene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 2,4-Dinitrophenol | 900 | U | 910 | U | 910 | U | 880 | U | 940 | U |
| 4-Nitrophenol | 900 | U | 910 | UJ | 910 | U | 880 | U | 940 | U |
| Dibenzofuran | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 2,4-Dinitrotoluene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Diethylphthalate | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 4-Chlorophenyl-phenylether | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Fluorene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 4-Nitroaniline | 900 | U | 910 | U | 910 | U | 880 | U | 940 | U |
| 4,6-Dinitro-2-Methylphenol | 900 | U | 910 | U | 910 | U | 880 | U | 940 | U |
| N-Nitrosodiphenylamine (1) | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 4-Bromophenyl-phenylether | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Hexachlorobenzene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Pentachlorophenol | 900 | U | 910 | U | 910 | U | 880 | U | 940 | U |
| Phenanthrene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Anthracene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Carbazole | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Di-n-Butylphthalate | 370 | UB | 370 | UB | 370 | UB | 360 | U | 390 | UB |
| Fluoranthene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Pyrene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Butylbenzylphthalate | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| 3,3'-Dichlorobenzidine | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Benzo(a)anthracene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Chrysene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| bis(2-Ethylhexyl)Phthalate | 85 | J | 240 | J | 140 | J | 170 | J | 570 | |
| Di-n-Octyl Phthalate | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Benzo (b) Fluoranthene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Benzo (k) Fluoranthene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Benzo (a) Pyrene | 370 | U | 370 | U | 370 | U | 360 | U | 170 | J |
| Ideno (1,2,3-cd) Pyrene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| Dibenzo (a,h) Anthracene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | | 9/22/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SS7-1 | | SS7-1(D) | | SS7-2 | | SS7-3 | | SS7-10 | |
| Organic Traffic Report Number | EXR99 | | EXS01 | | EXS02 | | EXS03 | | EXS04 | |
| Benzo (g,h,i) Perylene | 370 | U | 370 | U | 370 | U | 360 | U | 390 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | | | | | |
| alpha-BHC | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| beta-BHC | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| delta-BHC | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| Aldrin | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| Endosulfan I | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| Dieldrin | 3.7 | U | 3.7 | U | 36 | | 3.7 | U | 5.3 | PJ |
| 4,4'-DDE | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 13 | D |
| Endrin | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endosulfan II | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 15 | PJ |
| 4,4'-DDD | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endosulfan sulfate | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| 4,4'-DDT | 3.7 | U | 3.7 | U | 5.8 | | 3.7 | U | 35 | PJ |
| Methoxychlor | 19 | U | 19 | U | 20 | U | 19 | U | 20 | U |
| Endrin ketone | 3.7 | U | 3.7 | U | 3.8 | U | 3.7 | U | 3.9 | U |
| Endrin aldehyde | 3.7 | U | 3.7 | U | 5.1 | PJ | 3.7 | U | 33 | |
| alpha-Chlordane | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 1.9 | U | 1.9 | U | 2 | U | 1.9 | U | 20 | |
| Toxaphene | 190 | U | 190 | U | 200 | U | 190 | U | 200 | U |
| Aroclor-1016 | 37 | U | 37 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1221 | 76 | U | 76 | U | 78 | U | 76 | U | 79 | U |
| Aroclor-1232 | 37 | U | 37 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1242 | 37 | U | 37 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1248 | 37 | U | 37 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1254 | 37 | U | 37 | U | 38 | U | 37 | U | 39 | U |
| Aroclor-1260 | 37 | U | 37 | U | 38 | U | 37 | U | 450 | PJ |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS05 | | EXS06 | | EXS07 | |
| *Semivolatile Organics (ug/kg)* | | | | | | |
| Phenol | 380 | U | 370 | U | 380 | U |
| bis(2-Chloroethyl)Ether | 380 | U | 370 | U | 380 | U |
| 2-Chlorophenol | 380 | U | 370 | U | 380 | U |
| 1,3-Dichlorobenzene | 380 | U | 370 | U | 380 | U |
| 1,4-Dichlorobenzene | 380 | U | 370 | U | 380 | U |
| 1,2-Dichlorobenzene | 380 | U | 370 | U | 380 | U |
| 2-Methylphenol | 380 | U | 370 | U | 380 | U |
| 2,2'-oxybis(1-Chloropropane) | 380 | U | 370 | U | 380 | U |
| 4-Methylphenol | 380 | U | 370 | U | 380 | U |
| N-Nitroso-Di-n-Propylamine | 380 | U | 370 | U | 380 | U |
| Hexachloroethane | 380 | U | 370 | U | 380 | U |
| Nitrobenzene | 380 | U | 370 | U | 380 | U |
| Isophorone | 380 | U | 370 | U | 380 | U |
| 2-Nitrophenol | 380 | U | 370 | U | 380 | U |
| 2,4-Dimethylphenol | 380 | U | 370 | U | 380 | U |
| bis(2-Chloroethoxy)Methane | 380 | U | 370 | U | 380 | U |
| 2,4-Dichlorophenol | 380 | U | 370 | U | 380 | U |
| 1,2,4-Trichlorobenzene | 380 | U | 370 | U | 380 | U |
| Naphthalene | 380 | U | 370 | U | 380 | U |
| 4-Chloroaniline | 380 | U | 370 | U | 380 | U |
| Hexachlorobutadiene | 380 | U | 370 | U | 380 | U |
| 4-Chloro-3-Methylphenol | 380 | U | 370 | U | 380 | U |
| 2-Methylnaphthalene | 380 | U | 370 | U | 380 | U |
| Hexachlorocyclopentadiene | 380 | U | 370 | U | 380 | U |
| 2,4,6-Trichlorophenol | 380 | U | 370 | U | 380 | U |
| 2,4,5-Trichlorophenol | 920 | U | 890 | U | 920 | U |
| 2-Chloronaphthalene | 380 | U | 370 | U | 380 | U |
| 2-Nitroaniline | 920 | U | 890 | U | 920 | U |
| Dimethylphthalate | 380 | U | 370 | U | 380 | U |
| Acenaphthylene | 380 | U | 370 | U | 380 | U |
| 2,6-Dinitrotoluene | 380 | U | 370 | U | 380 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS05 | | EXS06 | | EXS07 | |
| 3-Nitroaniline | 920 | U | 890 | U | 920 | U |
| Acenaphthene | 380 | U | 370 | U | 380 | U |
| 2,4-Dinitrophenol | 920 | U | 890 | U | 920 | U |
| 4-Nitrophenol | 920 | U | 890 | U | 920 | U |
| Dibenzofuran | 380 | U | 370 | U | 380 | U |
| 2,4-Dinitrotoluene | 380 | U | 370 | U | 380 | U |
| Diethylphthalate | 380 | U | 370 | U | 380 | U |
| 4-Chlorophenyl-phenylether | 380 | U | 370 | U | 380 | U |
| Fluorene | 380 | U | 370 | U | 380 | U |
| 4-Nitroaniline | 920 | U | 890 | U | 920 | U |
| 4,6-Dinitro-2-Methylphenol | 920 | U | 890 | U | 920 | U |
| N-Nitrosodiphenylamine (1) | 380 | U | 370 | U | 380 | U |
| 4-Bromophenyl-phenylether | 380 | U | 370 | U | 380 | U |
| Hexachlorobenzene | 380 | U | 370 | U | 380 | U |
| Pentachlorophenol | 920 | U | 890 | U | 920 | U |
| Phenanthrene | 380 | U | 370 | U | 380 | U |
| Anthracene | 380 | U | 370 | U | 380 | U |
| Carbazole | 380 | U | 370 | U | 380 | U |
| Di-n-Butylphthalate | 380 | UB | 370 | UB | 380 | U |
| Fluoranthene | 380 | U | 42 | J | 380 | U |
| Pyrene | 380 | U | 37 | J | 380 | U |
| Butylbenzylphthalate | 380 | U | 370 | U | 380 | U |
| 3,3'-Dichlorobenzidine | 380 | U | 370 | U | 380 | U |
| Benzo(a)anthracene | 380 | U | 370 | U | 380 | U |
| Chrysene | 380 | U | 370 | U | 380 | U |
| bis(2-Ethylhexyl)Phthalate | 310 | J | 330 | J | 110 | J |
| Di-n-Octyl Phthalate | 380 | U | 370 | U | 380 | U |
| Benzo (b) Fluoranthene | 380 | U | 370 | U | 380 | U |
| Benzo (k) Fluoranthene | 380 | U | 370 | U | 380 | U |
| Benzo (a) Pyrene | 380 | U | 370 | U | 380 | U |
| Ideno (1,2,3-cd) Pyrene | 380 | U | 370 | U | 380 | U |
| Dibenzo (a,h) Anthracene | 380 | U | 370 | U | 380 | U |

# Appendix H-5: Subsurface Soil Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 9/22/93 | | 9/22/93 | | 9/22/93 | |
| Sample Number | SS7-21 | | SS7-23 | | SS134C | |
| Organic Traffic Report Number | EXS05 | | EXS06 | | EXS07 | |
| Benzo (g,h,i) Perylene | 380 | U | 370 | U | 380 | U |
| *Pesticides & PCBs (ug/kg)* | | | | | | |
| alpha-BHC | 2 | U | 1.9 | U | 2 | U |
| beta-BHC | 2 | U | 1.9 | U | 2 | U |
| delta-BHC | 2 | U | 1.9 | U | 2 | U |
| gamma-BHC (Lindane) | 2 | U | 1.9 | U | 2 | U |
| Heptachlor | 2 | U | 1.9 | U | 2 | U |
| Aldrin | 2 | U | 1.9 | U | 2 | U |
| Heptachlor epoxide | 2 | U | 1.9 | U | 2 | U |
| Endosulfan I | 2 | U | 1.9 | U | 2 | U |
| Dieldrin | 23 | | 3.7 | U | 3.8 | U |
| 4,4'-DDE | 3.8 | U | 3.7 | U | 3.8 | U |
| Endrin | 3.8 | U | 3.7 | U | 3.8 | R |
| Endosulfan II | 3.8 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDD | 3.8 | U | 3.7 | U | 3.8 | U |
| Endosulfan sulfate | 3.8 | U | 3.7 | U | 3.8 | U |
| 4,4'-DDT | 3.8 | U | 12 | PJ | 3.8 | U |
| Methoxychlor | 20 | U | 19 | U | 20 | U |
| Endrin ketone | 3.8 | U | 3.7 | U | 3.8 | U |
| Endrin aldehyde | 8.2 | PJ | 8.5 | PJ | 3.8 | U |
| alpha-Chlordane | 2 | U | 1.9 | U | 2 | U |
| gamma-Chlordane | 2 | U | 1.9 | U | 2 | U |
| Toxaphene | 200 | U | 190 | U | 200 | U |
| Aroclor-1016 | 38 | U | 37 | U | 38 | U |
| Aroclor-1221 | 77 | U | 74 | U | 77 | U |
| Aroclor-1232 | 38 | U | 37 | U | 38 | U |
| Aroclor-1242 | 38 | U | 37 | U | 38 | U |
| Aroclor-1248 | 38 | U | 37 | U | 38 | U |
| Aroclor-1254 | 38 | U | 37 | U | 38 | U |
| Aroclor-1260 | 38 | U | 37 | U | 38 | U |

# APPENDIX H6
# SUBSURFACE SOIL (INORGANICS)

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/30/93 | | 6/28/93 | |
| Sample Number | SB2-1C | | SB2-2C | | SB2-3D | | SB2-3D(D) | | SB4-1D | |
| Inorganic Traffic Report Number | MEWJ44 | | MEWJ45 | | MEWJ46 | | MEWJ47 | | MEWJ33 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 2340 | *J | 2200 | *J | 2940 | *J | 1540 | *J | 1300 | *J |
| Antimony | 3.9 | UNR | 4.5 | UNR | 5.3 | UNR | 4.2 | UNR | 3.7 | UNR |
| Arsenic | 1.6 | B | 1.7 | B | 0.85 | B | 0.76 | B | 1 | B |
| Barium | 8.5 | BEJ | 10 | BEJ | 18.9 | BEJ | 13.7 | BEJ | 4.3 | BEJ |
| Beryllium | 0.1 | B | 0.1 | B | 0.14 | B | 0.08 | B | 0.07 | B |
| Cadmium | 0.78 | U | 0.9 | U | 1.1 | U | 0.84 | U | 0.73 | U |
| Calcium | 21700 | | 1960 | | 2790 | | 647 | B | 41800 | |
| Chromium | 4.5 | | 5.1 | | 7.4 | | 4.8 | | 4.2 | |
| Cobalt | 2.4 | B | 1.7 | B | 3.2 | B | 2.5 | B | 1.5 | B |
| Copper | 4.6 | | 3 | B | 3.5 | B | 3 | B | 2.7 | B |
| Iron | 4860 | *J | 4190 | *J | 5920 | *J | 4170 | *J | 3490 | *J |
| Lead | 2.6 | | 3.7 | | 1.9 | | 2.5 | S | 1.7 | |
| Magnesium | 13500 | | 1550 | | 2200 | | 728 | B | 20100 | |
| Manganese | 124 | *J | 86.3 | *J | 281 | *J | 194 | *J | 97.7 | *J |
| Mercury | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ |
| Nickel | 3.3 | U | 3.8 | U | 5.6 | B | 5 | B | 3.1 | U |
| Potassium | 112 | U | 129 | U | 151 | U | 156 | B | 105 | U |
| Selenium | 0.14 | U | 0.14 | U | 0.12 | U | 0.14 | U | 0.1 | UWJ |
| Silver | 0.47 | UNR | 0.54 | UNR | 0.64 | UNR | 0.51 | UNR | 0.44 | UNR |
| Sodium | 68.1 | B | 52 | B | 89.2 | B | 45.7 | B | 108 | B |
| Thallium | 0.21 | U | 0.22 | U | 0.19 | U | 0.21 | U | 0.16 | U |
| Vanadium | 7.7 | B | 7.3 | B | 8.6 | B | 5.7 | B | 8.8 | |
| Zinc | 10.1 | | 11.7 | | 14.3 | | 12.5 | | 8.5 | |
| Cyanide | 0.54 | U | 0.54 | U | 0.58 | U | 0.56 | U | 0.52 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/28/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/29/93 | |
| Sample Number | SB4-1F | | SB4-2A | | SB4-2D | | SB4-3E | | SB4-3E(D) | |
| Inorganic Traffic Report Number | MEWJ34 | | MEWJ35 | | MEWJ36 | | MEWJ37 | | MEWJ38 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1150 | *J | 3750 | *J | 1510 | *J | 1050 | *J | 1150 | *J |
| Antimony | 4.5 | UNR | 3.6 | UNR | 4.9 | UNR | 4.8 | UNR | 4.2 | UNR |
| Arsenic | 0.74 | B | 3.3 | | 1.1 | B | 0.7 | B | 0.67 | B |
| Barium | 4.1 | BEJ | 13.4 | BEJ | 5.5 | BEJ | 3.6 | BEJ | 3.8 | BEJ |
| Beryllium | 0.12 | B | 0.15 | B | 0.08 | B | 0.06 | U | 0.08 | B |
| Cadmium | 0.9 | U | 0.71 | U | 0.98 | U | 0.95 | U | 0.84 | U |
| Calcium | 41900 | | 35000 | | 57900 | | 32900 | | 32500 | |
| Chromium | 4.7 | | 5.7 | | 3.9 | | 2.5 | | 2.7 | |
| Cobalt | 1.7 | B | 2.6 | B | 1.5 | B | 1.1 | B | 1.4 | B |
| Copper | 3.1 | B | 5.6 | | 3.5 | B | 2.1 | B | 2.8 | B |
| Iron | 3060 | *J | 5640 | *J | 3850 | *J | 2410 | *J | 2460 | *J |
| Lead | 1.5 | | 6.2 | S | 1.6 | | 1.2 | | 1.2 | |
| Magnesium | 19500 | | 21900 | | 29400 | | 14900 | | 14800 | |
| Manganese | 84.5 | *J | 177 | *J | 122 | *J | 69.3 | *J | 67.8 | *J |
| Mercury | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ |
| Nickel | 3.8 | U | 5.5 | B | 4.1 | U | 4 | U | 3.5 | U |
| Potassium | 129 | U | 439 | B | 141 | U | 137 | U | 121 | U |
| Selenium | 0.13 | U | 1.4 | UWJ | 0.14 | U | 0.18 | B | 0.12 | U |
| Silver | 0.54 | UNR | 0.43 | UNR | 0.59 | UNR | 0.58 | UNR | 0.51 | UNR |
| Sodium | 93.1 | B | 129 | B | 139 | B | 83.9 | B | 88.4 | B |
| Thallium | 0.2 | U | 0.35 | B | 0.21 | U | 0.22 | U | 0.19 | U |
| Vanadium | 7.5 | B | 13.3 | | 9.2 | B | 5.4 | B | 5.5 | B |
| Zinc | 6.5 | | 14.7 | | 9.6 | | 5.5 | | 5.3 | |
| Cyanide | 0.57 | U | 0.54 | U | 0.51 | U | 0.51 | U | 0.51 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/29/93 | | 6/29/93 | | 6/29/93 | | 6/21/93 | | 6/21/93 | |
| Sample Number | SB4-4E | | SB4-5E | | SB4-5F | | SB7-1E | | SB7-1F | |
| Inorganic Traffic Report Number | MEWJ39 | | MEWJ40 | | MEWJ41 | | MEWJ02 | | MEWJ03 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1160 | *J | 1070 | *J | 1380 | *J | 4680 | EJ | 1080 | EJ |
| Antimony | 4.7 | UNR | 4.6 | UNR | 4 | UNR | 11.5 | UBN | 10.6 | UJN |
| Arsenic | 0.57 | B | 0.89 | B | 0.75 | B | 5.4 | | 0.66 | B |
| Barium | 5 | BEJ | 4.1 | BEJ | 4.5 | BEJ | 29.8 | BEJ | 5 | BEJ |
| Beryllium | 0.08 | B | 0.08 | B | 0.09 | B | 0.48 | U | 0.44 | U |
| Cadmium | 0.93 | U | 0.92 | U | 0.79 | U | 0.66 | U | 0.61 | U |
| Calcium | 48400 | | 37500 | | 33700 | | 66700 | E*J | 55400 | E*J |
| Chromium | 3.8 | | 3.4 | | 3.6 | | 9.7 | | 3.7 | |
| Cobalt | 1.7 | B | 1.1 | B | 1.5 | B | 4 | B | 2.4 | U |
| Copper | 3.6 | B | 3.2 | B | 3.7 | B | 18.4 | | 4 | B |
| Iron | 3210 | *J | 2860 | *J | 3370 | *J | 10800 | E*J | 3340 | E*J |
| Lead | 1.1 | | 1.6 | | 1.4 | | 20.5 | | 1.8 | |
| Magnesium | 22700 | | 17500 | | 14900 | | 23700 | E*J | 22600 | E*J |
| Manganese | 98.2 | *J | 76.9 | *J | 67.1 | *J | 247 | EJ | 118 | EJ |
| Mercury | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.09 | U | 0.09 | |
| Nickel | 3.9 | U | 3.9 | U | 3.3 | U | 6.5 | U | 6 | U |
| Potassium | 134 | U | 133 | U | 114 | U | 287 | B | 90.7 | U |
| Selenium | 0.11 | U | 0.14 | U | 0.12 | U | 0.22 | BWNJ | 0.17 | UWNR |
| Silver | 0.56 | UNR | 0.56 | UNR | 0.48 | UNR | 0.77 | U | 0.71 | U |
| Sodium | 107 | B | 94.9 | B | 86.8 | B | 118 | B | 846 | B |
| Thallium | 0.2 | B | 0.22 | U | 0.19 | U | 0.22 | UBWN | 0.21 | UJWN |
| Vanadium | 7 | B | 6.7 | B | 6 | B | 14.1 | | 5.3 | B |
| Zinc | 8.3 | | 6.9 | | 7 | | 31.3 | | 9.6 | |
| Cyanide | 0.52 | U | 0.51 | U | 0.57 | U | 2.8 | U | 2.7 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/21/93 | | 6/21/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
| Sample Number | SB7-2D | | SB7-2F | | SB7-3F | | SB7-3G | | SB7-4E | |
| Inorganic Traffic Report Number | MEWJ05 | | MEWJ04 | | MEWJ06 | | MEWJ07 | | MEWJ08 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1460 | E | 3590 | EJ | 801 | EJ | 1260 | EJ | 5420 | EJ |
| Antimony | 10.9 | UJN | 11.1 | UJN | 11 | UJN | 10.9 | UJN | 10.7 | UJN |
| Arsenic | 1.2 | B | 3.2 | | 0.87 | B | 10.6 | | 4.2 | |
| Barium | 5.7 | BE | 10.1 | BEJ | 3.1 | BEJ | 11.8 | BEJ | 17.9 | BEJ |
| Beryllium | 0.45 | U | 0.46 | U | 0.45 | U | 0.45 | U | 0.47 | B |
| Cadmium | 0.62 | U | 0.63 | U | 0.63 | U | 0.62 | U | 0.61 | U |
| Calcium | 35800 | E*J | 87600 | E*J | 31400 | E*J | 38300 | E*J | 80400 | E*J |
| Chromium | 3.6 | | 14.3 | | 3.6 | | 4.9 | | 9.9 | |
| Cobalt | 2.4 | U | 4.3 | B | 2.4 | U | 3.9 | B | 4.3 | B |
| Copper | 6.2 | | 7.3 | | 4 | B | 5.9 | | 9.3 | |
| Iron | 3310 | E*J | 7970 | E*J | 2730 | E*J | 4930 | E*J | 9260 | E*J |
| Lead | 2.1 | | 2.1 | | 1.7 | | 2.4 | | 5.2 | |
| Magnesium | 14600 | E*J | 37300 | E*J | 14400 | E*J | 16800 | E*J | 36600 | E*J |
| Manganese | 99.4 | E | 202 | EJ | 73.1 | EJ | 198 | EJ | 261 | EJ |
| Mercury | 0.09 | | 0.09 | | 0.09 | | 0.09 | | 0.09 | |
| Nickel | 6.1 | U | 8 | B | 6.2 | U | 6.1 | U | 8.6 | |
| Potassium | 137 | B | 733 | B | 93.8 | U | 118 | B | 1240 | |
| Selenium | 0.17 | UWNR | 0.26 | BWNJ | 0.17 | UWNR | 0.18 | UWNR | 0.16 | BWNJ |
| Silver | 0.73 | U | 0.74 | U | 0.74 | U | 0.73 | U | 0.72 | U |
| Sodium | 791 | B | 182 | B | 624 | B | 750 | B | 762 | B |
| Thallium | 0.22 | UJWN | 0.22 | UJWN | 0.21 | UJWN | 0.22 | UJWN | 0.2 | UJWN |
| Vanadium | 6.9 | B | 13.8 | | 4 | B | 8.5 | B | 14.9 | |
| Zinc | 8.8 | | 19.7 | | 6 | | 15 | | 25.6 | |
| Cyanide | 2.7 | U | 2.7 | U | 2.8 | U | 2.8 | U | 2.7 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | | 6/22/93 | |
| Sample Number | SB7-4H | | SB7-5B | | SB7-5E | | SB7-5E(D) | | SB7-6F | |
| Inorganic Traffic Report Number | MEWJ09 | | MEWJ10 | | MEWJ11 | | MEWJ12 | | MEWJ13 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1960 | EJ | 3780 | EJ | 2310 | EJ | 2940 | EJ | 3840 | EJ |
| Antimony | 10.4 | UJN | 11.1 | UJN | 11 | UJN | 13.3 | UJN | 10.3 | UJN |
| Arsenic | 1.8 | B | 4.3 | | 1.8 | B | 2 | | 2.7 | |
| Barium | 5.5 | BEJ | 11.5 | BEJ | 6.5 | BEJ | 9.6 | BEJ | 10.5 | BEJ |
| Beryllium | 0.43 | U | 0.46 | U | 0.46 | U | 0.46 | U | 0.43 | U |
| Cadmium | 0.6 | U | 0.64 | U | 0.63 | U | 0.64 | U | 0.59 | U |
| Calcium | 88500 | E*J | 72700 | E*J | 60800 | E*J | 91000 | E*J | 61400 | E*J |
| Chromium | 5 | | 8.3 | | 6.8 | | 8.1 | | 8 | |
| Cobalt | 2.3 | U | 4.2 | B | 3.5 | B | 2.5 | U | 4 | B |
| Copper | 4.5 | B | 9.3 | | 19.1 | | 6.7 | | 7.9 | |
| Iron | 4650 | E*J | 11500 | E*J | 5940 | E*J | 6490 | E*J | 8520 | E*J |
| Lead | 3.2 | | 4.6 | | 1.9 | | 3.7 | | 3.5 | |
| Magnesium | 21700 | E*J | 37200 | E*J | 22100 | E*J | 44500 | E*J | 27500 | E*J |
| Manganese | 158 | EJ | 252 | EJ | 161 | EJ | 217 | EJ | 193 | EJ |
| Mercury | 0.1 | U | 0.08 | | 0.09 | U | 0.08 | | 0.09 | |
| Nickel | 5.9 | U | 11.6 | | 6.2 | U | 6.3 | U | 9.3 | |
| Potassium | 283 | B | 563 | B | 318 | B | 615 | B | 744 | B |
| Selenium | 0.16 | UWNR | 0.16 | UWNR | 0.16 | UWNR | 0.19 | BWNJ | 0.17 | UWNR |
| Silver | 0.7 | U | 0.75 | U | 0.74 | U | 0.75 | U | 0.69 | U |
| Sodium | 573 | B | 150 | B | 873 | B | 738 | B | 704 | B |
| Thallium | 0.2 | UJWN | 0.2 | UJWN | 0.2 | UJWN | 0.19 | UJWN | 0.21 | UJWN |
| Vanadium | 8.7 | B | 13.8 | | 10.5 | B | 11.9 | | 12.7 | |
| Zinc | 11.6 | | 26.5 | | 15.3 | | 15.8 | | 24.3 | |
| Cyanide | 2.7 | U | 2.7 | U | 2.8 | U | 2.6 | U | 2.8 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/22/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | | 6/23/93 | |
| Sample Number | SB7-6H | | SB7-7F | | SB7-7I | | SB7-8D | | SB7-9E | |
| Inorganic Traffic Report Number | MEWJ14 | | MEWJ16 | | MEWJ15 | | MEWJ17 | | MEWJ18 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 2250 | EJ | 3820 | EJ | 1030 | EJ | 2620 | EJ | 2480 | EJ |
| Antimony | 10.4 | UJN | 11.1 | UJN | 10.2 | UJN | 10.7 | UJN | 10.8 | UJN |
| Arsenic | 0.66 | B | 3.3 | BS | 0.9 | B | 2.9 | BS | 2.6 | |
| Barium | 9 | BEJ | 12.8 | BEJ | 3.7 | BEJ | 8.4 | BEJ | 8.8 | BEJ |
| Beryllium | 0.43 | U | 0.46 | U | 0.42 | U | 0.44 | U | 0.45 | U |
| Cadmium | 0.6 | U | 0.64 | U | 0.59 | U | 0.61 | U | 0.62 | U |
| Calcium | 70500 | E*J | 94000 | E*J | 79500 | E*J | 67100 | E*J | 72400 | E*J |
| Chromium | 6.1 | | 9.8 | | 11.1 | | 5.5 | | 7.2 | |
| Cobalt | 2.3 | B | 4 | B | 2.3 | U | 4.5 | B | 2.9 | B |
| Copper | 5.4 | | 7.5 | | 4.1 | B | 4.3 | B | 6.5 | |
| Iron | 9990 | E*J | 8270 | E*J | 4530 | E*J | 7630 | E*J | 7400 | E*J |
| Lead | 2.2 | | 4.3 | | 1.7 | | 2 | | 2.4 | |
| Magnesium | 31200 | E*J | 31000 | E*J | 37300 | E*J | 32600 | E*J | 34400 | E*J |
| Manganese | 211 | EJ | 262 | EJ | 176 | EJ | 159 | EJ | 150 | EJ |
| Mercury | 0.09 | U | 0.08 | U | 0.08 | U | 0.09 | U | 0.08 | U |
| Nickel | 5.9 | U | 11.2 | | 5.8 | U | 6 | U | 6.1 | U |
| Potassium | 607 | B | 735 | B | 175 | B | 431 | B | 376 | B |
| Selenium | 0.16 | UWNR | 0.21 | BWNJ | 0.16 | UWNR | 0.16 | UWNR | 0.17 | UWNR |
| Silver | 0.7 | U | 0.74 | U | 0.69 | U | 0.72 | U | 0.72 | U |
| Sodium | 892 | B | 860 | B | 762 | B | 167 | B | 710 | B |
| Thallium | 0.2 | UJWN | 0.21 | UJWN | 0.2 | UJWN | 0.2 | UJWN | 0.21 | UJWN |
| Vanadium | 10.2 | B | 12.5 | | 7.4 | B | 13.3 | | 12.8 | |
| Zinc | 17.9 | | 23.6 | | 11.4 | | 21.7 | | 16.3 | |
| Cyanide | 2.7 | U | 2.7 | U | 2.7 | U | 2.6 | U | 2.8 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/23/93 | | 6/23/93 | | 6/24/93 | | 6/24/93 | | 6/24/93 | |
| Sample Number | SB7-9J | | SB7-10A | | SB7-11D | | SB7-12D | | SB7-12D(D) | |
| Inorganic Traffic Report Number | MEWJ19 | | MEWJ20 | | MEWJ23 | | MEWJ24 | | MEWJ25 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 4620 | EJ | 7010 | EJ | 1040 | EJ | 2480 | EJ | 2860 | EJ |
| Antimony | 10.4 | UJN | 11.4 | UJN | 10.5 | UJN | 11.2 | U | 10.8 | U |
| Arsenic | 2.7 | | 4.6 | | 1 | B | 2.5 | SNJ | 1.2 | BWNJ |
| Barium | 12.1 | BEJ | 104 | EJ | 3.9 | BEJ | 9.1 | B | 17.4 | B |
| Beryllium | 0.9 | B | 0.53 | B | 0.44 | U | 0.46 | U | 0.45 | U |
| Cadmium | 0.59 | U | 0.66 | U | 0.6 | U | 0.64 | U | 0.62 | U |
| Calcium | 59100 | E*J | 7380 | E*J | 44100 | E*J | 45600 | EJ | 59200 | EJ |
| Chromium | 13.4 | | 27.2 | | 4.4 | | 6.4 | | 5.7 | |
| Cobalt | 5.6 | B | 5.5 | B | 2.4 | U | 2.6 | B | 5.2 | B |
| Copper | 7.5 | | 45.7 | | 3.9 | B | 12.8 | | 8.7 | |
| Iron | 16300 | E*J | 11100 | E*J | 3800 | E*J | 5210 | EJ | 5710 | EJ |
| Lead | 4.8 | | 88.6 | | 1.6 | | 9.3 | | 8.5 | |
| Magnesium | 26600 | E*J | 4710 | E*J | 19100 | E*J | 21500 | EJ | 28000 | EJ |
| Manganese | 234 | EJ | 194 | EJ | 82.1 | EJ | 132 | EN*J | 211 | EN*J |
| Mercury | 0.08 | U | 0.73 | | 0.08 | U | 0.09 | UNJ | 0.08 | UNJ |
| Nickel | 9.8 | | 13.9 | | 5.9 | U | 7.3 | B | 8.7 | |
| Potassium | 824 | B | 826 | B | 149 | B | 326 | B | 507 | B |
| Selenium | 0.17 | UWNR | 0.19 | UWNR | 0.16 | UWNR | 0.16 | UWNR | 0.17 | UWNR |
| Silver | 0.7 | U | 0.77 | U | 0.71 | U | 0.75 | U | 0.73 | U |
| Sodium | 616 | B | 102 | B | 750 | B | 404 | BEJ | 487 | BEJ |
| Thallium | 0.21 | UJWN | 0.24 | UJN | 0.2 | UJWN | 3.1 | SNJ | 3.4 | SNJ |
| Vanadium | 14.1 | | 19.3 | | 6.1 | B | 9.7 | B | 11.4 | |
| Zinc | 30 | | 80.2 | | 8.3 | | 13.2 | *J | 16.5 | *J |
| Cyanide | 2.7 | U | 2.9 | U | 2.7 | U | 2.7 | U | 2.6 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/24/93 | | 6/24/93 | | 6/29/93 | | 6/29/93 | | 9/23/93 | |
| Sample Number | SB7-13E | | SB7-13E(D) | | SB7-14C | | SB7-14D | | SB7-15A | |
| Inorganic Traffic Report Number | MEWJ26 | | MEWJ27 | | MEWJ42 | | MEWJ43 | | MEWL01 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1250 | EJ | 1570 | EJ | 4030 | *J | 2820 | *J | 1470 | |
| Antimony | 10.6 | U | 11.3 | U | 4.8 | UNR | 4.2 | UNR | 4.4 | UNJ |
| Arsenic | 1.1 | BNJ | 1.2 | BWNJ | 2.6 | | 2 | | 0.69 | U |
| Barium | 4.2 | B | 5.6 | B | 13.2 | BEJ | 10 | BEJ | 4.1 | B |
| Beryllium | 0.44 | U | 0.47 | U | 0.19 | B | 0.12 | B | 0.23 | U |
| Cadmium | 0.61 | U | 0.65 | U | 0.96 | U | 0.83 | U | 0.46 | UNJ |
| Calcium | 48100 | EJ | 47700 | EJ | 79200 | | 53600 | | 46400 | |
| Chromium | 3.4 | | 4.2 | | 6.4 | | 5.3 | | 6.2 | |
| Cobalt | 2.4 | U | 3.8 | B | 6 | B | 2.2 | B | 1.2 | U |
| Copper | 4.2 | B | 4.5 | B | 19.8 | B | 5.2 | | 5.3 | B*J |
| Iron | 3860 | EJ | 4280 | EJ | 13000 | *J | 5000 | *J | 3000 | |
| Lead | 6.2 | | 6.1 | U | 3.1 | | 3.3 | | 1.1 | |
| Magnesium | 21600 | EJ | 22300 | EJ | 41600 | | 26900 | | 24100 | |
| Manganese | 97.6 | EN*J | 85.1 | EN*J | 246 | *J | 146 | *J | 94.1 | |
| Mercury | 0.08 | UNJ | 0.09 | UNJ | 0.05 | UJ | 0.05 | UJ | 0.12 | U |
| Nickel | 6 | U | 7.3 | B | 7.5 | B | 3.5 | U | 4.9 | U |
| Potassium | 206 | B | 313 | B | 431 | B | 423 | B | 267 | B |
| Selenium | 0.17 | UWNR | 0.17 | UWNR | 0.12 | UWJ | 0.14 | UWJ | 0.92 | U |
| Silver | 0.71 | U | 0.76 | U | 0.58 | UNR | 0.5 | UNR | 0.69 | U |
| Sodium | 521 | BEJ | 133 | BEJ | 314 | B | 112 | B | 176 | B |
| Thallium | 3.7 | BWNJ | 3 | SNJ | 0.27 | B | 0.23 | B | 1.6 | U |
| Vanadium | 7.7 | B | 8.8 | B | 47.3 | | 8.7 | | 7.1 | B |
| Zinc | 12.7 | *J | 24.7 | *J | 25.5 | | 14.2 | | 9.8 | |
| Cyanide | 2.8 | U | 2.7 | U | 0.55 | U | 0.55 | U | 0.58 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/23/93 | | 9/24/93 | | 9/24/93 | | 7/11/93 | | 7/11/93 | |
| Sample Number | SB7-17A | | SB7-24A | | SB7-24B | | SB9-1F | | SB9-1F(D) | |
| Inorganic Traffic Report Number | MEWL02 | | MEWL03 | | MEWL04 | | MEWJ53 | | MEWJ54 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 5170 | | 5480 | | 9430 | | 1130 | | 872 | |
| Antimony | 4.4 | UNJ | 4.2 | UNJ | 8.9 | BNJ | 7.7 | U | 7.7 | U |
| Arsenic | 5.6 | | 3.4 | | 11.4 | | 1.4 | B | 0.96 | BWJ |
| Barium | 17.2 | B | 16.1 | B | 34.6 | B | 6.4 | B | 5.5 | B |
| Beryllium | 0.23 | U | 0.22 | U | 0.38 | B | 0.43 | U | 0.43 | U |
| Cadmium | 0.46 | UNJ | 0.44 | UNJ | 0.46 | UNJ | 0.64 | U | 0.64 | U |
| Calcium | 67500 | | 72800 | | 107000 | | 31600 | | 33600 | |
| Chromium | 10.2 | | 10.5 | | 15.5 | | 5.5 | | 2.2 | |
| Cobalt | 5.2 | B | 3.7 | B | 6.8 | B | 1.7 | U | 1.7 | U |
| Copper | 11.2 | *J | 13.9 | *J | 16.9 | *J | 2.3 | U | 4.2 | B |
| Iron | 8680 | | 9530 | | 12700 | | 2710 | | 2360 | |
| Lead | 4.1 | | 4.4 | | 6.2 | | 1.1 | *J | 1.2 | W*J |
| Magnesium | 35200 | | 37400 | | 53000 | | 13600 | | 14500 | |
| Manganese | 269 | | 208 | | 373 | | 76.8 | | 74.4 | |
| Mercury | 0.11 | U | 0.11 | U | 0.11 | U | 0.11 | U | 0.11 | U |
| Nickel | 12.1 | | 10.3 | | 17.6 | | 2.6 | U | 4.4 | B |
| Potassium | 1310 | | 1030 | B | 2330 | | 81 | U | 80.9 | U |
| Selenium | 0.92 | U | 1.3 | | 0.92 | U | 4.3 | U | 0.43 | UWJ |
| Silver | 0.69 | U | 0.66 | U | 0.69 | U | 1.3 | U | 1.3 | U |
| Sodium | 189 | B | 250 | B | 237 | B | 79.3 | B | 98.6 | B |
| Thallium | 1.6 | U | 1.5 | U | 2.4 | | 0.43 | UWJ | 0.43 | UWJ |
| Vanadium | 17.6 | | 16.1 | | 20.9 | | 6.1 | B | 6.3 | B |
| Zinc | 22.5 | | 25.4 | | 33.6 | | 7.4 | | 7.4 | |
| Cyanide | 0.57 | U | 0.55 | U | 0.57 | U | 1.1 | U | 1.1 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/26/93 | |
| Sample Number | SB11-1G | | SB11-1J | | SB11-1J(D) | | SB11-2D | | SB11-3D | |
| Inorganic Traffic Report Number | MEWJ68 | | MEWJ69 | | MEWJ70 | | MEWJ71 | | MEWJ72 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 798 | | 917 | | 760 | | 818 | | 769 | |
| Antimony | 3.8 | U | 3.9 | U | 3.9 | U | 3.8 | U | 3.9 | U |
| Arsenic | 1.3 | BW | 0.98 | B | 0.85 | B | 0.69 | B | 0.81 | B |
| Barium | 3.7 | B | 4.2 | B | 5.4 | B | 4 | B | 4.8 | B |
| Beryllium | 0.07 | U | 0.07 | U | 0.07 | U | 0.07 | U | 0.07 | U |
| Cadmium | 0.76 | U | 0.8 | U | 0.79 | U | 0.77 | U | 0.79 | U |
| Calcium | 53700 | * | 42600 | * | 42900 | * | 36200 | * | 24300 | * |
| Chromium | 2.9 | | 2.6 | | 2.6 | | 2.6 | | 2.5 | |
| Cobalt | 0.74 | U | 0.88 | B | 0.76 | U | 0.92 | B | 0.77 | U |
| Copper | 2.3 | B | 2.6 | B | 1.6 | B | 2.1 | B | 2.2 | B |
| Iron | 2740 | | 2740 | | 2240 | | 2530 | | 2690 | |
| Lead | 4 | | 1.9 | | 2 | | 1.4 | | 1.9 | |
| Magnesium | 26100 | *J | 20000 | *J | 20800 | *J | 15900 | *J | 10300 | *J |
| Manganese | 121 | | 80.4 | | 110 | | 78.4 | | 66.1 | |
| Mercury | 0.1 | U | 0.1 | U | 0.1 | U | 0.12 | U | 0.1 | U |
| Nickel | 2.6 | B | 1.4 | U | 1.4 | U | 2.4 | B | 2.6 | B |
| Potassium | 56.8 | U | 78.7 | B | 62.1 | B | 93 | B | 79.4 | B |
| Selenium | 0.24 | UW | 0.26 | U | 0.26 | U | 0.25 | U | 0.26 | U |
| Silver | 0.52 | U | 0.54 | U | 0.53 | U | 0.52 | U | 0.54 | U |
| Sodium | 176 | BE | 194 | BE | 245 | BE | 149 | BE | 236 | BE |
| Thallium | 0.24 | U | 0.26 | U | 0.26 | U | 0.25 | U | 0.26 | U |
| Vanadium | 5.4 | B | 5.8 | B | 4.7 | B | 5.3 | B | 4.1 | B |
| Zinc | 6.9 | | 7.5 | | 6.5 | | 6.9 | | 6.7 | |
| Cyanide | 0.11 | UNR | 0.12 | UNR | 0.12 | UNR | 0.12 | UNR | 0.12 | UNR |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/27/93 | | 8/27/93 | | 8/26/93 | | 8/26/93 | | 8/31/93 | |
| Sample Number | SB11-4G | | SB11-4L | | SB11-5H | | SB11-5K | | SB11-6G | |
| Inorganic Traffic Report Number | MEWJ75 | | MEWJ76 | | MEWJ73 | | MEWJ74 | | MEWJ80 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1680 | | 671 | | 709 | | 588 | | 807 | |
| Antimony | 3.7 | U | 4 | U | 3.8 | U | 3.9 | U | 4 | B |
| Arsenic | 0.94 | B | 0.4 | B | 0.54 | B | 0.45 | B | 0.66 | B |
| Barium | 5.9 | B | 4.1 | B | 3.4 | B | 3.3 | B | 4 | B |
| Beryllium | 0.07 | B | 0.07 | U | 0.07 | B | 0.07 | U | 0.24 | U |
| Cadmium | 0.76 | U | 0.82 | U | 0.77 | U | 0.79 | U | 0.72 | U |
| Calcium | 74700 | * | 21500 | * | 45400 | * | 20200 | * | | |
| Chromium | 4.2 | | 1.7 | B | 2.1 | B | 1.7 | B | 4.2 | |
| Cobalt | 1.3 | B | 0.79 | U | 0.75 | U | 0.77 | U | 0.96 | U |
| Copper | 4.4 | B | 1.6 | B | 2.1 | B | 1.3 | B | 2.1 | B |
| Iron | 4630 | | 2040 | | 2050 | | 1590 | | 2090 | |
| Lead | 1.8 | | 1.3 | | 1.7 | | 1.4 | | 21.6 | SNJ |
| Magnesium | 22400 | *J | 9620 | *J | 15700 | *J | 8530 | *J | 16800 | |
| Manganese | 124 | | 54.2 | | 84.6 | | 45.1 | | 79.3 | NJ |
| Mercury | 0.1 | U | 0.1 | U | 0.09 | U | 0.1 | U | 0.12 | U |
| Nickel | 3.8 | B | 1.5 | U | 1.4 | U | 1.4 | U | 3.6 | U |
| Potassium | 113 | B | 60.7 | U | 64.1 | B | 58.8 | U | 110 | U |
| Selenium | 1.2 | U | 0.26 | U | 0.25 | U | 0.26 | U | 0.24 | U |
| Silver | 0.51 | U | 0.55 | U | 0.52 | U | 0.53 | U | 0.96 | U |
| Sodium | 290 | BE | 233 | BE | 166 | BE | 216 | BE | 197 | B |
| Thallium | 0.25 | U | 0.26 | U | 0.25 | U | 0.26 | U | 0.24 | UWNJ |
| Vanadium | 7 | B | 3.7 | B | 4.9 | B | 3.1 | U | 3.3 | B |
| Zinc | 8.5 | | 4.4 | B | 4.9 | | 5.1 | | 5.8 | |
| Cyanide | 0.11 | UNR | 0.12 | UNR | 0.11 | UNR | 0.12 | UNR | 2.1 | J |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/31/93 | | 9/1/93 | | 9/1/93 | | 8/30/93 | | 8/30/93 | |
| Sample Number | SB11-6I | | SB11-7G | | SB11-7K | | SB11-8G | | SB11-8I | |
| Inorganic Traffic Report Number | MEWJ81 | | MEWJ83 | | MEWJ84 | | MEWJ77 | | MEWJ78 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1060 | | 1050 | | 945 | | 1250 | | 866 | |
| Antimony | 3.6 | U | 5.8 | B | 3.9 | B | 3.7 | B | 3.8 | U |
| Arsenic | 0.55 | B | 0.66 | B | 0.77 | B | 1.2 | B | 0.76 | B |
| Barium | 4.7 | B | 4.3 | B | 5.4 | B | 6.7 | B | 4.4 | B |
| Beryllium | 0.23 | U | 0.22 | U | 0.23 | U | 0.22 | U | 0.24 | U |
| Cadmium | 0.68 | U | 0.67 | U | 0.69 | U | 0.67 | U | 0.71 | U |
| Calcium | | | | | | | | | | |
| Chromium | 4 | | 4.6 | | 4.4 | | 5.6 | | 3.6 | |
| Cobalt | 1.1 | B | 1 | B | 0.92 | U | 1.3 | B | 0.95 | U |
| Copper | 2.1 | B | 1.8 | B | 3.2 | B | 8.3 | | 3.2 | B |
| Iron | 2560 | | 2780 | | 3040 | | 3960 | | 2480 | |
| Lead | 2.2 | WNJ | 1.6 | WNJ | 1.7 | WNJ | 1.9 | WNJ | 1.7 | WNJ |
| Magnesium | 15200 | | 25800 | | 18300 | | 24000 | | 20400 | |
| Manganese | 66.9 | NJ | 104 | NJ | 80.2 | NJ | 166 | NJ | 78.5 | NJ |
| Mercury | 0.11 | U | 0.11 | U | 0.12 | U | 0.22 | U | 0.12 | U |
| Nickel | 3.4 | U | 3.3 | U | 9.9 | | 3.3 | U | 3.5 | U |
| Potassium | 104 | U | 115 | B | 106 | U | 102 | U | 109 | U |
| Selenium | 0.23 | U | 0.22 | UWJ | 0.23 | UWJ | 0.22 | U | 0.24 | UWJ |
| Silver | 0.91 | U | 0.89 | U | 0.92 | U | 0.89 | U | 0.95 | U |
| Sodium | 175 | B | 179 | B | 190 | B | 181 | B | 197 | B |
| Thallium | 0.23 | UWNJ | 0.22 | UWNJ | 0.23 | UWNJ | 0.22 | UNJ | 0.24 | UWNJ |
| Vanadium | 4.5 | B | 5 | B | 6.8 | B | 4.8 | B | 4.3 | B |
| Zinc | 6.8 | | 6.3 | | 5.9 | | 7 | | 6.5 | |
| Cyanide | 1.1 | J | 1 | J | 1.2 | J | 1.5 | J | 0.59 | UJ |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| Date Sampled | 8/30/93 | | 8/31/93 | | 9/1/93 | | 9/1/93 | | 6/25/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | SB11-8I(D) | | SB11-9G | | SB11-10G | | SB11-10J | | SB14-1G | |
| Inorganic Traffic Report Number | MEWJ79 | | MEWJ82 | | MEWJ85 | | MEWJ86 | | MEWJ28 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 926 | | 967 | | 1250 | | 896 | | 959 | *J |
| Antimony | 6.3 | B | 4.4 | B | 4.3 | B | 3.5 | U | 5.1 | UNR |
| Arsenic | 0.68 | B | 0.8 | B | 0.69 | B | 0.82 | B | 0.67 | B |
| Barium | 4.6 | B | 4.3 | B | 4.8 | B | 3.5 | B | 3.4 | BEJ |
| Beryllium | 0.24 | U | 0.23 | U | 0.22 | U | 0.22 | U | 0.1 | B |
| Cadmium | 0.71 | U | 0.68 | U | 0.66 | U | 0.66 | U | 1 | U |
| Calcium | | | | | | | | | 29800 | |
| Chromium | 5 | | 4.6 | | 6 | | 3.9 | | 2.9 | |
| Cobalt | 0.94 | U | 1.1 | B | 1 | B | 0.88 | U | 1.3 | B |
| Copper | 4 | B | 2.6 | B | 3.1 | B | 2.2 | B | 3.5 | B |
| Iron | 2730 | | 2690 | | 2890 | | 2480 | | 2820 | *J |
| Lead | 2.1 | WNJ | 2 | WNJ | 1.7 | WNJ | 1.5 | WNJ | 1.3 | |
| Magnesium | 22800 | | 24500 | | 17700 | | 11900 | | 15800 | |
| Manganese | 83.7 | NJ | 94.9 | NJ | 93.3 | NJ | 61.3 | NJ | 64 | *J |
| Mercury | 0.12 | U | 0.11 | U | 0.11 | U | 0.11 | U | 0.05 | UJ |
| Nickel | 3.5 | U | 3.4 | U | 3.3 | U | 3.3 | U | 4.2 | U |
| Potassium | 108 | U | 105 | U | 101 | U | 101 | U | 145 | U |
| Selenium | 0.24 | U | 0.23 | U | 0.22 | U | 0.22 | UWJ | 0.16 | U |
| Silver | 0.94 | U | 0.91 | U | 0.88 | U | 0.88 | U | 0.61 | UNR |
| Sodium | 202 | B | 168 | B | 146 | B | 84.3 | B | 78.6 | B |
| Thallium | 0.24 | UWNJ | 0.23 | UWNJ | 0.22 | UWNJ | 0.22 | UNJ | 0.25 | U |
| Vanadium | 4.9 | B | 5 | B | 5 | B | 4.7 | B | 5.7 | B |
| Zinc | 6.5 | | 9.8 | | 7.6 | | 5.1 | | 6.6 | |
| Cyanide | 1 | J | 1.4 | J | 0.66 | J | 1.3 | J | 0.57 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 6/28/93 | | 6/28/93 | | 6/28/93 | | 6/28/93 | | 8/23/93 | |
| Sample Number | SB14-2E | | SB14-3A | | SB14-3C | | SB14-4F | | SB112A | |
| Inorganic Traffic Report Number | MEWJ29 | | MEWJ30 | | MEWJ31 | | MEWJ32 | | MEWJ67 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1050 | *J | 7850 | *J | 1430 | *J | 1390 | *J | 2650 | |
| Antimony | 4.8 | UNR | 4.8 | UNR | 4.7 | UNR | 5.2 | UNR | 3.6 | U |
| Arsenic | 0.82 | B | 3.1 | | 0.62 | B | 0.86 | B | 2.9 | |
| Barium | 3.8 | BEJ | 47.7 | EJ | 4.9 | BEJ | 12.7 | BEJ | 7.8 | B |
| Beryllium | 0.07 | B | 0.26 | B | 0.06 | U | 0.16 | B | 0.1 | B |
| Cadmium | 0.95 | U | 0.96 | U | 0.93 | U | 1 | U | 0.74 | U |
| Calcium | 42100 | | 6040 | | 55700 | | 66800 | | 79900 | * |
| Chromium | 2.7 | | 10.4 | | 3.8 | | 6.8 | | 6.6 | |
| Cobalt | 1.5 | B | 3.7 | B | 1.9 | B | 4.8 | B | 3.1 | B |
| Copper | 2.3 | B | 5.8 | | 3.9 | B | 16.1 | | 7 | |
| Iron | 2620 | *J | 8740 | *J | 3700 | *J | 19100 | *J | 7150 | |
| Lead | 1.2 | | 4.1 | | 0.93 | | 1.5 | | 3.7 | |
| Magnesium | 19300 | | 4290 | | 25300 | | 34800 | | 38700 | *J |
| Manganese | 78.1 | *J | 250 | *J | 106 | *J | 510 | *J | 171 | |
| Mercury | 0.05 | UJ | 0.05 | UJ | 0.05 | UJ | 0.06 | UJ | 0.1 | U |
| Nickel | 4 | U | 5.5 | B | 3.9 | U | 14.6 | | 6.7 | B |
| Potassium | 136 | U | 318 | B | 133 | U | 148 | U | 619 | B |
| Selenium | 0.15 | BWJ | 0.19 | BWJ | 0.1 | U | 0.15 | U | 1.2 | U |
| Silver | 0.57 | UNR | 0.58 | UNR | 0.56 | UNR | 0.62 | UNR | 0.5 | U |
| Sodium | 92.5 | B | 141 | B | 136 | B | 123 | B | 163 | BEJ |
| Thallium | 0.21 | U | 0.23 | U | 0.21 | B | 0.23 | U | 0.24 | U |
| Vanadium | 6 | B | 21.1 | | 8.3 | B | 20 | | 18.2 | |
| Zinc | 6.9 | | 18.7 | | 10.2 | | 25.3 | | 34.7 | |
| Cyanide | 0.51 | U | 0.55 | U | 0.51 | U | 0.59 | U | 0.22 | BNR |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/8/93 | | 8/2/93 | | 8/3/93 | | 8/11/93 | | 7/7/93 | |
| Sample Number | SB112C | | SB114A | | SB114B | | SB114C | | SB119A | |
| Inorganic Traffic Report Number | MEWJ89 | | MEWJ58 | | MEWJ59 | | MEWJ60 | | MEWJ48 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 1740 | | 714 | | 701 | | 1030 | | 777 | |
| Antimony | 4.3 | UNJ | 3.9 | UNJ | 3.9 | UNJ | 4 | UNJ | 8.9 | U |
| Arsenic | 0.68 | U | 0.59 | BWJ | 0.91 | BWJ | 1 | BWJ | 0.52 | B |
| Barium | 5.6 | B | 4.1 | B | 3.2 | B | 7.7 | B | 3.2 | B |
| Beryllium | 0.23 | U | 0.12 | B | 0.11 | B | 0.17 | B | 0.24 | U |
| Cadmium | 0.46 | UNJ | 0.78 | U | 0.8 | U | 0.82 | U | 0.94 | U |
| Calcium | 51000 | | 19400 | | 17700 | | 112000 | | 40700 | |
| Chromium | 5.8 | | 2.5 | | 2.5 | | 3.5 | | 2.9 | |
| Cobalt | 1.1 | U | 0.9 | B | 1.6 | B | 2.1 | B | 1.4 | U |
| Copper | 16.2 | *J | 1.4 | B | 1.4 | B | 3.6 | B | 5 | B |
| Iron | 3500 | | 1450 | | 1430 | | 3200 | | 2140 | |
| Lead | 1.6 | | 1.2 | | 0.86 | | 2 | | 1.4 | |
| Magnesium | 26300 | | 7690 | *J | 6730 | *J | 59800 | *J | 16100 | |
| Manganese | 111 | | 37.4 | N*J | 39.2 | N*J | 168 | N*J | 76.1 | |
| Mercury | 0.11 | U | 0.12 | UNJ | 0.12 | UNJ | 0.1 | UNJ | 0.12 | U |
| Nickel | 4.8 | U | 1.5 | B | 1.4 | U | 3.2 | B | 5.8 | B |
| Potassium | 371 | B | 123 | B | 187 | B | 183 | B | 129 | U |
| Selenium | 0.91 | U | 0.25 | UNJ | 0.26 | UNJ | 0.27 | UWNJ | 0.24 | UWJ |
| Silver | 0.68 | U | 0.53 | UN | 0.54 | UNJ | 0.55 | UNJ | 1.4 | U |
| Sodium | 162 | B | 154 | B | 118 | B | 220 | B | 104 | B |
| Thallium | 1.6 | U | 0.2 | U | 0.22 | U | 0.22 | U | 0.35 | BWJ |
| Vanadium | 8.3 | B | 3.3 | B | 3.9 | B | 7.1 | B | 4.1 | B |
| Zinc | 10.4 | | 4.4 | B | 3.5 | B | 9.4 | | 7 | |
| Cyanide | 0.57 | U | 0.12 | UNJ | 0.12 | UNJ | 0.12 | UN | 0.59 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 7/7/93 | | 7/7/93 | | 7/11/93 | | 7/11/93 | | 9/1/93 | |
| Sample Number | SB119B | | SB119C | | SB126A | | SB126B | | SB128A | |
| Inorganic Traffic Report Number | MEWJ49 | | MEWJ50 | | MEWJ51 | | MEWJ52 | | MEWJ87 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 744 | | 1110 | | 1170 | | 825 | | 1210 | |
| Antimony | 9.3 | U | 9 | B | 8.5 | U | 8 | U | 6.3 | B |
| Arsenic | 0.72 | B | 0.33 | B | 1 | BWJ | 1.2 | B | 0.76 | B |
| Barium | 3.4 | B | 38.2 | B | 5.8 | B | 5.5 | B | 8.1 | B |
| Beryllium | 0.24 | U | 0.24 | U | 0.47 | U | 0.44 | U | 0.22 | U |
| Cadmium | 0.98 | U | 0.94 | U | 0.71 | U | 0.67 | U | 0.67 | U |
| Calcium | 38400 | | 76500 | | 36700 | | 66400 | | | |
| Chromium | 2.8 | | 5.5 | | 3.6 | | 6.4 | | 4.7 | |
| Cobalt | 1.5 | U | 3.6 | B | 1.9 | U | 1.8 | U | 1 | B |
| Copper | 3.1 | B | 6.3 | | 2.6 | U | 8.4 | | 2.4 | B |
| Iron | 2100 | | 3170 | | 2810 | | 3080 | | 2940 | |
| Lead | 1.4 | | 0.76 | | 0.99 | W*J | 0.67 | U*J | 3.4 | SNJ |
| Magnesium | 17300 | | 30300 | | 16000 | | 36000 | | 24100 | |
| Manganese | 78.3 | | 381 | | 77.1 | | 145 | | 99.9 | NJ |
| Mercury | 0.12 | U | 0.12 | U | 0.12 | U | 0.24 | | 0.11 | U |
| Nickel | 3.7 | U | 5.6 | B | 4.3 | B | 2.7 | U | 3.4 | U |
| Potassium | 134 | U | 159 | B | 89.5 | U | 84.3 | U | 103 | U |
| Selenium | 0.24 | UWJ | 0.24 | UWJ | 0.47 | UWJ | 4.4 | U | 0.22 | UWJ |
| Silver | 1.5 | U | 1.4 | U | 1.4 | U | 2.5 | | 0.89 | U |
| Sodium | 66.9 | B | 81.7 | B | 117 | B | 121 | B | 196 | B |
| Thallium | 0.38 | BWJ | 0.34 | BWJ | 0.47 | U | 0.44 | U | 0.28 | BWNJ |
| Vanadium | 3.8 | B | 5.9 | B | 10.2 | B | 5.6 | B | 5.4 | B |
| Zinc | 5.8 | | 7.8 | | 10.8 | | 8.8 | | 7.8 | |
| Cyanide | 0.61 | U | 0.59 | U | 1.2 | U | 1.1 | U | 2.5 | J |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/1/93 | | 7/24/93 | | 7/24/93 | | 7/24/93 | | 8/17/93 | |
| Sample Number | SB128B | | SB130E | | SB130G | | SB130H | | SB133B | |
| Inorganic Traffic Report Number | MEWJ88 | | MEWJ55 | | MEWJ56 | | MEWJ57 | | MEWJ61 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 822 | | 1140 | | 1250 | | 1370 | | 2930 | |
| Antimony | 3.8 | U | 4.5 | U | 4.4 | U | 4.4 | U | 5.5 | UN |
| Arsenic | 0.35 | B | 1.2 | B | 1.2 | B | 1.6 | B | 0.71 | B |
| Barium | 2.9 | B | 5.3 | B | 4.6 | B | 4.9 | B | 10.4 | B |
| Beryllium | 0.24 | U | 0.24 | U | 0.23 | U | 0.23 | U | 0.15 | B |
| Cadmium | 0.71 | U | 0.47 | U | 0.47 | U | 0.47 | U | 1.1 | U |
| Calcium | | | 36400 | *J | 37500 | *J | 36300 | *J | 57300 | |
| Chromium | 4.4 | | 3.6 | | 3.4 | | 3.6 | | 6.6 | |
| Cobalt | 0.95 | U | 1.8 | B | 1.2 | U | 1.2 | U | 3.1 | B |
| Copper | 1.7 | B | 17.2 | | 12.4 | | 11 | | 3.1 | B |
| Iron | 2270 | | 2650 | | 2450 | | 3130 | | 3180 | |
| Lead | 1.3 | WNJ | 1.1 | | 1.5 | | 1.7 | | 3.2 | |
| Magnesium | 20300 | | 22700 | *J | 19500 | *J | 18900 | *J | 33900 | |
| Manganese | 65.2 | NJ | 77.1 | E | 77.3 | E | 76.3 | E | 189 | NJ |
| Mercury | 0.12 | U | 0.12 | U | 0.12 | U | 0.12 | U | 0.06 | U |
| Nickel | 3.6 | U | 4.9 | U | 4.9 | U | 4.9 | U | 4.6 | U |
| Potassium | 109 | U | 188 | U | 235 | B | 185 | U | 623 | B |
| Selenium | 0.24 | U | 0.94 | U | 0.93 | U | 0.93 | U | 0.16 | U |
| Silver | 0.95 | U | 0.71 | U | 0.7 | U | 0.7 | U | 0.66 | U |
| Sodium | 82.8 | B | 297 | B | 323 | B | 412 | B | 136 | B |
| Thallium | 0.28 | BNJ | 1.6 | U | 1.6 | U | 1.6 | U | 0.18 | U |
| Vanadium | 3.6 | B | 6 | B | 5.2 | B | 5.9 | B | 8.1 | B |
| Zinc | 5.2 | | 5.9 | | 4.8 | | 5.5 | | 15.6 | |
| Cyanide | 2.7 | J | 0.59 | U | 0.58 | U | 0.58 | U | 0.57 | U |

# Appendix H-6: Subsurface Soil Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/17/93 | | 8/17/93 | | 8/19/93 | | 8/19/93 | | 8/16/93 | |
| Sample Number | SB133D | | SB133H | | SB134A | | SB134B | | SB135F | |
| Inorganic Traffic Report Number | MEWJ62 | | MEWJ63 | | MEWJ65 | | MEWJ66 | | MEWJ64 | |
| *Inorganics (mg/kg)* | | | | | | | | | | |
| Aluminum | 3290 | | 2130 | | 4800 | | 3340 | | 3650 | |
| Antimony | 5.6 | UN | 5.4 | UN | 4.9 | UN | 5.3 | UN | 5.5 | UN |
| Arsenic | 1 | B | 3.8 | | 3.9 | | 1.7 | B | 3.7 | |
| Barium | 12.6 | B | 12 | B | 14.6 | B | 9.5 | B | 11.2 | B |
| Beryllium | 0.21 | B | 0.15 | B | 0.25 | B | 0.21 | B | 0.24 | B |
| Cadmium | 1.1 | U | 1.1 | U | 0.98 | U | 1.1 | U | 1.1 | U |
| Calcium | 54900 | | 65900 | | 100000 | | 61200 | | 81500 | |
| Chromium | 8.8 | | 5 | | 14 | | 7.5 | | 6.7 | |
| Cobalt | 3.5 | B | 1.5 | B | 5.4 | B | 2.7 | B | 2.8 | B |
| Copper | 7.1 | | 4 | B | 17.9 | | 5.5 | | 4.9 | B |
| Iron | 4800 | | 5580 | | 12100 | | 6020 | | 6760 | |
| Lead | 3.6 | | 1.7 | | 5.6 | | 2.6 | | 2.9 | |
| Magnesium | 32700 | | 29500 | | 42700 | | 27300 | | 39000 | |
| Manganese | 211 | NJ | 689 | NJ | 327 | NJ | 167 | NJ | 197 | NJ |
| Mercury | 0.05 | U | 0.06 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Nickel | 5.2 | B | 5.2 | B | 9 | | 4.4 | U | 6.7 | B |
| Potassium | 618 | B | 177 | B | 648 | B | 599 | B | 427 | B |
| Selenium | 0.15 | UWJ | 0.16 | U | 0.14 | U | 0.14 | U | 0.17 | BWJ |
| Silver | 0.67 | U | 0.65 | U | 0.59 | U | 0.64 | U | 0.66 | U |
| Sodium | 133 | B | 107 | B | 341 | B | 186 | B | 240 | B |
| Thallium | 0.17 | U | 0.18 | U | 0.16 | U | 0.16 | U | 0.18 | U |
| Vanadium | 14.1 | | 7.7 | B | 19.5 | | 10.7 | B | 11.5 | |
| Zinc | 19.4 | | 12.9 | | 44.6 | | 21.4 | | 18.7 | |
| Cyanide | 0.58 | U | 3.5 | | 0.54 | U | 0.57 | U | 1.3 | |

# APPENDIX H7
# RESIDENTIAL WELLS

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 34128 | | 06-10-93 | | 06-09-93 | | 06-08-93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 7572-11 | | 7572-32 | | 7572-17 | | 7572-12 | |
| Volatile Organics (ug/L) | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 0.5 | J | 1 | U | 0.2 | J |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | | 1 | | 1 | U | 2 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | J |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 0.6 | J | 1 | U | 1 | U | 4 | |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 34128 | 06-10-93 | 06-09-93 | 06-08-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-11 | 7572-32 | 7572-17 | 7572-12 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-09-93 | 06-09-93 | 06-08-93 | 06-09-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-20 | 7572-19 | 7572-04 | 7572-26 |

| Volatile Organics (ug/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 0.3 | J | 1 | U |
| 1,1-Dichloroethane | 0.5 | J | 0.2 | J | 0.9 | J | 0.1 | J |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | | 1 | U |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 2 | J | 2 | | 2 | | 1 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | JB | 2 | JB | 1 | JB | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 0.3 | J | 1 | U | 0.2 | J |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-09-93 | 06-09-93 | 06-08-93 | 06-09-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-20 | 7572-19 | 7572-04 | 7572-26 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-09-93 | 06-09-93 | 06-08-93 | 06-08-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-25 | 7572-24 | 7572-08 | 7572-05 |
| Volatile Organics (ug/L) | | | | |
| Chloromethane | 1 U | 1 U | 1 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 1 U |
| Methylene Chloride | 2 U | 2 U | 2 U | 2 U |
| Acetone | 5 U | 5 U | 5 U | 5 U |
| Carbon Disulfide | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 1 U | 1 U |
| Cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U |
| Trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 1 U |
| Chloroform | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 1 U |
| 2-Butanone | 5 U | 5 U | 5 U | 5 U |
| Bromochloromethane | 1 U | 1 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 0.7 J | 0.6 J | 0.6 J | 2 |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 1 U |
| Cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U |
| Trichloroethene | 1 U | 1 U | 1 U | 1 U |
| Dibromochloromethane | 1 U | 1 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 1 U |
| Benzene | 1 U | 1 U | 1 U | 1 U |
| Trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 1 U |
| 4-Methyl-2-Pentanone | 5 U | 5 U | 5 U | 5 U |
| 2-Hexanone | 5 U | 5 U | 5 U | 5 U |
| Tetrachloroethene | 1 U | 0.2 J | 0.3 J | 0.4 J |
| 1,1,2,2-Tetrachloroethene | 1 U | 1 U | 1 U | 1 U |
| 1,2-Dibromomethane | 1 U | 1 U | 1 U | 1 U |
| Toluene | 1 U | 1 U | 1 U | 1 U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-09-93 | | 06-09-93 | | 06-08-93 | | 06-08-93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 7572-25 | | 7572-24 | | 7572-08 | | 7572-05 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-09-93 | | 06-09-93 | | 06-08-93 | | 06-10-93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 7572-15 | | 7572-14 | | 7572-06 | | 7572-31 | |
| Volatile Organics (ug/L) | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 0.7 | J | 1 | | 1 | U | 0.8 | J |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 0.3 | J | 0.3 | J | 1 | U | 1 | U |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-09-93 | 06-09-93 | 06-08-93 | 06-10-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-15 | 7572-14 | 7572-06 | 7572-31 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-08-93 | 06-09-93 | 06-09-93 | 06-09-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-07 | 7572-21 | 7572-22 | 7572-23 |

| Volatile Organics (ug/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | UJ | 1 | U | 1 | U | 1 | U |
| Acetone | 5 | UJ | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 2 | DJ | 5 | | 4 | | 4 | |
| 1,1-Dichloroethane | 9 | D | 15 | | 14 | | 13 | |
| Cis-1,2-Dichloroethene | 8 | D | 10 | | 10 | | 9 | |
| Trans-1,2-Dichloroethene | 1 | UJ | 0.2 | J | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | UJ | 0.6 | J | 0.6 | J | 0.5 | J |
| 2-Butanone | 5 | UJ | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 50 | D | 18 | | 18 | | 18 | |
| Carbon Tetrachloride | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 4 | DJ | 8 | | 7 | | 6 | |
| Dibromochloromethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | UJ | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | UJ | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 0.8 | DJ | 0.9 | J | 0.8 | J | 0.7 | J |
| 1,1,2,2-Tetrachloroethene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | UJ | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-08-93 | 06-09-93 | 06-09-93 | 06-09-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-07 | 7572-21 | 7572-22 | 7572-23 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorobenzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | UJ | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | UJ | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 06-09-93 | 06-10-93 | 06-08-93 | 06-08-93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 7572-13 | 7572-29 | 7572-01 | 7572-02 |

| Volatile Organics (ug/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 0.6 | J | 0.6 | J |
| 1,1-Dichloroethane | 1 | U | 0.2 | J | 1 | | 1 | |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 2 | | 2 | |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | | 1 | U | 5 | | 5 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 2 | J | 2 | J |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | | 1 | U | 0.4 | J | 0.4 | J |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-09-93 | | 06-10-93 | | 06-08-93 | | 06-08-93 | |
| Sample Number | [redacted] | | [redacted]06[redacted] | | [redacted] | | [redacted]26[redacted] | |
| Organic Traffic Report Number | 7572-13 | | 7572-29 | | 7572-01 | | 7572-02 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| Date Sampled | 06-08-93 | | 06-10-93 | | 06-08-93 | | 06-09-93 | |
|---|---|---|---|---|---|---|---|---|
| Sample Number | [redacted] | | [redacted] | | Field Blank | | Field Blank | |
| Organic Traffic Report Number | 7572-10 | | 7572-30 | | 7572-09 | | 7572-16 | |
| Volatile Organics (ug/L) | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | | 2 | |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 0.2 | J | 1 | U | 1 | U | 1 | U |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 1 | U | 1 | U | 32 | D | 25 | D |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 2 | | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 4 | | 4 | |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | JB | 1 | U | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 3 | | 1 | U | 1 | U | 1 | U |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 06-08-93 | | 06-10-93 | | 06-08-93 | | 06-09-93 | |
| Sample Number | [redacted] | | [redacted] | | Field Blank | | Field Blank | |
| Organic Traffic Report Number | 7572-10 | | 7572-30 | | 7572-09 | | 7572-16 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| Date Sampled | 06-10-93 | 06-08-93 | 06-09-93 | 06-10-93 |
|---|---|---|---|---|
| Sample Number | Field Blank | Trip Blank | Trip Blank | Trip Blank |
| Organic Traffic Report Number | 7572-28 | 7572-03 | 7572-18 | 7572-27 |

| Volatile Organics (ug/L) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | | 2 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroform | 22 | D | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 3 | | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U |
| Cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 0.5 | J | 0.5 | J | 0.4 | J |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2,2-Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromomethane | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-7: Residential Well Data (Volatile Organics)

| Date Sampled | 06-10-93 | | 06-08-93 | | 06-09-93 | | 06-10-93 | |
|---|---|---|---|---|---|---|---|---|
| Sample Number | Field Blank | | Trip Blank | | Trip Blank | | Trip Blank | |
| Organic Traffic Report Number | 7572-28 | | 7572-03 | | 7572-18 | | 7572-27 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U |
| Total Xylenes | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U |

# APPENDIX H8
# RESIDENTIAL AIR

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/17/94 | | 12/17/94 | | 12/17/94 | | 12/17/94 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8245E-09 | | 8245E-10 | | 8245E-11 | | 8245E-12 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.28 | U | 0.26 | U | 0.28 | U | 0.26 | U |
| 1,1-Dichloroethene | 0.7 | U | 0.65 | U | 0.7 | U | 0.65 | U |
| 1,1-Dichloroethane | 0.7 | U | 0.65 | U | 0.7 | U | 0.65 | U |
| 1,2-Dichloroethene (total) | 0.7 | U | 0.65 | U | 0.7 | U | 0.65 | U |
| 1,1,1-Trichloroethane | 0.65 | U | 0.65 | U | 0.65 | U | 0.65 | U |
| 1,2-Dichloroethane | 0.7 | U | 0.65 | U | 0.7 | U | 0.65 | U |
| Trichloroethene | 0.14 | U | 0.13 | U | 0.14 | U | 0.13 | U |
| Tetrachloroethene | 0.14 | U | 0.13 | U | 2.6 | | 0.13 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/17/94 | | 12/17/94 | | 8/25/93 | | 8/25/93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8245E-07 | | 8245E-08 | | 8067E-11 | | 8067E-12 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.28 | U | 0.26 | U | 0.31 | U | 0.32 | U |
| 1,1-Dichloroethene | 9.3 | | 0.65 | U | 0.16 | U | 0.16 | U |
| 1,1-Dichloroethane | 1.9 | | 0.65 | U | 0.16 | U | 0.16 | U |
| 1,2-Dichloroethene (total) | 0.7 | U | 0.65 | U | 0.16 | U | 0.16 | U |
| 1,1,1-Trichloroethane | 130 | EJ | 0.65 | U | 4.6 | | 0.16 | U |
| 1,2-Dichloroethane | 0.7 | U | 0.65 | U | 0.16 | U | 0.16 | U |
| Trichloroethene | 0.16 | J | 0.13 | U | 0.16 | U | 0.16 | U |
| Tetrachloroethene | 0.14 | U | 0.13 | U | 7.1 | | 0.16 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8067E-07 | | 8067E-08 | | 8067E-25 | | 8067E-26 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.31 | U | 0.41 | U | 0.31 | UJ | 0.32 | UJ |
| 1,1-Dichloroethene | 0.15 | U | 0.21 | U | 0.15 | UJ | 0.16 | UJ |
| 1,1-Dichloroethane | 0.15 | U | 0.21 | U | 0.15 | UJ | 0.16 | UJ |
| 1,2-Dichloroethene (total) | 0.15 | U | 0.21 | U | 0.15 | UJ | 0.16 | UJ |
| 1,1,1-Trichloroethane | 1.7 | | 2.8 | | 14 | J | 0.16 | UJ |
| 1,2-Dichloroethane | 0.15 | U | 0.21 | U | 0.15 | UJ | 0.16 | UJ |
| Trichloroethene | 0.15 | U | 0.21 | U | 0.15 | UJ | 0.16 | UJ |
| Tetrachloroethene | 0.2 | | 0.21 | U | 0.15 | UJ | 0.16 | UJ |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 8/25/93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8067E-27 | | 8067E-28 | | 8067E-05 | | 8067E-06 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.31 | UJ | 0.33 | UJ | 0.32 | U | 0.33 | U |
| 1,1-Dichloroethene | 0.16 | UJ | 0.16 | UJ | 0.16 | U | 0.16 | U |
| 1,1-Dichloroethane | 0.16 | UJ | 0.16 | UJ | 0.16 | U | 0.16 | U |
| 1,2-Dichloroethene (total) | 0.16 | UJ | 0.16 | UJ | 0.16 | U | 0.16 | U |
| 1,1,1-Trichloroethane | 6.8 | J | 0.16 | UJ | 2.6 | | 0.16 | U |
| 1,2-Dichloroethane | 0.16 | UJ | 0.16 | UJ | 0.16 | U | 0.16 | U |
| Trichloroethene | 0.16 | UJ | 0.16 | UJ | 0.7 | | 0.16 | U |
| Tetrachloroethene | 0.16 | UJ | 0.16 | UJ | 0.16 | U | 0.16 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 8/25/93 | 8/25/93 | 8/25/93 | 8/25/93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 8067E-19 | 8067E-20 | 8067E-13 | 8067E-14 |

| Volatile Organics (ppbv) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 0.31 | U | 0.32 | U | 0.31 | U | 0.33 | U |
| 1,1-Dichloroethene | 0.16 | U | 0.16 | U | 0.15 | U | 0.17 | U |
| 1,1-Dichloroethane | 0.16 | U | 0.16 | U | 0.15 | U | 0.17 | U |
| 1,2-Dichloroethene (total) | 0.16 | U | 0.16 | U | 0.15 | U | 0.17 | U |
| 1,1,1-Trichloroethane | 3.7 | | 0.16 | U | 3.5 | | 0.17 | U |
| 1,2-Dichloroethane | 0.16 | U | 0.16 | U | 0.15 | U | 0.17 | U |
| Trichloroethene | 0.9 | | 0.16 | U | 1.3 | | 0.17 | U |
| Tetrachloroethene | 0.16 | U | 0.16 | U | 0.15 | U | 0.17 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 8/25/93 | 8/25/93 | 8/25/93 | 8/25/93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 8067E-03 | 8067E-04 | 8067E-15 | 8067E-16 |

| Volatile Organics (ppbv) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 0.34 | U | 0.92 | U | 0.31 | U | 0.32 | U |
| 1,1-Dichloroethene | 0.17 | U | 0.46 | U | 0.15 | U | 0.16 | U |
| 1,1-Dichloroethane | 0.17 | U | 0.46 | U | 0.15 | U | 0.16 | U |
| 1,2-Dichloroethene (total) | 0.17 | U | 0.46 | U | 0.15 | U | 0.16 | U |
| 1,1,1-Trichloroethane | 7.4 | | 0.46 | U | 1.7 | | 0.16 | U |
| 1,2-Dichloroethane | 0.17 | U | 0.46 | U | 0.15 | U | 0.16 | U |
| Trichloroethene | 0.17 | U | 0.46 | U | 0.15 | U | 0.16 | U |
| Tetrachloroethene | 0.3 | | 0.46 | U | 0.15 | U | 0.16 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | |
|---|---|---|---|---|
| Date Sampled | 8/25/93 | 8/25/93 | 8/25/93 | 8/25/93 |
| Sample Number | [redacted] | [redacted] | [redacted] | [redacted] |
| Organic Traffic Report Number | 8067E-09 | 8067E-10 | 8067E-17 | 8067E-18 |

| Volatile Organics (ppbv) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Vinyl Chloride | 0.38 | U | 0.36 | U | 0.31 | U | 0.32 | U |
| 1,1-Dichloroethene | 0.19 | U | 0.18 | U | 0.15 | U | 0.16 | U |
| 1,1-Dichloroethane | 0.19 | U | 0.18 | U | 0.15 | U | 0.16 | U |
| 1,2-Dichloroethene (total) | 0.19 | U | 0.18 | U | 0.15 | U | 0.16 | U |
| 1,1,1-Trichloroethane | 9.3 | | 0.18 | U | 4.7 | | 0.16 | U |
| 1,2-Dichloroethane | 0.19 | U | 0.18 | U | 0.15 | U | 0.16 | U |
| Trichloroethene | 0.19 | U | 0.18 | U | 0.15 | U | 0.16 | U |
| Tetrachloroethene | 0.6 | | 0.18 | U | 0.3 | | 0.16 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/17/94 | | 12/17/94 | | 12/17/94 | | 12/17/94 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8245E-01 | | 8245E-02 | | 8245E-05 | | 8245E-05 (Dup) | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.26 | U | 0.26 | U | 0.28 | U | 0.28 | U |
| 1,1-Dichloroethene | 0.65 | U | 0.65 | U | 0.7 | U | 0.7 | U |
| 1,1-Dichloroethane | 0.65 | U | 0.65 | U | 0.7 | U | 0.7 | U |
| 1,2-Dichloroethene (total) | 0.65 | U | 0.65 | U | 0.7 | U | 0.7 | U |
| 1,1,1-Trichloroethane | 32 | EJ | 0.65 | U | 5.1 | | 4.9 | |
| 1,2-Dichloroethane | 0.65 | U | 0.65 | U | 0.7 | U | 0.7 | U |
| Trichloroethene | 0.88 | J | 0.13 | U | 0.19 | J | 0.16 | J |
| Tetrachloroethene | 0.13 | U | 0.13 | U | 0.14 | U | 0.14 | U |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/17/94 | | 8/25/93 | | 8/25/93 | | 8/25/93 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8245E-06 | | 8067E-01 | | 8067E-02 | | 8067E-23 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.26 | U | 0.33 | U | 0.34 | U | 0.31 | UJ |
| 1,1-Dichloroethene | 0.65 | U | 0.16 | U | 0.17 | U | 0.16 | UJ |
| 1,1-Dichloroethane | 0.65 | U | 0.16 | U | 0.17 | U | 0.16 | UJ |
| 1,2-Dichloroethene (total) | 0.65 | U | 0.16 | U | 0.17 | U | 0.16 | UJ |
| 1,1,1-Trichloroethane | 0.65 | U | 0.7 | | 0.17 | U | 0.9 | J |
| 1,2-Dichloroethane | 0.65 | U | 0.16 | U | 0.17 | U | 0.16 | UJ |
| Trichloroethene | 0.13 | U | 0.4 | | 0.17 | U | 0.16 | UJ |
| Tetrachloroethene | 0.13 | U | 0.2 | | 0.17 | U | 0.3 | J |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 8/25/93 | | 8/25/93 | | 8/25/93 | | 12/17/94 | |
| Sample Number | [redacted] | | [redacted] | | [redacted] | | [redacted] | |
| Organic Traffic Report Number | 8067E-24 | | 8067E-21 | | 8067E-22 | | 8245E-03 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.33 | UJ | 0.31 | UJ | 0.33 | UJ | 0.26 | U |
| 1,1-Dichloroethene | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.65 | U |
| 1,1-Dichloroethane | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.65 | U |
| 1,2-Dichloroethene (total) | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.65 | U |
| 1,1,1-Trichloroethane | 0.16 | UJ | 1.7 | J | 0.16 | UJ | 0.65 | U |
| 1,2-Dichloroethane | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.65 | U |
| Trichloroethene | 0.16 | UJ | 0.15 | UJ | 0.16 | UJ | 0.13 | U |
| Tetrachloroethene | 0.16 | UJ | 0.3 | J | 0.16 | UJ | 0.31 | |

# Appendix H-8: Residential Air Data (Volatile Organics)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | 12/17/94 | | 12/17/94 | | 12/17/94 | | 8/25/93 | |
| Sample Number | [redacted] | | Blank (1) | | Blank (2) | | Nitrogen Blank | |
| Organic Traffic Report Number | 8245E-04 | | 8245E-13 | | 8245E-14 | | 8067E-29 | |
| Volatile Organics (ppbv) | | | | | | | | |
| Vinyl Chloride | 0.26 | U | 0.28 | U | 0.32 | U | 0.3 | UJ |
| 1,1-Dichloroethene | 0.65 | U | 0.7 | U | 0.8 | U | 0.15 | UJ |
| 1,1-Dichloroethane | 0.65 | U | 0.7 | U | 0.8 | U | 0.15 | UJ |
| 1,2-Dichloroethene (total) | 0.65 | U | 0.7 | U | 0.8 | U | 0.15 | UJ |
| 1,1,1-Trichloroethane | 0.65 | U | 0.18 | | 0.2 | | 0.15 | UJ |
| 1,2-Dichloroethane | 0.65 | U | 0.7 | U | 0.8 | U | 0.15 | UJ |
| Trichloroethene | 0.13 | U | 0.51 | | 0.59 | | 0.15 | UJ |
| Tetrachloroethene | 0.13 | U | 0.14 | U | 0.16 | U | 0.15 | UJ |

# APPENDIX H9
# GROUNDWATER (VOC'S)

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/18/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | IW01 | | IW03 | | IW04 | | IW05 | | IW05(B) | |
| Organic Traffic Report Number | 8018-109 | | EXS33 | | EXS32 | | EXS25 | | EXS27 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Bromomethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Vinyl Chloride | 6200 | U | 26 | | 2 | U | 370 | U | 1 | U |
| Chloroethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Methylene Chloride | 2700 | J | 10 | U | 5 | U | 370 | U | 2 | J |
| Acetone | 6200 | U | 1500 | JD | 12 | U | 370 | U | 7 | U |
| Carbon Disulfide | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| 1,1-Dichloroethene | 6200 | U | 10 | U | 3 | | 370 | U | 1 | U |
| 1,1-Dichloroethane | 6200 | U | 81 | | 2 | U | 390 | | 1 | U |
| cis-1,2-Dichloroethene | | | | | 2 | U | | | 1 | U |
| trans-1,2-Dichloroethene | | | | | 2 | U | | | 1 | U |
| 1,2-Dichloroethene (total) | 1400 | J | 4 | J | | | 190 | J | | |
| Chloroform | 6200 | U | 10 | U | 7 | | 370 | U | 27 | |
| 1,2-Dichloroethane | 6200 | U | 12 | | 2 | U | 370 | U | 1 | U |
| 2-Butanone | 9800 | J | 2300 | D | 12 | U | 370 | U | 7 | U |
| Bromochloromethane | | | | | 2 | U | | | 1 | U |
| 1,1,1-Trichloroethane | 6200 | U | 12 | | 59 | | 370 | J | 1 | U |
| Carbon Tetrachloride | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Bromodichloromethane | 6200 | U | 10 | U | 2 | U | 370 | U | 3 | |
| 1,2-Dichloropropane | 6200 | U | 7 | J | 2 | U | 370 | U | 1 | U |
| cis-1,3-Dichloropropene | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Trichloroethene | 1500 | J | 10 | U | 25 | | 95 | J | 1 | U |
| Dibromochloromethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| 1,1,2-Trichloroethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Benzene | 1000 | J | 4 | J | 2 | U | 370 | U | 1 | U |
| trans-1,3-Dichloropropene | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Bromoform | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| 4-Methyl-2-Pentanone | 18000 | | 2000 | JD | 12 | U | 370 | U | 7 | U |
| 2-Hexanone | 6200 | U | 15 | | 12 | U | 370 | U | 7 | U |
| Tetrachloroethene | 6200 | U | 10 | U | 2 | U | 260 | J | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/18/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | IW01 | | IW03 | | IW04 | | IW05 | | IW05(B) | |
| Organic Traffic Report Number | 8018-109 | | EXS33 | | EXS32 | | EXS25 | | EXS27 | |
| 1,1,2,2-Tetrachloroethane | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| 1,2-Dibromoethane | | | | | 2 | U | | | 1 | U |
| Toluene | 92000 | | 760 | D | 2 | U | 6200 | | 1 | U |
| Chlorobenzene | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Ethylbenzene | 4200 | J | 210 | D | 2 | U | 2000 | | 1 | U |
| Styrene | 6200 | U | 10 | U | 2 | U | 370 | U | 1 | U |
| Xylene | 18000 | | 610 | D | 2 | U | 9500 | | 1 | U |
| 1,3-Dichlorobenzene | | | | | 2 | U | | | 1 | U |
| 1,4-Dichlorobenzene | | | | | 2 | U | | | 1 | U |
| 1,2-Dichlorobenzene | | | | | 2 | U | | | 1 | U |
| 1,2-Dibromo-3-chloropropane | | | | | 2 | U | | | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/7/93 | | 10/13/93 | | 10/13/93 | | 10/13/93 | | 10/7/93 | |
| Sample Number | IW05(D) | | IW07 | | IW08 | | IW09 | | IW10 | |
| Organic Traffic Report Number | EXS26 | | 8018-95 | | 8018-96 | | 8018-94 | | EXS30 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Bromomethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Vinyl Chloride | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Chloroethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Methylene Chloride | 50 | U | 2 | U | 2 | U | 2 | U | 20000 | U |
| Acetone | 50 | U | 5 | U | 5 | U | 5 | U | 20000 | U |
| Carbon Disulfide | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 1,1-Dichloroethene | 50 | U | 1 | U | 1 | U | 1 | | 20000 | U |
| 1,1-Dichloroethane | 430 | | 1 | U | 1 | | 1 | U | 20000 | U |
| cis-1,2-Dichloroethene | | | 1 | U | 1 | U | 4 | | | |
| trans-1,2-Dichloroethene | | | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dichloroethene (total) | 210 | | | | | | | | 20000 | U |
| Chloroform | 50 | U | 2 | | 1 | | 1 | U | 20000 | U |
| 1,2-Dichloroethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 2-Butanone | 50 | U | 5 | U | 5 | U | 5 | U | 20000 | U |
| Bromochloromethane | | | 1 | U | 1 | U | 1 | U | | |
| 1,1,1-Trichloroethane | 420 | | 1 | U | 2 | | 17 | | 20000 | U |
| Carbon Tetrachloride | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Bromodichloromethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 1,2-Dichloropropane | 18 | J | 1 | U | 1 | U | 1 | U | 20000 | U |
| cis-1,3-Dichloropropene | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Trichloroethene | 100 | | 0.5 | J | 2 | | 2 | | 20000 | U |
| Dibromochloromethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 1,1,2-Trichloroethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Benzene | 6 | J | 1 | U | 1 | U | 1 | U | 20000 | U |
| trans-1,3-Dichloropropene | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Bromoform | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 4-Methyl-2-Pentanone | 50 | U | 5 | U | 5 | U | 5 | U | 20000 | U |
| 2-Hexanone | 50 | U | 5 | U | 5 | U | 5 | U | 20000 | U |
| Tetrachloroethene | 310 | | 0.6 | J | 32 | D | 0.9 | J | 20000 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/7/93 | | 10/13/93 | | 10/13/93 | | 10/13/93 | | 10/7/93 | |
| Sample Number | IW05(D) | | IW07 | | IW08 | | IW09 | | IW10 | |
| Organic Traffic Report Number | EXS26 | | 8018-95 | | 8018-96 | | 8018-94 | | EXS30 | |
| 1,1,2,2-Tetrachloroethane | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| 1,2-Dibromoethane | | | 1 | U | 1 | U | 1 | U | | |
| Toluene | 6400 | D | 1 | U | 1 | U | 1 | U | 310000 | |
| Chlorobenzene | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Ethylbenzene | 2100 | D | 1 | U | 1 | U | 1 | U | 20000 | U |
| Styrene | 50 | U | 1 | U | 1 | U | 1 | U | 20000 | U |
| Xylene | 9700 | D | 1 | U | 1 | U | 1 | U | 20000 | U |
| 1,3-Dichlorobenzene | | | 1 | U | 1 | U | 1 | U | | |
| 1,4-Dichlorobenzene | | | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dichlorobenzene | | | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dibromo-3-chloropropane | | | 1 | U | 1 | U | 1 | U | | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/7/93 | | 10/7/93 | | 10/8/93 | | 10/8/93 | | 10/7/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | IW11 | | IW11(D) | | IW12 | | IW13 | | IW14 | |
| Organic Traffic Report Number | EXS28 | | EXS29 | | EXS37 | | EXS38 | | EXS23 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 500 | U | 7100 | U | 1 | U | 1 | U | 2 | |
| Methylene Chloride | 500 | U | 7100 | U | 2 | U | 2 | U | 2 | U |
| Acetone | 500 | U | 7100 | U | 5 | U | 5 | U | 17 | J |
| Carbon Disulfide | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 500 | U | 7100 | U | 1 | U | 1 | | 10 | |
| 1,1-Dichloroethane | 500 | U | 7100 | U | 1 | | 7 | | 2 | |
| cis-1,2-Dichloroethene | | | | | 1 | U | 6 | | 1 | U |
| trans-1,2-Dichloroethene | | | | | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | 500 | U | 7100 | U | | | | | | |
| Chloroform | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 500 | U | 7100 | U | 5 | U | 5 | U | 22 | |
| Bromochloromethane | | | | | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 860 | | 7100 | U | 12 | | 19 | | 190 | D |
| Carbon Tetrachloride | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 170 | J | 7100 | U | 1 | U | 2 | | 1 | U |
| Dibromochloromethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 500 | U | 7100 | U | 5 | U | 5 | U | 16 | |
| 2-Hexanone | 500 | U | 7100 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 500 | U | 7100 | U | 1 | U | 0.5 | J | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/7/93 | | 10/7/93 | | 10/8/93 | | 10/8/93 | | 10/7/93 | |
| Sample Number | IW11 | | IW11(D) | | IW12 | | IW13 | | IW14 | |
| Organic Traffic Report Number | EXS28 | | EXS29 | | EXS37 | | EXS38 | | EXS23 | |
| 1,1,2,2-Tetrachloroethane | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | | | | | 1 | U | 1 | U | 1 | U |
| Toluene | 140000 | ED | 140000 | | 1 | U | 1 | U | 5 | |
| Chlorobenzene | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1800 | | 2000 | J | 1 | U | 1 | U | 1 | |
| Styrene | 500 | U | 7100 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 8000 | | 9500 | | 1 | U | 1 | U | 3 | |
| 1,3-Dichlorobenzene | | | | | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | | | | | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | | | | | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | | | | | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/13/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | | 10/13/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | IW15 | | IW16 | | IW17 | | IW19 | | IW20 | |
| Organic Traffic Report Number | 8018-97 | | EXS21 | | EXS22 | | EXS34 | | 8018-98 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 6 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 14 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 10 | | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 3 | | 3 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 2 | | 4 | | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 14 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,1,1-Trichloroethane | 3 | | 1 | U | 5 | | 64 | | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Trichloroethene | 1 | U | 0.6 | J | 5 | | 8 | | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 14 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 14 | U | 5 | U |
| Tetrachloroethene | 0.6 | J | 0.9 | J | 2 | | 5 | | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/13/93 | | 10/7/93 | | 10/7/93 | | 10/7/93 | | 10/13/93 | |
| Sample Number | IW15 | | IW16 | | IW17 | | IW19 | | IW20 | |
| Organic Traffic Report Number | 8018-97 | | EXS21 | | EXS22 | | EXS34 | | 8018-98 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 3 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/13/93 | | 10/14/93 | | 10/19/93 | | 10/19/93 | | 10/19/93 | |
| Sample Number | IW21 | | IW22 | | IW23 | | IW24 | | IW25 | |
| Organic Traffic Report Number | 8018-99 | | 8018-101 | | 8018-128 | | 8018-122 | | 8018-123 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Bromomethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Vinyl Chloride | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Chloroethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Methylene Chloride | 2 | U | 2 | U | 390 | | 20 | U | 2 | JB |
| Acetone | 5 | U | 5 | U | 200 | U | 50 | U | 25 | U |
| Carbon Disulfide | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 440 | | 14 | | 4 | J |
| 1,1-Dichloroethane | 5 | | 1 | U | 660 | | 10 | U | 5 | U |
| cis-1,2-Dichloroethene | 8 | | 1 | U | | | 10 | U | 5 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | | | 10 | U | 5 | U |
| 1,2-Dichloroethene (total) | | | | | 390 | | | | | |
| Chloroform | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 2-Butanone | 5 | U | 5 | U | 200 | U | 50 | U | 25 | U |
| Bromochloromethane | 1 | U | 1 | U | | | 10 | U | 5 | U |
| 1,1,1-Trichloroethane | 10 | | 1 | U | 2500 | | 310 | D | 60 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Bromodichloromethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Trichloroethene | 0.7 | J | 1 | U | 89 | J | 12 | | 5 | U |
| Dibromochloromethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Benzene | 1 | U | 1 | U | 45 | J | 10 | U | 5 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Bromoform | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 200 | U | 50 | U | 25 | U |
| 2-Hexanone | 5 | U | 5 | U | 200 | U | 50 | U | 25 | U |
| Tetrachloroethene | 1 | U | 1 | U | 310 | | 17 | | 5 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/13/93 | | 10/14/93 | | 10/19/93 | | 10/19/93 | | 10/19/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | IW21 | | IW22 | | IW23 | | IW24 | | IW25 | |
| Organic Traffic Report Number | 8018-99 | | 8018-101 | | 8018-128 | | 8018-122 | | 8018-123 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | | | 10 | U | 5 | U |
| Toluene | 1 | U | 1 | U | 2200 | | 10 | U | 5 | U |
| Chlorobenzene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Ethylbenzene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Styrene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| Xylene | 1 | U | 1 | U | 200 | U | 10 | U | 5 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | | | 10 | U | 5 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | | | 10 | U | 5 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | | | 10 | U | 5 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | | | 10 | U | 5 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/6/93 | |
| Sample Number | MW01 | | MW05 | | MW09 | | MW12 | | MW17 | |
| Organic Traffic Report Number | 8018-60 | | 8018-58 | | 8018-57 | | 8018-59 | | 8018-75 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 2 | U | 10 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U | 25 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 15 | |
| 1,1-Dichloroethane | 1 | U | 1 | U | 2 | | 1 | U | 76 | |
| cis-1,2-Dichloroethene | 0.6 | J | 1 | U | 2 | | 1 | U | 52 | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 25 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 4 | | 1 | U | 66 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Trichloroethene | 68 | D | 2 | | 1 | | 1 | U | 9 | |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 25 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 25 | U |
| Tetrachloroethene | 22 | | 2 | | 1 | U | 0.8 | J | 5 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/6/93 | |
| Sample Number | MW01 | | MW05 | | MW09 | | MW12 | | MW17 | |
| Organic Traffic Report Number | 8018-60 | | 8018-58 | | 8018-57 | | 8018-59 | | 8018-75 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 5 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/7/93 | | 10/5/93 | | 10/5/93 | |
| Sample Number | MW19 | | MW20 | | MW21 | | MW22 | | MW29 | |
| Organic Traffic Report Number | 8018-61 | | 8018-62 | | EXS31 | | 8018-63 | | 8018-67 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 4 | | 5 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 4 | | 5 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 10 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 25 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 0.6 | J | 18 | | 1 | | 0.8 | J |
| 1,1-Dichloroethane | 1 | U | 32 | D | 45 | | 5 | | 2 | |
| cis-1,2-Dichloroethene | 1 | U | 7 | | 49 | | 4 | | 3 | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 25 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 21 | | 1 | U | 100 | | 20 | | 6 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | | 1 | U | 33 | | 2 | | 2 | |
| Dibromochloromethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 2 | | 5 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 25 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 25 | U | 5 | U | 5 | U |
| Tetrachloroethene | 0.9 | J | 0.7 | J | 5 | U | 0.8 | J | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/7/93 | | 10/5/93 | | 10/5/93 | |
| Sample Number | MW19 | | MW20 | | MW21 | | MW22 | | MW29 | |
| Organic Traffic Report Number | 8018-61 | | 8018-62 | | EXS31 | | 8018-63 | | 8018-67 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 5 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW32 | | MW34 | | MW36 | | MW37 | | MW38 | |
| Organic Traffic Report Number | 8018-66 | | 8018-65 | | 8018-68 | | 8018-70 | | 8018-69 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Bromomethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Vinyl Chloride | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Chloroethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Methylene Chloride | 2 | U | 2 | U | 8 | U | 20 | U | 4 | U |
| Acetone | 5 | U | 5 | U | 21 | U | 20 | U | 10 | U |
| Carbon Disulfide | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,1-Dichloroethene | 2 | | 1 | U | 15 | | 32 | | 9 | |
| 1,1-Dichloroethane | 10 | | 1 | | 45 | | 75 | | 58 | D |
| cis-1,2-Dichloroethene | 9 | | 1 | U | 60 | | | | 34 | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 4 | U | | | 2 | U |
| 1,2-Dichloroethene (total) | | | | | | | 110 | | | |
| Chloroform | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 2-Butanone | 5 | U | 5 | U | 21 | U | 20 | U | 10 | U |
| Bromochloromethane | 1 | U | 1 | U | 4 | U | | | 2 | U |
| 1,1,1-Trichloroethane | 21 | | 2 | | 100 | D | 230 | | 38 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Bromodichloromethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Trichloroethene | 4 | | 0.8 | J | 35 | | 66 | | 5 | |
| Dibromochloromethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Benzene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Bromoform | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 21 | U | 20 | U | 10 | U |
| 2-Hexanone | 5 | U | 5 | U | 21 | U | 20 | U | 10 | U |
| Tetrachloroethene | 1 | | 0.5 | J | 4 | U | 2 | J | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW32 | | MW34 | | MW36 | | MW37 | | MW38 | |
| Organic Traffic Report Number | 8018-66 | | 8018-65 | | 8018-68 | | 8018-70 | | 8018-69 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 4 | U | | | 2 | U |
| Toluene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Chlorobenzene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Ethylbenzene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Styrene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| Xylene | 1 | U | 1 | U | 4 | U | 20 | U | 2 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 4 | U | | | 2 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 4 | U | | | 2 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 4 | U | | | 2 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 4 | U | | | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW41 | | MW43 | | MW45 | | MW46 | | MW47 | |
| Organic Traffic Report Number | 8018-64 | | 8018-72 | | 8018-71 | | 8018-74 | | 8018-73 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Bromomethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Vinyl Chloride | 16 | | 2 | U | 20 | U | 6 | | 1 | U |
| Chloroethane | 13 | | 2 | U | 20 | U | 5 | U | 1 | U |
| Methylene Chloride | 2 | U | 5 | U | 20 | U | 10 | U | 2 | U |
| Acetone | 5 | U | 12 | U | 20 | U | 25 | U | 5 | U |
| Carbon Disulfide | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,1-Dichloroethene | 1 | | 20 | | 36 | | 61 | | 2 | |
| 1,1-Dichloroethane | 52 | D | 2 | U | 95 | | 52 | | 5 | |
| cis-1,2-Dichloroethene | 11 | | 5 | | | | 94 | | 3 | |
| trans-1,2-Dichloroethene | 1 | U | 2 | U | | | 5 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | 150 | | | | | |
| Chloroform | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,2-Dichloroethane | 0.8 | J | 2 | U | 20 | U | 4 | J | 1 | U |
| 2-Butanone | 5 | U | 12 | U | 20 | U | 25 | U | 5 | U |
| Bromochloromethane | 1 | U | 2 | U | | | 5 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 33 | | 310 | | 160 | D | 9 | |
| Carbon Tetrachloride | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Bromodichloromethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Trichloroethene | 1 | U | 47 | | 100 | | 79 | | 5 | |
| Dibromochloromethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Benzene | 10 | | 2 | U | 20 | U | 5 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Bromoform | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 12 | U | 20 | U | 25 | U | 5 | U |
| 2-Hexanone | 5 | U | 12 | U | 20 | U | 25 | U | 5 | U |
| Tetrachloroethene | 1 | U | 20 | | 7 | J | 100 | | 1 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW41 | | MW43 | | MW45 | | MW46 | | MW47 | |
| Organic Traffic Report Number | 8018-64 | | 8018-72 | | 8018-71 | | 8018-74 | | 8018-73 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 2 | U | | | 5 | U | 1 | U |
| Toluene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Chlorobenzene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Ethylbenzene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Styrene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| Xylene | 1 | U | 2 | U | 20 | U | 5 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 2 | U | | | 5 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 2 | U | | | 5 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 2 | U | | | 5 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 2 | U | | | 5 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/4/93 | | 10/4/93 | | 10/6/93 | | 10/6/93 | | 9/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW101A | | MW101B | | MW101C | | MW101D | | MW102A | |
| Organic Traffic Report Number | 8018-47 | | 8018-45 | | 8018-80 | | 8018-79 | | 8018-01 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 17 | U | 25 | U | 1000 | U | 500 | U | 2 | U |
| Bromomethane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Vinyl Chloride | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Chloroethane | 17 | U | 25 | U | 200 | U | 100 | U | 2 | U |
| Methylene Chloride | 17 | U | 25 | U | 100 | U | 50 | U | 23 | BJ |
| Acetone | 17 | U | 25 | U | 500 | U | 250 | U | 8 | U |
| Carbon Disulfide | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 1,1-Dichloroethene | 43 | | 42 | | 59 | DJ | 34 | DJ | 4 | |
| 1,1-Dichloroethane | 150 | | 140 | | 140 | D | 72 | D | 26 | D |
| cis-1,2-Dichloroethene | | | | | 210 | D | 130 | D | 32 | D |
| trans-1,2-Dichloroethene | | | | | 100 | U | 50 | U | 2 | |
| 1,2-Dichloroethene (total) | 190 | | 190 | | | | | | | |
| Chloroform | 4 | J | 5 | J | 100 | U | 50 | U | 2 | U |
| 1,2-Dichloroethane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 2-Butanone | 17 | U | 25 | U | 500 | U | 250 | U | 8 | U |
| Bromochloromethane | | | | | 100 | U | 50 | U | 2 | U |
| 1,1,1-Trichloroethane | 650 | D | 560 | D | 650 | D | 300 | D | 34 | D |
| Carbon Tetrachloride | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Bromodichloromethane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 1,2-Dichloropropane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| cis-1,3-Dichloropropene | 17 | U | 25 | U | 110 | U | 53 | U | 2 | U |
| Trichloroethene | 180 | | 180 | | 190 | D | 96 | D | 6 | |
| Dibromochloromethane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 1,1,2-Trichloroethane | 17 | U | 25 | U | 1000 | U | 500 | U | 2 | U |
| Benzene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| trans-1,3-Dichloropropene | 17 | U | 25 | U | 94 | U | 47 | U | 2 | U |
| Bromoform | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 4-Methyl-2-Pentanone | 17 | U | 25 | U | 200 | U | 100 | U | 8 | U |
| 2-Hexanone | 17 | U | 25 | U | 200 | U | 100 | U | 8 | U |
| Tetrachloroethene | 17 | U | 84 | | 72 | DJ | 31 | DJ | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/4/93 | | 10/4/93 | | 10/6/93 | | 10/6/93 | | 9/28/93 | |
| Sample Number | MW101A | | MW101B | | MW101C | | MW101D | | MW102A | |
| Organic Traffic Report Number | 8018-47 | | 8018-45 | | 8018-80 | | 8018-79 | | 8018-01 | |
| 1,1,2,2-Tetrachloroethane | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 1,2-Dibromoethane | | | | | 100 | U | 50 | U | 2 | U |
| Toluene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Chlorobenzene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Ethylbenzene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Styrene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| Xylene | 17 | U | 25 | U | 100 | U | 50 | U | 2 | U |
| 1,3-Dichlorobenzene | | | | | 100 | U | 50 | U | 2 | U |
| 1,4-Dichlorobenzene | | | | | 100 | U | 50 | U | 2 | U |
| 1,2-Dichlorobenzene | | | | | 100 | U | 50 | U | 2 | U |
| 1,2-Dibromo-3-chloropropane | | | | | 100 | U | 50 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/28/93 | | 9/28/93 | | 9/28/93 | | 9/28/93 | | 10/4/93 | |
| Sample Number | MW102A(B) | | MW102A(D) | | MW102B | | MW102C | | MW103A | |
| Organic Traffic Report Number | 8018-02 | | 8018-03 | | 8018-05 | | 8018-07 | | 8018-42 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Bromomethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Vinyl Chloride | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Chloroethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Methylene Chloride | 10 | BJ | 11 | BJ | 3 | UB | 55 | BJ | 29 | U |
| Acetone | 8 | U | 12 | U | 5 | U | 62 | U | 29 | U |
| Carbon Disulfide | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| 1,1-Dichloroethene | 2 | U | 2 | J | 1 | U | 68 | | 120 | |
| 1,1-Dichloroethane | 2 | U | 28 | | 1 | U | 160 | | 330 | |
| cis-1,2-Dichloroethene | 2 | U | 32 | | 1 | U | 140 | | | |
| trans-1,2-Dichloroethene | 2 | U | 2 | U | 1 | U | 12 | U | | |
| 1,2-Dichloroethene (total) | | | | | | | | | 1200 | D |
| Chloroform | 25 | | 2 | U | 1 | U | 12 | U | 14 | J |
| 1,2-Dichloroethane | 2 | U | 1 | J | 1 | U | 12 | U | 29 | U |
| 2-Butanone | 8 | U | 12 | U | 5 | U | 62 | U | 29 | U |
| Bromochloromethane | 2 | U | 2 | U | 1 | U | 12 | U | | |
| 1,1,1-Trichloroethane | 2 | U | 32 | | 1 | U | 160 | | 1000 | D |
| Carbon Tetrachloride | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Bromodichloromethane | 3 | | 2 | U | 1 | U | 12 | U | 29 | U |
| 1,2-Dichloropropane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| cis-1,3-Dichloropropene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Trichloroethene | 2 | U | 4 | | 1 | U | 140 | | 320 | |
| Dibromochloromethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| 1,1,2-Trichloroethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Benzene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| trans-1,3-Dichloropropene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Bromoform | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| 4-Methyl-2-Pentanone | 8 | U | 12 | U | 5 | U | 62 | U | 29 | U |
| 2-Hexanone | 8 | U | 12 | U | 5 | U | 62 | U | 29 | U |
| Tetrachloroethene | 2 | U | 2 | U | 1 | U | 44 | | 140 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/28/93 | | 9/28/93 | | 9/28/93 | | 9/28/93 | | 10/4/93 | |
| Sample Number | MW102A(B) | | MW102A(D) | | MW102B | | MW102C | | MW103A | |
| Organic Traffic Report Number | 8018-02 | | 8018-03 | | 8018-05 | | 8018-07 | | 8018-42 | |
| 1,1,2,2-Tetrachloroethane | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| 1,2-Dibromoethane | 2 | U | 2 | U | 1 | U | 12 | U | | |
| Toluene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Chlorobenzene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Ethylbenzene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Styrene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| Xylene | 2 | U | 2 | U | 1 | U | 12 | U | 29 | U |
| 1,3-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 12 | U | | |
| 1,4-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 12 | U | | |
| 1,2-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 12 | U | | |
| 1,2-Dibromo-3-chloropropane | 2 | U | 2 | U | 1 | U | 12 | U | | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/4/93 | | 10/4/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW103B | | MW103C | | MW103D | | MW103D(B) | | MW103D(D) | |
| Organic Traffic Report Number | 8018-43 | | 8018-44 | | 8018-76 | | 8018-78 | | 8018-77 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Bromomethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Vinyl Chloride | 62 | U | 50 | U | 1 | | 1 | U | 2 | U |
| Chloroethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Methylene Chloride | 62 | U | 50 | U | 2 | U | 2 | U | 4 | U |
| Acetone | 62 | U | 50 | U | 5 | U | 5 | U | 10 | U |
| Carbon Disulfide | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| 1,1-Dichloroethene | 120 | | 170 | | 3 | | 1 | U | 4 | |
| 1,1-Dichloroethane | 120 | | 150 | | 42 | D | 1 | U | 44 | |
| cis-1,2-Dichloroethene | | | | | 48 | D | 1 | U | 50 | E |
| trans-1,2-Dichloroethene | | | | | 1 | | 1 | U | 1 | J |
| 1,2-Dichloroethene (total) | 200 | | 160 | | | | | | | |
| Chloroform | 15 | J | 28 | J | 1 | U | 26 | D | 2 | U |
| 1,2-Dichloroethane | 62 | U | 50 | U | 2 | | 1 | U | 3 | |
| 2-Butanone | 62 | U | 50 | U | 5 | U | 5 | U | 10 | U |
| Bromochloromethane | | | | | 1 | U | 1 | U | 2 | U |
| 1,1,1-Trichloroethane | 800 | | 960 | | 19 | | 1 | U | 21 | |
| Carbon Tetrachloride | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Bromodichloromethane | 62 | U | 50 | U | 1 | U | 3 | | 2 | U |
| 1,2-Dichloropropane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| cis-1,3-Dichloropropene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Trichloroethene | 260 | | 430 | | 8 | | 1 | U | 10 | |
| Dibromochloromethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| 1,1,2-Trichloroethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Benzene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| trans-1,3-Dichloropropene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Bromoform | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| 4-Methyl-2-Pentanone | 62 | U | 50 | U | 5 | U | 5 | U | 10 | U |
| 2-Hexanone | 62 | U | 50 | U | 5 | U | 5 | U | 10 | U |
| Tetrachloroethene | 130 | | 89 | | 3 | | 1 | U | 3 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/4/93 | | 10/4/93 | | 10/6/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW103B | | MW103C | | MW103D | | MW103D(B) | | MW103D(D) | |
| Organic Traffic Report Number | 8018-43 | | 8018-44 | | 8018-76 | | 8018-78 | | 8018-77 | |
| 1,1,2,2-Tetrachloroethane | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| 1,2-Dibromoethane | | | | | 1 | U | 1 | U | 2 | U |
| Toluene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Chlorobenzene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Ethylbenzene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Styrene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| Xylene | 62 | U | 50 | U | 1 | U | 1 | U | 2 | U |
| 1,3-Dichlorobenzene | | | | | 1 | U | 1 | U | 2 | U |
| 1,4-Dichlorobenzene | | | | | 1 | U | 1 | U | 2 | U |
| 1,2-Dichlorobenzene | | | | | 1 | U | 1 | U | 2 | U |
| 1,2-Dibromo-3-chloropropane | | | | | 1 | U | 1 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 9/29/93 | | 9/29/93 | | 9/29/93 | | 10/1/93 | | 10/1/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW104A | | MW104B | | MW104C | | MW105A | | MW105A(B) | |
| Organic Traffic Report Number | 8018-14 | | 8018-15 | | 8018-16 | | 8018-36 | | 8018-35 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 9 | | 2 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Methylene Chloride | 0.6 | UB | 2 | UB | 3 | UB | 4 | UB | 2 | UB |
| Acetone | 5 | U | 5 | U | 5 | U | 31 | U | 8 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,1-Dichloroethene | 1 | U | 3 | | 1 | | 4 | J | 2 | U |
| 1,1-Dichloroethane | 1 | U | 3 | | 2 | | 85 | | 2 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 120 | | 2 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 5 | J | 2 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 6 | U | 23 | |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 13 | | 2 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 31 | U | 8 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,1,1-Trichloroethane | 1 | U | 15 | | 7 | | 61 | | 2 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 6 | U | 3 | |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 13 | | 2 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 31 | U | 8 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 31 | U | 8 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/29/93 | | 9/29/93 | | 9/29/93 | | 10/1/93 | | 10/1/93 | |
| Sample Number | MW104A | | MW104B | | MW104C | | MW105A | | MW105A(B) | |
| Organic Traffic Report Number | 8018-14 | | 8018-15 | | 8018-16 | | 8018-36 | | 8018-35 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 6 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/1/93 | | 9/30/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW105A(D) | | MW105B | | MW105C | | MW105D | | MW106A | |
| Organic Traffic Report Number | 8018-37 | | 8018-38 | | 8018-39 | | 8018-40 | | 8018-20 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Bromomethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Vinyl Chloride | 8 | | 12 | U | 1 | J | 1 | J | 330 | U |
| Chloroethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Methylene Chloride | 5 | UB | 20 | UB | 3 | UBJ | 5 | UBJ | 330 | UB |
| Acetone | 28 | U | 62 | U | 5 | U | 5 | U | 1700 | U |
| Carbon Disulfide | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,1-Dichloroethene | 4 | J | 10 | J | 1 | U | 1 | U | 330 | U |
| 1,1-Dichloroethane | 79 | | 150 | | 11 | | 4 | | 220 | J |
| cis-1,2-Dichloroethene | 110 | | 230 | | 11 | | 5 | | 5900 | |
| trans-1,2-Dichloroethene | 4 | J | 8 | J | 1 | U | 1 | U | 330 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,2-Dichloroethane | 9 | | 26 | | 2 | | 1 | U | 330 | U |
| 2-Butanone | 28 | U | 62 | U | 5 | U | 5 | U | 1700 | U |
| Bromochloromethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,1,1-Trichloroethane | 56 | | 160 | | 1 | U | 1 | U | 7900 | |
| Carbon Tetrachloride | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Bromodichloromethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,2-Dichloropropane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| cis-1,3-Dichloropropene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Trichloroethene | 12 | | 54 | | 0.6 | J | 1 | U | 330 | U |
| Dibromochloromethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,1,2-Trichloroethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Benzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| trans-1,3-Dichloropropene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Bromoform | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 4-Methyl-2-Pentanone | 28 | U | 62 | U | 5 | U | 5 | U | 1700 | U |
| 2-Hexanone | 28 | U | 62 | U | 5 | U | 5 | U | 1700 | U |
| Tetrachloroethene | 3 | J | 14 | | 1 | U | 1 | U | 330 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/1/93 | | 9/30/93 | |
| Sample Number | MW105A(D) | | MW105B | | MW105C | | MW105D | | MW106A | |
| Organic Traffic Report Number | 8018-37 | | 8018-38 | | 8018-39 | | 8018-40 | | 8018-20 | |
| 1,1,2,2-Tetrachloroethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,2-Dibromoethane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Toluene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Chlorobenzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Ethylbenzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Styrene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| Xylene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,3-Dichlorobenzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,4-Dichlorobenzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,2-Dichlorobenzene | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |
| 1,2-Dibromo-3-chloropropane | 6 | U | 12 | U | 1 | U | 1 | U | 330 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 9/30/93 | 10/1/93 | 9/30/93 | 9/29/93 | 9/30/93 |
| Sample Number | MW106B | MW106C | MW107A | MW107B | MW107C |
| Organic Traffic Report Number | 8018-21 | 8018-29 | 8018-22 | 8018-18 | 8018-23 |

| *Volatile Organics (ug/L)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chloromethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Methylene Chloride | 1 | UB | 1 | UB | 2 | UB | 7 | UB | 1 | UB |
| Acetone | 5 | U | 5 | U | 5 | U | 12 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,1-Dichloroethene | 0.5 | J | 1 | U | 5 | | 2 | U | 1 | U |
| 1,1-Dichloroethane | 1 | | 4 | | 1 | | 2 | U | 1 | U |
| cis-1,2-Dichloroethene | 4 | | 4 | | 0.3 | J | 2 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 0.9 | J | 1 | U | 2 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 12 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,1,1-Trichloroethane | 11 | | 2 | | 120 | D | 45 | | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Trichloroethene | 9 | | 3 | | 1 | U | 2 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 12 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 12 | U | 5 | U |
| Tetrachloroethene | 5 | | 2 | | 1 | U | 2 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/30/93 | | 10/1/93 | | 9/30/93 | | 9/29/93 | | 9/30/93 | |
| Sample Number | MW106B | | MW106C | | MW107A | | MW107B | | MW107C | |
| Organic Traffic Report Number | 8018-21 | | 8018-29 | | 8018-22 | | 8018-18 | | 8018-23 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 2 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 9/28/93 | | 9/28/93 | | 9/28/93 | | 9/30/93 | | 10/1/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW108A | | MW108A(B) | | MW108A(D) | | MW108B | | MW108C | |
| Organic Traffic Report Number | 8018-10 | | 8018-12 | | 8018-11 | | 8018-19 | | 8018-28 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 4 | UB | 14 | BJ | 7 | UB | 3 | UB | 1 | UB |
| Acetone | 5 | U | 8 | U | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 2 | U | 1 | U | 1 | U | 0.6 | J |
| 1,1-Dichloroethane | 1 | U | 2 | U | 1 | U | 1 | U | 0.7 | J |
| cis-1,2-Dichloroethene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 25 | | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 8 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 3 | | 2 | U | 4 | | 1 | | 1 | U |
| Carbon Tetrachloride | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 3 | | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 0.8 | J | 2 | U | 0.9 | J | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 8 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 8 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/28/93 | | 9/28/93 | | 9/28/93 | | 9/30/93 | | 10/1/93 | |
| Sample Number | MW108A | | MW108A(B) | | MW108A(D) | | MW108B | | MW108C | |
| Organic Traffic Report Number | 8018-10 | | 8018-12 | | 8018-11 | | 8018-19 | | 8018-28 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 2 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 9/28/93 | 9/28/93 | 9/28/93 | 10/11/93 | 9/30/93 |
| Sample Number | MW109A | MW109B | MW109C | MW109D | MW110A |
| Organic Traffic Report Number | 8018-04 | 8018-06 | 8018-08 | 8018-82 | 8018-24 |
| *Volatile Organics (ug/L)* | | | | | |
| Chloromethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| Bromomethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| Vinyl Chloride | 1 U | 1 U | 1 U | 17 U | 1 U |
| Chloroethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| Methylene Chloride | 4 UB | 2 UB | 4 UB | 33 U | 1 UB |
| Acetone | 5 U | 5 U | 5 U | 83 U | 5 U |
| Carbon Disulfide | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,1-Dichloroethene | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,1-Dichloroethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| cis-1,2-Dichloroethene | 1 U | 1 U | 1 U | 17 U | 1 |
| trans-1,2-Dichloroethene | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,2-Dichloroethene (total) | | | | | |
| Chloroform | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,2-Dichloroethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| 2-Butanone | 5 U | 5 U | 5 U | 83 U | 5 U |
| Bromochloromethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,1,1-Trichloroethane | 1 U | 1 | 1 U | 17 U | 3 |
| Carbon Tetrachloride | 1 U | 1 U | 1 U | 17 U | 1 U |
| Bromodichloromethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,2-Dichloropropane | 1 U | 1 U | 1 U | 17 U | 1 U |
| cis-1,3-Dichloropropene | 1 U | 1 U | 1 U | 17 U | 1 U |
| Trichloroethene | 1 U | 1 U | 1 U | 17 U | 1 U |
| Dibromochloromethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| 1,1,2-Trichloroethane | 1 U | 1 U | 1 U | 17 U | 1 U |
| Benzene | 1 U | 1 U | 1 U | 17 U | 1 U |
| trans-1,3-Dichloropropene | 1 U | 1 U | 1 U | 17 U | 1 U |
| Bromoform | 1 U | 1 U | 1 U | 17 U | 1 U |
| 4-Methyl-2-Pentanone | 5 U | 5 U | 5 U | 83 U | 5 U |
| 2-Hexanone | 5 U | 5 U | 5 U | 83 U | 5 U |
| Tetrachloroethene | 1 U | 1 U | 1 U | 17 U | 1 U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/28/93 | | 9/28/93 | | 9/28/93 | | 10/11/93 | | 9/30/93 | |
| Sample Number | MW109A | | MW109B | | MW109C | | MW109D | | MW110A | |
| Organic Traffic Report Number | 8018-04 | | 8018-06 | | 8018-08 | | 8018-82 | | 8018-24 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 400 | | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 17 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/4/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW110B | | MW110C | | MW111A | | MW111B | | MW111C | |
| Organic Traffic Report Number | 8018-31 | | 8018-30 | | 8018-32 | | 8018-33 | | 8018-41 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Methylene Chloride | 1 | UB | 1 | UB | 12 | UB | 3 | UB | 2 | U |
| Acetone | 5 | U | 5 | U | 11 | U | 11 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 4 | | 9 | | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 43 | | 29 | | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | J | 2 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 13 | J | 2 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 11 | U | 11 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,1,1-Trichloroethane | 2 | | 1 | U | 18 | | 40 | | 0.8 | J |
| Carbon Tetrachloride | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 16 | | 20 | | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 7 | J | 11 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 11 | U | 11 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 12 | | 18 | | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/1/93 | | 10/4/93 | |
| Sample Number | MW110B | | MW110C | | MW111A | | MW111B | | MW111C | |
| Organic Traffic Report Number | 8018-31 | | 8018-30 | | 8018-32 | | 8018-33 | | 8018-41 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 2 | U | 2 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/12/93 | | 10/12/93 | | 10/12/93 | | 10/8/93 | | 10/19/93 | |
| Sample Number | MW112A | | MW112B | | MW112C | | MW113A | | MW113B | |
| Organic Traffic Report Number | 8018-91 | | 8018-92 | | 8018-89 | | EXS39 | | 8018-129 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | U | 14 | U | 3 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 36 | U | 8 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,1-Dichloroethene | 0.8 | J | 0.6 | J | 0.8 | J | 33 | | 4 | |
| 1,1-Dichloroethane | 2 | | 11 | | 1 | U | 92 | | 14 | |
| cis-1,2-Dichloroethene | 1 | U | 11 | | 1 | U | 110 | | 12 | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dichloroethane | 1 | U | 4 | | 1 | U | 7 | U | 2 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 36 | U | 11 | |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,1,1-Trichloroethane | 18 | | 1 | | 1 | U | 140 | | 6 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Trichloroethene | 0.8 | J | 2 | | 1 | U | 56 | | 6 | |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 36 | U | 8 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 36 | U | 8 | U |
| Tetrachloroethene | 1 | U | 0.8 | J | 1 | U | 7 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/12/93 | | 10/12/93 | | 10/12/93 | | 10/8/93 | | 10/19/93 | |
| Sample Number | MW112A | | MW112B | | MW112C | | MW113A | | MW113B | |
| Organic Traffic Report Number | 8018-91 | | 8018-92 | | 8018-89 | | EXS39 | | 8018-129 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 7 | U | 41 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 7 | U | 3 | |
| Styrene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 7 | U | 15 | |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 7 | U | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/4/93 | | 10/18/93 | |
| Sample Number | MW114A | | MW114A(B) | | MW114A(D) | | MW114B | | MW115A | |
| Organic Traffic Report Number | 8018-54 | | 8018-56 | | 8018-55 | | 8018-48 | | 8018-111 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Methylene Chloride | 2 | U | 1 | J | 2 | U | 2 | U | 42 | U |
| Acetone | 5 | U | 5 | U | 5 | U | 5 | U | 42 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| 1,1-Dichloroethene | 4 | | 1 | U | 3 | | 0.7 | J | 42 | U |
| 1,1-Dichloroethane | 2 | | 1 | U | 2 | | 2 | | 42 | U |
| cis-1,2-Dichloroethene | 5 | | 1 | U | 5 | | 1 | U | | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dichloroethene (total) | | | | | | | | | 42 | U |
| Chloroform | 1 | U | 29 | D | 1 | U | 1 | U | 42 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 42 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | | |
| 1,1,1-Trichloroethane | 6 | | 1 | U | 6 | | 1 | U | 42 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Bromodichloromethane | 1 | U | 3 | | 1 | U | 1 | U | 42 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Trichloroethene | 2 | | 1 | U | 1 | | 5 | | 42 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 42 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 42 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/4/93 | | 10/18/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW114A | | MW114A(B) | | MW114A(D) | | MW114B | | MW115A | |
| Organic Traffic Report Number | 8018-54 | | 8018-56 | | 8018-55 | | 8018-48 | | 8018-111 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | | |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 580 | |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 42 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 7 | J |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | | |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | | |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/18/93 | | 10/1/93 | | 10/14/93 | | 10/4/93 | | 10/4/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW115B | | MW116A | | MW116B | | MW117A | | MW117B | |
| Organic Traffic Report Number | 8018-112 | | 8018-26 | | 8018-104 | | 8018-49 | | 8018-50 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 1 | UB | 7 | U | 2 | U | 2 | U |
| Acetone | 5 | U | 5 | U | 17 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 31 | | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 10 | | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 8 | | 1 | U | 1 | |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 3 | U | 0.9 | J | 0.6 | J |
| 1,2-Dichloroethane | 1 | U | 1 | U | 8 | | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 17 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 3 | J | 0.8 | J | 48 | | 2 | | 2 | |
| Carbon Tetrachloride | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Trichloroethene | 0.7 | J | 1 | | 47 | | 3 | | 5 | |
| Dibromochloromethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 17 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 17 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 3 | U | 2 | | 4 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/1/93 | | 10/14/93 | | 10/4/93 | | 10/4/93 | |
| Sample Number | MW115B | | MW116A | | MW116B | | MW117A | | MW117B | |
| Organic Traffic Report Number | 8018-112 | | 8018-26 | | 8018-104 | | 8018-49 | | 8018-50 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 3 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/14/93 | | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW117C | | MW118 | | MW118(B) | | MW118(D) | | MW119 | |
| Organic Traffic Report Number | 8018-106 | | 8018-51 | | 8018-53 | | 8018-52 | | 8018-84 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Bromomethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Vinyl Chloride | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Chloroethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Methylene Chloride | 5 | U | 2 | U | 2 | | 2 | U | 25 | U |
| Acetone | 12 | U | 5 | U | 5 | U | 5 | U | 62 | U |
| Carbon Disulfide | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,1-Dichloroethene | 13 | | 1 | U | 1 | U | 0.9 | J | 12 | U |
| 1,1-Dichloroethane | 17 | | 2 | | 1 | U | 2 | | 12 | U |
| cis-1,2-Dichloroethene | 23 | | 2 | | 1 | U | 2 | | 12 | U |
| trans-1,2-Dichloroethene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 2 | U | 1 | U | 26 | D | 1 | U | 12 | U |
| 1,2-Dichloroethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 2-Butanone | 12 | U | 5 | U | 5 | U | 5 | U | 62 | U |
| Bromochloromethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,1,1-Trichloroethane | 50 | | 7 | | 1 | U | 7 | | 12 | U |
| Carbon Tetrachloride | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Bromodichloromethane | 2 | U | 1 | U | 3 | | 1 | U | 12 | U |
| 1,2-Dichloropropane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| cis-1,3-Dichloropropene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Trichloroethene | 75 | D | 3 | | 1 | U | 3 | | 12 | U |
| Dibromochloromethane | 2 | U | 1 | U | 0.3 | J | 1 | U | 12 | U |
| 1,1,2-Trichloroethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Benzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| trans-1,3-Dichloropropene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Bromoform | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 4-Methyl-2-Pentanone | 12 | U | 5 | U | 5 | U | 5 | U | 62 | U |
| 2-Hexanone | 12 | U | 5 | U | 5 | U | 5 | U | 62 | U |
| Tetrachloroethene | 2 | U | 0.5 | J | 1 | U | 0.5 | J | 12 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/14/93 | | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/11/93 | |
| Sample Number | MW117C | | MW118 | | MW118(B) | | MW118(D) | | MW119 | |
| Organic Traffic Report Number | 8018-106 | | 8018-51 | | 8018-53 | | 8018-52 | | 8018-84 | |
| 1,1,2,2-Tetrachloroethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,2-Dibromoethane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Toluene | 2 | U | 1 | U | 1 | U | 1 | U | 250 | |
| Chlorobenzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Ethylbenzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Styrene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| Xylene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,3-Dichlorobenzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,4-Dichlorobenzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,2-Dichlorobenzene | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |
| 1,2-Dibromo-3-chloropropane | 2 | U | 1 | U | 1 | U | 1 | U | 12 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/15/93 | | 10/11/93 | | 10/11/93 | | 10/11/93 | | 10/19/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW121 | | MW122A | | MW122A(B) | | MW122A(D) | | MW122B | |
| Organic Traffic Report Number | 8018-108 | | 8018-86 | | 8018-88 | | 8018-87 | | 8018-126 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 5 | U | 3 | U | 2 | | 2 | U | 2 | U |
| Acetone | 12 | U | 8 | U | 60 | | 5 | U | 5 | U |
| Carbon Disulfide | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 2 | U | 2 | U | 1 | U | 0.7 | J | 1 | U |
| 1,1-Dichloroethane | 2 | U | 11 | | 1 | U | 15 | | 1 | U |
| cis-1,2-Dichloroethene | 27 | | 8 | | 1 | U | 10 | | 1 | U |
| trans-1,2-Dichloroethene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 12 | U | 8 | U | 13 | | 5 | U | 5 | U |
| Bromochloromethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 7 | | 20 | | 2 | | 23 | D | 1 | U |
| Carbon Tetrachloride | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 82 | D | 5 | | 1 | U | 7 | | 1 | U |
| Dibromochloromethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 12 | U | 8 | U | 3 | J | 5 | U | 5 | U |
| 2-Hexanone | 12 | U | 8 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 4 | | 2 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/15/93 | | 10/11/93 | | 10/11/93 | | 10/11/93 | | 10/19/93 | |
| Sample Number | MW121 | | MW122A | | MW122A(B) | | MW122A(D) | | MW122B | |
| Organic Traffic Report Number | 8018-108 | | 8018-86 | | 8018-88 | | 8018-87 | | 8018-126 | |
| 1,1,2,2-Tetrachloroethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 2 | U | 2 | U | 1 | U | 1 | U | 32 | D |
| Chlorobenzene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 2 | U | 2 | U | 1 | U | 1 | U | 14 | |
| Styrene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 2 | U | 2 | U | 1 | U | 1 | U | 55 | |
| 1,3-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 2 | U | 2 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/12/93 | | 10/18/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW123 | | MW124 | | MW125 | | MW126A | | MW126A(B) | |
| Organic Traffic Report Number | 8018-93 | | 8018-110 | | 8018-144 | | 8018-142 | | 8018-140 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Bromomethane | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Vinyl Chloride | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Chloroethane | 1 | U | 29 | J | 500 | D | 150 | | 2 | U |
| Methylene Chloride | 2 | U | 120 | U | 10 | U | 33 | U | 8 | |
| Acetone | 5 | U | 120 | U | 25 | U | 33 | U | 8 | U |
| Carbon Disulfide | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| 1,1-Dichloroethene | 4 | | 410 | | 42 | | 110 | | 2 | U |
| 1,1-Dichloroethane | 9 | | 150 | | 380 | D | 2100 | D | 2 | U |
| cis-1,2-Dichloroethene | 4 | | | | 13 | | | | 2 | U |
| trans-1,2-Dichloroethene | 1 | U | | | 5 | U | | | 2 | U |
| 1,2-Dichloroethene (total) | | | 210 | | | | 110 | | | |
| Chloroform | 1 | U | 120 | U | 5 | U | 33 | U | 30 | |
| 1,2-Dichloroethane | 1 | U | 120 | U | 6 | | 33 | U | 2 | U |
| 2-Butanone | 5 | U | 120 | U | 25 | U | 33 | U | 8 | U |
| Bromochloromethane | 1 | U | | | 5 | U | | | 2 | U |
| 1,1,1-Trichloroethane | 4 | | 1400 | | 120 | | 610 | D | 2 | U |
| Carbon Tetrachloride | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Bromodichloromethane | 1 | U | 120 | U | 5 | U | 33 | U | 3 | |
| 1,2-Dichloropropane | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| cis-1,3-Dichloropropene | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Trichloroethene | 3 | | 140 | | 13 | | 19 | J | 2 | U |
| Dibromochloromethane | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| 1,1,2-Trichloroethane | 1 | U | 60 | J | 4 | J | 33 | U | 2 | U |
| Benzene | 1 | U | 120 | U | 5 | U | 4 | J | 2 | U |
| trans-1,3-Dichloropropene | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Bromoform | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| 4-Methyl-2-Pentanone | 5 | U | 120 | U | 25 | U | 33 | U | 8 | U |
| 2-Hexanone | 5 | U | 120 | U | 25 | U | 33 | U | 8 | U |
| Tetrachloroethene | 1 | U | 50 | J | 11 | | 26 | J | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/12/93 | | 10/18/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW123 | | MW124 | | MW125 | | MW126A | | MW126A(B) | |
| Organic Traffic Report Number | 8018-93 | | 8018-110 | | 8018-144 | | 8018-142 | | 8018-140 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| 1,2-Dibromoethane | 1 | U | | | 5 | U | | | 2 | U |
| Toluene | 1 | U | 420 | | 2 | J | 46 | | 2 | U |
| Chlorobenzene | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Ethylbenzene | 1 | U | 19 | J | 2 | J | 33 | U | 2 | U |
| Styrene | 1 | U | 120 | U | 5 | U | 33 | U | 2 | U |
| Xylene | 1 | U | 77 | J | 5 | | 16 | J | 2 | U |
| 1,3-Dichlorobenzene | 1 | U | | | 5 | U | | | 2 | U |
| 1,4-Dichlorobenzene | 1 | U | | | 5 | U | | | 2 | U |
| 1,2-Dichlorobenzene | 1 | U | | | 5 | U | | | 2 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | | | 5 | U | | | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/18/93 | | 10/11/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW126A(D) | | MW126B | | MW127 | | MW128 | | MW129 | |
| Organic Traffic Report Number | 8018-143 | | 8018-119 | | 8018-85 | | 8018-146 | | 8018-145 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Bromomethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Vinyl Chloride | 170 | U | 14 | | 12 | U | 250 | U | 1 | U |
| Chloroethane | 130 | J | 16 | | 59 | | 250 | U | 1 | U |
| Methylene Chloride | 170 | U | 11 | U | 25 | U | 250 | U | 2 | U |
| Acetone | 170 | U | 28 | U | 62 | U | 1600 | J | 5 | U |
| Carbon Disulfide | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 1,1-Dichloroethene | 98 | J | 14 | | 12 | U | 250 | U | 1 | U |
| 1,1-Dichloroethane | 2000 | | 94 | | 15 | | 250 | U | 1 | U |
| cis-1,2-Dichloroethene | | | 27 | | 12 | U | | | 1 | U |
| trans-1,2-Dichloroethene | | | 6 | U | 12 | U | | | 1 | U |
| 1,2-Dichloroethene (total) | 92 | J | | | | | 250 | U | | |
| Chloroform | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 1,2-Dichloroethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 2-Butanone | 170 | U | 21 | J | 62 | U | 640 | | 5 | U |
| Bromochloromethane | | | 6 | U | 12 | U | | | 1 | U |
| 1,1,1-Trichloroethane | 580 | | 72 | | 12 | U | 250 | U | 10 | |
| Carbon Tetrachloride | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Bromodichloromethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 1,2-Dichloropropane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| cis-1,3-Dichloropropene | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Trichloroethene | 16 | J | 11 | | 12 | U | 250 | U | 1 | |
| Dibromochloromethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 1,1,2-Trichloroethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Benzene | 170 | U | 6 | U | 92 | | 23 | J | 1 | U |
| trans-1,3-Dichloropropene | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Bromoform | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 4-Methyl-2-Pentanone | 170 | U | 28 | U | 62 | U | 1800 | | 5 | U |
| 2-Hexanone | 170 | U | 28 | U | 62 | U | 250 | U | 5 | U |
| Tetrachloroethene | 23 | J | 3 | J | 12 | U | 250 | U | 1 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/18/93 | | 10/11/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW126A(D) | | MW126B | | MW127 | | MW128 | | MW129 | |
| Organic Traffic Report Number | 8018-143 | | 8018-119 | | 8018-85 | | 8018-146 | | 8018-145 | |
| 1,1,2,2-Tetrachloroethane | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| 1,2-Dibromoethane | | | 6 | U | 12 | U | | | 1 | U |
| Toluene | 52 | J | 90 | | 340 | D | 9200 | D | 0.3 | J |
| Chlorobenzene | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Ethylbenzene | 170 | U | 6 | | 12 | U | 3900 | | 1 | U |
| Styrene | 170 | U | 6 | U | 12 | U | 250 | U | 1 | U |
| Xylene | 28 | J | 28 | | 12 | U | 16000 | D | 1 | U |
| 1,3-Dichlorobenzene | | | 6 | U | 12 | U | | | 1 | U |
| 1,4-Dichlorobenzene | | | 6 | U | 12 | U | | | 1 | U |
| 1,2-Dichlorobenzene | | | 6 | U | 12 | U | | | 1 | U |
| 1,2-Dibromo-3-chloropropane | | | 6 | U | 12 | U | | | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW130 | | MW132 | | MW133A | | MW133B | | MW133C | |
| Organic Traffic Report Number | 8018-132 | | 8018-120 | | 8018-139 | | 8018-138 | | 8018-135 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Bromomethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Vinyl Chloride | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Chloroethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Methylene Chloride | 8 | J | 2 | B | 2 | U | 100 | U | 20 | U |
| Acetone | 67 | U | 5 | U | 5 | U | 100 | U | 20 | U |
| Carbon Disulfide | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 1,1-Dichloroethene | 10 | J | 1 | U | 1 | U | 130 | | 75 | |
| 1,1-Dichloroethane | 26 | J | 1 | U | 1 | U | 270 | | 76 | |
| cis-1,2-Dichloroethene | | | 1 | U | 1 | U | | | | |
| trans-1,2-Dichloroethene | | | 1 | U | 1 | U | | | | |
| 1,2-Dichloroethene (total) | 25 | J | | | | | 810 | | 120 | |
| Chloroform | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 1,2-Dichloroethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 2-Butanone | 67 | U | 30 | | 5 | U | 100 | U | 20 | U |
| Bromochloromethane | | | 1 | U | 1 | U | | | | |
| 1,1,1-Trichloroethane | 1000 | | 0.6 | J | 0.8 | J | 1200 | | 340 | |
| Carbon Tetrachloride | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Bromodichloromethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 1,2-Dichloropropane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| cis-1,3-Dichloropropene | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Trichloroethene | 28 | J | 1 | U | 1 | U | 380 | | 170 | |
| Dibromochloromethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 1,1,2-Trichloroethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Benzene | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| trans-1,3-Dichloropropene | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Bromoform | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 4-Methyl-2-Pentanone | 67 | U | 5 | U | 5 | U | 100 | U | 20 | U |
| 2-Hexanone | 67 | U | 5 | U | 5 | U | 100 | U | 20 | U |
| Tetrachloroethene | 67 | U | 1 | U | 1 | U | 160 | | 44 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW130 | | MW132 | | MW133A | | MW133B | | MW133C | |
| Organic Traffic Report Number | 8018-132 | | 8018-120 | | 8018-139 | | 8018-138 | | 8018-135 | |
| 1,1,2,2-Tetrachloroethane | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| 1,2-Dibromoethane | | | 1 | U | 1 | U | | | | |
| Toluene | 43 | J | 13 | | 2 | | 100 | U | 20 | U |
| Chlorobenzene | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Ethylbenzene | 67 | U | 1 | | 2 | | 100 | U | 20 | U |
| Styrene | 67 | U | 1 | U | 1 | U | 100 | U | 20 | U |
| Xylene | 13 | J | 3 | | 8 | | 100 | U | 5 | J |
| 1,3-Dichlorobenzene | | | 1 | U | 1 | U | | | | |
| 1,4-Dichlorobenzene | | | 1 | U | 1 | U | | | | |
| 1,2-Dichlorobenzene | | | 1 | U | 1 | U | | | | |
| 1,2-Dibromo-3-chloropropane | | | 1 | U | 1 | U | | | | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/19/93 | | 10/19/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW133C(B) | | MW133C(D) | | MW134A | | MW134B | | MW134C | |
| Organic Traffic Report Number | 8018-137 | | 8018-136 | | 8018-133 | | 8018-131 | | 8018-130 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Bromomethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Vinyl Chloride | 1 | U | 20 | U | 75 | | 5 | UJ | 2 | U |
| Chloroethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Methylene Chloride | 2 | J | 20 | U | 50 | U | 10 | UJ | 5 | U |
| Acetone | 7 | U | 20 | U | 50 | U | 25 | UJ | 12 | U |
| Carbon Disulfide | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 1,1-Dichloroethene | 1 | U | 71 | | 11 | J | 6 | J | 7 | |
| 1,1-Dichloroethane | 1 | U | 72 | | 200 | | 82 | J | 42 | |
| cis-1,2-Dichloroethene | 1 | U | | | | | 430 | D | 43 | |
| trans-1,2-Dichloroethene | 1 | U | | | | | 6 | J | 2 | U |
| 1,2-Dichloroethene (total) | | | 110 | | 340 | | | | | |
| Chloroform | 27 | | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 1,2-Dichloroethane | 1 | U | 20 | U | 50 | U | 10 | J | 4 | |
| 2-Butanone | 7 | U | 20 | U | 50 | U | 25 | UJ | 12 | U |
| Bromochloromethane | 1 | U | | | | | 5 | J | 2 | U |
| 1,1,1-Trichloroethane | 1 | U | 320 | | 860 | | 90 | J | 63 | E |
| Carbon Tetrachloride | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Bromodichloromethane | 3 | | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 1,2-Dichloropropane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| cis-1,3-Dichloropropene | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Trichloroethene | 1 | U | 160 | | 170 | | 13 | J | 13 | |
| Dibromochloromethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 1,1,2-Trichloroethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Benzene | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| trans-1,3-Dichloropropene | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Bromoform | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 4-Methyl-2-Pentanone | 7 | U | 20 | U | 50 | U | 25 | UJ | 12 | U |
| 2-Hexanone | 7 | U | 20 | U | 50 | U | 25 | UJ | 12 | U |
| Tetrachloroethene | 1 | U | 42 | | 96 | | 14 | J | 6 | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/19/93 | | 10/19/93 | |
| Sample Number | MW133C(B) | | MW133C(D) | | MW134A | | MW134B | | MW134C | |
| Organic Traffic Report Number | 8018-137 | | 8018-136 | | 8018-133 | | 8018-131 | | 8018-130 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| 1,2-Dibromoethane | 1 | U | | | | | 5 | UJ | 2 | U |
| Toluene | 1 | U | 20 | U | 170 | | 5 | UJ | 6 | |
| Chlorobenzene | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Ethylbenzene | 1 | U | 20 | U | 210 | | 5 | UJ | 4 | |
| Styrene | 1 | U | 20 | U | 50 | U | 5 | UJ | 2 | U |
| Xylene | 1 | U | 4 | J | 1100 | | 6 | J | 19 | |
| 1,3-Dichlorobenzene | 1 | U | | | | | 5 | UJ | 2 | U |
| 1,4-Dichlorobenzene | 1 | U | | | | | 5 | UJ | 2 | U |
| 1,2-Dichlorobenzene | 1 | U | | | | | 5 | UJ | 2 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | | | | | 5 | UJ | 2 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/14/93 | | 10/19/93 | | 10/14/93 | | 10/19/93 | | 10/18/93 | |
| Sample Number | MW135 | | MW136 | | MW138 | | MW140 | | MW141 | |
| Organic Traffic Report Number | 8018-103 | | 8018-124 | | 8018-105 | | 8018-125 | | 8018-114 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Bromomethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Vinyl Chloride | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Chloroethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Methylene Chloride | 500 | U | 10 | U | 2 | U | 100 | U | 83 | U |
| Acetone | 500 | U | 25 | U | 5 | U | 100 | U | 83 | U |
| Carbon Disulfide | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,1-Dichloroethene | 180 | J | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,1-Dichloroethane | 500 | U | 5 | U | 13 | | 100 | U | 83 | U |
| cis-1,2-Dichloroethene | | | 5 | U | 9 | | | | | |
| trans-1,2-Dichloroethene | | | 5 | U | 1 | U | | | | |
| 1,2-Dichloroethene (total) | 2800 | | | | | | 100 | U | 83 | U |
| Chloroform | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,2-Dichloroethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 2-Butanone | 500 | U | 66 | | 8 | | 100 | U | 83 | U |
| Bromochloromethane | | | 5 | U | 1 | U | | | | |
| 1,1,1-Trichloroethane | 8000 | | 5 | U | 8 | | 100 | U | 83 | U |
| Carbon Tetrachloride | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Bromodichloromethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,2-Dichloropropane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| cis-1,3-Dichloropropene | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Trichloroethene | 650 | | 5 | U | 7 | | 14 | J | 83 | U |
| Dibromochloromethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,1,2-Trichloroethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Benzene | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| trans-1,3-Dichloropropene | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Bromoform | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 4-Methyl-2-Pentanone | 500 | U | 25 | U | 5 | U | 100 | U | 83 | U |
| 2-Hexanone | 500 | U | 25 | U | 5 | U | 100 | U | 83 | U |
| Tetrachloroethene | 1200 | | 5 | U | 0.4 | J | 100 | U | 83 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/14/93 | | 10/19/93 | | 10/14/93 | | 10/19/93 | | 10/18/93 | |
| Sample Number | MW135 | | MW136 | | MW138 | | MW140 | | MW141 | |
| Organic Traffic Report Number | 8018-103 | | 8018-124 | | 8018-105 | | 8018-125 | | 8018-114 | |
| 1,1,2,2-Tetrachloroethane | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| 1,2-Dibromoethane | 500 | U | 5 | U | 1 | U | | | | |
| Toluene | 500 | U | 120 | D | 1 | U | 1500 | | 1300 | |
| Chlorobenzene | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Ethylbenzene | 500 | U | 8 | | 1 | U | 100 | U | 83 | U |
| Styrene | 500 | U | 5 | U | 1 | U | 100 | U | 83 | U |
| Xylene | 500 | U | 33 | | 1 | U | 16 | J | 30 | J |
| 1,3-Dichlorobenzene | | | 5 | U | 1 | U | | | | |
| 1,4-Dichlorobenzene | | | 5 | U | 1 | U | | | | |
| 1,2-Dichlorobenzene | | | 5 | U | 1 | U | | | | |
| 1,2-Dibromo-3-chloropropane | | | 5 | U | 1 | U | | | | |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | 10/18/93 | 10/18/93 | 9/28/93 | 9/28/93 |
| Sample Number | MW142 | MW142(B) | MW142(D) | T. BLANK | T. BLANK |
| Organic Traffic Report Number | 8018-115 | 8018-117 | 8018-116 | 8018-09 | 8018-13 |
| *Volatile Organics (ug/L)* | | | | | |
| Chloromethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| Bromomethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| Vinyl Chloride | 17 U | 1 U | 17 U | 1 U | 1 U |
| Chloroethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| Methylene Chloride | 33 U | 2 | 33 U | 4 UB | 6 UB |
| Acetone | 83 U | 76 | 83 U | 5 U | 5 U |
| Carbon Disulfide | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,1-Dichloroethene | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,1-Dichloroethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| cis-1,2-Dichloroethene | 17 U | 1 U | 17 U | 1 U | 1 U |
| trans-1,2-Dichloroethene | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,2-Dichloroethene (total) | | | | | |
| Chloroform | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,2-Dichloroethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| 2-Butanone | 83 U | 15 | 83 U | 5 U | 5 U |
| Bromochloromethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,1,1-Trichloroethane | 17 U | 2 | 17 U | 1 U | 1 U |
| Carbon Tetrachloride | 17 U | 1 U | 17 U | 1 U | 1 U |
| Bromodichloromethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,2-Dichloropropane | 17 U | 1 U | 17 U | 1 U | 1 U |
| cis-1,3-Dichloropropene | 17 U | 1 U | 17 U | 1 U | 1 U |
| Trichloroethene | 17 U | 1 U | 17 U | 1 U | 1 U |
| Dibromochloromethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| 1,1,2-Trichloroethane | 17 U | 1 U | 17 U | 1 U | 1 U |
| Benzene | 17 U | 1 | 17 U | 1 U | 1 U |
| trans-1,3-Dichloropropene | 17 U | 1 U | 17 U | 1 U | 1 U |
| Bromoform | 17 U | 1 U | 17 U | 1 U | 1 U |
| 4-Methyl-2-Pentanone | 83 U | 4 J | 83 U | 5 U | 5 U |
| 2-Hexanone | 83 U | 5 U | 83 U | 5 U | 5 U |
| Tetrachloroethene | 17 U | 1 U | 17 U | 1 U | 1 U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/18/93 | | 10/18/93 | | 10/18/93 | | 9/28/93 | | 9/28/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW142 | | MW142(B) | | MW142(D) | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-115 | | 8018-117 | | 8018-116 | | 8018-09 | | 8018-13 | |
| 1,1,2,2-Tetrachloroethane | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| Toluene | 280 | | 4 | | 280 | | 1 | U | 1 | U |
| Chlorobenzene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| Ethylbenzene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| Styrene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| Xylene | 17 | U | 3 | | 17 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 17 | U | 1 | U | 17 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/29/93 | | 9/30/93 | | 10/1/93 | | 10/1/93 | | 10/4/93 | |
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-17 | | 8018-25 | | 8018-27 | | 8018-34 | | 8018-46 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 3 | UB | 5 | UB | 2 | UB | 3 | UB | 2 | U |
| Acetone | 5 | U | 5 | U | 10 | | 9 | | 8 | J |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 9/29/93 | | 9/30/93 | | 10/1/93 | | 10/1/93 | | 10/4/93 | |
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-17 | | 8018-25 | | 8018-27 | | 8018-34 | | 8018-46 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/6/93 | | 10/7/93 | | 10/7/93 | | 10/8/93 | | 10/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-81 | | EXS24 | | EXS35 | | EXS36 | | 8018-83 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 1 | J | 1 | J | 2 | U | 2 | U | 2 | U |
| Acetone | 7 | | 8 | | 5 | U | 5 | U | 5 | U |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 0.3 | J |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/6/93 | | 10/7/93 | | 10/7/93 | | 10/8/93 | | 10/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-81 | | EXS24 | | EXS35 | | EXS36 | | 8018-83 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 0.6 | J |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/12/93 | | 10/14/93 | | 10/14/93 | | 10/15/93 | | 10/18/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-90 | | 8018-100 | | 8018-102 | | 8018-107 | | 8018-113 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 1 | J | 2 | U | 1 | J | 2 | U | 1 | J |
| Acetone | 8 | | 10 | | 10 | | 8 | | 10 | |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| Date Sampled | 10/12/93 | | 10/14/93 | | 10/14/93 | | 10/15/93 | | 10/18/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-90 | | 8018-100 | | 8018-102 | | 8018-107 | | 8018-113 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-118 | | 8018-121 | | 8018-127 | | 8018-134 | | 8018-141 | |
| *Volatile Organics (ug/L)* | | | | | | | | | | |
| Chloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromomethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Vinyl Chloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Methylene Chloride | 2 | U | 2 | U | 2 | J | 2 | | 2 | |
| Acetone | 12 | B | 11 | | 12 | | 7 | | 6 | J |
| Carbon Disulfide | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,2-Dichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethene (total) | | | | | | | | | | |
| Chloroform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 2-Butanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Bromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,1-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Carbon Tetrachloride | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromodichloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| cis-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Trichloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Dibromochloromethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,1,2-Trichloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Benzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| trans-1,3-Dichloropropene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Bromoform | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 4-Methyl-2-Pentanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| 2-Hexanone | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Tetrachloroethene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-9: Groundwater Data (Volatile Organics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | | T. BLANK | |
| Organic Traffic Report Number | 8018-118 | | 8018-121 | | 8018-127 | | 8018-134 | | 8018-141 | |
| 1,1,2,2-Tetrachloroethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromoethane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Toluene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Chlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Ethylbenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Styrene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Xylene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,3-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,4-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dichlorobenzene | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| 1,2-Dibromo-3-chloropropane | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# APPENDIX H10
# GROUNDWATER (SEMIVOLATILES AND PESTICIDES)

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/11/93 | 10/15/93 | 10/11/93 | 10/11/93 | 10/11/93 |
| Sample Number | MW119 | MW121 | MW122A | MW122A(B) | MW122A(D) |
| Organic Traffic Report Number | EXT02 | EXT12 | EXT04 | EXT06 | EXT05 |
| *Semivolatile Organics (ug/L)* | | | | | |
| Phenol | 10 U | 10 U | 10 U | 3 J | 10 U |
| bis(2-Chloroethyl)Ether | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Chlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,3-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,4-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,2'-oxybis(1-Chloropropane) | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| N-Nitroso-di-n-propylamine | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachloroethane | 10 U | 10 U | 10 U | 10 U | 10 U |
| Nitrobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Isophorone | 10 U | 10 U | 10 U | 3 J | 10 U |
| 2-Nitrophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dimethylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethoxy)methane | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2,4-Trichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Naphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloroaniline | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorobutadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloro-3-methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylnaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorocyclopentadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,6-Trichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Chloronaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitroaniline | 25 U | 25 U | 25 U | 25 U | 25 U |
| Dimethylphthalate | 10 U | 10 U | 10 U | 10 U | 10 U |
| Acenaphthylene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,6-Dinitrotoluene | 10 U | 10 U | 10 U | 10 U | 10 U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/11/93 | | 10/15/93 | | 10/11/93 | | 10/11/93 | | 10/11/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW119 | | MW121 | | MW122A | | MW122A(B) | | MW122A(D) | |
| Organic Traffic Report Number | EXT02 | | EXT12 | | EXT04 | | EXT06 | | EXT05 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U | 1 | J | 10 | U |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluorene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbazole | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 10 | U | 0.6 | J | 10 | U | 0.5 | J | 10 | U |
| Fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Chrysene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 10 | UB | 10 | UB | 10 | UB | 10 | UB | 10 | UB |
| Di-n-Octyl Phthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (b) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (k) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (a) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Ideno (1,2,3-cd) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Dibenzo (a,h) anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/11/93 | | 10/15/93 | | 10/11/93 | | 10/11/93 | | 10/11/93 | |
| Sample Number | MW119 | | MW121 | | MW122A | | MW122A(B) | | MW122A(D) | |
| Organic Traffic Report Number | EXT02 | | EXT12 | | EXT04 | | EXT06 | | EXT05 | |
| Benzo (g,h,i) perylene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | 10/12/93 | 10/18/93 | 10/20/93 | 10/20/93 |
| Sample Number | MW122B | MW123 | MW124 | MW125 | MW126A |
| Organic Traffic Report Number | EXT22 | EXT07 | EXT13 | EXT35 | EXT33 |

*Semivolatile Organics (ug/L)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Phenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Chloroethyl)Ether | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2-Chlorophenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 1,3-Dichlorobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 1,4-Dichlorobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 1,2-Dichlorobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2-Methylphenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,2'-oxybis(1-Chloropropane) | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Methylphenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| N-Nitroso-di-n-propylamine | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachloroethane | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Nitrobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Isophorone | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2-Nitrophenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dimethylphenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Chloroethoxy)methane | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dichlorophenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 1,2,4-Trichlorobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Naphthalene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Chloroaniline | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobutadiene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Chloro-3-methylphenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2-Methylnaphthalene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorocyclopentadiene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4,6-Trichlorophenol | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4,5-Trichlorophenol | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 2-Chloronaphthalene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2-Nitroaniline | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dimethylphthalate | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Acenaphthylene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,6-Dinitrotoluene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | | 10/12/93 | | 10/18/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW122B | | MW123 | | MW124 | | MW125 | | MW126A | |
| Organic Traffic Report Number | EXT22 | | EXT07 | | EXT13 | | EXT35 | | EXT33 | |
| 3-Nitroaniline | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Chlorophenyl-phenylether | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluorene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 50 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Anthracene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbazole | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluoranthene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pyrene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Chrysene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 4 | JB | 10 | UB | 10 | U | 10 | U | 10 | U |
| Di-n-Octyl Phthalate | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (b) fluoranthene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (k) fluoranthene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (a) pyrene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Ideno (1,2,3-cd) pyrene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Dibenzo (a,h) anthracene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/19/93 | | 10/12/93 | | 10/18/93 | | 10/20/93 | | 10/20/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW122B | | MW123 | | MW124 | | MW125 | | MW126A | |
| Organic Traffic Report Number | EXT22 | | EXT07 | | EXT13 | | EXT35 | | EXT33 | |
| Benzo (g,h,i) perylene | 20 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 1 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.2 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.1 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 10 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 4 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 2 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | 10/20/93 | 10/18/93 | 10/11/93 | 10/20/93 |
| Sample Number | MW126A(B) | MW126A(D) | MW126B | MW127 | MW128 |
| Organic Traffic Report Number | EXT32 | EXT34 | EXT18 | EXT03 | EXT36 |
| *Semivolatile Organics (ug/L)* | | | | | |
| Phenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethyl)Ether | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Chlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,3-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 1,4-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 1,2-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 2-Methylphenol | 10 U | 10 U | 10 U | 10 U | 100 DJ |
| 2,2'-oxybis(1-Chloropropane) | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 4-Methylphenol | 10 U | 10 U | 10 U | 10 U | 70 |
| N-Nitroso-di-n-propylamine | 10 U | 10 U | 10 U | 10 U | 10 UR |
| Hexachloroethane | 10 U | 10 U | 10 U | 10 U | 10 U |
| Nitrobenzene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| Isophorone | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitrophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dimethylphenol | 10 U | 10 U | 10 U | 10 U | 54 |
| bis(2-Chloroethoxy)methane | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2,4-Trichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| Naphthalene | 10 U | 10 U | 10 U | 10 U | 37 |
| 4-Chloroaniline | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorobutadiene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 4-Chloro-3-methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylnaphthalene | 10 U | 10 U | 10 U | 10 U | 5 J |
| Hexachlorocyclopentadiene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 2,4,6-Trichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Chloronaphthalene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 2-Nitroaniline | 25 U | 25 U | 25 U | 25 U | 25 UR |
| Dimethylphthalate | 10 U | 10 U | 10 U | 10 U | 10 UR |
| Acenaphthylene | 10 U | 10 U | 10 U | 10 U | 10 UR |
| 2,6-Dinitrotoluene | 10 U | 10 U | 10 U | 10 U | 10 U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/20/93 | | 10/20/93 | | 10/18/93 | | 10/11/93 | | 10/20/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW126A(B) | | MW126A(D) | | MW126B | | MW127 | | MW128 | |
| Organic Traffic Report Number | EXT32 | | EXT34 | | EXT18 | | EXT03 | | EXT36 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | UR |
| Acenaphthene | 10 | U | 10 | U | 10 | U | 10 | U | 6 | JR |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U | 10 | U | 3 | JR |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Fluorene | 10 | U | 10 | U | 10 | U | 10 | U | 4 | JR |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | UR |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U | 10 | U | 4 | JR |
| Anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Carbazole | 10 | U | 10 | U | 10 | U | 10 | U | 3 | JR |
| Di-n-Butylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Chrysene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| bis(2-Ethylhexyl)Phthalate | 10 | U | 10 | U | 10 | U | 14 | B | 15 | JR |
| Di-n-Octyl Phthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Benzo (b) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Benzo (k) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Benzo (a) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Ideno (1,2,3-cd) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| Dibenzo (a,h) anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/18/93 | | 10/11/93 | | 10/20/93 | |
| Sample Number | MW126A(B) | | MW126A(D) | | MW126B | | MW127 | | MW128 | |
| Organic Traffic Report Number | EXT32 | | EXT34 | | EXT18 | | EXT03 | | EXT36 | |
| Benzo (g,h,i) perylene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UR |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | UJ |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | UJ |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | UJ |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 5 | UJ |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 2 | UJ |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | UJ |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | 10/19/93 | 10/19/93 | 10/20/93 | 10/20/93 |
| Sample Number | MW129 | MW130 | MW132 | MW133A | MW133B |
| Organic Traffic Report Number | EXT37 | EXT25 | EXT19 | EXT31 | EXT30 |
| *Semivolatile Organics (ug/L)* | | | | | |
| Phenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethyl)Ether | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Chlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,3-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,4-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,2'-oxybis(1-Chloropropane) | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| N-Nitroso-di-n-propylamine | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachloroethane | 10 U | 10 U | 10 U | 10 U | 10 U |
| Nitrobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Isophorone | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitrophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dimethylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethoxy)methane | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2,4-Trichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Naphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloroaniline | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorobutadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloro-3-methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylnaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorocyclopentadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,6-Trichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Chloronaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitroaniline | 25 U | 25 U | 25 U | 25 U | 25 U |
| Dimethylphthalate | 10 U | 10 U | 10 U | 10 U | 10 U |
| Acenaphthylene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,6-Dinitrotoluene | 10 U | 10 U | 10 U | 10 U | 10 U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/20/93 | | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW129 | | MW130 | | MW132 | | MW133A | | MW133B | |
| Organic Traffic Report Number | EXT37 | | EXT25 | | EXT19 | | EXT31 | | EXT30 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluorene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbazole | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Chrysene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 3 | J | 10 | U | 1 | JB | 10 | U | 10 | U |
| Di-n-Octyl Phthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (b) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (k) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (a) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Ideno (1,2,3-cd) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Dibenzo (a,h) anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW129 | | MW130 | | MW132 | | MW133A | | MW133B | |
| Organic Traffic Report Number | EXT37 | | EXT25 | | EXT19 | | EXT31 | | EXT30 | |
| Benzo (g,h,i) perylene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | 10/20/93 | 10/20/93 | 10/20/93 | 10/19/93 |
| Sample Number | MW133C | MW133C(B) | MW133C(D) | MW134A | MW134B |
| Organic Traffic Report Number | EXT27 | EXT29 | EXT28 | EXT26 | EXT24 |
| *Semivolatile Organics (ug/L)* | | | | | |
| Phenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethyl)Ether | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Chlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,3-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,4-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-Dichlorobenzene | 10 U | 10 U | 10 U | 28 | 10 U |
| 2-Methylphenol | 10 U | 10 U | 10 U | 5 J | 10 U |
| 2,2'-oxybis(1-Chloropropane) | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Methylphenol | 10 U | 10 U | 10 U | 88 D | 10 U |
| N-Nitroso-di-n-propylamine | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachloroethane | 10 U | 10 U | 10 U | 10 U | 10 U |
| Nitrobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Isophorone | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitrophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dimethylphenol | 10 U | 10 U | 10 U | 23 J | 10 U |
| bis(2-Chloroethoxy)methane | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2,4-Trichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Naphthalene | 10 U | 10 U | 10 U | 43 | 10 U |
| 4-Chloroaniline | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorobutadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloro-3-methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylnaphthalene | 10 U | 10 U | 10 U | 4 J | 10 U |
| Hexachlorocyclopentadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,6-Trichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Chloronaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitroaniline | 25 U | 25 U | 25 U | 25 U | 25 U |
| Dimethylphthalate | 10 U | 10 U | 10 U | 10 U | 10 U |
| Acenaphthylene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,6-Dinitrotoluene | 10 U | 10 U | 10 U | 10 U | 10 U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/19/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW133C | | MW133C(B) | | MW133C(D) | | MW134A | | MW134B | |
| Organic Traffic Report Number | EXT27 | | EXT29 | | EXT28 | | EXT26 | | EXT24 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U | 0.9 | J | 10 | U |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluorene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbazole | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Chrysene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 8 | JB | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Octyl Phthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| Benzo (b) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| Benzo (k) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| Benzo (a) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| Ideno (1,2,3-cd) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| Dibenzo (a,h) anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/19/93 | |
| Sample Number | MW133C | | MW133C(B) | | MW133C(D) | | MW134A | | MW134B | |
| Organic Traffic Report Number | EXT27 | | EXT29 | | EXT28 | | EXT26 | | EXT24 | |
| Benzo (g,h,i) perylene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | UJ |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | 10/14/93 | 10/19/93 | 10/19/93 | 10/18/93 |
| Sample Number | MW134C | MW135 | MW136 | MW140 | MW141 |
| Organic Traffic Report Number | EXT23 | EXT11 | EXT21 | EXT20 | EXT14 |
| *Semivolatile Organics (ug/L)* | | | | | |
| Phenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethyl)Ether | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Chlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,3-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,4-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2-Dichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylphenol | 10 U | 10 U | 10 U | 14 | 3 J |
| 2,2'-oxybis(1-Chloropropane) | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| N-Nitroso-di-n-propylamine | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachloroethane | 10 U | 10 U | 10 U | 10 U | 10 U |
| Nitrobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Isophorone | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitrophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dimethylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| bis(2-Chloroethoxy)methane | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4-Dichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 1,2,4-Trichlorobenzene | 10 U | 10 U | 10 U | 10 U | 10 U |
| Naphthalene | 10 U | 2 J | 10 U | 10 U | 10 U |
| 4-Chloroaniline | 10 U | 10 U | 10 U | 10 U | 10 U |
| Hexachlorobutadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 4-Chloro-3-methylphenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Methylnaphthalene | 10 U | 1 J | 10 U | 10 U | 10 U |
| Hexachlorocyclopentadiene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,6-Trichlorophenol | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,4,5-Trichlorophenol | 25 U | 25 U | 25 U | 25 U | 25 U |
| 2-Chloronaphthalene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2-Nitroaniline | 25 U | 25 U | 25 U | 25 U | 25 U |
| Dimethylphthalate | 10 U | 10 U | 10 U | 10 U | 10 U |
| Acenaphthylene | 10 U | 10 U | 10 U | 10 U | 10 U |
| 2,6-Dinitrotoluene | 10 U | 10 U | 10 U | 10 U | 10 U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| Date Sampled | 10/19/93 | | 10/14/93 | | 10/19/93 | | 10/19/93 | | 10/18/93 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Sample Number | MW134C | | MW135 | | MW136 | | MW140 | | MW141 | |
| Organic Traffic Report Number | EXT23 | | EXT11 | | EXT21 | | EXT20 | | EXT14 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Fluorene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Carbazole | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 10 | U | 1 | J | 10 | U | 10 | U | 10 | U |
| Fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Chrysene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 10 | U | 10 | UB | 1 | JB | 1 | JB | 12 | B |
| Di-n-Octyl Phthalate | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (b) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (k) fluoranthene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Benzo (a) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Ideno (1,2,3-cd) pyrene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| Dibenzo (a,h) anthracene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | | 10/14/93 | | 10/19/93 | | 10/19/93 | | 10/18/93 | |
| Sample Number | MW134C | | MW135 | | MW136 | | MW140 | | MW141 | |
| Organic Traffic Report Number | EXT23 | | EXT11 | | EXT21 | | EXT20 | | EXT14 | |
| Benzo (g,h,i) perylene | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |
| *Pesticides & PCBs (ug/L)* | | | | | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U | 0.5 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U | 0.1 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U | 0.05 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U | 5 | U | 5 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U | 2 | U | 2 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/18/93 | | 10/18/93 | |
| Sample Number | MW142 | | MW142(B) | | MW142(D) | |
| Organic Traffic Report Number | EXT16 | | EXT15 | | EXT17 | |
| *Semivolatile Organics (ug/L)* | | | | | | |
| Phenol | 10 | U | 10 | U | 10 | U |
| bis(2-Chloroethyl)Ether | 10 | U | 10 | U | 10 | U |
| 2-Chlorophenol | 10 | U | 10 | U | 10 | U |
| 1,3-Dichlorobenzene | 10 | U | 10 | U | 10 | U |
| 1,4-Dichlorobenzene | 10 | U | 10 | U | 10 | U |
| 1,2-Dichlorobenzene | 10 | U | 10 | U | 10 | U |
| 2-Methylphenol | 3 | J | 10 | U | 8 | J |
| 2,2'-oxybis(1-Chloropropane) | 10 | U | 10 | U | 10 | U |
| 4-Methylphenol | 10 | U | 10 | U | 10 | U |
| N-Nitroso-di-n-propylamine | 10 | U | 10 | U | 10 | U |
| Hexachloroethane | 10 | U | 10 | U | 10 | U |
| Nitrobenzene | 10 | U | 10 | U | 10 | U |
| Isophorone | 10 | U | 10 | U | 10 | U |
| 2-Nitrophenol | 10 | U | 10 | U | 10 | U |
| 2,4-Dimethylphenol | 10 | U | 10 | U | 10 | U |
| bis(2-Chloroethoxy)methane | 10 | U | 10 | U | 10 | U |
| 2,4-Dichlorophenol | 10 | U | 10 | U | 10 | U |
| 1,2,4-Trichlorobenzene | 10 | U | 10 | U | 10 | U |
| Naphthalene | 10 | U | 10 | U | 10 | U |
| 4-Chloroaniline | 10 | U | 10 | U | 10 | U |
| Hexachlorobutadiene | 10 | U | 10 | U | 10 | U |
| 4-Chloro-3-methylphenol | 10 | U | 10 | U | 10 | U |
| 2-Methylnaphthalene | 10 | U | 10 | U | 10 | U |
| Hexachlorocyclopentadiene | 10 | U | 10 | U | 10 | U |
| 2,4,6-Trichlorophenol | 10 | U | 10 | U | 10 | U |
| 2,4,5-Trichlorophenol | 25 | U | 25 | U | 25 | U |
| 2-Chloronaphthalene | 10 | U | 10 | U | 10 | U |
| 2-Nitroaniline | 25 | U | 25 | U | 25 | U |
| Dimethylphthalate | 10 | U | 10 | U | 10 | U |
| Acenaphthylene | 10 | U | 10 | U | 10 | U |
| 2,6-Dinitrotoluene | 10 | U | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/18/93 | | 10/18/93 | |
| Sample Number | MW142 | | MW142(B) | | MW142(D) | |
| Organic Traffic Report Number | EXT16 | | EXT15 | | EXT17 | |
| 3-Nitroaniline | 25 | U | 25 | U | 25 | U |
| Acenaphthene | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrophenol | 25 | U | 25 | U | 25 | U |
| 4-Nitrophenol | 25 | U | 25 | U | 25 | U |
| Dibenzofuran | 10 | U | 10 | U | 10 | U |
| 2,4-Dinitrotoluene | 10 | U | 10 | U | 10 | U |
| Diethylphthalate | 10 | U | 10 | U | 10 | U |
| 4-Chlorophenyl-phenylether | 10 | U | 10 | U | 10 | U |
| Fluorene | 10 | U | 10 | U | 10 | U |
| 4-Nitroaniline | 25 | U | 25 | U | 25 | U |
| 4,6-Dinitro-2-methylphenol | 25 | U | 25 | U | 25 | U |
| N-Nitrosodiphenylamine (1) | 10 | U | 10 | U | 10 | U |
| 4-Bromophenyl-phenylether | 10 | U | 10 | U | 10 | U |
| Hexachlorobenzene | 10 | U | 10 | U | 10 | U |
| Pentachlorophenol | 25 | U | 25 | U | 25 | U |
| Phenanthrene | 10 | U | 10 | U | 10 | U |
| Anthracene | 10 | U | 10 | U | 10 | U |
| Carbazole | 10 | U | 10 | U | 10 | U |
| Di-n-Butylphthalate | 10 | U | 10 | U | 0.9 | JB |
| Fluoranthene | 10 | U | 10 | U | 10 | U |
| Pyrene | 10 | U | 10 | U | 10 | U |
| Butylbenzylphthalate | 10 | U | 10 | U | 10 | U |
| 3,3'-Dichlorobenzidine | 10 | U | 10 | U | 10 | U |
| Benzo(a)anthracene | 10 | U | 10 | U | 10 | U |
| Chrysene | 10 | U | 10 | U | 10 | U |
| bis(2-Ethylhexyl)Phthalate | 190 | DB | 13 | | 1 | JB |
| Di-n-Octyl Phthalate | 10 | UJ | 10 | U | 10 | U |
| Benzo (b) fluoranthene | 10 | UJ | 10 | U | 10 | U |
| Benzo (k) fluoranthene | 10 | UJ | 10 | U | 10 | U |
| Benzo (a) pyrene | 10 | UJ | 10 | U | 10 | U |
| Ideno (1,2,3-cd) pyrene | 10 | UJ | 10 | U | 10 | U |
| Dibenzo (a,h) anthracene | 10 | UJ | 10 | U | 10 | U |

# Appendix H-10: Groundwater Data (Semivolatiles, Pesticides, and PCB's)

| | | | | | | |
|---|---|---|---|---|---|---|
| Date Sampled | 10/18/93 | | 10/18/93 | | 10/18/93 | |
| Sample Number | MW142 | | MW142(B) | | MW142(D) | |
| Organic Traffic Report Number | EXT16 | | EXT15 | | EXT17 | |
| Benzo (g,h,i) perylene | 10 | UJ | 10 | U | 10 | U |
| *Pesticides & PCBs (ug/L)* | | | | | | |
| alpha-BHC | 0.05 | U | 0.05 | U | 0.05 | U |
| beta-BHC | 0.05 | U | 0.05 | U | 0.05 | U |
| delta-BHC | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-BHC (Lindane) | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor | 0.05 | U | 0.05 | U | 0.05 | U |
| Aldrin | 0.05 | U | 0.05 | U | 0.05 | U |
| Heptachlor epoxide | 0.05 | U | 0.05 | U | 0.05 | U |
| Endosulfan I | 0.05 | U | 0.05 | U | 0.05 | U |
| Dieldrin | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDE | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan II | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDD | 0.1 | U | 0.1 | U | 0.1 | U |
| Endosulfan sulfate | 0.1 | U | 0.1 | U | 0.1 | U |
| 4,4'-DDT | 0.1 | U | 0.1 | U | 0.1 | U |
| Methoxychlor | 0.5 | U | 0.5 | U | 0.5 | U |
| Endrin ketone | 0.1 | U | 0.1 | U | 0.1 | U |
| Endrin aldehyde | 0.1 | U | 0.1 | U | 0.1 | U |
| alpha-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U |
| gamma-Chlordane | 0.05 | U | 0.05 | U | 0.05 | U |
| Toxaphene | 5 | U | 5 | U | 5 | U |
| Aroclor-1016 | 1 | U | 1 | U | 1 | U |
| Aroclor-1221 | 2 | U | 2 | U | 2 | U |
| Aroclor-1232 | 1 | U | 1 | U | 1 | U |
| Aroclor-1242 | 1 | U | 1 | U | 1 | U |
| Aroclor-1248 | 1 | U | 1 | U | 1 | U |
| Aroclor-1254 | 1 | U | 1 | U | 1 | U |
| Aroclor-1260 | 1 | U | 1 | U | 1 | U |

# APPENDIX H11
# GROUNDWATER (INORGANICS)

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/11/93 | | 10/15/93 | | 10/11/93 | | 10/11/93 | | 10/11/93 | |
| Sample Number | MW119 | | MW121 | | MW122A | | MW122A(B) | | MW122A(D) | |
| Inorganic Traffic Report Number | MEWK04 | | MEWK11 | | MEWK06 | | MEWK08 | | MEWK07 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 19.8 | B | 25 | B | 17.5 | B | 15.5 | U | 1480 | |
| Antimony | 9.2 | U | 9.2 | U | 9.2 | U | 9.2 | U | 9.2 | U |
| Arsenic | 2.1 | U | 3.4 | B | 2.4 | B | 2.1 | U | 3.2 | B |
| Barium | 40.5 | B | 103 | B | 43.1 | B | 3.6 | U | 58.8 | B |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1 | U | 1 | U | 1 | U | 1 | U | 1 | U |
| Calcium | 90600 | | 126000 | | 80100 | | 24.2 | U | 82200 | |
| Chromium | 4.1 | U | 4.1 | U | 4.1 | U | 4.1 | U | 5.6 | B |
| Cobalt | 3 | U | 3 | U | 3 | U | 3 | U | 3 | U |
| Copper | 3.7 | B | 3 | B | 2.9 | U | 2.9 | U | 5.5 | B |
| Iron | 23.9 | B | 31.2 | B | 9.2 | U | 10.9 | B | 2120 | |
| Lead | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U |
| Magnesium | 39600 | | 48200 | | 37700 | | 32.3 | U | 39000 | |
| Manganese | 6 | B | 14.6 | B | 59.1 | | 1.3 | U | 131 | |
| Mercury | 0.2 | U | 0.2 | UNJ | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 3.9 | U | 3.9 | U | 3.9 | U | 3.9 | U | 3.9 | U |
| Potassium | 2730 | B | 4800 | B | 2020 | B | 125 | U | 2500 | B |
| Selenium | 2.8 | U | 2.8 | U | 2.8 | U | 2.8 | U | 2.8 | U |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Sodium | 27700 | | 46100 | | 40400 | | 168 | B | 55400 | |
| Thallium | 2.4 | B | 1.6 | U | 1.6 | U | 1.6 | U | 1.6 | U |
| Vanadium | 2.6 | U | 3.8 | B | 2.6 | U | 2.6 | U | 4.7 | B |
| Zinc | 8.5 | U | 8.5 | U | 8.5 | U | 8.5 | U | 14.1 | B |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | | 10/12/93 | | 10/18/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW122B | | MW123 | | MW124 | | MW125 | | MW126A | |
| Inorganic Traffic Report Number | MEWK21 | | MEWK09 | | MEWK12 | | MEWK34 | | MEWK32 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 23.9 | B | 1470 | | 29.1 | B | 526 | | 10.6 | U |
| Antimony | 9.2 | U | 9.2 | U | 10.2 | B | 12.9 | U | 12.9 | U |
| Arsenic | 2.1 | U | 6.3 | B | 2.1 | U | 1.7 | B | 1.3 | U |
| Barium | 31.9 | B | 58.8 | B | 101 | B | 61.4 | BEJ | 75.3 | BEJ |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1 | U | 1 | U | 1 | U | 1.3 | U | 1.3 | U |
| Calcium | 85600 | | 90800 | | 109000 | | 122000 | | 101000 | |
| Chromium | 4.1 | U | 4.1 | U | 4.1 | U | 2.2 | B | 2.1 | U |
| Cobalt | 3 | U | 3 | U | 3 | U | 2.6 | U | 2.6 | U |
| Copper | 2.9 | U | 2.9 | U | 2.9 | U | 2.5 | U | 4.9 | B |
| Iron | 661 | | 939 | | 28.7 | B | 69.7 | B | 30.8 | B |
| Lead | 2.9 | U | 2.9 | U | 2.9 | U | 2.5 | UWN | 2.5 | UN |
| Magnesium | 41700 | | 32800 | | 46300 | | 38300 | | 42700 | |
| Manganese | 119 | | 123 | | 89.6 | | 27.1 | | 596 | |
| Mercury | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 3.9 | U | 4.6 | B | 4 | B | 17 | B | 4.5 | B |
| Potassium | 1390 | B | 4810 | B | 3300 | B | 3760 | B | 3580 | B |
| Selenium | 2.8 | U | 2.8 | U | 2.8 | U | 3.2 | BWJ | 3.1 | UWJ |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | 2.6 | U | 2.6 | U |
| Sodium | 14000 | | 97900 | | 46100 | | 159000 | | 89800 | |
| Thallium | 1.6 | U | 1.6 | B | 1.6 | U | 19 | UWNJ | 3.8 | UWNJ |
| Vanadium | 2.6 | U | 6.1 | B | 2.6 | U | 5.5 | U | 5.5 | U |
| Zinc | 8.5 | U | 8.5 | U | 8.5 | U | 4.4 | U | 5.4 | B |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/18/93 | | 10/11/93 | | 10/20/93 | |
| Sample Number | MW126A(B) | | MW126A(D) | | MW126B | | MW127 | | MW128 | |
| Inorganic Traffic Report Number | MEWK31 | | MEWK33 | | MEWK17 | | MEWK05 | | MEWK35 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 16.5 | B | 32.8 | B | 117 | B | 261 | | 51.1 | B |
| Antimony | 12.9 | U | 12.9 | U | 9.2 | U | 9.2 | U | 12.9 | U |
| Arsenic | 1.3 | U | 1.3 | U | 2.1 | U | 5.5 | B | 8.2 | B |
| Barium | 1.2 | UEJ | 71.7 | BEJ | 114 | B | 58.8 | B | 153 | BEJ |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1.3 | U | 1.3 | U | 1 | U | 1 | U | 1.3 | U |
| Calcium | 677 | B | 96100 | | 104000 | | 52200 | | 67200 | |
| Chromium | 2.1 | U | 2.1 | U | 4.1 | U | 4.1 | U | 3.4 | B |
| Cobalt | 2.6 | U | 2.7 | B | 4.4 | B | 3 | U | 29.4 | B |
| Copper | 2.5 | U | 5.2 | B | 4.7 | B | 8.2 | B | 2.6 | B |
| Iron | 29.5 | B | 39.3 | B | 198 | | 243 | | 79.5 | B |
| Lead | 2.5 | UN | 2.5 | UN | 2.9 | U | 2.9 | U | 5 | N |
| Magnesium | 347 | B | 40500 | | 49200 | | 20900 | | 26200 | |
| Manganese | 4.9 | B | 564 | | 600 | | 79.8 | | 1410 | |
| Mercury | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 3.4 | U | 3.4 | B | 5.9 | B | 3.9 | U | 14.2 | B |
| Potassium | 112 | B | 3530 | B | 3320 | B | 2740 | B | 5690 | |
| Selenium | 3.1 | UWJ | 3.1 | UWJ | 2.8 | U | 3.6 | B | 3.1 | UWJ |
| Silver | 2.6 | U | 2.6 | U | 3.7 | U | 3.7 | U | 2.6 | U |
| Sodium | 692 | B | 85000 | | 49600 | | 92600 | | 292000 | |
| Thallium | 3.8 | UNJ | 3.8 | UWNJ | 1.6 | U | 1.6 | U | 19 | UWNJ |
| Vanadium | 5.5 | U | 5.5 | U | 2.6 | U | 4.9 | B | 6.5 | B |
| Zinc | 10.3 | B | 8.4 | B | 23.5 | | 8.5 | U | 13.5 | B |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/19/93 | | 10/19/93 | | 10/20/93 | | 10/20/93 | |
| Sample Number | MW129 | | MW130 | | MW132 | | MW133A | | MW133B | |
| Inorganic Traffic Report Number | MEWK36 | | MEWK24 | | MEWK18 | | MEWK30 | | MEWK29 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 16.5 | B | 17.8 | B | 1730 | | 34.2 | B | 20.2 | B |
| Antimony | 12.9 | U | 9.2 | U | 9.2 | U | 12.9 | U | 12.9 | U |
| Arsenic | 1.4 | B | 2.1 | U | 2.5 | B | 3.1 | BW | 1.3 | U |
| Barium | 71.6 | BEJ | 51.9 | B | 214 | | 39.1 | BEJ | 29.5 | BEJ |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1.3 | U | 1 | U | 1 | U | 1.3 | U | 1.3 | U |
| Calcium | 62700 | | 79300 | | 127000 | | 62200 | | 95900 | |
| Chromium | 2.1 | U | 4.1 | U | 19.3 | | 2.1 | U | 2.1 | U |
| Cobalt | 2.6 | U | 3 | U | 3 | U | 2.6 | U | 2.6 | U |
| Copper | 2.5 | U | 2.9 | U | 8.1 | B | 2.5 | U | 2.5 | U |
| Iron | 20.4 | B | 9.2 | U | 2490 | | 61 | B | 30.1 | B |
| Lead | 2.6 | BN | 2.9 | U | 5.1 | | 2.5 | UN | 2.5 | UNJ |
| Magnesium | 27800 | | 36100 | | 48500 | | 30900 | | 44500 | |
| Manganese | 27.3 | | 9.5 | B | 257 | | 25.1 | | 6.4 | B |
| Mercury | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 3.4 | U | 3.9 | U | 15.1 | B | 3.4 | U | 3.4 | U |
| Potassium | 3220 | B | 2950 | B | 3700 | B | 1000 | B | 822 | B |
| Selenium | 3.1 | U | 2.8 | U | 2.8 | U | 3.1 | U | 3.1 | U |
| Silver | 2.6 | U | 3.7 | U | 3.7 | U | 2.6 | U | 2.6 | U |
| Sodium | 43100 | | 56200 | | 159000 | | 14400 | | 12800 | |
| Thallium | 3.8 | UWNJ | 1.6 | U | 1.6 | U | 3.8 | UWNJ | 3.8 | UWNJ |
| Vanadium | 5.5 | U | 2.6 | U | 2.8 | B | 5.5 | U | 5.5 | U |
| Zinc | 4.4 | U | 8.5 | U | 24.7 | | 4.4 | U | 4.4 | U |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/20/93 | | 10/19/93 | | 10/19/93 | |
| Sample Number | MW133C | | MW133C(B) | | MW133C(D) | | MW134A | | MW134B | |
| Inorganic Traffic Report Number | MEWK26 | | MEWK28 | | MEWK27 | | MEWK25 | | MEWK23 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 33 | B | 21.7 | B | 36.4 | B | 22.2 | B | 27.5 | B |
| Antimony | 12.9 | U | 12.9 | U | 12.9 | U | 12.9 | U | 9.2 | U |
| Arsenic | 4.5 | BW | 1.3 | U | 3.4 | BW | 29.1 | S | 2.1 | U |
| Barium | 21.6 | BEJ | 1.2 | UEJ | 20.6 | BEJ | 152 | BEJ | 42.6 | B |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1.3 | U | 1.3 | U | 1.3 | U | 1.3 | U | 1 | U |
| Calcium | 70200 | | 59 | U | 70600 | | 100000 | | 101000 | |
| Chromium | 2.8 | B | 2.1 | U | 2.1 | U | 2.3 | B | 4.1 | U |
| Cobalt | 2.6 | U | 2.6 | U | 2.6 | U | 2.6 | U | 3 | U |
| Copper | 7.2 | B | 2.5 | U | 2.6 | B | 12.3 | B | 2.9 | U |
| Iron | 39.2 | B | 38.6 | B | 27.4 | B | 4070 | | 9.2 | U |
| Lead | 3.1 | N | 2.5 | UN | 2.5 | UN | 5.6 | N | 2.9 | U |
| Magnesium | 34100 | | 27.8 | B | 34300 | | 35500 | | 46800 | |
| Manganese | 18.1 | | 0.8 | U | 18.3 | | 208 | | 2.7 | B |
| Mercury | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 3.4 | U | 3.4 | U | 3.4 | U | 4 | B | 3.9 | U |
| Potassium | 1110 | B | 68.5 | U | 1150 | B | 2100 | B | 1560 | B |
| Selenium | 3.1 | UWJ | 3.1 | UWJ | 3.1 | UWJ | 15.5 | UWJ | 2.8 | U |
| Silver | 2.6 | U | 2.6 | U | 2.6 | U | 2.6 | U | 3.7 | U |
| Sodium | 12900 | | 210 | B | 13000 | | 7380 | | 32100 | |
| Thallium | 3.8 | UWNJ | 3.8 | UNJ | 3.8 | UWNJ | 3.8 | UNJ | 1.6 | U |
| Vanadium | 5.5 | U | 5.5 | U | 5.5 | U | 5.5 | U | 2.6 | U |
| Zinc | 4.8 | B | 4.4 | U | 6.1 | B | 25.3 | | 10 | B |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 59.4 | |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | | 10/14/93 | | 10/19/93 | | 10/19/93 | | 10/18/93 | |
| Sample Number | MW134C | | MW135 | | MW136 | | MW140 | | MW141 | |
| Inorganic Traffic Report Number | MEWK22 | | MEWK10 | | MEWK20 | | MEWK19 | | MEWK13 | |
| *Inorganics (ug/L)* | | | | | | | | | | |
| Aluminum | 38.9 | B | 33.1 | B | 24.6 | B | 44.6 | B | 23.2 | B |
| Antimony | 9.2 | U | 9.2 | U | 9.2 | U | 9.2 | U | 9.2 | U |
| Arsenic | 2.1 | U | 4.8 | B | 2.1 | U | 2.1 | U | 2.1 | U |
| Barium | 47.9 | B | 91 | B | 99.8 | B | 89.2 | B | 87.8 | B |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1 | B | 1 | U | 1 | U | 1 | U | 1 | U |
| Calcium | 99600 | | 115000 | | 110000 | | 86900 | | 108000 | |
| Chromium | 4.1 | U | 4.1 | U | 4.1 | U | 4.1 | U | 4.1 | U |
| Cobalt | 3 | U | 3 | U | 3 | U | 3 | U | 3 | U |
| Copper | 4 | B | 5.2 | B | 5.4 | B | 3.1 | B | 4.6 | B |
| Iron | 970 | | 34.8 | B | 9.2 | U | 9.2 | U | 9.2 | U |
| Lead | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U | 2.9 | U |
| Magnesium | 47800 | | 44000 | | 49800 | | 37800 | | 49200 | |
| Manganese | 101 | | 225 | | 16.7 | | 42.6 | | 191 | |
| Mercury | 0.2 | U | 0.2 | UNJ | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 4.8 | B | 3.9 | U | 3.9 | U | 3.9 | U | 27.6 | B |
| Potassium | 1320 | B | 1640 | B | 1250 | B | 2440 | B | 2400 | B |
| Selenium | 2.8 | U | 2.8 | U | 2.8 | U | 2.8 | U | 2.8 | U |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U | 3.7 | U |
| Sodium | 16200 | | 9000 | | 20100 | | 32700 | | 60900 | |
| Thallium | 1.6 | U | 1.6 | U | 2.2 | B | 1.6 | U | 1.6 | U |
| Vanadium | 2.6 | U | 2.6 | U | 2.6 | U | 2.6 | U | 2.6 | U |
| Zinc | 8.5 | U | 12.2 | B | 8.5 | U | 22.6 | | 8.5 | U |
| Cyanide | 10 | U | 10 | U | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | |
|---|---|---|---|
| Date Sampled | 10/18/93 | 10/18/93 | 10/18/93 |
| Sample Number | MW142 | MW142(B) | MW142(D) |
| Inorganic Traffic Report Number | MEWK14 | MEWK16 | MEWK15 |

| *Inorganics (ug/L)* | | | | | | |
|---|---|---|---|---|---|---|
| Aluminum | 29.7 | B | 15.5 | U | 22.3 | B |
| Antimony | 9.2 | U | 9.2 | U | 9.2 | U |
| Arsenic | 2.1 | U | 2.1 | U | 2.1 | U |
| Barium | 101 | B | 4 | B | 98.5 | B |
| Beryllium | 0.2 | U | 0.2 | U | 0.2 | U |
| Cadmium | 1 | U | 1 | U | 1 | U |
| Calcium | 111000 | | 24.2 | U | 108000 | |
| Chromium | 4.1 | U | 4.1 | U | 4.1 | U |
| Cobalt | 5.8 | B | 3 | U | 7.3 | B |
| Copper | 8.5 | B | 2.9 | U | 7.8 | B |
| Iron | 9.2 | U | 9.2 | U | 9.2 | U |
| Lead | 2.9 | U | 2.9 | U | 2.9 | U |
| Magnesium | 48800 | | 32.3 | U | 47700 | |
| Manganese | 49.8 | | 1.3 | U | 47 | |
| Mercury | 0.2 | U | 0.2 | U | 0.2 | U |
| Nickel | 73.2 | | 3.9 | U | 70.7 | |
| Potassium | 1930 | B | 125 | U | 1880 | B |
| Selenium | 2.8 | U | 2.8 | U | 2.8 | U |
| Silver | 3.7 | U | 3.7 | U | 3.7 | U |
| Sodium | 32600 | | 53 | B | 31600 | |
| Thallium | 1.8 | B | 1.6 | U | 1.6 | U |
| Vanadium | 2.6 | U | 2.6 | U | 2.6 | U |
| Zinc | 14.8 | B | 8.5 | U | 10.6 | B |
| Cyanide | 10 | U | 10 | U | 10 | U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/4/93 | 10/4/93 | 10/12/93 | 10/12/93 | 10/8/93 |
| Sample Number | MW101A | MW101B | MW112B | MW112C | MW113A |
| SAS Traffic Report Numbers | 7943-04 | 7943-01 | 7943-17 | 7943-16 | 7943-15 |
| | 8067E02-03 | 8067E02-05 | 8067E02-17 | 8067E02-16 | 8067E02-15 |

*Water Quality Parameters (ug/L)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity | 318 | J | 299 | J | 330 | | 352 | | 325 | J |
| Ammonia, Nitrogen | 0.07 | | 0.04 | U | 0.05 | | 0.48 | | 0.05 | |
| Carbon, Total Organic | 3.93 | J | 1.59 | J | 1.08 | | 1.1 | | 5.67 | J |
| Chemical Oxygen Demand | 5.15 | UJ | 5.15 | UJ | 5 | U | 5 | U | 47.9 | UJ |
| Chloride | 11.1 | | 40.2 | | 7.5 | | 2 | U | 47.9 | |
| Fluoride | 0.11 | | 0.12 | | 0.14 | | 0.21 | | 0.13 | |
| Nitrate + Nitrite | 0.0515 | B | 0.505 | | 0.76 | | 0.01 | U | 0.216 | |
| Total Kjeldahl Nitrogen | 0.24 | | 0.5 | U | 0.18 | | 0.56 | | 0.38 | |
| Phosphorus, All Forms | 0.522 | NJ | 0.0417 | BNJ | 0.953 | | 0.227 | | 1.15 | NJ |
| Silica | 16 | | 16 | | 16 | | 13 | | 15 | |
| Solids, Total Dissolved | 426 | | 381 | | 443 | | 345 | | 474 | |
| Solids, Total Suspended | 288 | J | 38 | J | 29.3 | | 0.3 | | 573 | J |
| Sulfate | 55.2 | J | 39.1 | J | 39.9 | | 3.48 | | 43.4 | J |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/5/93 | | 10/5/93 | | 10/5/93 | | 10/4/93 | | 10/4/93 | |
| Sample Number | MW114A | | MW114A(B) | | MW114A(D) | | MW114B | | MW117A | |
| SAS Traffic Report Numbers | 7943-08 | | 7943-07 | | 7943-06 | | 7943-03 | | 7943-05 | |
| | 8067E02-08 | | 8067E02-07 | | 8067E02-06 | | 8067E02-01 | | 8067E02-02 | |
| *Water Quality Parameters (ug/L)* | | | | | | | | | | |
| Alkalinity | 275 | J | 1.48 | BJ | 280 | J | 288 | J | 248 | J |
| Ammonia, Nitrogen | 0.04 | U | 0.04 | U | 0.086 | | 0.17 | | 0.75 | |
| Carbon, Total Organic | 2.15 | J | 0.128 | BJ | 2.39 | J | 2.9 | J | 1.55 | J |
| Chemical Oxygen Demand | 5.15 | UJ | 5.15 | UJ | 8.42 | U | 5.15 | UJ | 5.15 | UJ |
| Chloride | 10.9 | | 0.303 | B | 10.5 | | 66.5 | | 20.8 | |
| Fluoride | 0.15 | | 0.1 | U | 0.15 | | 0.16 | | 0.35 | |
| Nitrate + Nitrite | 0.463 | | 0.00217 | U | 0.582 | | 0.0165 | B | 0.73 | |
| Total Kjeldahl Nitrogen | 0.28 | | 0.2 | | 0.24 | | 0.28 | | 0.28 | |
| Phosphorus, All Forms | 7.93 | NJ | 0.0518 | BNJ | 7.34 | NJ | 0.123 | NJ | 0.0832 | BNJ |
| Silica | 18 | | 1.83 | | 18 | | 13 | | 12 | |
| Solids, Total Dissolved | 279 | | 10 | U | 417 | | 453 | | 308 | |
| Solids, Total Suspended | 382 | *J | 4 | U*J | 319 | *J | 10 | *J | 12 | *J |
| Sulfate | 38 | J | 0.863 | UJ | 0.863 | UJ | 72.9 | J | 25 | J |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/4/93 | 10/14/93 | 10/5/93 | 10/5/93 | 10/5/93 |
| Sample Number | MW117B | MW117C | MW118 | MW118(B) | MW118(D) |
| SAS Traffic Report Numbers | 7943-02 | 7943-18 | 7943-12 | 7943-10 | 7943-11 |
| | 8067E02-04 | 8067E02-18 | 8067E02-12 | 8067E02-10 | 8067E02-11 |

*Water Quality Parameters (ug/L)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity | 281 | U | 341 | | 301 | U | 1.06 | BJ | 313 | J |
| Ammonia, Nitrogen | 0.06 | | 0.07 | | 0.04 | U | 0.04 | U | 0.04 | U |
| Carbon, Total Organic | 1.77 | U | 1.32 | | 2.54 | J | 0.135 | BJ | 2.24 | J |
| Chemical Oxygen Demand | 12.2 | U | 5 | U | 5.15 | UJ | 5.15 | UJ | 5.15 | UJ |
| Chloride | 46.2 | | 52.7 | | 1.12 | | 0.376 | B | 54.4 | |
| Fluoride | 0.14 | | 0.13 | | 0.13 | | 0.1 | U | 0.14 | |
| Nitrate + Nitrite | 0.354 | | 3.11 | | 1.16 | | 0.0077 | B | 1.05 | |
| Total Kjeldahl Nitrogen | 0.28 | | 0.16 | | 0.4 | | 0.32 | | 0.32 | |
| Phosphorus, All Forms | 0.568 | NJ | 0.082 | | 0.0512 | BNJ | 0.0549 | BNJ | 0.0654 | BNJ |
| Silica | 16 | | 17 | | 15 | | 1.38 | | 15 | |
| Solids, Total Dissolved | 316 | | 490 | | 442 | | 10 | U | 428 | |
| Solids, Total Suspended | 684 | U | 45.8 | | 34 | U | 4 | UJ | 28 | *J |
| Sulfate | 18.9 | U | 61.1 | | 49.4 | U | 0.876 | BJ | 41.7 | J |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | 10/20/93 | 10/20/93 | 10/18/93 | 10/20/93 |
| Sample Number | MW126A | MW126A(B) | MW126A(D) | MW126B | MW129 |
| SAS Traffic Report Numbers | 7943-28 | 7943-27 | 7943-29 | 7943-19 | 7943-30 |
| | 8067E02-28 | 8067E02-27 | 8067E02-29 | 8067E02-19 | 8067E02-30 |

*Water Quality Parameters (ug/L)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Alkalinity | 416 | | 1 | U | 417 | | 415 | | 333 | |
| Ammonia, Nitrogen | 0.07 | | 0.04 | | 0.08 | | 0.25 | | 0.08 | |
| Carbon, Total Organic | 14.7 | | 1 | U | 13.5 | | 17 | | 11.4 | |
| Chemical Oxygen Demand | 5 | U | 5 | U | 5 | U | 7.74 | | 5 | U |
| Chloride | 148 | | 0.5 | U | 138 | | 84.4 | | 7.19 | |
| Fluoride | 0.12 | | 0.1 | U | 0.1 | U | 0.12 | | 0.31 | |
| Nitrate + Nitrite | 0.84 | | 0.1 | U | 0.82 | | 0.1 | U | 2.7 | |
| Total Kjeldahl Nitrogen | 0.2 | | 0.1 | U | 0.36 | | 0.34 | | 0.3 | |
| Phosphorus, All Forms | 0.02 | | 0.02 | U | 0.02 | | 0.04 | | 0.42 | |
| Silica | 17 | | 1.03 | | 16 | | 24 | | 18 | |
| Solids, Total Dissolved | 698 | | 8 | | 690 | | 638 | | 430 | |
| Solids, Total Suspended | 1 | | 1 | U | 2 | | 10 | | 66 | |
| Sulfate | 43 | | 2 | U | 44.6 | | 55 | | 30 | |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | |
|---|---|---|---|---|---|
| Date Sampled | 10/19/93 | 10/20/93 | 10/20/93 | 10/20/93 | 10/20/93 |
| Sample Number | MW132 | MW133A | MW133B | MW133C | MW133C(B) |
| SAS Traffic Report Numbers | 7943-20 | 7943-26 | 7943-25 | 7943-22 | 7943-24 |
| | 8067E02-20 | 8067E02-26 | 806702-25 | 8067E02-22 | 8067E02-24 |
| *Water Quality Parameters (ug/L)* | | | | | |
| Alkalinity | 565 | 255 | 309 | 272 | 1 U |
| Ammonia, Nitrogen | 0.16 | 0.07 | 0.05 | 0.14 | 0.04 U |
| Carbon, Total Organic | 29 | 8.6 | 59 | 10 | 1 U |
| Chemical Oxygen Demand | 5 U | 15.2 | 8.11 | 5.87 | 8.9 |
| Chloride | 140 | 6.71 | 70 | 15.2 | 0.5 U |
| Fluoride | 0.18 | 0.14 | 1 | 0.14 | 0.1 U |
| Nitrate + Nitrite | 0.1 U | 8.94 | 2.53 | 2.36 | 0.1 U |
| Total Kjeldahl Nitrogen | 0.52 | 0.1 U | 0.16 | 0.2 | 0.1 |
| Phosphorus, All Forms | 0.34 | 2.28 | 0.09 | 1.12 | 0.02 |
| Silica | 21 | 15 | 16 | 15 | 1.32 |
| Solids, Total Dissolved | 774 | 364 | 552 | 398 | 2 |
| Solids, Total Suspended | 198 | 190 | 12.7 | 60 | 1 U |
| Sulfate | 18.7 | 14.2 | 38 | 36 | 2 U |

# Appendix H-11: Groundwater Data (Inorganics)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | 10/20/93 | | 10/20/93 | | 10/5/93 | | 10/6/93 | | 10/6/93 | |
| Sample Number | MW133C(D) | | MW134A | | MW05 | | MW43 | | MW46 | |
| SAS Traffic Report Numbers | 7943-23 | | 7943-21 | | 7943-09 | | 7943-14 | | 7943-13 | |
| | 8067E02-23 | | 8067E02-21 | | 8067E02-09 | | 8067E02-14 | | 8067E02-13 | |
| *Water Quality Parameters (ug/L)* | | | | | | | | | | |
| Alkalinity | 275 | | 455 | | 337 | J | 315 | J | 395 | J |
| Ammonia, Nitrogen | 0.05 | | 0.6 | | 0.04 | U | 0.07 | | 0.04 | U |
| Carbon, Total Organic | 9.4 | | 53 | | 4.23 | J | 7.64 | J | 10.1 | J |
| Chemical Oxygen Demand | 5.12 | | 5 | U | 17.9 | J | 8.42 | J | 5.15 | UJ |
| Chloride | 15.3 | | 16.9 | | 27.6 | | 93.1 | | 125 | |
| Fluoride | 0.1 | U | 0.16 | | 0.1 | | 0.1 | U | 0.1 | U |
| Nitrate + Nitrite | 2.47 | | 0.1 | U | 0.907 | | 0.878 | | 0.374 | |
| Total Kjeldahl Nitrogen | 0.1 | U | 1.12 | | 0.24 | | 0.13 | | 0.1 | U |
| Phosphorus, All Forms | 1.19 | | 0.1 | | 0.0913 | BNJ | 0.0359 | BNJ | 0.0378 | BNJ |
| Silica | 16 | | 23 | | 18 | | 19 | | 20 | |
| Solids, Total Dissolved | 380 | | 438 | | 512 | | 579 | U | 71 | |
| Solids, Total Suspended | 52 | | 2220 | | 51 | *J | 4 | *J | 10 | *J |
| Sulfate | 40 | | 2 | U | 64.4 | J | 65.1 | J | 65.1 | J |

# APPENDIX H12
# VERTICAL PROFILING SAMPLES
# GROUNDWATER (VOCs)

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP112A 48'-49.5' | VP112B 63'-64.5' | VP114A MB | VP114B 89.5'-91' | VP114C 107.5'-109' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | 0.012 | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | 0.137 | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP114D 159.5'-161' | VP114E FB | VP114F 201'-206' | VP114G 213'-218' | VP114H 223'-228' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP114H-D 223'-228' | VP119A 27.5'-29' | VP119A-D 27.5'-29' | VP119B 37.5'-39' | VP119C 47.5'-49' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | 0.019 | 0.022 | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.01 | ND | 0.016 | 0.015 | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP119D 53.5'-55' | VP119E 57.5'-59' | VP121A 22.5'-24' | VP121B 32.5'-34' | VP121C 42.5'-44' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP121D 52.5'-54' | VP121E FB | VP121F 62.5'-64' | VP121G MB | VP123A 49'-50.5' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | 0.014 |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND | ND | ND | 0.01 |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloroethylene | 0.01 | 0.019 | ND | 0.022 | ND | 0.012 |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP123B 59'-60.5' | VP123C 69'-70.5' | VP124A 38.5'-40' | VP124B 53.5'-55' | VP124C 53.5'-55' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | ND | ND | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | ND | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | 0.026 | 0.02 | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | 0.015 | 0.016 | ND | 0.18 | 0.117 |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND | ND | 0.03 | 0.028 |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND | ND | 0.134 | 0.097 |
| Trichloroethylene | 0.01 | 0.022 | 0.025 | ND | 0.047 | 0.045 |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP124D 68.5'-70' | VP124E MB | VP124F 97.5'-99' | VP134A 48.5'-50' | VP134B 63.5'-65' |
|---|---|---|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND | ND | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND | ND | ND | ND |
| Bromobenzene | 0.01 | ND | ND | ND | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND | ND | ND | ND |
| Bromoform | 0.01 | ND | ND | ND | ND | ND |
| Bromomethane | 0.01 | ND | ND | ND | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND | 0.178 | 0.01 | ND |
| Chlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Chloroethane | 0.01 | ND | ND | ND | ND | ND |
| Chloroform | 0.01 | ND | 0.025 | ND | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND | ND | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chloromethane | 0.01 | ND | ND | ND | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND | ND | ND | ND |
| Chlorotoluene | 0.01 | ND | ND | ND | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND | ND | ND | ND |
| Dibromomethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND | ND | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethane | 0.01 | 0.283 | ND | 0.26 | 0.204 | 0.032 |
| 1,2-Dichloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND | 0.069 | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND | ND | 0.021 | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND | ND | ND | ND |
| Dichloromethane | 0.01 | ND | ND | ND | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND | ND | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND | ND | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND | ND | ND | ND |
| Tetrachloroethylene | 0.01 | 0.048 | ND | 0.025 | 0.012 | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND | 1.474 | 0.433 | 0.067 |
| 1,1,2-Trichloroethane | 0.01 | 0.168 | ND | 0.304 | ND | ND |
| Trichloroethylene | 0.01 | 0.056 | ND | 0.07 | 0.04 | ND |
| Trichlorofluoromethane | 0.01 | ND | ND | ND | ND | ND |
| Trichloropropane | 0.01 | ND | ND | ND | ND | ND |
| Vinyl chloride | 0.01 | ND | ND | ND | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

## Appendix H-12: Volatile Organic Compounds Vertical Profiling Samples in Groundwater

| COMPOUND | Detection Limit mg/l | VP136A 43'-48' | VP136B 53'-58' |
|---|---|---|---|
| Benzyl Chloride | 0.01 | ND | ND |
| Bis(2-Chloroethoxy)methane | 0.01 | ND | ND |
| Bis(2-chloroisopropyl)ether | 0.01 | ND | ND |
| Bromobenzene | 0.01 | ND | ND |
| Bromodichloromethane | 0.01 | ND | ND |
| Bromoform | 0.01 | ND | ND |
| Bromomethane | 0.01 | ND | ND |
| Carbon tetrachloride | 0.01 | ND | ND |
| Chlorobenzene | 0.01 | ND | ND |
| Chloroethane | 0.01 | ND | ND |
| Chloroform | 0.01 | ND | ND |
| 1-Chlorohexane | 0.01 | ND | ND |
| 2-Chloroethyl vinyl ether | 0.01 | ND | ND |
| Chloromethane | 0.01 | ND | ND |
| Chloromethylmethyl ether | 0.01 | ND | ND |
| Chlorotoluene | 0.01 | ND | ND |
| Dibromochloromethane | 0.01 | ND | ND |
| Dibromomethane | 0.01 | ND | ND |
| 1,2-Dichlorobenzene | 0.01 | ND | ND |
| 1,3-Dichlorobenzene | 0.01 | ND | ND |
| 1,4-Dichlorobenzene | 0.01 | ND | ND |
| Dichlorodifluoromethane | 0.01 | ND | ND |
| 1,1-Dichloroethane | 0.01 | ND | ND |
| 1,2-Dichloroethane | 0.01 | ND | ND |
| 1,1-Dichloroethylene | 0.01 | ND | ND |
| 1,2-Dichloroethylene | 0.01 | ND | ND |
| cis-1,2-Dichloroethylene | 0.01 | ND | ND |
| trans-1,2-Dichloroethylene | 0.01 | ND | ND |
| Dichloromethane | 0.01 | ND | ND |
| 1,2-Dichloropropane | 0.01 | ND | ND |
| trans-1,3-Dichloropropylene | 0.01 | ND | ND |
| 1,1,2,2-Tetrachloroethane | 0.01 | ND | ND |
| 1,1,1,2-Tetrachloroethane | 0.01 | ND | ND |
| Tetrachloroethylene | 0.01 | ND | ND |
| 1,1,1-Trichloroethane | 0.01 | ND | ND |
| 1,1,2-Trichloroethane | 0.01 | ND | ND |
| Trichloroethylene | 0.01 | ND | ND |
| Trichlorofluoromethane | 0.01 | ND | ND |
| Trichloropropane | 0.01 | ND | ND |
| Vinyl chloride | 0.01 | ND | ND |

NOTES:
ND= Not Detected
MB= Method Blank
FB= Field Blank

# Appendix I

# APPENDIX I
# RISK ASSESSMENT PROTOCOL DOCUMENT

REVISED PROTOCOL DOCUMENT #1

RISK ASSESSMENT FOR SOUTHEAST ROCKFORD SUPERFUND SITE

## 1.0 INTRODUCTION

This document is a revision of the original Protocol Document #1 - Conceptual Approach for Human Health Risk Assessment of the Southeast Rockford Superfund Site, which was submitted to the Illinois Environmental Protection Agency (IEPA) on November 29, 1993. The original Protocol Document was designed to identify risk assessment related issues that would need to be resolved prior to initiation of the Risk Assessment portion of the Remedial Investigation Report. A meeting was held on December 10, 1993 between IEPA, United States Environmental Protection Agency (USEPA), Illinois Department of Public Health (IDPH), and Camp Dresser & McKee, Inc. (CDM), in order to discuss a number of issues raised by the document. Changes were subsequently made in the scope and methods proposed for the risk assessment based on these comments. The minutes for this meeting are included as Appendix A. Additional decisions by IEPA resulted in further changes to the scope. The following issues represent the major changes to the document:

- The original Protocol Document #1 proposed the following two methods for characterizing risks from groundwater contamination: (1) The hazard index approach used in the 1990 Operable Unit Remedial Investigation Risk Assessment; and (2) The cancer/noncancer risk estimate approach described in Risk Assessment Guidance for Superfund (RAGS). It was decided that only the RAGS approach would be used.

- CDM recommended the use of groundwater modeling to represent exposure point concentrations at City wells west of the river. It was decided subsequent to the December 10, 1993 meeting that this task would not be performed.

- CDM proposed to look at clusters or sub-areas of monitoring well data in order to evaluate the risks resulting from the installation of new wells, and to help define areas where well moratoriums should be instituted. IEPA stated that the City of Rockford was willing to connect additional people to city water if a city-wide well moratorium was instituted. CDM is still awaiting confirmation on the feasibility of implementing such a well moratorium.

- Rather then CDM preparing toxicity summaries for each of the chemicals of concern, IEPA will provide CDM with toxicity summaries which they have prepared. CDM will incorporate this information into a table or summary section.

- CDM proposed looking at both ambient air data collected from test pit excavation activities, and at residential air data collected inside homes located in Areas 4 and 7. These issues will not be a part of the risk assessment, but may be covered if Areas 4 and 7 are investigated as separate operable units. CDM will prepare a preliminary data evaluation as part of a technical memorandum on the residential air analyses.

- CDM proposed evaluating the soil data collected throughout the site. This data will not be a part of the risk assessment, although soil data for Areas 4 and 7 may be covered as part of separate operable units on these areas.

- The use of the Andelman Model for Dermal and Inhalation Exposures proposed in the Protocol Document #1 was acceptable, as was the proposed uncertainty analysis method.

The manner by which information presented in the risk assessment will be used to decide on additional city water hook-ups and ongoing monitoring was discussed at the December 10th meeting. No decisions were made in this regard.

This revised Protocol Document is one of two prepared to describe the protocols to be followed in the preparation of the human health risk assessment (HRA) for the Southeast Rockford Superfund Site in Rockford, Illinois. The study area is composed of approximately ten (10) square miles bounded by Broadway to the North, Sandy Hollow Road to the South, Wendy Lane to the East, and the Rock River to the West. Consistent with Phase I and II investigative activities conducted on this site, the focus of the risk assessment described herein will be the groundwater contamination.

Two additional risk assessments may be conducted on potential source areas that were identified and characterized during Phase II investigations. These two areas are referred to as Area four (4) and Area seven (7). A separate protocol document will be prepared for these two areas prior to conducting a risk assessment. The schedule for performing this work is not known at this time.

## 1.1 PURPOSE

This protocol document has been prepared to provide the IEPA and the Region V USEPA with an overview of the approaches and assumptions that CDM intends to employ in assessing the potential health risks associated with groundwater contamination at the Southeast Rockford Site. The protocol document has been revised to incorporate responses to issues on which CDM requested IEPA and/or USEPA input, direction, and approval. The need for a protocol document arises in part because, although a number of assumptions used to estimate risks to human health have become standardized, many other assumptions are site-specific or based on disciplines that are evolving. CDM is committed to both utilizing the most current and applicable approaches and evaluating and presenting risks in a manner that is consistent with IEPA and USEPA preferred approaches.

This document - Protocol Document #1 - describes the conceptual approach for the quantitative and qualitative components of the HRA. Protocol Document #2 will include the following input parameters to be employed in the risk assessment: (1) exposure frequency

and duration; (2) toxicity values; (3) absorption efficiencies; and (4) Applicable or Relevant and Appropriate Requirements (ARARs). In addition, a brief description of the components of the groundwater modeling approach that are critical to the risk assessment will be included.

## 2.0 HUMAN HEALTH RISK ASSESSMENT

### 2.1 OVERALL APPROACH

The HRA for the Southeast Rockford site will address current and future site risks under baseline conditions, i.e. in the absence of remediation. The overall approach to the HRA will follow guidance provided in Risk Assessment Guidance for Superfund: Volume I - Human Health Evaluation Manual (Part A) (USEPA, 1989). Subsequent supplemental USEPA guidance and on-line USEPA databases which provide additional detail regarding data useability, standard default assumptions, and appropriate toxicity values will also be used including the following:

- Exposure Factors Handbook. Office of Health and Environmental Assessment, 1989. EPA/600/8-89/043;

- Human Health Evaluation Manual, Supplemental Guidance:"Standard Default Exposure Factors". Office of Emergency and Remedial Response, 1991. OSWER Directive 9285.6-03;

- Guidelines for Exposure Assessment. Federal Register Vol. 57, No.104. Friday, May 29, 1992;

- Integrated Risk Information System (IRIS). Office of Criteria and Standards. (most current version);

- Health Effects Assessment Summary Tables (HEAST). Office of Emergency and Remedial Response, July 1993. EPA 540-R-93-058;

- Guidance for Data Useability in Risk Assessment (Parts A and B). Office of Emergency and Remedial Response, 1992. Publications 9285.7-09A and 9285.709B;

The degree of conservatism that is appropriate when assessing human health risk has been widely discussed. For this risk assessment, CDM will adhere to USEPA guidance by selecting intake variables that, in combination, reflect the Reasonable Maximum Exposure (RME), i.e. the maximum exposure that may reasonably be expected to occur at the site. These selections will be based on USEPA guidance, site-specific considerations and professional judgement.

The risk assessment will consist of an estimation of the carcinogenic and noncarcinogenic risks associated with exposure to groundwater. An ARARs comparison will also be conducted for groundwater.

The following sections describe the conceptual approaches for each of the five sections of the HRA: (1) Data Evaluation; (2) Toxicity Assessment; (3) Exposure Assessment; (4) Risk Characterization; and (5) Uncertainty Analysis.

## 2.2 DATA EVALUATION

### 2.2.1 DATA SETS

Because the City of Rockford water supply is being treated with a permanent carbon unit, the public water supply is not a current source of exposure. Treatment is expected into the foreseeable future such that this water supply is not expected to be a source of future exposure. The only current sources of exposure are private residential wells located along the north and south lateral edges of the plume. Data collected from the currently operating

residential wells will be used to evaluated current risks. Historical trends will be examined and any fluctuations in contaminant concentrations will be discussed. Unless otherwise indicated by these historical trends, the latest round of data, collected during Phase II, will be used to represent exposure point concentrations. Risks associated with chemical concentrations in each residence will be evaluated separately.

### 2.2.2 SELECTION OF CONTAMINANTS OF CONCERN (COCS)

When more than five chemicals are detected in any one residential well, a concentration-toxicity screen will be used to select COCs to be carried through the quantitative evaluation. The purpose of this screening tool is to identify chemicals most likely to contribute significantly to risks and to focus on the most significant chemicals. When fewer than five chemicals are detected in any one well, all chemicals will be carried through the risk assessment.

The concentration-toxicity screen involves calculating risk factors for each chemical in each medium by multiplying the maximum measured concentrations by the appropriate toxicity values (either the cancer slope factor or the reciprocal of the Reference Dose (RfD) for noncarcinogens. A total risk factor is calculated by adding the chemical-specific risk factors. Chemicals contributing less than one percent to the total risk factor will not be carried through the risk assessment.

### 2.2.3 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Maximum Contaminant Levels (MCLs) developed under the authority of the Federal Safe Drinking Water Act will be used as ARARs for chemicals detected in groundwater.

## 2.3 TOXICITY ASSESSMENT

### 2.3.1 TOXICITY VALUES

Risks from groundwater will be evaluated quantitatively. The toxicity values that will be used to estimate these risks include cancer slope factors (CSFs) for carcinogenic chemicals and reference doses (RfD) and reference concentrations (RfCs) developed by USEPA for the ingestion and inhalation routes of exposure, respectively. The integrated risk information system (IRIS), developed and maintained by USEPA, will be used as the first source of toxicity values. The Health Effects Assessment Summary Tables (HEAST), also developed and maintained by USEPA will be used as a secondary source.

Risks associated with ingestion of drinking water as well as dermal and inhalation exposure to water during household uses such as showering and dishwashing will be evaluated. Toxicity values for all three exposure routes will be needed for this assessment.

Toxicity values developed for the ingestion route of exposure will be extrapolated to the dermal route of exposure to estimate risks. Relative absorption efficiency factors will be used to account for the potential differences in absorption of a chemical between the oral and dermal exposure routes. Only toxicity values developed for the inhalation route of exposure will be used to assess inhalation risks.

### 2.3.2 TOXICITY SUMMARIES

Toxicological summaries will be prepared for all chemicals detected at greater than five percent frequency of detection. Available toxicity profiles obtained from the IEPA will form the basis of these toxicity summaries. Toxicity summaries will consist of brief overviews of the principal health effects associated with each chemical including a review of the study(ies) on which the toxicity values were based. These documents will summarize current chemical-specific information contained in documents such as the EPA's IRIS database, the HEAST

Tables, Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles, and available scientific literature. Information contained in these summaries will be presented in table or summary format.

## 2.4 EXPOSURE ASSESSMENT

The following exposures will be evaluated quantitatively: (1) ingestion of drinking water; (2) dermal contact with groundwater during showering and other household uses; and (3) inhalation of chemicals that may volatilize from the water during these household uses. A one-compartment model developed by Andelman, originally published in Significance and Treatment of Volatile Organic Compounds in Water Supplies (Lewis Publishers, 1990), will be used to evaluate inhalation exposures associated with household use of groundwater. This model, and the methodology for evaluating dermal exposures during household water use, are described in Estimating Dermal and Inhalation Exposures to Volatile Chemicals in Domestic Water (Schaum, J., Hoang, K. et.al., USEPA Office of Research and Development. 1991) This model has been included as Appendix A.

Ingestion exposures will be evaluated using standard exposure assumptions for a residential scenario.

Future exposure point concentrations will be estimated using a groundwater model (DYNFLOW/DYNTRAC) under the "no action" alternative.

## 2.5 RISK CHARACTERIZATION

Risks associated with current and estimated future exposures to groundwater will be evaluated using a cancer/noncancer risk estimate approach. An individual cancer and noncancer risk estimate will be developed for each residential well. Cancer risks will be expressed as a unitless probability, or excess lifetime cancer risk for an individual. Cancer risks will be calculated by multiplying the chemical-specific dose by chemical-specific cancer slope factor.

All chemical-specific risks will be added to derive a total cancer risk for each residential well. Cancer risks will be disaggregated by toxic endpoint should the total cancer risk exceed 1E-06 or one excess lifetime cancer risk in one million.

Noncancer risks will be expressed in terms of a hazard index whereby chemical-specific doses are divided by available RfDs or RfCs. Noncancer risks will be disaggregated by toxic endpoint should the total hazard index exceed one.

## 2.6 UNCERTAINTY ANALYSIS

A qualitative uncertainty analysis will be prepared whereby the source of uncertainty throughout the risk assessment will be identified. The potential for each of these areas of uncertainty to result in overestimates or underestimates of risk will be discussed.

# APPENDIX

# MODEL TO ASSESS RISKS FROM HOUSEHOLD WATER USE

DEC 12 1991

Chapter 12

# ESTIMATING DERMAL AND INHALATION EXPOSURE TO VOLATILE CHEMICALS IN DOMESTIC WATER

John Schaum, Kim Hoang, Russell Kinerson, Jackie Moya
and Rhoda Wang

U.S. Environmental Protection Agency
Office of Research and Development
Washington, DC

*Notice: This document is a preliminary draft and has not been peer reviewed. It is currently intended to be used as an internal draft only. Final publication of this document will occur as a chapter in Drinking Water Contamination and Health: Integration of Exposure Assessment, Toxicology and Risk assessment, editor: Rhoda G. M. Wang, publisher: Marcel Dekker, New York.*

CONTENTS:

I. ESTIMATING INHALATION EXPOSURE TO VOLATILE CHEMICALS

A. Showering Exposure
B. Whole House Exposure

II. ESTIMATING DERMAL EXPOSURE TO VOLATILES IN DOMESTIC WATER

A. Estimation of Contaminant Levels in Shower Water
B. Estimation of Dermal Dose

III. EVALUATION OF IMPORTANCE OF EXPOSURE TO VOLATILES

# ESTIMATING DERMAL AMD INHALATION EXPOSURE TO VOLATILE CHEMICALS IN DOMESTIC WATER

by John Schaum, Kim Hoang, Russell Kinerson, Jackie Moya and Rhoda Wang

This paper presents a methodology for estimating exposure to volatile compounds in domestic water supplies. The method encompasses two exposure pathways: inhalation and dermal contact. The importance of these exposures are evaluated by comparing them to direct ingestion of drinking water.

## I. ESTIMATING INHALATION EXPOSURE TO VOLATILE CHEMICALS

The following discussion has been developed to provide a screening method for estimating the indoor air concentrations of volatile chemicals from indoor water uses and the resulting human inhalation exposures, with an emphasis on showers. This procedure evolved from research done by Julian Andelman at the University of Pittsburgh under funding from the Exposure Assessment Group at US EPA in Washington, DC. This research also involved the development of a more sophisticated model titled MAVRIQ (Model for Analysis of Volatiles and Residential Indoor-Air Quality). This model should be available soon and will allow refinement of exposure estimates derived from the screening procedure since it more accurately accounts for human behavioral and water use patterns.

### A. Showering Exposure

As a first step in a screening procedure, the assessor can use a worst case type of analysis to evaluate the possible exposure during showering. The

maximum possible concentration of a contaminant in air (as a result of volatilization from water) can be estimated using the Henry's Law Constant. This approach predicts the equilibrium partitioning which occurs between the water and air phases. In reality, such conditions would only be expected to occur in a closed system or at the water-air interface in an open system. This equilibrium level in air is easily estimated as shown below:

$$C_a = C_w H \tag{1}$$

Where, $C_a$ = Concentration of contaminant in air ($mg/m^3$)

$C_w$ = Concentration of contaminant in water (mg/L) x 1000 $L/m^3$

H = unitless Henry's Law Constant

The unitless Henry's Law Constant can be calculated from the more traditional form of the Henry's Law Constant by using the following equation.

$$H = \frac{H'}{R\,T} \tag{2}$$

where H' = Henry's Law Constant in atm-$m^3$/mol

R = gas constant in atm-$m^3$/mol °K

T = temperature in °K.

The risk associated with this concentration can then be evaluated. For noncarcinogens, this concentration is compared to the Reference Concentration or RfC (as reported in EPA's Integrated Risk Information System or IRIS). For

carcinogens, this concentration would be multiplied by the Inhalation Unit Risk (also as reported in IRIS) to yield a risk estimate. Both of these approaches, assume chronic continuous exposures which is clearly not the case for showering exposures. However, it is consistent with the philosophy of a worst case analysis, ie. if the risks estimated via this approach are low then it is safe to conclude that this pathway is not a concern. If the risks are not low, however, then more sophisticated approaches are needed to draw conclusions.

As a second step, a somewhat more realistic yet simple model can be used to predict possible air concentrations. This model treats the bathroom as one compartment and yields an air concentration averaged over the time of the actual shower and the time spent in the bathroom subsequent to the shower. The model was derived by assuming that the contaminant volatilizes at a constant rate, instantly mixes uniformly with the bathroom air and that ventilation with clean air does not occur. This implies that the contaminant in the air increases linearly from zero to a maximum at the end of the shower and then remains constant during the time an individual spends in the bathroom immediately after the shower.

$$C_a = \frac{(C_{aMAX}/2)t_1 + C_{aMAX}\, t_2}{t_1 + t_2} \qquad (3)$$

Where: $C_a$ = concentration of contaminant in air [mg/m$^3$]

$C_{aMAX}$ = maximum concentration of contaminant air [mg/m$^3$]

$t_1$ = time of shower [hr]

$t_2$ = time after shower [hr]

$C_{aMAX}$ is estimated as follows:

$$C_{aMAX} = \frac{C_w \, f \, F_w \, t_1}{V_a} \qquad (4)$$

Where: $C_{aMAX}$ = maximum air concentration in bathroom [mg/m$^3$]

$C_w$ = water concentration [mg/L]

$f$ = fraction volatilized [unitless]

$F_w$ = water flow rate [L/hr]

$V_a$ = bathroom volume [m$^3$]

Each term in this model is discussed below:

Water Concentration - This is the concentration of the contaminant in the water at as it enters the shower. It must be determined on a site specific basis.

Fraction Volatilized (or Transfer Efficiency) - This is the mass fraction of contaminant in water that volatilizes over the course of the shower. It is a chemical specific value which is not easily predicted. The volatilization rates depend on properties such as Henry's Law Constant and molecular weight but the relationship has not been well established. Andelman (1990) reports volatilization fractions ranging from 0.5 to 0.9 based on experiments with trichloroethylene and chloroform. These chemicals are assumed to be representative of other volatiles (ie., chemicals with Henry's constants which are similar or greater). However, this range of values for fraction volatilized would not be applicable to less volatile chemicals. McKone (1989) has suggested an approach where the volatilization fraction for an untested chemical can be predicted from a tested chemical using a ratio of their overall mass transfer coefficients:

$$k_i = k_j \frac{\left[\frac{2.5}{D_w^{0.67}} + \frac{RT}{D_a^{0.67} H}\right]_i}{\left[\frac{2.5}{D_w^{0.67}} + \frac{RT}{D_a^{0.67} H}\right]_j} \qquad (5)$$

Where: $k_i$ = volatilization fraction for chemical i

$k_j$ = volatilization fraction for chemical j

$D_a$ = Diffusion coefficient in air ($m^2$/sec)

$D_w$ = Diffusion coefficient in water ($m^2$/sec)

R = Gas Constant (atm-$m^3$/mol-K) = $8.21 \times 10^{-5}$

H = Henry's Law Constant (atm-$m^3$/mol-K)

T = Temperature (K)

Water Flow Rate - This is rate at which water flows into the shower. According to a survey by the US Department of Housing and Urban Development (1984) typical shower flow rates are 600 to 1800 L/hr [confirm].

Bathroom Volume - This is volume of the bathroom including the shower stall. No relevant data could be found. Assuming an eight foot ceiling and floor dimensions ranging from 5 x 5 to 7 x 10 feet, the volumes would range from 200 to 560 $ft^3$ or 6 to 16 $m^3$.

Shower Time - This is the actual time of the shower. A survey in Australia of 2,500 households found that shower times average about 7 minutes and have a 90th percentile of about 12 minutes (James and Knuiman, 1987).

Time After Shower - This is the time an individual spends in the bathroom after the shower is turned off. No relevant data could be found. Obviously this could vary significantly depending on individual behavior patterns. Based on judgement, it was assumed to vary from 10 to 30 min or 0.2 to 0.5 hr.

The default values to use when data are not available are summarized Table 1.

The assumptions of constant volatilization and no ventilation tend to make this model very conservative, ie. it is likely to overestimate actual levels. Additional assumptions made by this model include:

- The concentration of the chemical in the air is assumed to be zero at the beginning of the shower, ie any residual contaminant concentrations (remaining from previous showers taken by other members of the family or other water use activities) are assumed to be negligible.

- The exchange between the air in the shower chamber and that in the bathroom is so rapid that the combined volume of these two compartments can be treated as a single chamber with a single concentration of volatilized chemical.

- The model does not account for the exchange rate that occurs when an exhaust fan is turned on. Modeling results using the Model for Analysis of Volatiles and Residential Indoor-Air Quality (MAVRIQ) indicate that exposure could be reduced by about 20% if an average sized exhaust fan is used,

Once the concentration has been estimated, the risk would then be evaluated using the RfC or Inhalation Unit Risk for the chemical of concern.

However, an adjustment should be made to reflect the fact that the exposure occurs intermittently rather than continuously:

$$\textit{Noncarcinogens: } HI = \left[\frac{C_a}{RfC}\right]\left[\frac{t_1 + t_2}{24\ hours}\right] \tag{6}$$

$$\textit{Carcinogens: } Risk = 1 - e^{-X}$$

$$\textit{Where, } X = UR\ C_a \left[\frac{t_1 + t_2}{24\ hours}\right]\left[\frac{ED}{70\ years}\right] \tag{7}$$

Where, HI = Hazard Index (unitless)

UR = Unit Risk ($m^3$/mg)

ED = Exposure Duration (years)

The exposure duration term in the above equations represents the overall time of exposure. This period could be determined by the time that contamination of the water supply persists or by the time an individual uses the contaminated water supply. Lacking site specific data, a default range of 9 to 30 years is recommended which corresponds to the average and 90th percentile time that a person is likely to live at the same residence (EPA, 1989).

Since the risk factors in Equations 6 and 7 were derived from continuous exposure experiments, application of them to an intermittent exposure (even with the time adjustments) introduces considerable uncertainty. Ideally, pharmacokinetic models would be used to estimate how the dose delivered to the target organ would change relative to a continuous exposure situation. Alternatively, the assessment focus can be shifted to the exposure associated

with inhaling contaminants throughout the house. Although, this approach does not account for the short term peak exposures occurring during showers, it has two advantages. First, it better represents the total exposure to volatiles which may occur. Second, it involves more continuous exposures which better match the conditions for which the risk factors were designed and therefore should provide more valid risk estimates (unless threshold effects occur during the short term peak exposures). This approach is presented below.

### B. Whole House Exposure

A similar model may be used to describe the average indoor-air concentrations that occur as a result of volatilization from water use throughout the house. Water uses which can contribute volatiles to the air include dish washing, bathing, clothes washing, and cooking. The model does not address the time and space variations that will be encountered throughout the day in the home and thus does not provide air concentrations that would occur at the point of water use, such as during showering. Rather it produces an estimate assumed to represent a spatial average over the house.

The air concentration can be estimated by using the equation below.

$$C_a = \frac{WHF\ C_w\ f}{HV\ ER\ MC} \tag{8}$$

where; $C_a$ = concentration in air ($mg/m^3$)

$C_w$ = concentration in water (mg/L)

WFH = water flow rate in whole house (L/day)

HV = house volume ($m^3$)

ER = exchange rate (air changes/day)

MC = mixing coefficient (unitless)

f = fraction of contaminant that volatilizes (unitless)

Like the shower model presented above, this is a simple dilution model. However, this one includes the exchange rate term to account for ventilation with clean air and also includes a mixing coefficient to account for the fact that perfect mixing is unlikely to occur over the large volume of a house. Each term in the model is discussed below:

Water Concentration - This is the concentration of the contaminant in the water as it enters the house. It must be determined on a site specific basis.

Water Flow Rate in Whole House - This is the flow rate for water entering the house for all uses. According to a survey by the US Department of Housing and Urban Development (1984) a typical whole house flow rate is 720 L/day [confirm].

House Volume - This is the total enclosed volume of a house. It does not include garages or screened porches. According to Axley (1988) a typical house volume is about 180 $m^3$ [confirm]. Prichard and Gessel (1981) observed a range of 150 - 680 $m^3$ in the Houston area.

Exchange Rate - This is the rate at which the household air is replaced with outdoor air. It can vary widely depending on house design. Newer houses use tighter construction methods reducing infiltration. Climate and seasonal changes also affect variability. For older houses it has been estimated to range from 21 - 85 air changes/day (ASHRAE, 1985) and for newer houses to range from 13 - 60 air changes/day (Grimsrud et al, 1982).

Mixing Coefficient - This terms represents how well mixed the contaminant is in the household air, where 1.0 represents perfect mixing and zero represents a

complete lack of mixing. It is difficult to estimate because it is highly site specific, depending on ventilation patterns and room geometry. Values near the center of the range are judged to be most likely and accordingly, a central range of 0.3 to 0.7 is recommended for default purposes. Ideally these values should be refined on the basis of site specific measurements.

Fraction Volatilized - This is the mass fraction of contaminant in water that volatilizes as a result of water uses throughout the house. The same default values as used for the shower model are recommended, based on the assumption that the volatilization fraction observed for showers represents an average of all water uses throughout the home. Actually, this fraction is likely to vary depending on the particular source. Prichard and Gesell (1981) measured transfer efficiencies for radon which varied from a high of 90% for dishwashers and washing machines to a low of 30% for toilets and sinks. Showers and baths were found to have values of 63 and 48% respectively. As with the shower default, this value applies to volatiles only and should not be applied to chemicals with Henry's constant's less than those of chloroform (see Table 2).

The risks associated with the whole house air concentration can be evaluated using equations identical to 6 and 7 except that the quantity $t_1 + t_2$ would be replaced by the time (hr/day) that a person spends in the house. EPA (1989) reviewed a number of behavior pattern surveys and reported that individuals spend about 90% of their time indoors and an average of 115 hr/wk (or about 16 hr/day) inside their residence. This value is recommended for default purposes. The default values for the exposure duration term in Equations 6 and 7 would be the same as indicated previously, ie. 9 to 30 yr.

The default values to use for estimating whole house exposures when data are not available are summarized Table 3.

## II. ESTIMATING DERMAL EXPOSURE TO VOLATILES IN DOMESTIC WATER

The following discussion presents a method for estimating the water concentrations encountered during showering and the resulting dermal exposure. The procedures are derived largely from the document titled Dermal Exposure: Principles and Applications (EPA, 1991).

### A. Estimation of Contaminant Levels in Shower Water

Table 1 indicates that about 75% of the volatile contaminants in shower water volatilize. As a first approximation, it is assumed that this occurs linearly over time, so that the average concentration in the water can be estimated as:

$$\begin{aligned} C_{wav} &= \frac{C_{wi} + C_{wf}}{2} \\ &= \frac{C_{wi} + 0.25\ C_{wi}}{2} \\ &\approx 0.6\ C_{wi} \end{aligned} \qquad (9)$$

Where, $C_{wav}$ = average contaminant concentration in water (mg/L)

$C_{wi}$ = initial contaminant concentration in water (mg/L)

$C_{wf}$ = final contaminant concentration in water (mg/L)

As more sophisticated volatilization models are developed, mass balance procedures can be used to more accurately estimate how contaminant concentration will vary over time.

## B. Estimation of Dermal Exposure

Given the permeability coefficient $K_p$ of any chemical, the total mass per unit area (M/A) entering through the exposed surface during the exposure period, as evaluated by Fick's first law at steady-state can be evaluated as follows:

$$DA_{event} = \frac{M}{A} = K_p \, C_w \, t_{event} \tag{10}$$

Where,

$DA_{event}$ = dose per exposure event (mg)

$K_p$ = permeability coefficient (cm/hr)

$t_{event}$ = time of exposure event (hr)

This equation has been used traditionally to estimate the absorbed dose from dermal exposure to environmental contaminants. However, the short contact times associated with typical water exposure scenarios (ie. bathing and swimming) may prevent attainment of steady state. Also after the contact event, chemicals stored in the skin lipids may continue to leach into the body. Therefore, the total amount absorbed in actual exposure scenarios would always be underestimated using this equation. Cleek and Bunge (1991) have developed the following general scheme (as adapted by EPA, 1991) to estimate (M/A) in actual exposure scenarios, depending on whether the exposure period is shorter or longer than the unsteady-state period of the flux of chemicals through the skin.

The mass absorbed per unit area during the unsteady-state time period can be estimated with the following expression:

$$DA_{event} = \frac{M}{A} = 2\ K_p\ C_w \sqrt{\frac{6\ \tau\ t_{event}}{\pi}} \tag{11}$$

Where, $\tau$ = lag time (hr)

The total mass absorbed per unit area for exposure events longer than the unsteady-state period can be estimated by the following equation:

$$DA_{event} = \frac{M}{A} = K_{p,sc}\ C_v \left( \frac{t_{event} + 2\ (1 + 3B)\ \tau}{1 + B} \right) \tag{12}$$

(12)

Where, B = constant, unitless

Whether to use Equation 11 or Equation 12 depends on the duration of the exposure event and the value of B. B describes the relative contribution of the permeability coefficients of the chemical in the stratum corneum and the viable epidermis. This parameter B is defined as (Cleek and Bunge, 1991):

$$B = K_{ve/v} \frac{K_{p,sc}\ K_{sc/ve}}{K_{p,ve}\ K_{sc/v}} \tag{13}$$

Where,

$K_{p,sc}$ = permeability coefficient of the chemical in the stratum corneum (cm/hr)

$K_{p,ve}$ = permeability coefficient of the chemical in the viable epidermis (cm/hr)

$K_{sc/v}$ = partition coefficient of the chemical between the stratum corneum and the vehicle

$K_{ve/v}$ = partition coefficient of the chemical between the viable epidermis and the vehicle

$K_{sc/ve}$ = parition coefficient between the stratum corneum and the viable epidermis

Cleek and Bunge (1991) suggest that B can be estiamted as:

$$B = \frac{K_{ow}}{10000} \tag{14}$$

Where, Kow = octanol - water partition coefficient

Based on calculations by Cleek and Bunge (1991), the time it takes to reach steady-state ($t^*$) can be evaluated as a function of B:

For $B \leq 0.1$:

$$t^* = 2.4\ \tau \tag{15}$$

For $0.1 \leq B \leq 1.17$:

$$t^* = (2.4 + 6 \log B)\,\tau \tag{16}$$

For B ≥ 1.17, $t^*$ is given by:

$$t^* = 6\left(b - \sqrt{b^2 - c^2}\right)\tau \tag{17}$$

where b and c are defined as:

$$b = \frac{2}{\pi}(1 + B)^2 - c \tag{18}$$

$$c = \frac{1 + 3B}{3} \tag{19}$$

This approach also requires estimates of $\tau$, which is defined by Scheuplein and Blank (1971) as:

$$\tau = \frac{l_{sc}^2}{6\,D_{sc}} \tag{20}$$

Where, $l_{sc}$ = thickness of the stratum corneum ($\mu$m)

Finally, Cleek and Bunge (1991) derived the following expression to estimate $D_{sc}$ for organics:

$$\log \frac{D_{sc}}{l_{sc}} = -2.72 - 0.0061\ MW \qquad (21)$$

Where, MW = molecular weight

The stratum corneum thickness in humans has been found to be in the range of 10 to 20 um for most areas of the body (Scheuplein and Blank, 1971).

The key assumption in this approach is that all of the chemical which entered the skin during the exposure period, will eventually become available to the body. This further implies that no loss of the chemical present in the skin occurs by metabolism, irreversible binding, evaporation, or desquamation.

## III. EVALUATION OF IMPORTANCE OF EXPOSURE TO VOLATILES

The importance of exposures (via inhalation or dermal contact) to contaminants volatilized from the water supply can be estimated by comparing them to direct ingestion of the water. As discussed below this approach has some limitations but provides an initial basis for evaluating the relative importance of these pathways.

### A. Vapor Inhalation

The ratio of the daily amount of contaminant inhaled using the whole house model to amount ingested is calculated as follows:

$$\frac{Inh\ Dose}{Ing\ Dose} = \frac{\left[\dfrac{WHF\ C_w\ f\ INH\ (t/24)}{HV\ ER\ MC}\right]}{ING\ C_w} \qquad (22)$$

This ratio can vary depending on site and chemical specific factors. Figure 1 shows how the ratio varies with the fraction volatilized for three different scenarios. Scenario 1 corresponds to an older house with a high air exchange rate and relatively high mixing coefficient, Scenario 3 corresponds to a newer house with low air exchange rate and low mixing coefficient, and Scenario 2 represents an intermdediate situation between Scenarios 1 and 3. For Scenarios 1 and 2, the inhalalation exposure approaches the ingestion exposure levels only for very volatile compounds. For Scenario 3, even moderately volatile compounds create higher inhalation exposures than ingestion.

This approach assumes that the health effects associated with these pathways are proportional to the potential doses. This assumption limits the validity of the approach in two ways. First, many compounds are more readily absorbed via the lungs than GI tract suggesting that this approach may underestimate the importance of the inhalation route for such compounds. Second, some compounds cause portal of entry effects, ie. direct effects on lungs or the GI Tract. Obviously this approach would not apply to such compounds.

## B. Water Ingestion

Where the same water supply is used for drinking and bathing, the importance of dermal contact with water can be evaluated by comparing the

possible absorbed dose occurring during bathing relative to that occurring as a result of ingestion:

$$\frac{Dermal\ Dose}{IngestedDose} = \frac{2\ C\ K_p\ [6\ \tau\ t\ /\ \pi]^{0.5}\ A}{C\ IR\ AF_{GI}} \qquad (23)$$

where,

| | | |
|---|---|---|
| C | = | Contaminant concentration in water (mg/cm$^3$); |
| $K_p$ | = | Permeability coefficient (cm/hr); |
| t | = | Exposure time (min/day); |
| A | = | Exposed skin area (cm$^2$). |

Assuming an average adult ingestion rate (IR) of 2 L/day and GI tract absorption fraction (AF) of 1, (ie., the fraction of the administered dose which becomes absorbed), shower time of 10 minutes and skin area of 20,000 cm$^2$, this ratio becomes:

$$\frac{Dermal\ Dose}{Ingested\ Dose} = 10\ K_p\ \sqrt{\tau} \qquad (24)$$

So the dermal dose exceeds the ingested dose when:

$$K_p\ \sqrt{\tau} > 0.1 \qquad (25)$$

The ratio of dermal dose to ingested dose was computed for about 200 compounds of environmental concern and plotted as a function of $K_p$ in Figure 2. This plot suggests that the dermal dose exceeds ingested dose when $K_p$ is greater than about 0.1 cm/hr. The theoretical maximum $K_p$ is 1 cm/hr and it

appears that most compounds have $K_p$'s less than 0.1 (only about 20 of the 200 tested had $K_p$'s above 0.1 cm/hr.

This analysis suggests that where the same water supply is used for drinking and bathing, dermal exposure while showering or bathing is not important to consider for most contaminants, but may be important for the small percentage of compounds which penetrate fastest. Several uncertainties are associated with this conclusion. First, the degree to which the 200 tested chemicals are representative of all environmental contaminants is unknown. Secondly, multiple uncertainties are introduced in the measurement of the $K_p$ data. Thirdly, most dermal experiments are conducted at ambient temperatures and the elevated temperatures during showering and bathing would likely increase volatilization, reducing the amount available for dermal absorption. Finally, this conclusion could be affected to some extent by the assumption for exposure duration. If time spent showering or bathing differs from the assumed 10 minutes/day, this would affect the exposure proportionally.

Similar conclusions can be drawn for swimming. EPA, 1991 suggests default assumptions for time swimming implying a central estimate of about 3 hours/year to an upper estimate of 150 hours/year. Bathing time totals to 60 hours/year as the cumulative total of daily 10 min baths. Thus, in situations where the same water source is used for swimming, bathing and drinking, the absorbed dose from dermal water contact may be 2 to 3 times as much as would occur from bathing alone, but would still be much less than direct ingestion for most contaminants.

Some experimental support for these conclusions can be found in the recent work by Jo et al. (1990a,b). Chloroform levels in breath after 10-minute showers were measured where the subjects first wore no clothing and then wore protective rubber suits. The breath levels dropped by about half when

wearing the rubber suits, leading Jo et al. (1990a) to conclude that the chloroform dose from inhalation and dermal contact were about equal during normal showering. Jo et al. (1990b) also evaluated direct consumption of the water. The dose from ingestion of 2 L/day was estimated to be about 3 times greater than the dermal (or inhalation) dose alone. $K_p$ values for chloroform have been measured to be in the range of $10^{-1}$ cm/hr Bogen et al., 1991). Thus, even a relatively rapid permanent was found to cause a lower dose by dermal contact than by direct ingestion.

**TABLE 1. Recommended Default Values for Shower Model**

| Variable | Value or Range | Reference |
|---|---|---|
| Fraction Volatilized, f | 0.5 - 0.9[1] | Andelman, 1990 |
| Water Flow Rate, $F_w$ (L/hr) | 600 - 1800 | US Dept. of HUD, 1984 |
| Shower Period, $t_1$ (hr) | 0.08 - 0.3 | US Dept. of HUD, 1984 |
| After Shower Period, $t_2$ (hr) | 0.2 - 0.5[2] | |
| Bathroom Volume, $V_a$ ($m^3$) | 6 - 16[2] | |
| Exposure Duration, ED (yr) | 9 - 30 | US EPA (1989) |

1. This range applies to volatiles.
2. Values based on judgement, see text for further discussion.

**Table 2. Experimental Data on Fraction Volatilized**

| Chemical | Temp.(°C) | H (unitless) | % Volatilized |
|---|---|---|---|
| Trichloro-ethylene | 46 | 1.14 | 81.8 |
| Chloroform | 42 | 0.35 | 56 |
| Dibromo-Chlorpropane | 42 | 0.03 | 22.8 |

Source: Giardino and Andelman, 1991

**TABLE 3. Recommended Default Values for Whole House Model**

| Variable | Value or Range[1] | Reference |
|---|---|---|
| Water Flow Rate, WHF (L/day) | 723 | US Dept of HUD, 1984 |
| House Volume, HV ($m^3$) | 178 | Axley, 1988 |
| Exchange Rate, ER (air changes/day) | 13 - 60[2]<br>21 - 85[3] | Grimsrud et al, 1982<br>ASHRAE, 1985 |
| Mixing Coeffic- eint, MC (unitless) | 0.3 - 0.7[4] | |
| Fraction Volatilized, f (unitless) | 0.5 - 0.9[5] | Andelman, 1990 |
| Time in Resi- dence (hr/day) | 16 | US EPA, 1989 |
| Exposure Durat- ion, t (yr) | 9 - 30 | US EPA, 1989 |

1. The ranges represent the average value and the maximum value.
2. This range is for newer houses.
3. This range is for older houses.
4. Values presented for mixing coefficients are based on judgment.
5. This range applies to volatiles.

## REFERENCES


Andelman, J.B. 1990. Total Exposure to Volatile Organic Compounds in Potable Water, Chapter 20. In: Significance and Treatment of Volatile Organic Compounds in Water Supplies. Editors: K.P. Cantor, R.F. Christman, N.M. Ram. Pages 485 - 504. Lewis Publishers, Chelsea, MI.

ASHRAE (1985) Natural Ventilation and Infiltration. ASHRAE Fundamentals Handbook, Chapter 22, ASHRAE Inc., Atlanta, GA.
Axley J (1988) Progress Toward a General Analytical Method for Predicting Indoor Air Pollution in Buildings: Indoor Air Quality Modeling Phase III Report. NBSIR 88-3814

Bogen, K.T.; Colston, B.W.; Māchicao, L.K. (1991) Dermal absorption of dilute aqueous chlororform, trichloroethylene and tetrachloroethylene in hairless guinea pigs. Fund. Appl. Toxicol. 17:1-13.

Cleek, R.L.; Bunge, A.L. (1991) Submitted.

Giardino NJ, and JB Andelman (1991), Modeling Volatilization of Chemicals from Showers. Annual Conference of American Water Works Association, June 1991, Philadelphia, PA.

Giardino NJ, Gumerman E, Andelman JB, Wilkes CR, Small MJ, Borrazo JE, Davidson CI (1990), Real-Time Air Measurements of Trichloroethylene in Domestic Bathrooms using Contaminated Water. Conference on Indoor Air '90, July 1990, Toronto, Canada.

Grimsrud D.T., Sherman M.H., and Sonderegger R.C. (1982) Calculating infiltration: Implications for a Construction Quality Standard. Proceedings - ASHRAE/DEO Conference on Thermal Performance of the Exterior Envelopes of Buildings, Las Vegas, NV, Lawrence Berkeley Laboratory Report, LBL-9416.

James, IR and MW Knuiman. 1987. An Application of Bayes Methodology to the Analysis of Diary Records from a Water Use Study. Journal of the American Statistical Assoc. 82(399):705-711.

Jo, WK, CD Weisel, and PJ Lioy. (1990a) Chloroform Exposure and the Health Risk Associated with Multiple Uses of Chlorinated Tap Water. Risk Anal. 10(4): 581-585.

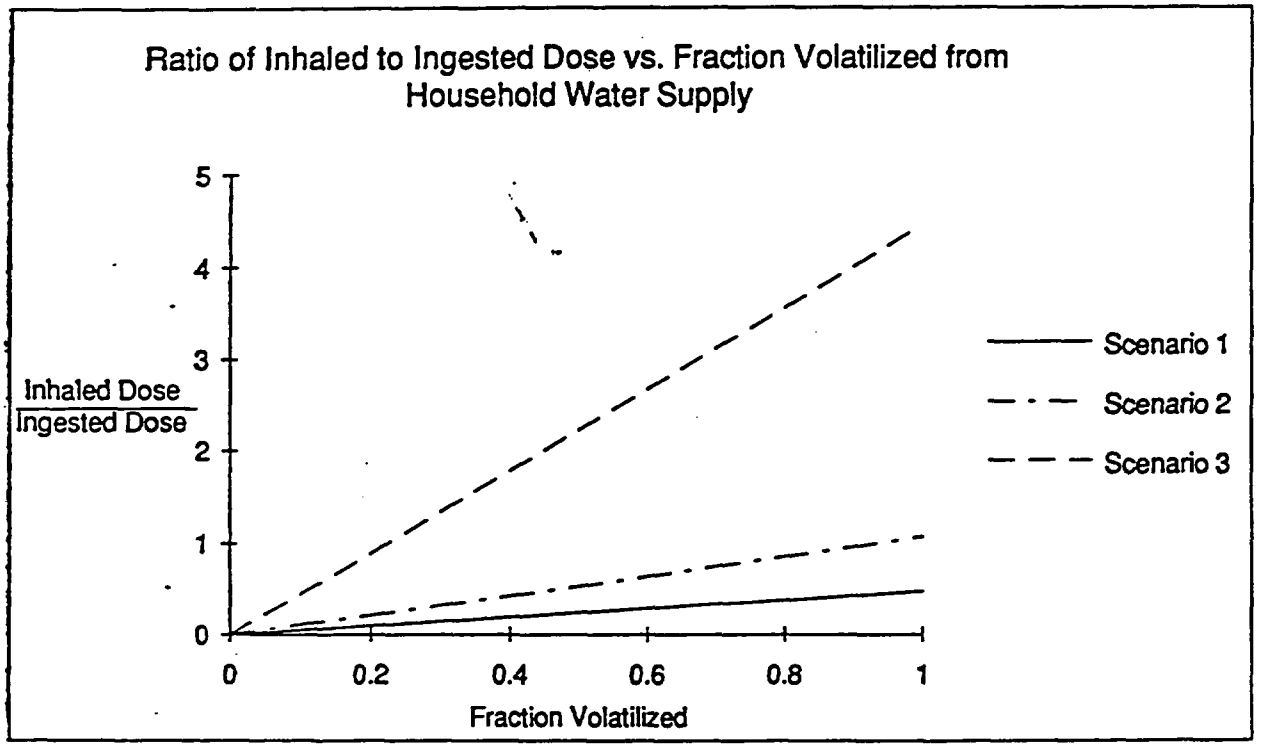

Ratio of Inhaled to Ingested Dose vs. Fraction Volatilized from Household Water Supply
Inhaled Dose / Ingested Dose
5
4
3
2
1
0
0
0.2
0.4
0.6
0.8
1
Fraction Volatilized
Scenario 1
Scenario 2
Scenario 3

Figure 1

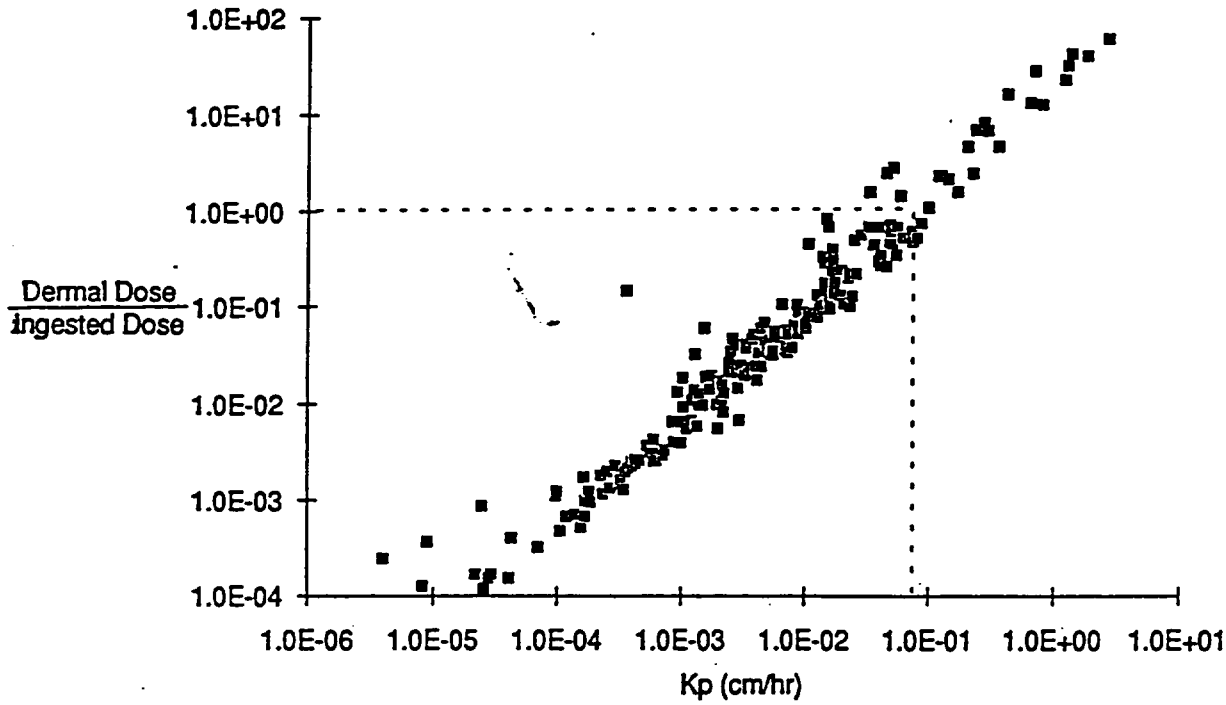

1.0E+02
1.0E+01
1.0E+00
Dermal Dose / Ingested Dose
1.0E-01
1.0E-02
1.0E-03
1.0E-04
1.0E-06
1.0E-05
1.0E-04
1.0E-03
1.0E-02
1.0E-01
1.0E+00
1.0E+01
Kp (cm/hr)

Figure 2

# Appendix J

# APPENDIX J
# IEPA CHEMICAL INFORMATION SHEETS

# IEPA CHEMICAL INFORMATION SHEETS

Illinois
Environmental
Protection Agency

Office of Chemical Safety
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

IEPA/ENV/89-129 May, 1989

# - Dichloroethanes -
# Chemical Information Sheet*

## WHAT ARE DICHLOROETHANES?

Dichloroethanes, which include 1,1-dichloroethane (also called ethylidene chloride) and 1,2-dichloroethane (commonly called ethylene dichloride), belong to a family of chemicals known as chlorinated alkanes. Dichloroethanes are clear, colorless liquids with a sweet, chloroform-like odor. In 1987, 1,2-dichloroethane ranked 14th among the top U.S. commercial chemicals with 13.8 billion pounds produced. Dichloroethanes are used as solvents and in the production of other solvents and vinyl chloride. In the household, dichloroethanes can be found in some cleaning agents, pesticides, paints, varnish and finish removers, and adhesives such as those used for wallpaper and carpet. 1,2-Dichloroethane is also added to leaded gasoline to prevent engine knock.

## HOW DO DICHLOROETHANES GET INTO THE ENVIRONMENT?

Dichloroethanes have no known natural sources but are made synthetically. Dichloroethanes can occur in the environment near places where the chemicals have been improperly disposed of or spilled. Releases of dichloroethanes are mostly to air. Smaller amounts are released to soil, surface water, and groundwater. The greatest releases of dichloroethanes occur near areas of heavy industry where they are used or manufactured. Dichloroethanes can also be found in low levels in the home as a result of vaporization from cleaning agents, pesticides, paints and varnishes, and glues used in wallpaper and carpets.

In the air, dichloroethanes are slowly broken down by sunlight. 1,2-Dichloroethane has been measured in the air in urban and suburban areas throughout the U.S. at concentrations averaging 0.1 parts per billion (ppb).

Dichloroethanes that have been released to surface waters will rapidly volatilize to the atmosphere. The evaporative half-life (the time it takes for half of the chemical to evaporate) of 1,2-dichloroethane ranges from several hours to ten days.

When dichloroethanes are released to soil, some will volatilize and some will percolate down through the soil to the groundwater. Once dichloroethanes have reached groundwater, they may remain there for months to years because there is not an effective way to remove them. Dichloroethanes can also get into groundwater and subsurface soil as a result of the bacterial breakdown of 1,1,1-trichloroethane. A survey of 2,400 Illinois public drinking water wells supplied by groundwater has been conducted since 1985. This survey found 1,1-dichloroethane in 20 wells at a mean concentration of 6.7 ppb and 1,2-dichloroethane in 10 wells at a mean concentration of 3.4 ppb in surveyed wells.

## WHAT ARE THE HEALTH EFFECTS OF DICHLOROETHANES?

Short-term exposure -- At high concentrations, dichloroethanes are anesthetics. Exposure by any route to high concentrations can cause headache, dizziness, general

weakness, nausea, dilated pupils, chest pains, diarrhea, and unconsciousness. In workplaces, these symptoms have been reported from inhalation of 1,2-dichloroethane at levels ranging from 10,000 ppb to 37,000 ppb. These symptoms usually disappear if the exposure was brief. In some instances, though, heart, lung, and liver damage have been reported in people who were exposed to large amounts of 1,2-dichloroethane. In severe cases, death can result. A 14-year-old boy who drank one half of an ounce of 1,2-dichloroethane died six days later.

In lower concentrations, dichloroethanes can cause irritation to the eyes, nose, and throat. Direct skin or eye contact with high concentrations can cause serious damage.

Long-term exposure -- There are many reports of repeated occupational exposure to 1,2-dichloroethane. Chronic exposure results in health effects that closely resemble those described for short-term exposure, especially nausea, vomiting, general weakness, loss of appetite, and gastrointestinal problems. Liver, kidney, and heart diseases have also occurred after prolonged exposure to 1,2-dichloroethane. 1,1-Dichloroethane does not appear to be as toxic to the liver and kidneys as 1,2-dichloroethane.

1,2-Dichloroethane has been shown to cause several different tumors in rats and mice that have ingested the chemical or absorbed it through their skin. USEPA has classified 1,2-dichloroethane in Group B2, a probable human carcinogen. USEPA has not evaluated the carcinogenic potential of 1,1-dichloroethane.

## HOW ARE DICHLOROETHANES REGULATED?

Threshold Limit Values (TLVs) adopted by the American Conference of Governmental Industrial Hygienists refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all healthy workers may be repeatedly exposed day after day without adverse effect. The TLV for 1,1-dichloroethane is 200 ppm (parts per million) and for 1,2-dichloroethane the TLV is 10 ppm as an average eight hour exposure for a 5-day workweek.

A Maximum Contaminant Level (MCL) of 5 ppb of 1,2-dichloroethane in drinking water has been established under the Safe Drinking Water Act. A nonenforceable ambient water quality criterion of 0.94 ppb has been established for 1,2-dichloroethane under the Clean Water Act based on the risk to human health from the consumption of contaminated water and fish. The Illinois General Use Water Quality Standards provide protection for aquatic organisms by specifying that toxic substances not be present in surface waters at levels greater than 1/10 of the lethal dose to common aquatic species. This safe level of 1,2-dichloroethane for fathead minnows is 11,800 ppb. When discarded, dichloroethanes are classified as a hazardous waste under the Resource Conservation and Recovery Act (RCRA), and their disposal is specifically regulated to preclude release to the environment.

No MCL, ambient water quality criterion, or General Use Water Quality Standard has been established for 1,1-dichloroethane.

TV:bjh/sp/1709k/1,2

*Note: This information sheet is a summary of readily available data regarding the general nature and effects of this chemical. The reader is encouraged to consult other sources or an appropriate professional if a more detailed explanation for specific concerns is desired.

Printed by authority of
the State of Illinois
Job No. 18738 6/89 500

Illinois
Environmental
Protection Agency

Office of Chemical Safety
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

IEPA/ENV/89-001 December, 1988

# 1,1,1-TRICHLOROETHANE CHEMICAL INFORMATION SHEET*

## WHAT IS 1,1,1-TRICHLOROETHANE?

1,1,1-Trichloroethane (1,1,1-TCA, Chlorothene , methylchloroform) is a colorless, non-flammable, chlorinated hydrocarbon. It is a liquid at standard temperature and pressure but in an open environment it quickly volatilizes to a vapor with a sweet chloroform-like odor. The principal industrial uses of 1,1,1-TCA include metal degreasing/cleaning, vapor degreasing, and as an additive to metal cutting oils. 1,1,1-TCA can also be found in household and office products such as liquid drain cleaners, spot removers, typewriter correction fluid, insecticides, liquid shoe polishes, and some aerosol sprays as a propellant.

1,1,1-TCA is a synthetic material with no natural sources. Since its commercial introduction in 1954, the annual U.S. production has grown steadily to an estimated 694 million pounds in 1987. The need for a solvent safer than carbon tetrachloride but with similar properties led to the popularity of 1,1,1-TCA.

## HOW DOES 1,1,1-TCA GET INTO THE ENVIRONMENT?

It is estimated that 85-95% of the 1,1,1-TCA used in the U.S. is lost directly to the environment, almost entirely through evaporation to the atmosphere during its production, storage, or use. Three-quarters of these emissions are attributed to use during industrial metal-cleaning operations, which consume approximately two-thirds of the total production. Traces of 1,1,1-TCA can be found nearly everywhere on earth, from the home and workplace to the air, surface waters, and groundwater of industrial areas, to areas as remote as the South Pole.

When released to the air by evaporation, 1,1,1-TCA can be transported long distances with fractions returning to the earth in rain and snow. Most of the atmospheric 1,1,1-TCA remains close to the earth where it is broken down slowly by chemical reaction. About 15%, however, migrates to the stratosphere where breakdown by the sun is rapid.

When 1,1,1-TCA is released to bodies of water, the primary loss is by evaporation which is quickened by agitation and high wind velocity. When released to surface soil, it evaporates to the atmosphere or passes rapidly through the soil and into groundwater. Little or no breakdown of 1,1,1-TCA takes place in the soil. During its most common use, 1,1,1-TCA becomes heavily contaminated with grease and oil. In the past, this waste was disposed of in landfills, dumped on the ground, or dumped into sewers. These activities sometimes led to groundwater contamination where breakdown is slow. Drinking water wells can become affected and very high levels have been recorded in some isolated cases.

The major sources of human exposure to 1,1,1-TCA are from drinking water and to a lesser extent, air. The ambient air of various industrial users of 1,1,1-TCA was analyzed and found to contain the chemical at concentrations ranging from 1.5 to 350 ppm (parts per million). Air concentrations of residences in areas near industrial sources were much lower; averaging .0012 ppm.

Unlike most chlorinated compounds, 1,1,1-TCA does not accumulate in the bodies of animals or in plants. Although 1,1,1-TCA has been detected in some foods and animals, the diet is expected to be a minor source of exposure.

WHAT ARE THE HEALTH EFFECTS ASSOCIATED WITH 1,1,1-TCA EXPOSURE?

1,1,1-TCA is easily absorbed through the lungs and the digestive tract. When inhaled, 1,1,1-TCA is at first rapidly transferred to the blood. As the blood content increases, the rate of absorption slows. Once in the blood, 1,1,1-TCA is preferentially distributed to the central nervous system. The body can metabolize 1,1,1-TCA, but this process is very slow. The primary route of excretion is by exhalation, unchanged, through the lungs. This excretion process was investigated in human volunteers. It was determined that 90% of the absorbed 1,1,1-TCA was eliminated by exhalation within 8 days.

Short-term exposure: Extremely high concentrations of 1,1,1-TCA are required to produce effects from short-term exposures. Fatalities have occurred when individuals were exposed to very high vapor concentrations of about 5000 ppm (0.5%) or more in unventilated tanks or other confinements. By mouth, it is estimated that 1/2 to 1 pint would be fatal to an adult man. Death is usually due to respiratory arrest or shock. Breathing high concentrations (over 350 ppm) can cause eye, nose, and throat irritation and temporary narcotic-like effects sometimes followed by mild liver and kidney effects, also temporary. Extended contact with skin can result in temporary redness and irritation.

Long-term exposure: Studies of 21 women occupationally exposed for 6 1/2 years at levels of 110 to 345 ppm and 196 men occupationally exposed for at least 5 years at levels of 4 to 53 ppm 1,1,1-TCA showed no adverse effects. There is no evidence that 1,1,1-TCA causes cancer, reproductive problems, or birth defects in humans. Studies on rats and mice concluded that there was no harm to the fetus when mothers were exposed to 1,1,1-TCA vapors at levels up to 875 ppm. Vapor levels of around 2000 ppm caused some non-fatal delays in the fetal development of rats. Other studies on rats, mice, and dogs revealed minor effects on the liver. Inhalation and oral studies on rodents reported no evidence that 1,1,1-TCA causes cancer.

HOW IS 1,1,1-TCA REGULATED?

1,1,1-TCA is listed as a hazardous waste under the Resource Conservation and Recovery Act (RCRA) and, as such, its disposal is regulated. Threshold limit values (TLVs) adopted by the American Conference of Governmental Industrial Hygienists refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all healthy workers may be repeatedly exposed without adverse effect. The TLV for 1,1,1-TCA is 350 ppm as an average 8-hour exposure for a 5-day workweek. Maximum Contaminant Levels (MCLs) are enforceable health-based standards for drinking water under the Safe Drinking Water Act. The MCL for 1,1,1-TCA is 0.2 mg/l (ppm). USEPA, under the Clean Water Act, has developed nonenforceable Ambient Water Quality Criteria for the protection of human health. For 1,1,1-TCA, the values are 18.4 mg/l (ppm) for waters used for drinking and fishing and 1030 mg/l (ppm) for waters used for fishing only. The Illinois General Use Water Quality Standards provide for protection of aquatic organisms by specifying that toxic substances not be present in surface waters at levels greater than 1/10th the lethal dose to common aquatic species. The safe level for fathead minnows, for instance, is 5.28 mg/l (ppm).

LM:rmi/0356k/sp, 1-2

*Note: This information sheet is a summary of readily available data regarding the general nature and effects of this chemical. The reader is encouraged to consult other sources or an appropriate professional if a more detailed explanation for specific concerns is desired.

Illinois
Environmental
Protection Agency

Office of Chemical Safety
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

IEPA/ENV/87-001-1 December, 1986

# -TRICHLOROETHYLENE-

# CHEMICAL INFORMATION SHEET*

## WHAT IS TRICHLOROETHYLENE?

Trichloroethylene (TCE; trichloroethene; ethylene trichloride) is a nonflammable, highly volatile, colorless liquid used extensively for degreasing of fabricated metal parts. It has been estimated that from 80 to 95 percent of the TCE produced in the United States is used in the degreasing process. The remaining 5 to 20 percent is either exported or used for miscellaneous applications. Miscellaneous uses of TCE include paint-stripping formulations, adhesive formulations, carrier solvent in industrial paint systems, and a solvent in textile dyeing and finishing. TCE has been discontinued in the United States for use as an inhalation anesthetic, in fumigant mixtures, and as an extractant in the decaffeination of coffee because of environmental and health restrictions.

Trichloroethylene has been produced commercially in the United States since 1925 and is also produced in Europe and Japan. The production of TCE has been declining in recent years due primarily to legislation restricting its use and emissions. According to statistics published by the U.S. International Trade Commission (1982), 129,397 tons of TCE were produced in 1981.

## HOW DOES TCE GET INTO THE ENVIRONMENT?

There are no known natural sources of TCE. TCE enters the environment through evaporation into the air during production and use. Although most environmental contamination of TCE is released to the air, it has also been found as a contaminant of rivers, lakes, drinking waters, soils, food and drink, marine and freshwater organisms, and humans. TCE in surface waters may occur as a result of direct contamination or from atmospheric contamination by rainfall However. due to certain chemical properties, TCE is not expected to persist in the open environment. It may, however, persist for long periods of time if it becomes "sheltered" in an area of the environment where evaporation and other physical and chemical processes of removal are difficult (especially in groundwater)

## WHAT ARE THE HEALTH EFFECTS ASSOCIATED WITH TCE EXPOSURE?

Short-term exposure -- Numerous cases of short-term and accidental exposure to TCE have been documented and provide some information about its effects on humans These exposures usually occur through inhalation of vapors released in industrial accidents and through accidental ingestion or skin contact. Exposure to TCE vapor may cause irritation of the eyes, nose, and throat. The liquid, if splashed in the eyes, may cause burning, irritation, and damage. Repeated or prolonged skin contact with the liquid may cause inflammation of the skin.

Short-term exposure to high concentrations of TCE results in depression of the central nervous system. The symptoms most often described are mild eye irritation, nausea, dizziness, headache, tremors, and confusion. Mild irritation occurs at levels near 200 ppm (parts per million). Hand steadiness, coordination, and possibly depth perception are affected at 1000 ppm and perhaps below. If combined with alcohol ingestion, TCE can produce these effects at levels of 200 to 300 ppm. The lowest concentration to produce unconsciousness in adult humans is 3000 ppm. With high enough concentrations, one could possibly die from respiratory or cardiac failure.

Long-term exposure -- Case reports indicate that symptoms involved in short-term exposure situations also are present in long-term exposure but in more extreme and persistent forms. Extended exposure can increase the duration and intensity of nausea, dizziness, and headache, but eye irritation and sense of smell are reduced. Confusion, reduced reasoning ability, impaired short-term memory, tremors, and muscular incoordination also are reported. The minimum exposure for such complaints is difficult to estimate since such data are gathered from workplace surveys with all of the attendant problems in quantification and control. It appears that these effects, however, are absent below 85 to 100 ppm.

The mutagenic potential (capability of causing changes or transformations in genes) of TCE has been investigated by the use of several test methods and in many different organisms. The mutagenic effects were observed only at high dose levels which indicates that TCE is only weakly mutagenic. TCE has been found to cause liver tumors in mice following oral administration. The applicability of mouse liver tumors for assessing cancer risk to humans is disputed. USEPA considers the evidence sufficient to consider TCE a probable human carcinogen. Also, there is no evidence that TCE is responsible for toxicity to the embryo or developing fetus or causes overt birth defects in humans at levels below the toxicity level to the mother.

HOW IS TCE REGULATED?

Threshold limit values adopted by the American Conference of Governmental Industrial Hygienists refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. The threshold limit value for TCE is 50 ppm as an average eight hour exposure limit for a 5-day workweek A Maximum Contaminant Level (MCL) of 5 ppb (parts per billion) for TCE in drinking water has been proposed under the Safe Drinking Water Act.

*Note: This information sheet is a summary of readily available data regarding the general nature and effects of this chemical. The reader is encouraged to consult other sources or an appropriate professional if a more detailed explanation for specific concerns is desired.

CS:sf/1033g,62-63

Illinois
Environmental
Protection Agency

Office of Chemical Safety
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

IEPA/ENV/88-024 July, 1988

# - TETRACHLOROETHYLENE -
# CHEMICAL INFORMATION SHEET*

## WHAT IS TETRACHLOROETHYLENE?

Tetrachloroethylene (perchloroethylene; PCE; perc; tetrachloroethene) is a nonflammable, volatile, colorless liquid having a chloroform-like or ether-like odor. It is widely used as a dry cleaning agent, and is also extensively used as a solvent for metal degreasing in a variety of industries, such as metal and machine shops and automotive repair shops. Other uses of PCE include: solvent in textile manufacturing; starting material or intermediate in the production of other chemicals, especially Freon F-113; component of various types of home fabric and metal cleaners, spot removers, and paint removers; heat transfer fluid; and component of certain automobile care products such as brake cleaners, silicone lubricants, belt lubricants, ignition wire driers, and engine cleaners. Past uses of PCE included medical use in the treatment of hookworm and other infestations, as a vegetable fumigant, and as a component of certain aerosols and shoe polishes.

Total United States production of PCE for 1986 amounted to approximately 414 million pounds, of which over 50% was used in the dry cleaning and textile manufacturing industries. Production has been declining in recent years, due in part to decreased demand in the dry cleaning industry and increased efficiency and recycling among most users.

## HOW DOES PCE GET INTO THE ENVIRONMENT?

There are no known natural sources of PCE. Its main route of entry into the environment is from evaporation during dry cleaning and degreasing uses. Less significant releases to the environment (but potentially important locally) include: evaporation and leaching from disposal sites; emissions from production sites and from its use in the production of other chemicals; evaporation from textile manufacturing processes; and evaporation from the many household products in which PCE is a component. Since the greatest amount of PCE released to the environment is from dry cleaning and industrial sources, its ambient air concentration is generally higher in urban areas than rural. These "background" concentrations generally range from parts per trillion (ppt) to low parts per billion (ppb) levels. Occupational exposures (and occasionally environmental levels close to emission sources) can occur at the parts per million (ppm) level. PCE has also been detected in raw and finished public water supplies, surface waters, groundwater, and in soils and sediments, usually as a result of leaching, spills, leaks, etc. from sites where PCE is used or disposed. Rarely, residues of PCE have been found in food items and aquatic organisms.

Typically, PCE will evaporate to the atmosphere and be broken down by sunlight and reactive atmospheric gases such as ozone. Thus, it is not expected to persist in soils, sediments, or surface waters which are "open" to the atmosphere. However, if PCE becomes confined in a part of the environment where evaporation is hindered or impossible, such as in deeper soils or sediments or in groundwater, it may persist for long periods of time.

## WHAT ARE THE HEALTH EFFECTS ASSOCIATED WITH PCE EXPOSURE?

Short-term exposure -- The acute effects of PCE on humans have been documented from accidental or occupational exposures, often to very high inhaled or ingested levels of PCE. A variety of symptoms have been reported, chief among them being effects on the central nervous system (CNS), liver, and kidneys. CNS effects include dizziness, headache, nausea, impaired mental and physical function, sleepiness, and in severe cases coma and death. Minor CNS effects are expected at air concentrations around 100 ppm, whereas levels in air

necessary to produce severe effects such as unconsciousness are in the range of thousands of ppm. Minor CNS effects from ingestion (drinking) of PCE are expected at around 60 ppm.

The effects on liver and kidney function are delayed, occurring sometime after exposure to high concentrations of PCE. Other organs or tissues which have been reported to be affected by short-term exposure to PCE in air include the respiratory system, eyes, skin, and heart. Vapor concentrations greater than 200 ppm cause irritation of the eyes, nose, and throat. Direct skin contact for 5 to 10 minutes has been shown to cause mild to moderate burning sensations, redness, and blistering. In almost all cases, the short-term effects of PCE exposure are reversible.

Long-term exposure -- Information on the long-term effects of PCE exposure comes mainly from occupational studies. Because of the ways PCE is used in industry, workers are usually exposed to other chemicals as well. Often, these studies have not compared workers to unexposed controls. Furthermore, the length and amount of exposure is rarely known to the degree necessary to associate exposure levels with symptoms. Therefore, there is a degree of uncertainty associated with some of the reported long-term health effects of PCE.

Most studies have found that many of the temporary effects reported in short-term, higher level exposures are also seen in long-term, lower level exposures, but on a more continuous or permanent basis. Frequent dizziness, headaches, and nausea; fatigue; and disorientation have been reported to occur long after exposure has ceased. Other CNS symptoms not seen following short-term, high level exposures have also been documented following long-term, lower level exposures, such as deficits in short-term memory, incoordination of muscles, irritability, and sleep disturbances. Furthermore, these symptoms may be irreversible in some individuals. It is much less certain whether the effects on liver, kidneys, heart, and respiratory system seen after high level exposures are also experienced as a result of long-term lower level exposures. From the available data, it appears that long-term, noncancer health effects are not seen at levels below 100 ppm in air. Data concerning ingestion exposures in humans are even more limited. Results from animal studies indicate that daily intake of 14 mg/kg (ppm) PCE causes no adverse noncancer health effects. Using a 1000-fold safety factor, the estimated no-effect level in humans is 0.014 mg/kg/day (ppm).

The cancer-causing potential of PCE has been examined in several animal studies. It has been shown to cause leukemia in rats and liver tumors in mice. The majority of studies examining the mutation-causing ability of PCE have found it to be non-mutagenic, or at most, weakly mutagenic. Several epidemiological studies of workers exposed to PCE (and other industrial chemicals) provide inconclusive evidence regarding the carcinogenicity of PCE in humans. Based on these findings, USEPA considers the evidence sufficient to rank PCE as a probable human carcinogen. However, USEPA's independent review board, the Science Advisory Board, at this time disputes some of the findings, ranking PCE as a possible human carcinogen.

## HOW IS PCE REGULATED?

Threshold Limit Values (TLV) adopted by the American Conference of Governmental Industrial Hygienists refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all healthy workers may be repeatedly exposed without adverse effect. The TLV for PCE is 50 ppm as an average eight-hour exposure limit for a five-day work week. The non-enforceable Ambient Water Quality Criterion, established by USEPA under the Clean Water Act, is 0.8 ug/l (ppb) for surface waters, based on the risk to human health from consumption of contaminated water and fish. PCE is a hazardous waste under the Resource Conservation and Recovery Act, and its disposal is therefore regulated by this Act.

TH:rd2270j/62-63

*Note: This information sheet is a summary of readily available data regarding the general nature and effects of this chemical. The reader is encouraged to consult other sources or an appropriate professional if a more detailed explanation for specific concerns is desired.

Printed by authority of the State of Illinois Job 17895 9/88 500

Illinois
Environmental
Protection Agency

Office of Chemical Safety
2200 Churchill Road, P.O. Box 19276
Springfield, Illinois 62794-9276

IEPA/ENV/89-333 December, 1989

# - DICHLOROETHYLENES -
# CHEMICAL INFORMATION SHEET*

## WHAT ARE DICHLOROETHYLENES?

Dichloroethylenes (DCEs) are members of a class of chemicals known as chlorinated hydrocarbons. DCEs are clear, colorless, flammable liquids that evaporate quickly at room temperature to form explosive vapors with a mild, sweet odor resembling chloroform or ether. There are three distinct chemicals (isomers) known as dichloroethylene. All three possess the same basic chemical structure and number of atoms, but differ in the position of the two chlorine atoms in relationship to the carbon atoms. The three isomers and their synonyms are:

- 1,1-Dichloroethylene (1,1-dichloroethene, vinylidene chloride, 1,1-DCE)
- cis-1,2-Dichloroethylene (cis-1,2-dichloroethene, cis-1,2-DCE)
- trans-1,2-Dichloroethylene (trans-1,2-dichloroethene, trans-1,2-DCE)

Mixtures of the cis- and trans-1,2-DCE isomers are used as a general solvent for organic materials and as an intermediate for organic synthesis. They are used on food to retard fermentation and as a low temperature special extractant for perfume scents and caffeine. Dichloroethylene molecules can be made to link together chemically in long chains or sheets (polymerize). This property is especially important in the primary uses of 1,1-DCE. These uses are the production of polyvinylidene chloride or as a copolymer with vinyl chloride or acrylonitrile in the production of flexible plastic films for food packaging. 1,1-DCE is also used as a polymer in the production of other flexible packaging and as a flame retardant coating for fabric and carpet backing.

Production of 1,1-DCE in the United States was estimated to be betwen 165 and 175 million pounds for 1989. The production of the 1,2-DCE's is much less, however, no estimates of amounts were available for recent years.

## WHAT IS THE OCCURRENCE OF DICHLOROETHYLENE IN THE ENVIRONMENT?

Dichloroethylenes are manmade chemicals, however, they can be produced in the environment during the degradation of other synthetic, chlorine-containing organic compounds. The primary sources of dichloroethylenes in the environment are related to their synthesis, transportation, and improper disposal.

Because of their volatility, the atmosphere is the primary depository of environmental DCE. The greatest contribution to airborne DCE comes from 1,1-DCE polymer synthesis and fabrication industries. Another major source is from evaporative losses during the storage, handling, and transportation of 1,1-DCE. Releases to surface waters can occur in liquid effluent from a number of industrial sources. These include 1,1-DCE polymerization operations and in the manufacture of perfumes, lacquers, and thermoplastics. Their improper disposal in landfills presents the potential for releases of DCEs to the air, surface water, and groundwater.

Upon release to the atmosphere, DCEs are expected to be quickly changed into other chemicals. In the air, DCEs combine with other reactive gases to form several by-products, some of which are also hazardous chemicals. In surface water and on surface soil, DCEs are expected to quickly volatilize into the atmosphere. DCEs are readily dissolved into water and when spilled onto surface soils these chemicals can move through the soil and into groundwater. When improperly disposed, DCEs can leak directly into subsurface soils and contaminate groundwater. DCEs in groundwater have been shown to degrade to vinyl chloride, a human carcinogen.

## WHAT ARE THE HEALTH EFFECTS ASSOCIATED WITH DICHLOROETHYLENE EXPOSURE?

Short-term exposure -- Exposure to high concentrations of DCEs results in rapid central nervous system (CNS) depression or anesthesia. If exposure is brief, complete recovery is expected, however, continued exposure can result in unconsciousness. The inhalation of extremely high levels could cause nausea, vomiting, stomach cramps, or possibly be fatal. Concentrations of 4000 parts per million (ppm) in the air are regarded as immediately dangerous to life or health. Direct contact to the skin can cause temporary irritation and contact to the eyes can cause conjunctivitis and temporary eye damage.

Long-term exposure -- Little is known about the long-term exposure of humans to small concentrations of DCEs. The information available comes from case reports or studies where the amounts of DCE involved were undetermined or where exposures included other toxic chemicals. However, the available information indicates that inhaled 1,1-DCE could possibly induce liver and kidney toxicity in humans. Long-term animal inhalation studies have established that 1,1-DCE is highly toxic to the liver and can produce transient, reversible effects on the kidneys. Lesser effects on the same organs were observed in rats exposed to vapors of trans-1,2-DCE.

Animal studies indicate no evidence of reproductive problems or birth defects being caused by 1,1-DCE. No data were available with which to evaluate these parameters for trans- and cis-1,2-DCE. Mutagenicity testing is performed to evaluate a chemical's potential to cause chromosome damage and is taken by some scientists to indicate possible cancer causing chemicals. Trans- and cis-1,2-DCE test negative for mutagenicity, however, sufficient evidence is available to judge 1,1-DCE to be positive for mutagenicity.

A number of animal studies have been conducted to evaluate the cancer potential of 1,1-DCE following inhalation, oral, dermal, and subcutaneous exposures. Only the results of a single inhalation study provided positive evidence of kidney cancer in male mice. Other studies were either negative or inconclusive. This limited animal evidence is sufficient for USEPA to classify 1,1-DCE as a possible human carcinogen (Group C). No information is available upon which to evaluate the carcinogencity of trans- and cis-1,2-DCE.

## HOW ARE DICHLOROETHYLENES REGULATED?

Threshold Limit Values (TLVs) adopted by the American Conference of Governmental Industrial Hygienists refer to airborne concentrations of substances and represent conditions under which it is believed that nearly all healthy workers may be repeatedly exposed, day after day, without adverse effect. The TLV for 1,1-DCE is 5.0 ppm and 200 ppm for 1,2-DCEs as an average eight hour exposure for a five day workweek.

A Maximum Contaminant Level (MCL) of 0.007 ppm of 1,1-DCE in drinking water has been established under the Safe Drinking Water Act. USEPA has proposed MCLs of 100 and 70 ppm for cis- and trans-1,2-DCE, respectively. In addition, a nonenforceable ambient water quality criterion of 0.033 ppb has been established for total DCEs under the Clean Water Act based upon risk to human health from the consumption of contaminated fish and water. The Illinois General Use Water Quality Standards are established to protect aquatic plants and animals, wild and domestic animals and humans who consume surface water and/or aquatic organisms. In regulatory application, these criteria are or will be established based upon site-specific factors such as toxicity to native plants and animals and the chemical characteristics of the water. 1,1-DCE and trans-1,2-DCE are hazardous wastes under the Resource Conservation and Recovery Act (RCRA). As such, their disposal is specifically regulated to preclude releases to the environment.

LM:jab/1779n/2-3

*Note: This information sheet is a summary of readily available data regarding the general nature and effects of this chemical. The reader is encouraged to consult other sources or an appropriate professional if a more detailed explanation for specific concerns is desired.

Printed by the Authority
of the State of Illinois
19827 500
Printed on Recycled Paper

# Appendix K

# APPENDIX K
# EXPOSURE POINT CONCENTRATION CALCULATIONS

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**
**ADDRESS**

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| Methylene Chloride | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-Dichloroethene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1-Dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Cis-1,2-Dichloroethene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Trans-1,2-Dichloroethene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Chloroform | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,2-Dichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 1,1,1-Trichloroethane | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Trichloroethylene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Tetrachloroethylene | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**
**ADDRESS**

| | Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| Methylene Chloride | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| 1,1-Dichloroethene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| 1,1-Dichloroethane | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| Cis-1,2-Dichloroethene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| Trans-1,2-Dichloroethene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| Chloroform | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| 1,2-Dichloroethene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| 1,1,1-Trichloroethane | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| Trichloroethylene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |
| Tetrachloroethylene | 720 | 0.0000 | 0.9 | 180 | 15 | 0.5 | 0.0000 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**
**ADDRESS**

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| Methylene Chloride | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| 1,1-Dichloroethene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| 1,1-Dichloroethane | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| Cis-1,2-Dichloroethene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| Trans-1,2-Dichloroethene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| Chloroform | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| 1,2-Dichloroethene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| 1,1,1-Trichloroethane | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| Trichloroethylene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |
| Tetrachloroethylene | 0.0000 | 0.9 | 800 | 0.2 | 10 | 0.0000 | 0.0000 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| Cis-1,2-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |

Values for Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

Cis-1,2-DCE = (0.1J + 0.5)/2

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin (House #1 Only) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| Cis-1,2-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Trichloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Tetrachloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| Cis-1,2-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |
| 1,1,1-Trichloroethane | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.004 | 0.004 | 0.0019 | 0.029 | 0.058 |

Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE = (0.1J + 0.5)/2 = 0.3 ppb

## EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1-Dichloroethane | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Tetrachloroethylene | 720 | 0.004 | 0.9 | 180 | 15 | 0.5 | 0.0019 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
| 1,1-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.004 | 0.9 | 800 | 0.2 | 10 | 0.029 | 0.058 |
| CA1 = During Shower; CA2= After Shower | | | | | | | |

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.001 | 0.0010 | 0.0005 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.001 | 0.0010 | 0.0005 | 0.0072 | 0.014 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1,1-Trichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Tetrachloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.001 | 0.0010 | 0.0005 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |

Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE, 1,1-DCA = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1-Dichloroethane | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Trichloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Tetrachloroethylene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0007 | 0.0007 | 0.0003 | 0.005 | 0.010 |
| Trichloroethylene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| Tetrachloroethylene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |

Values for 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCA = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethane | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.0007 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Trichloroethylene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| Tetrachloroethylene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0007 | 0.9 | 800 | 0.2 | 10 | 0.0050 | 0.0101 |
| Trichloroethylene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| Tetrachloroethylene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0005 | 0.0005 | 0.0002 | 0.0036 | 0.0072 |

Values for 1,1,1-TCA are based on 1/2 of the detection limit of the compound

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1,1-Trichloroethane | 720 | 0.0005 | 0.9 | 180 | 15 | 0.5 | 0.0002 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0005 | 0.9 | 800 | 0.2 | 10 | 0.0036 | 0.0072 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |
| 1,1,1-Trichloroethane | 0.002 | 0.0020 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.002 | 0.0020 | 0.001 | 0.014 | 0.029 |
| Tetrachloroethylene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethane | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Tetrachloroethylene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Tetrachloroethylene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 0.0005 | 0.0002 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.0010 | 0.0010 | 0.0005 | 0.0072 | 0.014 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethane | 720 | 0.0005 | 0.9 | 180 | 15 | 0.5 | 0.0002 |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 0.9 | 800 | 0.2 | 10 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |

*CA1 = During Shower; CA2= After Shower*

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.005 | 0.005 | 0.0024 | 0.036 | 0.072 |
| 1,1-Dichloroethane | 0.015 | 0.015 | 0.0072 | 0.108 | 0.216 |
| Cis-1,2-Dichloroethene | 0.010 | 0.010 | 0.0048 | 0.072 | 0.144 |
| Trans-1,2-Dichloroethene | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |
| 1,2-Dichloroethane | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| 1,1,1-Trichloroethane | 0.018 | 0.018 | 0.0086 | 0.130 | 0.259 |
| Trichloroethylene | 0.008 | 0.008 | 0.0038 | 0.058 | 0.115 |
| Tetrachloroethylene | 0.0009 | 0.0009 | 0.0004 | 0.0065 | 0.013 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| | Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.005 | 0.9 | 180 | 15 | 0.5 | 0.0024 |
| 1,1-Dichloroethane | 720 | 0.015 | 0.9 | 180 | 15 | 0.5 | 0.0072 |
| Cis-1,2-Dichloroethene | 720 | 0.010 | 0.9 | 180 | 15 | 0.5 | 0.0048 |
| Trans-1,2-Dichloroethene | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,2-Dichloroethene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| 1,1,1-Trichloroethane | 720 | 0.018 | 0.9 | 180 | 15 | 0.5 | 0.0086 |
| Trichloroethylene | 720 | 0.008 | 0.9 | 180 | 15 | 0.5 | 0.0038 |
| Tetrachloroethylene | 720 | 0.0009 | 0.9 | 180 | 15 | 0.5 | 0.0004 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.005 | 0.9 | 800 | 0.2 | 10 | 0.036 | 0.072 |
| 1,1-Dichloroethane | 0.015 | 0.9 | 800 | 0.2 | 10 | 0.108 | 0.216 |
| Cis-1,2-Dichloroethene | 0.010 | 0.9 | 800 | 0.2 | 10 | 0.072 | 0.144 |
| Trans-1,2-Dichlorocthene | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |
| 1,2-Dichloroethene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| 1,1,1-Trichlorocthane | 0.018 | 0.9 | 800 | 0.2 | 10 | 0.130 | 0.259 |
| Trichlorocthylene | 0.008 | 0.9 | 800 | 0.2 | 10 | 0.058 | 0.115 |
| Tetrachloroethylene | 0.0009 | 0.9 | 800 | 0.2 | 10 | 0.0065 | 0.013 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.004 | 0.004 | 0.0019 | 0.029 | 0.058 |
| 1,1-Dichloroethane | 0.013 | 0.013 | 0.0062 | 0.094 | 0.187 |
| Cis-1,2-Dichloroethene | 0.009 | 0.009 | 0.0043 | 0.065 | 0.130 |
| 1,2-Dichloroethane | 0.0005 | 0.0005 | 0.0002 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.018 | 0.018 | 0.0086 | 0.130 | 0.259 |
| Trichloroethylene | 0.006 | 0.006 | 0.0029 | 0.043 | 0.086 |
| Tetrachloroethylene | 0.0007 | 0.0007 | 0.0003 | 0.0050 | 0.0101 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.004 | 0.9 | 180 | 15 | 0.5 | 0.0019 |
| 1,1-Dichloroethane | 720 | 0.013 | 0.9 | 180 | 15 | 0.5 | 0.0062 |
| Cis-1,2-Dichloroethene | 720 | 0.009 | 0.9 | 180 | 15 | 0.5 | 0.0043 |
| 1,2-Dichloroethene | 720 | 0.0005 | 0.9 | 180 | 15 | 0.5 | 0.0002 |
| 1,1,1-Trichloroethane | 720 | 0.018 | 0.9 | 180 | 15 | 0.5 | 0.0086 |
| Trichloroethylene | 720 | 0.006 | 0.9 | 180 | 15 | 0.5 | 0.0029 |
| Tetrachloroethylene | 720 | 0.0007 | 0.9 | 180 | 15 | 0.5 | 0.0003 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.004 | 0.9 | 800 | 0.2 | 10 | 0.029 | 0.058 |
| 1,1-Dichloroethane | 0.013 | 0.9 | 800 | 0.2 | 10 | 0.094 | 0.187 |
| Cis-1,2-Dichloroethene | 0.009 | 0.9 | 800 | 0.2 | 10 | 0.065 | 0.130 |
| 1,2-Dichloroethene | 0.0005 | 0.9 | 800 | 0.2 | 10 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.018 | 0.9 | 800 | 0.2 | 10 | 0.130 | 0.259 |
| Trichloroethylene | 0.006 | 0.9 | 800 | 0.2 | 10 | 0.043 | 0.086 |
| Tetrachloroethylene | 0.0007 | 0.9 | 800 | 0.2 | 10 | 0.0050 | 0.0101 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Trichloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1,1-Trichloroethane | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Trichloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Tetrachloroethylene | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Trichloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.00035 | 0.00035 | 0.0002 | 0.0025 | 0.005 |
| 1,1-Dichloroethane | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0007 | 0.0007 | 0.0003 | 0.005 | 0.0101 |
| Trichloroethylene | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |

Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE = (0.2J + 0.5)/2 = 0.35 ppb

1,1-DCA = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.00035 | 0.9 | 180 | 15 | 0.5 | 0.0002 |
| 1,1-Dichloroethane | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.0007 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Trichloroethylene | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.00035 | 0.9 | 800 | 0.2 | 10 | 0.0025 | 0.005 |
| 1,1-Dichloroethane | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0007 | 0.9 | 800 | 0.2 | 10 | 0.005 | 0.0101 |
| Trichloroethylene | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

**[redacted]18[redacted]**

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0001 | 0.0001 | 0.00005 | 0.0007 | 0.0014 |
| 1,1,1-Trichloroethane | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0009 | 0.0009 | 0.0004 | 0.0065 | 0.013 |
| Tetrachloroethylene | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| | Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethane | 720 | 0.0001 | 0.9 | 180 | 15 | 0.5 | 0.00005 |
| 1,1,1-Trichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Trichloroethylene | 720 | 0.0009 | 0.9 | 180 | 15 | 0.5 | 0.0004 |
| Tetrachloroethylene | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0001 | 0.9 | 800 | 0.2 | 10 | 0.0007 | 0.0014 |
| 1,1,1-Trichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0009 | 0.9 | 800 | 0.2 | 10 | 0.0065 | 0.013 |
| Tetrachloroethylene | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |
| Trichloroethylene | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |

Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1-Dichloroethane | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| Trichloroethylene | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |
| Trichloroethylene | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0020 | 0.0020 | 0.001 | 0.014 | 0.029 |
| 1,1-Dichloroethane | 0.009 | 0.009 | 0.0043 | 0.065 | 0.130 |
| Cis-1,2-Dichloroethene | 0.008 | 0.008 | 0.0038 | 0.058 | 0.115 |
| Trans-1,2-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.050 | 0.050 | 0.024 | 0.360 | 0.720 |
| Trichloroethylene | 0.004 | 0.004 | 0.0019 | 0.029 | 0.058 |
| Tetrachloroethylene | 0.0008 | 0.0008 | 0.0004 | 0.0058 | 0.012 |

Values for Trans-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

Trans-1,2-DCE = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| 1,1-Dichloroethane | 720 | 0.009 | 0.9 | 180 | 15 | 0.5 | 0.0043 |
| Cis-1,2-Dichloroethene | 720 | 0.008 | 0.9 | 180 | 15 | 0.5 | 0.0038 |
| Trans-1,2-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.050 | 0.9 | 180 | 15 | 0.5 | 0.024 |
| Trichloroethylene | 720 | 0.004 | 0.9 | 180 | 15 | 0.5 | 0.0019 |
| Tetrachloroethylene | 720 | 0.0008 | 0.9 | 180 | 15 | 0.5 | 0.0004 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| 1,1-Dichloroethane | 0.009 | 0.9 | 800 | 0.2 | 10 | 0.065 | 0.130 |
| Cis-1,2-Dichloroethene | 0.008 | 0.9 | 800 | 0.2 | 10 | 0.058 | 0.115 |
| Trans-1,2-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.050 | 0.9 | 800 | 0.2 | 10 | 0.360 | 0.720 |
| Trichloroethylene | 0.004 | 0.9 | 800 | 0.2 | 10 | 0.029 | 0.058 |
| Tetrachloroethylene | 0.0008 | 0.9 | 800 | 0.2 | 10 | 0.0058 | 0.012 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Trichloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1,1-Trichloroethane | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Trichloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| Tetrachloroethylene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Trichloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| Tetrachloroethylene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.00035 | 0.00035 | 0.0002 | 0.0025 | 0.005 |
| 1,1-Dichloroethane | 0.0002 | 0.0002 | 0.0001 | 0.0014 | 0.0029 |
| Cis-1,2-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.003 | 0.003 | 0.0014 | 0.022 | 0.043 |

Values for 1,1-DCE and Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE = (0.2J + 0.5)/2 = 0.35 ppb

Cis-1,2-DCE = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.00035 | 0.9 | 180 | 15 | 0.5 | 0.0002 |
| 1,1-Dichloroethane | 720 | 0.0002 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| Cis-1,2-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Tetrachloroethylene | 720 | 0.003 | 0.9 | 180 | 15 | 0.5 | 0.0014 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.00035 | 0.9 | 800 | 0.2 | 10 | 0.0025 | 0.005 |
| 1,1-Dichloroethane | 0.0002 | 0.9 | 800 | 0.2 | 10 | 0.0014 | 0.0029 |
| Cis-1,2-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.003 | 0.9 | 800 | 0.2 | 10 | 0.022 | 0.043 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |
| 1,1-Dichloroethane | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Cis-1,2-Dichloroethene | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| 1,1,1-Trichloroethane | 0.005 | 0.005 | 0.0024 | 0.036 | 0.072 |
| Trichloroethylene | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Tetrachloroethylene | 0.0004 | 0.0004 | 0.0002 | 0.0029 | 0.0058 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |
| 1,1-Dichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Cis-1,2-Dichloroethene | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| 1,1,1-Trichloroethane | 720 | 0.005 | 0.9 | 180 | 15 | 0.5 | 0.0024 |
| Trichloroethylene | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Tetrachloroethylene | 720 | 0.0004 | 0.9 | 180 | 15 | 0.5 | 0.0002 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |
| 1,1-Dichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Cis-1,2-Dichloroethene | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| 1,1,1-Trichloroethane | 0.005 | 0.9 | 800 | 0.2 | 10 | 0.036 | 0.072 |
| Trichloroethylene | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Tetrachloroethylene | 0.0004 | 0.9 | 800 | 0.2 | 10 | 0.0029 | 0.0058 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

**[redacted]'H[redacted]**

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0009 | 0.0009 | 0.0004 | 0.0065 | 0.013 |
| Cis-1,2-Dichloroethene | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Trans-1,2-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,2-Dichloroethane | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |

Values for Trans-1,2-DCE and 1,2-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

Trans-1,2-DCE = (0.1J + 0.5)/2 = 0.3 ppb

1,2-DCA = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| | Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1-Dichloroethane | 720 | 0.0009 | 0.9 | 180 | 15 | 0.5 | 0.0004 |
| Cis-1,2-Dichloroethene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Trans-1,2-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,2-Dichloroethane | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0009 | 0.9 | 800 | 0.2 | 10 | 0.0065 | 0.013 |
| Cis-1,2-Dichloroethene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Trans-1,2-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,2-Dichloroethane | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.002 | 0.002 | 0.001 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.0004 | 0.0004 | 0.0002 | 0.0029 | 0.0058 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1,1-Trichloroethane | 720 | 0.002 | 0.9 | 180 | 15 | 0.5 | 0.001 |
| Trichloroethylene | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Tetrachloroethylene | 720 | 0.0004 | 0.9 | 180 | 15 | 0.5 | 0.0002 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.002 | 0.9 | 800 | 0.2 | 10 | 0.014 | 0.029 |
| Trichloroethylene | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Tetrachloroethylene | 0.0004 | 0.9 | 800 | 0.2 | 10 | 0.0029 | 0.0058 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0003 | 0.0003 | 0.0001 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0008 | 0.0008 | 0.0004 | 0.0058 | 0.012 |
| Trichloroethylene | 0.0006 | 0.0006 | 0.0003 | 0.0043 | 0.0086 |

Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCE = (0.1J + 0.5)/2 = 0.3 ppb

1,1-DCA = (0.1J + 0.5)/2 = 0.3 ppb

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethene | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1-Dichloroethane | 720 | 0.0003 | 0.9 | 180 | 15 | 0.5 | 0.0001 |
| 1,1,1-Trichloroethane | 720 | 0.0008 | 0.9 | 180 | 15 | 0.5 | 0.0004 |
| Trichloroethylene | 720 | 0.0006 | 0.9 | 180 | 15 | 0.5 | 0.0003 |

Derived from indoor household air model as presented in Table 6-11
CA = (WHF * CW * f) / (HV * ER * MC)

## EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1-Dichloroethane | 0.0003 | 0.9 | 800 | 0.2 | 10 | 0.0022 | 0.0043 |
| 1,1,1-Trichloroethane | 0.0008 | 0.9 | 800 | 0.2 | 10 | 0.0058 | 0.012 |
| Trichloroethylene | 0.0006 | 0.9 | 800 | 0.2 | 10 | 0.0043 | 0.0086 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| CHEMICAL OF CONCERN | House Groundwater EPCs Ingestion Exposures (mg/l) | House Groundwater EPCs Dermal Exposures (mg/l) | Household Air EPCs of Groundwater Origin (mg/m^3) | "During Shower" Air EPCs of Groundwater Origin (mg/m^3) | "After Shower" Air EPCs of Groundwater Origin (mg/m^3) |
|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 0.0005 | 0.0002 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.001 | 0.001 | 0.0005 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0005 | 0.0005 | 0.0002 | 0.0036 | 0.0072 |

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

| Household Air (CA) Exposure Point Concentrations of Groundwater Origin | | | | | | | |
|---|---|---|---|---|---|---|---|
| Chemical of Concern | WHF (l/day) | CW (mg/l) | f (unitless) | HV (m^3) | ER (day^-1) | MC (unitless) | CA (mg/m^3) |
| 1,1-Dichloroethane | 720 | 0.0005 | 0.9 | 180 | 15 | 0.5 | 0.0002 |
| 1,1,1-Trichloroethane | 720 | 0.001 | 0.9 | 180 | 15 | 0.5 | 0.0005 |
| Trichloroethylene | 720 | 0.0005 | 0.9 | 180 | 15 | 0.5 | 0.0002 |

Derived from indoor household air model as presented in Table 6-11

CA = (WHF * CW * f) / (HV * ER * MC)

**EXPOSURE POINT CONCENTRATIONS FOR CHEMICALS OF CONCERN IN GROUNDWATER**

[redacted]

**Shower Air Exposure Point Concentrations of Groundwater Origin (During and After Showering)**

| Chemical of Concern | CW | f | Fw | t1 | Va | CA 1 (*) | CA max or CA 2 (**) |
|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 0.9 | 800 | 0.2 | 10 | 0.0036 | 0.0072 |
| 1,1,1-Trichloroethane | 0.001 | 0.9 | 800 | 0.2 | 10 | 0.0072 | 0.014 |
| Trichloroethylene | 0.0005 | 0.9 | 800 | 0.2 | 10 | 0.0036 | 0.0072 |

CA1 = During Shower; CA2= After Shower

Derived from shower air model as presented in Table 6-12
CA1 = CA Max / 2
CA2 = CA Max
CA Max = (CW * f * Fw * t1) / Va

# Appendix L

# APPENDIX L
# CHEMICAL INTAKE AND RISK CALCULATIONS

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| Cis-1,2-Dichloroethene * | 0.0003 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.7E-07 | 2.5E-07 | 1.0E-02 | - | 5.7E-05 | 6% | - | - |
| 1,1,1-Trichloroethane ** | 0.001 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.2E-06 | 1.8E-06 | 9.0E-02 | - | 4.7E-05 | 5% | - | - |
| Trichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-06 | 1.0E-06 | - | 1.1E-02 | - | - | 1.1E-08 | 5% |
| Tetrachloroethylene | 0.0006 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.0E-06 | 3.8E-06 | 1.0E-02 | 5.2E-02 | 9.0E-04 | 90% | 2.0E-07 | 95% |
| | | | | | | | | | | | | | | | Hazard Index = | 1.0E-03 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.1E-07 | 100% |

* Values for Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and '1/2 of the detection limit for the compound

* Permeability constant and T values for cis-1,2-DCE based on values for trans-1,2-DCE

** Oral RfD for 1,1,1-TCA has been withdrawn from IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cis-1,2-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | - | 8.2E-04 | 30% | - | - |
| 1,1,1-Trichloroethane ** | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 9.0E-02 | - | 3.0E-04 | 11% | - | - |
| Trichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 1.1E-02 | - | - | 7.7E-08 | 17% |
| Tetrachloroethylene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | 1.0E-02 | 5.2E-02 | 1.6E-03 | 59% | 3.7E-07 | 83% |

* Values for Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and '1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

Hazard Index = 2.8E-03 100%

Excess Lifetime Cancer Risk = 4.4E-07 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cis-1,2-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.07E-05 | 4.58E-06 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.55E-05 | 1.52E-05 | 2.9E-01 | - | 1.2E-04 | 5% | - | - |
| Trichloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.12E-05 | 9.09E-06 | - | 6.0E-03 | - | - | 5.5E-08 | 75% |
| Tetrachloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.12E-05 | 9.09E-06 | 1.0E-02 | 2.0E-03 | 2.1E-03 | 95% | 1.8E-08 | 25% |
| | | | | | | | | | | | | | | Hazard Index = | 2.2E-03 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 7.3E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

* EPCs for Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| Cis-1,2-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 2.9E-01 | - | 2.2E-04 | 5% | - | - |
| Trichloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | - | 6.0E-03 | - | - | 9.7E-08 | 75% |
| Tetrachloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | 1.0E-02 | 2.0E-03 | 3.8E-03 | 95% | 3.2E-08 | 25% |
| | | | | | | | | | | | | Hazard Index = | 4.0E-03 | 100% | | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.3E-07 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

* Values for Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and '1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0003 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.2E-07 | 3.9E-07 | 9.0E-03 | 6.0E-01 | 1.0E-04 | 2% | 2.4E-07 | 15% |
| 1,1-Dichloroethane | 0.0002 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-07 | 1.5E-07 | 1.0E-01 | - | 3.5E-06 | 0% | - | - |
| 1,1,1-Trichloroethane ** | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 2% | - | - |
| Trichloroethene | 0.001 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.9E-06 | 1.7E-06 | - | 1.1E-02 | - | - | 1.8E-08 | 1% |
| Tetrachloroethylene | 0.004 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 6.0E-05 | 2.6E-05 | 1.0E-02 | 5.2E-02 | 6.0E-03 | 97% | 1.3E-06 | 84% |

Hazard Index = 6.2E-03 100%

Excess Lifetime Cancer Risk = 1.6E-06 100%

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 9.0E-03 | 6.0E-01 | 9.1E-04 | 7% | 2.1E-06 | 45% |
| 1,1-Dichloroethane | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-01 | - | 5.5E-05 | 0% | - | - |
| 1,1,1-Trichloroethane ** | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 5% | - | - |
| Trichloroethene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | - | 1.1E-02 | - | - | 1.3E-07 | 3% |
| Tetrachloroethylene | 0.004 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-04 | 4.7E-05 | 1.0E-02 | 5.2E-02 | 1.1E-02 | 87% | 2.4E-06 | 52% |
| | | | | | | | | | | | | Hazard Index = | 1.3E-02 | 100% | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 4.7E-06 | 100% |

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 9.0E-03 | 1.8E-01 | 1.2E-03 | 8% | 8.0E-07 | 79% |
| 1,1-Dichloroethane | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-01 | - | 7.1E-05 | 0% | - | - |
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | 6.0E-03 | - | - | 9.1E-08 | 9% |
| Tetrachloroethylene | 0.029 | 0.058 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-04 | 6.1E-05 | 1.0E-02 | 2.0E-03 | 1.4E-02 | 90% | 1.2E-07 | 12% |
| | | | | | | | | | | | | | | Hazard Index = | 1.6E-02 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.0E-06 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 9.0E-03 | 1.8E-01 | 2.1E-03 | 8% | 1.4E-06 | 79% |
| 1,1-Dichloroethane | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-01 | - | 1.3E-04 | 0% | - | - |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | 6.0E-03 | - | - | 1.6E-07 | 9% |
| Tetrachloroethylene | 0.0019 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.5E-04 | 1.1E-04 | 1.0E-02 | 2.0E-03 | 2.5E-02 | 90% | 2.2E-07 | 12% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.8E-02 100%

Excess Lifetime Cancer Risk = 1.8E-06 100%

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane * | 0.001 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.2E-06 | 1.8E-06 | 9.0E-02 | - | 4.7E-05 | 3% | - | - |
| Tetrachloroethylene | 0.001 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.5E-05 | 6.4E-06 | 1.0E-02 | 5.2E-02 | 1.5E-03 | 97% | 3.3E-07 | 100% |
| | | | | | | | | | | | | | | | Hazard Index = | 1.5E-03 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 3.3E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane * | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 9.0E-02 | - | 3.0E-04 | 10% | - | - |
| Tetrachloroethylene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 1.0E-02 | 5.2E-02 | 2.7E-03 | 90% | 6.1E-07 | 100% |
| | | | | | | | | | | | Hazard Index = | 3.0E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 6.1E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum(Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 2.9E-01 | - | 1.2E-04 | 3% | - | - |
| Tetrachloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 1.0E-02 | 2.0E-03 | 3.6E-03 | 97% | 3.0E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 3.7E-03 100%

Excess Lifetime Cancer Risk = 3.0E-08 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 2.9E-01 | - | 2.2E-04 | 3% | - | - |
| Tetrachloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 1.0E-02 | 2.0E-03 | 6.3E-03 | 97% | 5.4E-08 | 100% |
| | | | | | | | | | | | | Hazard Index = | 6.5E-03 | 100% | | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 5.4E-08 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.2E-07 | 3.9E-07 | 9.0E-03 | 6.0E-01 | 1.0E-04 | 17% | 2.4E-07 | 68% |
| 1,1-Dichloroethane * | 0.0003 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.2E-07 | 2.2E-07 | 1.0E-01 | - | 5.2E-06 | 1% | - | - |
| 1,1,1-Trichloroethane ** | 0.001 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.2E-06 | 1.8E-06 | 9.0E-02 | - | 4.7E-05 | 8% | - | - |
| Trichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-06 | 1.0E-06 | - | 1.1E-02 | - | - | 1.1E-08 | 3% |
| Tetrachloroethylene | 0.0003 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.5E-06 | 1.9E-06 | 1.0E-02 | 5.2E-02 | 4.5E-04 | 74% | 1.0E-07 | 29% |
| | | | | | | | | | | | | | | | | Hazard Index = | 6.0E-04 | 100% | |
| | | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 3.5E-07 | 100% |

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 9.0E-03 | 6.0E-01 | 9.1E-04 | 43% | 2.1E-06 | 89% |
| 1,1-Dichloroethane * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-01 | - | 8.2E-05 | 4% | - | - |
| 1,1,1-Trichloroethane ** | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 9.0E-02 | - | 3.0E-04 | 14% | - | - |
| Trichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 1.1E-02 | - | - | 7.7E-08 | 3% |
| Tetrachloroethylene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | 5.2E-02 | 8.2E-04 | 39% | 1.8E-07 | 8% |
| | | | | | | | | | | | Hazard Index = | 2.1E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.4E-06 | 100% |

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 9.0E-03 | 1.8E-01 | 1.2E-03 | 48% | 8.0E-07 | 93% |
| 1,1-Dichloroethane * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-01 | - | 1.1E-04 | 4% | - | - |
| 1,1,1-Trichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 2.9E-01 | - | 1.2E-04 | 5% | - | - |
| Trichloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | - | 6.0E-03 | - | - | 5.5E-08 | 6% |
| Tetrachloroethylene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-02 | 2.0E-03 | 1.1E-03 | 43% | 9.1E-09 | 1% |
| | | | | | | | | | | | | | | Hazard Index = | 2.5E-03 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 8.6E-07 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 9.0E-03 | 1.8E-01 | 2.1E-03 | 48% | 1.4E-06 | 93% |
| 1,1-Dichloroethane * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-01 | - | 1.9E-04 | 4% | - | - |
| 1,1,1-Trichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 2.9E-01 | - | 2.2E-04 | 5% | - | - |
| Trichloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | - | 6.0E-03 | - | - | 9.7E-08 | 6% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-02 | 2.0E-03 | 1.9E-03 | 43% | 1.6E-08 | 1% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 4.4E-03 100%

Excess Lifetime Cancer Risk = 1.5E-06 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane * | 0.0003 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.2E-07 | 2.2E-07 | 1.0E-01 | - | 5.2E-06 | 1% | - | - |
| 1,1,1-Trichloroethane ** | 0.0007 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.0E-06 | 1.3E-06 | 9.0E-02 | - | 3.3E-05 | 7% | - | - |
| Trichloroethene | 0.0003 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.2E-06 | 5.0E-07 | - | 1.1E-02 | - | - | 5.5E-09 | 5% |
| Tetrachloroethylene | 0.0003 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.5E-06 | 1.9E-06 | 1.0E-02 | 5.2E-02 | 4.5E-04 | 92% | 1.0E-07 | 95% |

Hazard Index = 4.9E-04 100%

Excess Lifetime Cancer Risk = 1.1E-07 100%

* Values for 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-01 | - | 8.2E-05 | 7% | - | - |
| 1,1,1-Trichloroethane ** | 0.0007 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.2E-06 | 9.0E-02 | - | 2.1E-04 | 19% | - | - |
| Trichloroethene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | - | 1.1E-02 | - | - | 3.9E-08 | 17% |
| Tetrachloroethylene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | 5.2E-02 | 8.2E-04 | 74% | 1.8E-07 | 83% |
| | | | | | | | | | | | Hazard Index = | 1.1E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.2E-07 | 100% |

* Values for 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-01 | - | 1.1E-04 | 8% | - | - |
| 1,1,1-Trichloroethane | 0.005 | 0.0101 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 2.9E-01 | - | 8.6E-05 | 7% | - | - |
| Trichloroethylene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | - | 6.0E-03 | - | - | 2.7E-08 | 75% |
| Tetrachloroethylene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-02 | 2.0E-03 | 1.1E-03 | 85% | 9.2E-09 | 25% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 1.3E-03 100%

Excess Lifetime Cancer Risk = 3.7E-08 100%

* Values for 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)

CA = Chemical Concentration in Household Air (mg/m^3)

IR = Inhalation Rate (m^3/hour)

ER = Exposure Rate (hours/day)

EF = Exposure Frequency (days/year)

ED = Exposure Duration (years)

BW = Body Weight (kg)

AT = Averaging Time (days)

Non-Carcinogens = ED (years) * 365 days/year

Carcinogens = 70 years * 365 days/year

WHF = Water Flow Rate in Whole HouseFacility (liter/day)

f = Fraction of Contaminant that Volatilizes (unitless)

ER = Air Exchange Rate (changes/day)

MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-01 | - | 1.9E-04 | 8% | - | - |
| 1,1,1-Trichloroethane | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 4.4E-05 | 1.9E-05 | 2.9E-01 | - | 1.5E-04 | 7% | - | - |
| Trichloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | - | 6.0E-03 | - | - | 4.9E-08 | 75% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-02 | 2.0E-03 | 1.9E-03 | 85% | 1.6E-08 | 25% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.2E-03 100%

Excess Lifetime Cancer Risk = 6.5E-08 100%

* Values for 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0005 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-06 | 9.0E-07 | 9.0E-02 | - | 2.3E-05 | 100% | - | - |
| | | | | | | | | | | | | | | | Hazard Index = | 2.3E-05 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | - | - |

Values for 1,1,1-TCA are based on 1/2 of the detection limit of the compound

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 5.9E-06 | 9.0E-02 | - | 1.5E-04 | 100% | - | - |
| | | | | | | | | | | | Hazard Index = | 1.5E-04 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | - | - |

Values for 1,1,1-TCA are based on 1/2 of the detection limit of the compound
Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0036 | 0.0072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-05 | 7.6E-06 | 2.9E-01 | - | 6.1E-05 | 100% | - | - |
| | | | | | | | | | | | | | | Hazard Index = | 6.1E-05 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | - | - |

See Table 6-12 for derivation of EPCs according to shower air model

Values for 1,1,1-TCA are based on 1/2 of the detection limit of the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 2.9E-01 | - | 1.1E-04 | 100% | - | - |
| | | | | | | | | | | | | Hazard Index = | 1.1E-04 | 100% | | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | - | - |

See Table 6-11 for derivation of EPCs according to household air model

Values for 1,1,1-TCA are based on 1/2 of the detection limit of the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0002 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-07 | 1.5E-07 | 1.0E-01 | - | 3.5E-06 | 1% | - | - |
| 1,1,1-Trichloroethane | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 17% | - | - |
| Trichloroethene | 0.002 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.8E-06 | 3.3E-06 | - | 1.1E-02 | - | - | 3.7E-08 | 27% |
| Tetrachloroethylene | 0.0003 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.5E-06 | 1.9E-06 | 1.0E-02 | 5.2E-02 | 4.5E-04 | 82% | 1.0E-07 | 73% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 5.5E-04 100%

Excess Lifetime Cancer Risk = 1.4E-07 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-01 | - | 5.5E-05 | 4% | - | - |
| 1,1,1-Trichloroethane | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 41% | - | - |
| Trichloroethene | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | - | 1.1E-02 | - | - | 2.6E-07 | 59% |
| Tetrachloroethylene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | 5.2E-02 | 8.2E-04 | 55% | 1.8E-07 | 41% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 1.5E-03 100%

Excess Lifetime Cancer Risk = 4.4E-07 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-01 | - | 7.1E-05 | 5% | - | - |
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 18% | - | - |
| Trichloroethylene | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | - | 6.0E-03 | - | - | 1.8E-07 | 95% |
| Tetrachloroethylene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-02 | 2.0E-03 | 1.1E-03 | 77% | 9.2E-09 | 5% |
| | | | | | | | | | | | | | | Hazard Index = | 1.4E-03 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.9E-07 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-01 | - | 1.3E-04 | 5% | - | - |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 18% | - | - |
| Trichloroethylene | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | - | 6.0E-03 | - | - | 3.2E-07 | 95% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-02 | 2.0E-03 | 1.9E-03 | 77% | 1.6E-08 | 5% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.5E-03 100%

Excess Lifetime Cancer Risk = 3.4E-07 100%

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.6E-07 | 3.7E-07 | 1.0E-01 | - | 8.6E-06 | 8% | - | - |
| 1,1,1-Trichloroethane | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 92% | - | - |
| Trichloroethene | 0.001 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.9E-06 | 1.7E-06 | - | 1.1E-02 | - | - | 1.8E-08 | 100% |
| | | | | | | | | | | | | | | | Hazard Index = | 1.0E-04 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.8E-08 | 100% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 5.9E-06 | 1.0E-01 | - | 1.4E-04 | 18% | - | - |
| 1,1,1-Trichloroethane | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 82% | - | - |
| Trichloroethene | 0.0010 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | - | 1.1E-02 | - | - | 1.3E-07 | 100% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 7.5E-04 100%

Excess Lifetime Cancer Risk = 1.3E-07 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0036 | 0.0072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-05 | 7.6E-06 | 1.0E-01 | - | 1.8E-04 | 42% | - | - |
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 58% | - | - |
| Trichloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | 6.0E-03 | - | - | 9.1E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 4.2E-04 100%

Excess Lifetime Cancer Risk = 9.1E-08 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 1.0E-01 | - | 3.2E-04 | 42% | - | - |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 58% | - | - |
| Trichloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | 6.0E-03 | - | - | 1.6E-07 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 7.5E-04 100%

Excess Lifetime Cancer Risk = 1.6E-07 100%

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.005 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.5E-05 | 6.6E-06 | 9.0E-03 | 6.0E-01 | 1.7E-03 | 28% | 3.9E-06 | 89% |
| 1,1-Dichloroethane | 0.015 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.6E-05 | 1.1E-05 | 1.0E-01 | - | 2.6E-04 | 4% | - | - |
| Cis-1,2-Dichloroethene * | 0.010 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.2E-06 | 1.0E-02 | - | 1.9E-03 | 31% | - | - |
| Trans-1,2-Dichloroethene | 0.0002 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.8E-07 | 1.6E-07 | 2.0E-02 | - | 1.9E-05 | 0% | - | - |
| 1,2-Dichoroethane | 0.0006 | 1.0E-03 | 5.3E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 6.2E-07 | 2.6E-07 | - | 9.1E-02 | - | - | 2.4E-08 | 1% |
| 1,1,1-Trichloroethane ** | 0.018 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.6E-05 | 3.3E-05 | 9.0E-02 | - | 8.4E-04 | 14% | - | - |
| Trichloroethene | 0.008 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.1E-05 | 1.3E-05 | - | 1.1E-02 | - | - | 1.5E-07 | 3% |
| Tetrachloroethylene | 0.0009 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.8E-06 | 1.0E-02 | 5.2E-02 | 1.3E-03 | 22% | 3.0E-07 | 7% |

Hazard Index = 6.1E-03 100%

Excess Lifetime Cancer Risk = 4.4E-06 100%

* Permeability constant and T values for cis-1,2-DCE based on values for trans-1,2-DCE

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-04 | 5.9E-05 | 9.0E-03 | 6.0E-01 | 1.5E-02 | 28% | 3.5E-05 | 94% |
| 1,1-Dichloroethane | 0.015 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 4.1E-04 | 1.8E-04 | 1.0E-01 | - | 4.1E-03 | 7% | - | - |
| Cis-1,2-Dichloroethene | 0.010 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-04 | 1.2E-04 | 1.0E-02 | - | 2.7E-02 | 50% | - | - |
| Trans-1,2-Dichloroethene | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 2.0E-02 | - | 2.7E-04 | 0% | - | - |
| 1,2-Dichoroethane | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 9.1E-02 | - | - | 6.4E-07 | 2% |
| 1,1,1-Trichloroethane * | 0.018 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 4.9E-04 | 2.1E-04 | 9.0E-02 | - | 5.5E-03 | 10% | - | - |
| Trichloroethene | 0.008 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.2E-04 | 9.4E-05 | - | 1.1E-02 | - | - | 1.0E-06 | 3% |
| Tetrachloroethylene | 0.0009 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 1.0E-02 | 5.2E-02 | 2.5E-03 | 4% | 5.5E-07 | 1% |
| | | | | | | | | | | | Hazard Index = | 5.5E-02 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 3.7E-05 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.036 | 0.072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-04 | 7.6E-05 | 9.0E-03 | 1.8E-01 | 2.0E-02 | 43% | 1.3E-05 | 89% |
| 1,1-Dichloroethane | 0.108 | 0.216 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.3E-04 | 2.3E-04 | 1.0E-01 | - | 5.3E-03 | 12% | - | - |
| Cis-1,2-Dichloroethene | 0.072 | 0.144 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-04 | 1.5E-04 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 2.0E-02 | - | 3.5E-04 | 1% | - | - |
| 1,2-Dichloroethane | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | 1.4E-03 | 9.1E-02 | 1.5E-02 | 33% | 8.3E-07 | 6% |
| 1,1,1-Trichloroethane | 0.130 | 0.259 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 6.4E-04 | 2.7E-04 | 2.9E-01 | - | 2.2E-03 | 5% | - | - |
| Trichloroethylene | 0.058 | 0.115 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.8E-04 | 1.2E-04 | - | 6.0E-03 | - | - | 7.3E-07 | 5% |
| Tetrachloroethylene | 0.0065 | 0.013 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 1.0E-02 | 2.0E-03 | 3.2E-03 | 7% | 2.7E-08 | 0% |
| | | | | | | | | | | | | | | Hazard Index = | 4.6E-02 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.5E-05 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0024 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-04 | 1.4E-04 | 9.0E-03 | 1.8E-01 | 3.5E-02 | 43% | 2.4E-05 | 89% |
| 1,1-Dichloroethane | 0.0072 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 9.5E-04 | 4.1E-04 | 1.0E-01 | - | 9.5E-03 | 12% | - | - |
| Cis-1,2-Dichloroethene | 0.0048 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-04 | 2.7E-04 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 2.0E-02 | - | 6.3E-04 | 1% | - | - |
| 1,2-Dichloroethane | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | 1.4E-03 | 9.1E-02 | 2.7E-02 | 33% | 1.5E-06 | 6% |
| 1,1,1-Trichloroethane | 0.0086 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.1E-03 | 4.9E-04 | 2.9E-01 | - | 3.9E-03 | 5% | - | - |
| Trichloroethylene | 0.0038 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.0E-04 | 2.2E-04 | - | 6.0E-03 | - | - | 1.3E-06 | 5% |
| Tetrachloroethylene | 0.0004 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.7E-05 | 2.4E-05 | 1.0E-02 | 2.0E-03 | 5.7E-03 | 7% | 4.9E-08 | 0% |
| | | | | | | | | | | | | Hazard Index = | 8.2E-02 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | 2.6E-05 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.004 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.2E-05 | 5.3E-06 | 9.0E-03 | 6.0E-01 | 1.4E-03 | 26% | 3.2E-06 | 90% |
| 1,1-Dichloroethane | 0.013 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.2E-05 | 9.6E-06 | 1.0E-01 | - | 2.2E-04 | 4% | - | - |
| Cis-1,2-Dichloroethene * | 0.009 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.7E-05 | 7.4E-06 | 1.0E-02 | - | 1.7E-03 | 33% | - | - |
| 1,2-Dichoroethane | 0.0005 | 1.0E-03 | 5.3E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.1E-07 | 2.2E-07 | - | 9.1E-02 | - | - | 2.0E-08 | 1% |
| 1,1,1-Trichloroethane ** | 0.018 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.6E-05 | 3.3E-05 | 9.0E-02 | - | 8.4E-04 | 16% | - | - |
| Trichloroethene | 0.006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-05 | 1.0E-05 | - | 1.1E-02 | - | - | 1.1E-07 | 3% |
| Tetrachloroethylene | 0.0007 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.0E-05 | 4.5E-06 | 1.0E-02 | 5.2E-02 | 1.0E-03 | 20% | 2.3E-07 | 7% |

Hazard Index = 5.2E-03 100%

Excess Lifetime Cancer Risk = 3.5E-06 100%

* Permeability constant and T values used for cis-1,1-DCE are based on values for trans-1,2-DCE

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.004 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-04 | 4.7E-05 | 9.0E-03 | 6.0E-01 | 1.2E-02 | 25% | 2.8E-05 | 94% |
| 1,1-Dichloroethane | 0.013 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-04 | 1.5E-04 | 1.0E-01 | - | 3.6E-03 | 7% | - | - |
| Cis-1,2-Dichloroethene | 0.009 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-04 | 1.1E-04 | 1.0E-02 | - | 2.5E-02 | 52% | - | - |
| 1,2-Dichoroethane | 0.0005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 5.9E-06 | - | 9.1E-02 | - | - | 5.3E-07 | 2% |
| 1,1,1-Trichloroethane * | 0.018 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 4.9E-04 | 2.1E-04 | 9.0E-02 | - | 5.5E-03 | 11% | - | - |
| Trichloroethene | 0.006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-04 | 7.0E-05 | - | 1.1E-02 | - | - | 7.7E-07 | 3% |
| Tetrachloroethylene | 0.0007 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.2E-06 | 1.0E-02 | 5.2E-02 | 1.9E-03 | 4% | 4.3E-07 | 1% |
| | | | | | | | | | | | Hazard Index = | 4.8E-02 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 3.0E-05 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.029 | 0.058 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-04 | 6.1E-05 | 9.0E-03 | 1.8E-01 | 1.6E-02 | 42% | 1.1E-05 | 89% |
| 1,1-Dichloroethane | 0.094 | 0.187 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 4.6E-04 | 2.0E-04 | 1.0E-01 | - | 4.6E-03 | 12% | - | - |
| Cis-1,2-Dichloroethene | 0.065 | 0.130 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.2E-04 | 1.4E-04 | - | - | - | - | - | - |
| 1,2-Dichloroethane | 0.0036 | 0.0072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-05 | 7.6E-06 | 1.4E-03 | 9.1E-02 | 1.3E-02 | 34% | 6.9E-07 | 6% |
| 1,1,1-Trichloroethane | 0.130 | 0.259 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 6.4E-04 | 2.7E-04 | 2.9E-01 | - | 2.2E-03 | 6% | - | - |
| Trichloroethylene | 0.043 | 0.086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-04 | 9.1E-05 | - | 6.0E-03 | - | - | 5.5E-07 | 5% |
| Tetrachloroethylene | 0.005 | 0.0101 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 1.0E-02 | 2.0E-03 | 2.5E-03 | 7% | 2.1E-08 | 0% |
| | | | | | | | | | | | | | | Hazard Index = | 3.8E-02 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.2E-05 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0019 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.5E-04 | 1.1E-04 | 9.0E-03 | 1.8E-01 | 2.8E-02 | 42% | 1.9E-05 | 89% |
| 1,1-Dichloroethane | 0.0062 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 8.2E-04 | 3.5E-04 | 1.0E-01 | - | 8.2E-03 | 12% | - | - |
| Cis-1,2-Dichloroethene | 0.0043 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.7E-04 | 2.4E-04 | - | - | - | - | - | - |
| 1,2-Dichloroethane | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 1.4E-03 | 9.1E-02 | 2.3E-02 | 34% | 1.2E-06 | 6% |
| 1,1,1-Trichloroethane | 0.0086 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.1E-03 | 4.9E-04 | 2.9E-01 | - | 3.9E-03 | 6% | - | - |
| Trichloroethylene | 0.0029 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-04 | 1.6E-04 | - | 6.0E-03 | - | - | 9.7E-07 | 5% |
| Tetrachloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 4.4E-05 | 1.9E-05 | 1.0E-02 | 2.0E-03 | 4.4E-03 | 7% | 3.8E-08 | 0% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 6.7E-02 100%

Excess Lifetime Cancer Risk = 2.1E-05 100%

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0006 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-06 | 1.1E-06 | 9.0E-02 | - | 2.8E-05 | 9% | - | - |
| Trichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-06 | 1.0E-06 | - | 1.1E-02 | - | - | 1.1E-08 | 14% |
| Tetrachloroethylene | 0.0002 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.0E-06 | 1.3E-06 | 1.0E-02 | 5.2E-02 | 3.0E-04 | 91% | 6.7E-08 | 86% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 3.3E-04 100%

Excess Lifetime Cancer Risk = 7.8E-08 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | 9.0E-02 | - | 1.8E-04 | 25% | - | - |
| Trichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 1.1E-02 | - | - | 7.7E-08 | 39% |
| Tetrachloroethylene | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-02 | 5.2E-02 | 5.5E-04 | 75% | 1.2E-07 | 61% |

Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 7.3E-04 100%

Excess Lifetime Cancer Risk = 2.0E-07 100%

**INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR**

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | 2.9E-01 | - | 7.3E-05 | 9% | - | - |
| Trichloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | - | 6.0E-03 | - | - | 5.5E-08 | 90% |
| Tetrachloroethylene | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-02 | 2.0E-03 | 7.1E-04 | 91% | 6.1E-09 | 10% |
| | | | | | | | | | | | | | | Hazard Index = | 7.8E-04 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 6.1E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

**INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR**

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | 2.9E-01 | - | 1.3E-04 | 9% | - | - |
| Trichloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | - | 6.0E-03 | - | - | 9.7E-08 | 90% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-02 | 2.0E-03 | 1.3E-03 | 91% | 1.1E-08 | 10% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 1.4E-03 100%

Excess Lifetime Cancer Risk = 1.1E-07 100%

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)
ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.00035 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-06 | 4.6E-07 | 9.0E-03 | 6.0E-01 | 1.2E-04 | 76% | 2.8E-07 | 99% |
| 1,1-Dichloroethane * | 0.0003 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.2E-07 | 2.2E-07 | 1.0E-01 | - | 5.2E-06 | 3% | - | - |
| 1,1,1-Trichloroethane ** | 0.0007 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.0E-06 | 1.3E-06 | 9.0E-02 | - | 3.3E-05 | 21% | - | - |
| Trichloroethene | 0.0002 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.8E-07 | 3.3E-07 | - | 1.1E-02 | - | - | 3.7E-09 | 1% |

Hazard Index = 1.6E-04 100%

Excess Lifetime Cancer Risk = 2.8E-07 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.00035 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 9.6E-06 | 4.1E-06 | 9.0E-03 | 6.0E-01 | 1.1E-03 | 78% | 2.5E-06 | 99% |
| 1,1-Dichloroethane * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-01 | - | 8.2E-05 | 6% | - | - |
| 1,1,1-Trichloroethane ** | 0.0007 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.2E-06 | 9.0E-02 | - | 2.1E-04 | 16% | - | - |
| Trichloroethene | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | - | 1.1E-02 | - | - | 2.6E-08 | 1% |

Hazard Index = 1.4E-03 100%

Excess Lifetime Cancer Risk = 2.5E-06 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0025 | 0.005 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.2E-05 | 5.3E-06 | 9.0E-03 | 1.8E-01 | 1.4E-03 | 88% | 9.2E-07 | 98% |
| 1,1-Dichloroethane * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-01 | - | 1.1E-04 | 7% | - | - |
| 1,1,1-Trichloroethane | 0.005 | 0.0101 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 2.9E-01 | - | 8.6E-05 | 5% | - | - |
| Trichloroethylene | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | - | 6.0E-03 | - | - | 1.8E-08 | 2% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 1.6E-03 100%

Excess Lifetime Cancer Risk = 9.4E-07 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

1,1-DCA = (0.1J + 0.5)/2 = 0.3 ppb

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.2E-05 | 9.5E-06 | 9.0E-03 | 1.8E-01 | 2.5E-03 | 88% | 1.7E-06 | 98% |
| 1,1-Dichloroethane * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-01 | - | 1.9E-04 | 7% | - | - |
| 1,1,1-Trichloroethane | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 4.4E-05 | 1.9E-05 | 2.9E-01 | - | 1.5E-04 | 5% | - | - |
| Trichloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | - | 6.0E-03 | - | - | 3.2E-08 | 2% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.8E-03 100%

Excess Lifetime Cancer Risk = 1.7E-06 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0001 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.7E-07 | 7.4E-08 | 1.0E-01 | - | 1.7E-06 | 0% | - | - |
| 1,1,1-Trichloroethane * | 0.001 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.2E-06 | 1.8E-06 | 9.0E-02 | - | 4.7E-05 | 13% | - | - |
| Trichloroethene | 0.0009 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-06 | 1.5E-06 | - | 1.1E-02 | - | - | 1.7E-08 | 20% |
| Tetrachloroethylene | 0.0002 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.0E-06 | 1.3E-06 | 1.0E-02 | 5.2E-02 | 3.0E-04 | 86% | 6.7E-08 | 80% |
| | | | | | | | | | | | | | | | | Hazard Index = | 3.5E-04 | 100% | |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Excess Lifetime Cancer Risk = 8.3E-08 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-06 | 1.2E-06 | 1.0E-01 | - | 2.7E-05 | 3% | - | - |
| 1,1,1-Trichloroethane * | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 9.0E-02 | - | 3.0E-04 | 35% | - | - |
| Trichloroethene | 0.0009 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | - | 1.1E-02 | - | - | 1.2E-07 | 49% |
| Tetrachloroethylene | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-02 | 5.2E-02 | 5.5E-04 | 62% | 1.2E-07 | 51% |
| | | | | | | | | | | | Hazard Index = | 8.8E-04 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.4E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

**INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR**

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0007 | 0.0014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-06 | 1.5E-06 | 1.0E-01 | - | 3.5E-05 | 4% | - | - |
| 1,1,1-Trichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 2.9E-01 | - | 1.2E-04 | 14% | - | - |
| Trichloroethylene | 0.0065 | 0.013 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | - | 6.0E-03 | - | - | 8.2E-08 | 93% |
| Tetrachloroethylene | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-02 | 2.0E-03 | 7.1E-04 | 82% | 6.1E-09 | 7% |
| | | | | | | | | | | | | | | Hazard Index = | 8.6E-04 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 8.8E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

**INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR**

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.00005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-06 | 2.7E-06 | 1.0E-01 | - | 6.3E-05 | 4% | - | - |
| 1,1,1-Trichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 2.9E-01 | - | 2.2E-04 | 14% | - | - |
| Trichloroethylene | 0.0004 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.7E-05 | 2.4E-05 | - | 6.0E-03 | - | - | 1.5E-07 | 93% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-02 | 2.0E-03 | 1.3E-03 | 82% | 1.1E-08 | 7% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 1.5E-03 100%

Excess Lifetime Cancer Risk = 1.6E-07 100%

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0003 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.2E-07 | 3.9E-07 | 9.0E-03 | 6.0E-01 | 1.0E-04 | 97% | 2.4E-07 | 98% |
| 1,1-Dichloroethane | 0.0002 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-07 | 1.5E-07 | 1.0E-01 | - | 3.5E-06 | 3% | - | - |
| Trichloroethene | 0.0002 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.8E-07 | 3.3E-07 | - | 1.1E-02 | - | - | 3.7E-09 | 2% |

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

Hazard Index = 1.1E-04 100%

Excess Lifetime Cancer Risk = 2.4E-07 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 9.0E-03 | 6.0E-01 | 9.1E-04 | 94% | 2.1E-06 | 99% |
| 1,1-Dichloroethane | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-01 | - | 5.5E-05 | 6% | - | - |
| Trichloroethene | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | - | 1.1E-02 | - | - | 2.6E-08 | 1% |
| | | | | | | | | | | | | Hazard Index = | 9.7E-04 | 100% | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.1E-06 | 100% |

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max = CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (1) (mg/m^3) | Conc. in Air After Shower (CA2) (1) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 9.0E-03 | 1.8E-01 | 1.2E-03 | 94% | 8.0E-07 | 98% |
| 1,1-Dichloroethane | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-01 | - | 7.1E-05 | 6% | - | - |
| Trichloroethylene | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | - | 6.0E-03 | - | - | 1.8E-08 | 2% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 1.3E-03 100%

Excess Lifetime Cancer Risk = 8.2E-07 100%

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene* | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 9.0E-03 | 1.8E-01 | 2.1E-03 | 94% | 1.4E-06 | 98% |
| 1,1-Dichloroethane | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-01 | - | 1.3E-04 | 6% | - | - |
| Trichloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | - | 6.0E-03 | - | - | 3.2E-08 | 2% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.2E-03 100%

Excess Lifetime Cancer Risk = 1.5E-06 100%

* Values for 1,1-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.002 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 6.1E-06 | 2.6E-06 | 9.0E-03 | 6.0E-01 | 6.8E-04 | 11% | 1.6E-06 | 82% |
| 1,1-Dichloroethane | 0.009 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 6.7E-06 | 1.0E-01 | - | 1.6E-04 | 3% | - | - |
| Cis-1,2-Dichloroethene * | 0.008 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.5E-05 | 6.6E-06 | 1.0E-02 | - | 1.5E-03 | 26% | - | - |
| Trans-1,2-Dichloroethene ** | 0.0003 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.7E-07 | 2.5E-07 | 2.0E-02 | - | 2.9E-05 | 0% | - | - |
| 1,1,1-Trichloroethane *** | 0.050 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-04 | 9.0E-05 | 9.0E-02 | - | 2.3E-03 | 39% | - | - |
| Trichloroethene | 0.004 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 6.7E-06 | - | 1.1E-02 | - | - | 7.4E-08 | 4% |
| Tetrachloroethylene | 0.0008 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.2E-05 | 5.1E-06 | 1.0E-02 | 5.2E-02 | 1.2E-03 | 20% | 2.7E-07 | 14% |
| | | | | | | | | | | | | | | | Hazard Index = | 5.9E-03 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.9E-06 | 100% |

* Permeability constant and T value used for cis-1,2-DCE are based on values obtained for trans-1,2-DCE

** Values for Trans-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

*** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-03 | 6.0E-01 | 6.1E-03 | 13% | 1.4E-05 | 93% |
| 1,1-Dichloroethane | 0.009 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-04 | 1.1E-04 | 1.0E-01 | - | 2.5E-03 | 5% | - | - |
| Cis-1,2-Dichloroethene | 0.008 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.2E-04 | 9.4E-05 | 1.0E-02 | - | 2.2E-02 | 45% | - | - |
| Trans-1,2-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 2.0E-02 | - | 4.1E-04 | 1% | - | - |
| 1,1,1-Trichloroethane ** | 0.050 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-03 | 5.9E-04 | 9.0E-02 | - | 1.5E-02 | 32% | - | - |
| Trichloroethene | 0.004 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-04 | 4.7E-05 | - | 1.1E-02 | - | - | 5.2E-07 | 3% |
| Tetrachloroethylene | 0.0008 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.2E-05 | 9.4E-06 | 1.0E-02 | 5.2E-02 | 2.2E-03 | 5% | 4.9E-07 | 3% |
| | | | | | | | | | | | | Hazard Index = | 4.8E-02 | 100% | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.5E-05 | 100% |

* Values for Trans-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 9.0E-03 | 1.8E-01 | 7.9E-03 | 38% | 5.3E-06 | 93% |
| 1,1-Dichloroethane | 0.065 | 0.130 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.2E-04 | 1.4E-04 | 1.0E-01 | - | 3.2E-03 | 16% | - | - |
| Cis-1,2-Dichloroethene | 0.058 | 0.115 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.8E-04 | 1.2E-04 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 2.0E-02 | - | 5.3E-04 | 3% | - | - |
| 1,1,1-Trichloroethane | 0.360 | 0.720 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-03 | 7.6E-04 | 2.9E-01 | - | 6.1E-03 | 30% | - | - |
| Trichloroethylene | 0.029 | 0.058 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-04 | 6.1E-05 | - | 6.0E-03 | - | - | 3.7E-07 | 6% |
| Tetrachloroethylene | 0.0058 | 0.012 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.8E-05 | 1.2E-05 | 1.0E-02 | 2.0E-03 | 2.8E-03 | 14% | 2.4E-08 | 0% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 2.1E-02 100%

Excess Lifetime Cancer Risk = 5.7E-06 100%

* Values for Trans-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 9.0E-03 | 1.8E-01 | 1.4E-02 | 38% | 9.5E-06 | 93% |
| 1,1-Dichloroethane | 0.0043 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.7E-04 | 2.4E-04 | 1.0E-01 | - | 5.7E-03 | 16% | - | - |
| Cis-1,2-Dichloroethene | 0.0038 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.0E-04 | 2.2E-04 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 2.0E-02 | - | 9.5E-04 | 3% | - | - |
| 1,1,1-Trichloroethane | 0.024 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-03 | 1.4E-03 | 2.9E-01 | - | 1.1E-02 | 30% | - | - |
| Trichloroethylene | 0.0019 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.5E-04 | 1.1E-04 | - | 6.0E-03 | - | - | 6.5E-07 | 6% |
| Tetrachloroethylene | 0.0004 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.0E-05 | 2.2E-05 | 1.0E-02 | 2.0E-03 | 5.0E-03 | 14% | 4.3E-08 | 0% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 3.7E-02 100%

* Values for Trans-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

Excess Lifetime Cancer Risk = 1.0E-05 100%

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane * | 0.0006 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-06 | 1.1E-06 | 9.0E-02 | - | 2.8E-05 | 6% | - | - |
| Trichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-06 | 1.0E-06 | - | 1.1E-02 | - | - | 1.1E-08 | 10% |
| Tetrachloroethylene | 0.0003 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.5E-06 | 1.9E-06 | 1.0E-02 | 5.2E-02 | 4.5E-04 | 94% | 1.0E-07 | 90% |
| | | | | | | | | | | | | | | | Hazard Index = | 4.8E-04 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.1E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane * | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | 9.0E-02 | - | 1.8E-04 | 18% | - | - |
| Trichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 1.1E-02 | - | - | 7.7E-08 | 30% |
| Tetrachloroethylene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | 5.2E-02 | 8.2E-04 | 82% | 1.8E-07 | 70% |
| | | | | | | | | | | | Hazard Index = | 1.0E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.6E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | 2.9E-01 | - | 7.3E-05 | 6% | - | - |
| Trichloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | - | 6.0E-03 | - | - | 5.5E-08 | 86% |
| Tetrachloroethylene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-02 | 2.0E-03 | 1.1E-03 | 94% | 9.2E-09 | 14% |
| | | | | | | | | | | | | | | Hazard Index = | 1.1E-03 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 6.4E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | 2.9E-01 | - | 1.3E-04 | 6% | - | - |
| Trichloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | - | 6.0E-03 | - | - | 9.7E-08 | 86% |
| Tetrachloroethylene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-02 | 2.0E-03 | 1.9E-03 | 94% | 1.6E-08 | 14% |
| | | | | | | | | | | | | Hazard Index = | 2.0E-03 | 100% | | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.1E-07 | 100% |

See Table 6-11 for the derivation of EPCs according to the household air model

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT))*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.00035 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-06 | 4.6E-07 | 9.0E-03 | 6.0E-01 | 1.2E-04 | 3% | 2.8E-07 | 21% |
| 1,1-Dichloroethane | 0.0002 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.5E-07 | 1.5E-07 | 1.0E-01 | - | 3.5E-06 | 0% | - | - |
| Cis-1,2-Dichloroethene *, ** | 0.0003 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.7E-07 | 2.5E-07 | 1.0E-02 | - | 5.7E-05 | 1% | - | - |
| 1,1,1-Trichloroethane *** | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 2% | - | - |
| Trichloroethene | 0.001 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.9E-06 | 1.7E-06 | - | 1.1E-02 | - | - | 1.8E-08 | 1% |
| Tetrachloroethylene | 0.003 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.5E-05 | 1.9E-05 | 1.0E-02 | 5.2E-02 | 4.5E-03 | 94% | 1.0E-06 | 77% |

Hazard Index = 4.8E-03 100%

Excess Lifetime Cancer Risk = 1.3E-06 100%

* Values for 1,1-DCE and Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Permeability constant and T value for cis-1,2-DCE are based on values obtained for trans-1,2-DCE

*** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.00035 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 9.6E-06 | 4.1E-06 | 9.0E-03 | 6.0E-01 | 1.1E-03 | 10% | 2.5E-06 | 56% |
| 1,1-Dichloroethane | 0.0002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-06 | 2.3E-06 | 1.0E-01 | - | 5.5E-05 | 1% | - | - |
| Cis-1,2-Dichlroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-02 | - | 8.2E-04 | 8% | - | - |
| 1,1,1-Trichloroethane ** | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 6% | - | - |
| Trichloroethene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | - | 1.1E-02 | - | - | 1.3E-07 | 3% |
| Tetrachloroethylene | 0.003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-05 | 3.5E-05 | 1.0E-02 | 5.2E-02 | 8.2E-03 | 76% | 1.8E-06 | 41% |
| | | | | | | | | | | | | Hazard Index = | 1.1E-02 | 100% | |
| | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 4.4E-06 | 100% |

* Values for 1,1-DCE and Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene* | 0.0025 | 0.005 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.2E-05 | 5.3E-06 | 9.0E-03 | 1.8E-01 | 1.4E-03 | 11% | 9.2E-07 | 84% |
| 1,1-Dichloroethane | 0.0014 | 0.0029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-06 | 3.0E-06 | 1.0E-01 | - | 7.1E-05 | 1% | - | - |
| Cis-1,2-Dichloroethene* | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | 6.0E-03 | - | - | 9.1E-08 | 8% |
| Tetrachloroethylene | 0.022 | 0.043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-04 | 4.6E-05 | 1.0E-02 | 2.0E-03 | 1.1E-02 | 86% | 9.1E-08 | 8% |
| | | | | | | | | | | | | | | Hazard Index = | 1.2E-02 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.1E-06 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

* Values for 1,1-DCE and Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.2E-05 | 9.5E-06 | 9.0E-03 | 1.8E-01 | 2.5E-03 | 11% | 1.7E-06 | 84% |
| 1,1-Dichloroethane | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-05 | 5.4E-06 | 1.0E-01 | - | 1.3E-04 | 1% | - | - |
| Cis-1,2-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | 6.0E-03 | - | - | 1.6E-07 | 8% |
| Tetrachloroethylene | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-04 | 8.1E-05 | 1.0E-02 | 2.0E-03 | 1.9E-02 | 86% | 1.6E-07 | 8% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.2E-02 100%

Excess Lifetime Cancer Risk = 2.0E-06 100%

* Values for 1,1-DCE and Cis-1,2-DCE are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Absorbed Dose (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-06 | 7.9E-07 | 9.0E-03 | 6.0E-01 | 2.0E-04 | 14% | 4.7E-07 | 74% |
| 1,1-Dichloroethane | 0.001 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.7E-06 | 7.4E-07 | 1.0E-01 | - | 1.7E-05 | 1% | - | - |
| Cis-1,2-Dichloroethene * | 0.002 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.8E-06 | 1.6E-06 | 1.0E-02 | - | 3.8E-04 | 27% | - | - |
| 1,1,1-Trichloroethane ** | 0.005 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.0E-06 | 9.0E-02 | - | 2.3E-04 | 16% | - | - |
| Trichloroethene | 0.002 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 7.8E-06 | 3.3E-06 | - | 1.1E-02 | - | - | 3.7E-08 | 6% |
| Tetrachloroethylene | 0.0004 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 6.0E-06 | 2.6E-06 | 1.0E-02 | 5.2E-02 | 6.0E-04 | 42% | 1.3E-07 | 21% |

* Permeability constant and T value used for cis-1,2-DCE are based on values obtained for trans-1,2-DCE

Hazard Index = 1.4E-03 100%

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Excess Lifetime Cancer Risk = 6.4E-07 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | 9.0E-03 | 6.0E-01 | 1.8E-03 | 18% | 4.2E-06 | 89% |
| 1,1-Dichloroethane | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 1.0E-01 | - | 2.7E-04 | 3% | - | - |
| Cis-1,2-Dichloroethene | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 1.0E-02 | - | 5.5E-03 | 54% | - | - |
| 1,1,1-Trichloroethane * | 0.005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-04 | 5.9E-05 | 9.0E-02 | - | 1.5E-03 | 15% | - | - |
| Trichloroethene | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | - | 1.1E-02 | - | - | 2.6E-07 | 5% |
| Tetrachloroethylene | 0.0004 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.7E-06 | 1.0E-02 | 5.2E-02 | 1.1E-03 | 11% | 2.4E-07 | 5% |
| | | | | | | | | | | | Hazard Index = | 1.0E-02 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 4.7E-06 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | 9.0E-03 | 1.8E-01 | 2.4E-03 | 50% | 1.6E-06 | 89% |
| 1,1-Dichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 1.0E-01 | - | 3.6E-04 | 7% | - | - |
| Cis-1,2-Dichloroethene | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.036 | 0.072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-04 | 7.6E-05 | 2.9E-01 | - | 6.1E-04 | 13% | - | - |
| Trichloroethylene | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | - | 6.0E-03 | - | - | 1.8E-07 | 10% |
| Tetrachloroethylene | 0.0029 | 0.0058 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 6.1E-06 | 1.0E-02 | 2.0E-03 | 1.4E-03 | 30% | 1.2E-08 | 1% |
| | | | | | | | | | | | | | | Hazard Index = | 4.8E-03 | 100% | | |
| | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 1.8E-06 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | 9.0E-03 | 1.8E-01 | 4.2E-03 | 50% | 2.8E-06 | 89% |
| 1,1-Dichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 1.0E-01 | - | 6.3E-04 | 7% | - | - |
| Cis-1,2-Dichloroethene | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | - | - | - | - | - | - |
| 1,1,1-Trichloroethane | 0.0024 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-04 | 1.4E-04 | 2.9E-01 | - | 1.1E-03 | 13% | - | - |
| Trichloroethylene | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | - | 6.0E-03 | - | - | 3.2E-07 | 10% |
| Tetrachloroethylene | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 1.0E-02 | 2.0E-03 | 2.5E-03 | 30% | 2.2E-08 | 1% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 8.5E-03 100%

Excess Lifetime Cancer Risk = 3.2E-06 100%

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.2E-07 | 3.9E-07 | 9.0E-03 | 6.0E-01 | 1.0E-04 | 24% | 2.4E-07 | 89% |
| 1,1-Dichloroethane | 0.0009 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-06 | 6.7E-07 | 1.0E-01 | - | 1.6E-05 | 4% | - | - |
| Cis-1,2-Dichloroethene * | 0.001 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-06 | 8.2E-07 | 1.0E-02 | - | 1.9E-04 | 44% | - | - |
| Trans-1,2-Dichloroethene ** | 0.0003 | 1.0E-03 | 1.0E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.7E-07 | 2.5E-07 | 2.0E-02 | - | 2.9E-05 | 7% | - | - |
| 1,2-Dichloroethane ** | 0.0003 | 1.0E-03 | 5.3E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.1E-07 | 1.3E-07 | - | 9.1E-02 | - | - | 1.2E-08 | 5% |
| 1,1,1-Trichloroethane *** | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 22% | - | - |
| Trichloroethene | 0.001 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.9E-06 | 1.7E-06 | - | 1.1E-02 | - | - | 1.8E-08 | 7% |

Hazard Index = 4.3E-04 100%

Excess Lifetime Cancer Risk = 2.7E-07 100%

* Permeability constant and T value used for cis-1,2-DCE are based on values obtained for trans-1,2-DCE

** Values for Trans-1,2-DCE and 1,2-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

*** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 9.0E-03 | 6.0E-01 | 9.1E-04 | 19% | 2.1E-06 | 82% |
| 1,1-Dichloroethane | 0.0009 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 1.0E-01 | - | 2.5E-04 | 5% | - | - |
| Cis-1,2-Dichloroethene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 1.0E-02 | - | 2.7E-03 | 56% | - | - |
| Trans-1,2-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 2.0E-02 | - | 4.1E-04 | 8% | - | - |
| 1,2-Dichloroethane * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | - | 9.1E-02 | - | - | 3.2E-07 | 13% |
| 1,1,1-Trichloroethane ** | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 12% | - | - |
| Trichloroethene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | - | 1.1E-02 | - | - | 1.3E-07 | 5% |
| | | | | | | | | | | | Hazard Index = | 4.9E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.6E-06 | 100% |

* Values for Trans-1,2-DCE and 1,2-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (1) (mg/m^3) | Conc. in Air After Shower (CA2) (1) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 9.0E-03 | 1.8E-01 | 1.2E-03 | 12% | 8.0E-07 | 61% |
| 1,1-Dichloroethane | 0.0065 | 0.013 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 1.0E-01 | - | 3.2E-04 | 3% | - | - |
| Cis-1,2-Dichloroethene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 2.0E-02 | - | 5.3E-04 | 5% | - | - |
| 1,2-Dichloroethane * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.4E-03 | 9.1E-02 | 7.6E-03 | 77% | 4.2E-07 | 32% |
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | 6.0E-03 | - | - | 9.1E-08 | 7% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 9.9E-03 100%

Excess Lifetime Cancer Risk = 1.3E-06 100%

* Values for Trans-1,2-DCE and 1,2-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

**INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR**

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 9.0E-03 | 1.8E-01 | 2.1E-03 | 12% | 1.4E-06 | 61% |
| 1,1-Dichloroethane | 0.0004 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.7E-05 | 2.4E-05 | 1.0E-01 | - | 5.7E-04 | 3% | - | - |
| Cis-1,2-Dichloroethene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | - | - | - | - | - |
| Trans-1,2-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 2.0E-02 | - | 9.5E-04 | 5% | - | - |
| 1,2-Dichloroethane * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.4E-03 | 9.1E-02 | 1.4E-02 | 77% | 7.4E-07 | 32% |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 2% | - | - |
| Trichloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | 6.0E-03 | - | - | 1.6E-07 | 7% |

*See Table 6-11 for derivation of EPCs according to household air model*

Hazard Index = 1.8E-02 100%

Excess Lifetime Cancer Risk = 2.3E-06 100%

* Values for Trans-1,2-DCE and 1,2-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 1.0E-03 | 1.6E-02 | 3.4E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 9.2E-07 | 3.9E-07 | 9.0E-03 | 6.0E-01 | 1.0E-04 | 71% | 2.4E-07 | 96% |
| 1,1-Dichloroethane * | 0.0003 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 5.2E-07 | 2.2E-07 | 1.0E-01 | - | 5.2E-06 | 4% | - | - |
| 1,1,1-Trichloroethane ** | 0.0008 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.4E-06 | 1.4E-06 | 9.0E-02 | - | 3.7E-05 | 26% | - | - |
| Trichloroethene | 0.0006 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 2.3E-06 | 1.0E-06 | - | 1.1E-02 | - | - | 1.1E-08 | 4% |
| | | | | | | | | | | | | | | | Hazard Index = | 1.4E-04 | 100% | | |
| | | | | | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.5E-07 | 100% |

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 9.0E-03 | 6.0E-01 | 9.1E-04 | 74% | 2.1E-06 | 96% |
| 1,1-Dichloroethane * | 0.0003 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 8.2E-06 | 3.5E-06 | 1.0E-01 | - | 8.2E-05 | 7% | - | - |
| 1,1,1-Trichloroethane ** | 0.0008 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.2E-05 | 9.4E-06 | 9.0E-02 | - | 2.4E-04 | 20% | - | - |
| Trichloroethene | 0.0006 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.6E-05 | 7.0E-06 | - | 1.1E-02 | - | - | 7.7E-08 | 4% |
| | | | | | | | | | | | Hazard Index = | 1.2E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 2.2E-06 | 100% |

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

** Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (1) (mg/m^3) | Conc. in Air After Shower (CA2) (1) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 0.014 | 0.029 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 7.1E-05 | 3.0E-05 | 2.9E-01 | - | 2.4E-04 | 15% | - | - |
| Trichloroethylene | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | - | 6.0E-03 | - | - | 9.1E-08 | 88% |
| Tetrachloroethylene | 0.0029 | 0.0058 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 6.1E-06 | 1.0E-02 | 2.0E-03 | 1.4E-03 | 85% | 1.2E-08 | 12% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 1.7E-03 100%

Excess Lifetime Cancer Risk = 1.0E-07 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane | 0.001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.3E-04 | 5.4E-05 | 2.9E-01 | - | 4.4E-04 | 15% | - | - |
| Trichloroethylene | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | - | 6.0E-03 | - | - | 1.6E-07 | 88% |
| Tetrachloroethylene | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 2.5E-05 | 1.1E-05 | 1.0E-02 | 2.0E-03 | 2.5E-03 | 85% | 2.2E-08 | 12% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 3.0E-03 100%

Excess Lifetime Cancer Risk = 1.8E-07 100%

**DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)**

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane * | 0.002 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.4E-06 | 3.6E-06 | 9.0E-02 | - | 9.4E-05 | 14% | - | - |
| Trichloroethene | 0.001 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 3.9E-06 | 1.7E-06 | - | 1.1E-02 | - | - | 1.8E-08 | 12% |
| Tetrachloroethylene | 0.0004 | 1.0E-03 | 4.8E-02 | 9.0E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 6.0E-06 | 2.6E-06 | 1.0E-02 | 5.2E-02 | 6.0E-04 | 86% | 1.3E-07 | 88% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 6.9E-04 100%

Excess Lifetime Cancer Risk = 1.5E-07 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1,1-Trichloroethane * | 0.002 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 5.5E-05 | 2.3E-05 | 9.0E-02 | - | 6.1E-04 | 36% | - | - |
| Trichloroethene | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | - | 1.1E-02 | - | - | 1.3E-07 | 35% |
| Tetrachloroethylene | 0.0004 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.7E-06 | 1.0E-02 | 5.2E-02 | 1.1E-03 | 64% | 2.4E-07 | 65% |
| | | | | | | | | | | | Hazard Index = | 1.7E-03 | 100% | | |
| | | | | | | | | | | | Excess Lifetime Cancer Risk = | | | 3.7E-07 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from IRIS database

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (mg/m^3) | Conc. in Air After Shower (CA2) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethene * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 9.0E-03 | 1.8E-01 | 1.2E-03 | 85% | 8.0E-07 | 94% |
| 1,1-Dichloroethane * | 0.0022 | 0.0043 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.1E-05 | 4.6E-06 | 1.0E-01 | - | 1.1E-04 | 8% | - | - |
| 1,1,1-Trichloroethane | 0.0058 | 0.012 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.8E-05 | 1.2E-05 | 2.9E-01 | - | 9.8E-05 | 7% | - | - |
| Trichloroethylene | 0.0043 | 0.0086 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.1E-05 | 9.1E-06 | - | 6.0E-03 | - | - | 5.5E-08 | 6% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 1.4E-03 100%

Excess Lifetime Cancer Risk = 8.6E-07 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethene * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 9.0E-03 | 1.8E-01 | 2.1E-03 | 85% | 1.4E-06 | 94% |
| 1,1-Dichloroethane * | 0.0001 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 1.9E-05 | 8.1E-06 | 1.0E-01 | - | 1.9E-04 | 8% | - | - |
| 1,1,1-Trichloroethane | 0.0004 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 5.0E-05 | 2.2E-05 | 2.9E-01 | - | 1.7E-04 | 7% | - | - |
| Trichloroethylene | 0.0003 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.8E-05 | 1.6E-05 | - | 6.0E-03 | - | - | 9.7E-08 | 6% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 2.5E-03 100%

Excess Lifetime Cancer Risk = 1.5E-06 100%

* Values for 1,1-DCE and 1,1-DCA are based on an average of the concentration detected during the 1990 sampling and 1/2 of the detection limit for the compound

## DERMAL CONTACT WITH CHEMICALS IN GROUNDWATER (NONSTEADY STATE MODEL)

[redacted]

Calculations:

*AD (mg/kg/day) = (2 * CW * CF * PC * [Square root ((6 * T * ET)/pi)]*[(SA * EF * ED) / (BW * AT)])*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Absorbed Dose (mg/kg/day)/RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Absorbed Dose (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

AD = Absorbed Dose (mg/kg/day)
CW = Chemical Concentration in Water (mg/l)
CF = Volumetric Conversion Factor for Water (1 liter/1,000 cm^3)
SA = Skin Surface Available for Contact (cm^2)
PC = Chemical-Specific Dermal Permeability Constant (cm/hr)
T = Lag time (hours)

ET = Exposure Time (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Conv. Factor (1 l/1,000 cm^3) | Permeab. Constant (cm/hour) | T (hours) | Exposure Time (hrs./days) | Skin Surface Area (cm^2) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Absorbed Dose (mg/kg/day) Non-Carc. | Absorbed Dose (mg/kg/day) Carc. | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0005 | 1.0E-03 | 8.9E-03 | 3.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 8.6E-07 | 3.7E-07 | 1.0E-01 | - | 8.6E-06 | 16% | - | - |
| 1,1,1-Trichloroethane * | 0.001 | 1.0E-03 | 1.7E-02 | 5.7E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 4.2E-06 | 1.8E-06 | 9.0E-02 | - | 4.7E-05 | 84% | - | - |
| Trichloroethene | 0.0005 | 1.0E-03 | 1.6E-02 | 5.5E-01 | 0.2 | 19,400 | 350 | 30 | 70 | 10,950 | 25,550 | 1.9E-06 | 8.4E-07 | - | 1.1E-02 | - | - | 9.2E-09 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 5.5E-05 100%

Excess Lifetime Cancer Risk = 9.2E-09 100%

## INGESTION OF CHEMICALS IN POTABLE GROUNDWATER

[redacted]

Calculations:
*CDI (mg/kg/day) = (CW * IR * EF * ED) / (BW * AT)*

***Non-Carcinogenic Risk:***
*Hazard Quotient = Chronic Daily Intake (mg/kg/day)/RfD (mg/kg/day)*
*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***
*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)^-1*
*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:
CDI = Chronic Daily Intake (mg/kg/day)
CW = Chemical Concentration in Water (mg/kg)
IR = Water Ingestion Rate (liters/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year

| Chemical | Chemical Conc. in Water (mg/l) | Ingest. Rate (l/day) | Exposure Frequency (days/year) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (CDI) (mg/kg/day) | | Oral Reference Dose (RfD) (mg/kg/day) | Oral Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.0005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 5.9E-06 | 1.0E-01 | - | 1.4E-04 | 31% | - | - |
| 1,1,1-Trichloroethane * | 0.001 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 2.7E-05 | 1.2E-05 | 9.0E-02 | - | 3.0E-04 | 69% | - | - |
| Trichloroethene | 0.0005 | 2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.4E-05 | 5.9E-06 | - | 1.1E-02 | - | - | 6.5E-08 | 100% |

* Oral RfD used for 1,1,1-TCA has been withdrawn from the IRIS database

Hazard Index = 4.4E-04 100%

Excess Lifetime Cancer Risk = 6.5E-08 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN SHOWER AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = [(CA1 * IR * SP) + (CA2 * IR * ASP)] * (EF * ED) / BW * AT*

*CA Max= CW * f * Fw * t1 / Va*

*CA1 = Ca Max/2*

*CA2 = CA Max*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day) -1*

*Excess Lifetime Cancer Risk = Sum (Chemical Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA1 = Air Concentration During Shower (mg/m^3)
IR = Inhalation Rate (m^3/hour)
SP = Shower Period (hours/day)
CA2 = Air Concentration After Shower (mg/m^3)
ASP = After Shower Period (hours/day)
EF = Exposure Frequency (days/year)
t1 = Time of Shower (hours)

ED = Exposure Duration (years)
BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
CW = Average Chemical Concentration in Water (mg/l)
f = Fraction of Contaminant that Volatilizes (unitless)
Fw = Water Flow Rate in Shower (liters/hour)
Va = Bathroom Size (m^3)

| Chemical | Conc. in Air During Shower (CA1) (1) (mg/m^3) | Conc. in Air After Shower (CA2) (1) (mg/m^3) | Inhal. Rate (m^3/hr) | Shower Period (hrs/day) | After Shower Period (hrs/day) | Exposure Frequency (days/yr) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) Non-Carc. | Averaging Time (days) Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Non-Carc. | Chronic Daily Intake (CDI) (mg/kg/day) Carc. | Inhalation Reference Dose (RfD) (mg/kg/day) | Inhalation Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk: Hazard Quotient | Non-Carcinogenic Risk: % Risk | Carcinogenic Risk: Chemical Specific Cancer Risk | Carcinogenic Risk: % Risk |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,1-Dichloroethane | 0.0036 | 0.0072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-05 | 7.6E-06 | 1.0E-01 | - | 1.8E-04 | 59% | - | - |
| 1,1,1-Trichloroethane | 0.0072 | 0.014 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 3.6E-05 | 1.5E-05 | 2.9E-01 | - | 1.2E-04 | 41% | - | - |
| Trichloroethylene | 0.0036 | 0.0072 | 0.6 | 0.2 | 0.2 | 350 | 30 | 70 | 10,950 | 25,550 | 1.8E-05 | 7.6E-06 | - | 6.0E-03 | - | - | 4.6E-08 | 100% |

See Table 6-12 for derivation of EPCs according to shower air model

Hazard Index = 3.0E-04 100%

Excess Lifetime Cancer Risk = 4.6E-08 100%

## INHALATION OF AIRBORNE GROUNDWATER CHEMICALS IN HOUSEHOLD AIR

[redacted]

Calculations:

*CDI (mg/kg/day) = (CA * IR * ER * EF * ED ) / BW * AT*

*CA = (WHF * CW * f) / (HV * ER * MC)*

***Non-Carcinogenic Risk:***

*Hazard Quotient = Chronic Daily Intake (mg/kg/day) / RfD (mg/kg/day)*

*Hazard Index = Sum (Chemical-Specific Hazard Quotients)*

***Carcinogenic Risk:***

*Chemical-Specific Cancer Risk = Chronic Daily Intake (mg/kg/day) * Cancer Slope Factor (mg/kg/day)-1*

*Excess Lifetime Cancer Risk = Sum (Chemical-Specific Cancer Risk)*

Where:

CDI = Chronic Daily Intake (mg/kg/day)
CA = Chemical Concentration in Household Air (mg/m^3)
IR = Inhalation Rate (m^3/hour)
ER = Exposure Rate (hours/day)
EF = Exposure Frequency (days/year)
ED = Exposure Duration (years)

BW = Body Weight (kg)
AT = Averaging Time (days)
Non-Carcinogens = ED (years) * 365 days/year
Carcinogens = 70 years * 365 days/year
WHF = Water Flow Rate in Whole HouseFacility (liter/day)
f = Fraction of Contaminant that Volatilizes (unitless)
ER = Air Exchange Rate (changes/day)
MC = Mixing Coefficient (unitless)

| Chemical | Chemical Conc. in Household Air (CA) (mg/m^3) | Inhal Rate (m^3/hour) | Exposure Frequency (days/year) | Exposure Rate (hours/day) | Exposure Duration (years) | Body Weight (kg) | Averaging Time (days) | | Chronic Daily Intake (mg/kg/day) | | Inhalation Reference Dose (RfD) (mg/kg/day) | Cancer Slope Factor (mg/kg/day)-1 | Non-Carcinogenic Risk | | Carcinogenic Risk | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Non-Carc. | Carc. | Non-Carc. | Carc. | | | Hazard Quotient | % Risk | Chemical Specific Cancer Risk | % Risk |
| 1,1-Dichloroethane | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | 1.0E-01 | - | 3.2E-04 | 59% | - | - |
| 1,1,1-Trichloroethane | 0.0005 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 6.3E-05 | 2.7E-05 | 2.9E-01 | - | 2.2E-04 | 41% | - | - |
| Trichloroethylene | 0.0002 | 0.6 | 350 | 16 | 30 | 70 | 10,950 | 25,550 | 3.2E-05 | 1.4E-05 | - | 6.0E-03 | - | - | 8.1E-08 | 100% |

See Table 6-11 for derivation of EPCs according to household air model

Hazard Index = 5.3E-04 100%

Excess Lifetime Cancer Risk = 8.1E-08 100%

# Appendix M

# APPENDIX M
# GROUNDWATER MODEL SENSITIVITY ANALYSIS

# APPENDIX M
# GROUNDWATER MODEL SENSITIVITY ANALYSIS

## Groundwater Flow Mass Balance

In a groundwater model, flow rates are an important component in representing the overall groundwater system, and an understanding of these fluxes is an important part of defining the system's characteristics and behavior. Flow rates are determined as part of the calibrations process. The resultant net flow values in the model are presented on Table M-1.

Table M-1. Net Fluxes in Calibrated Model

| Component | Quantity (mgd) |
|---|---|
| Recharge | 80.4 |
| Pumping Withdrawals | -19.1 |
| Subsurface Flow across Model Boundaries | -1.5 |
| Discharge to Rock River | -19.5 |
| Discharge to Streams, etc | -39.9 |
| NET FLUX | 0.4 |

Notes: Positive values represent flow INTO the model
Negative values represent flows OUT of the model

Ideally, as part of the model calibration process, the above values are compared to measured values of fluxes. However, for this model, measured values were only available for the pumping fluxes, which were specified as inputs, and data for the other flux components was not available.

## Groundwater Flow Sensitivity

A parameter sensitivity analysis is a means of quantifying uncertainty on a numerical model. In particular, a sensitivity analysis evaluates the model's response to variations in parameter values. By determining a model's response to parameter variations, a better understanding of the model's ability to reproduce the observed behavior can be developed.

One method of testing a model's sensitivity is to perturb a single parameter, re-simulate the model, and determine the relationship between the computed values (eg. head levels) and the values of the perturbed parameter.

Using this method, two additional simulations were performed using different values for recharge to test the model's sensitivity. For the first simulation, recharge was decreased by 15 percent, and for the second, recharge was increased by 15 percent.

To evaluate the impact of these changes, the results from these simulations were then compared to the observed data and the results of the calibration run. These comparisons, as well as the base case, or calibration, simulation, are shown graphically on Figures M-1 through M-4.

A comparison of the plots from the sensitivity simulations to the plot for the calibration run provides one measure of evaluating the sensitivity of model to recharge. For the decreased recharge simulation, the mean difference between observed and calculated heads is 2.8 feet lower than the mean difference for the calibration run. For the increased recharge simulation, the mean difference is 2.1 feet more than the mean difference for the calibration run.

These results indicate that the model is sensitive to recharge since changes in the value of recharge would result in a different flow field than that determined by the calibration. The implications of these results suggest that, because the calibrated values better reproduces the observed values, the values used in the calibrated model are reasonable, as slightly different values result in flow fields that do not reproduce the observed conditions as closely.

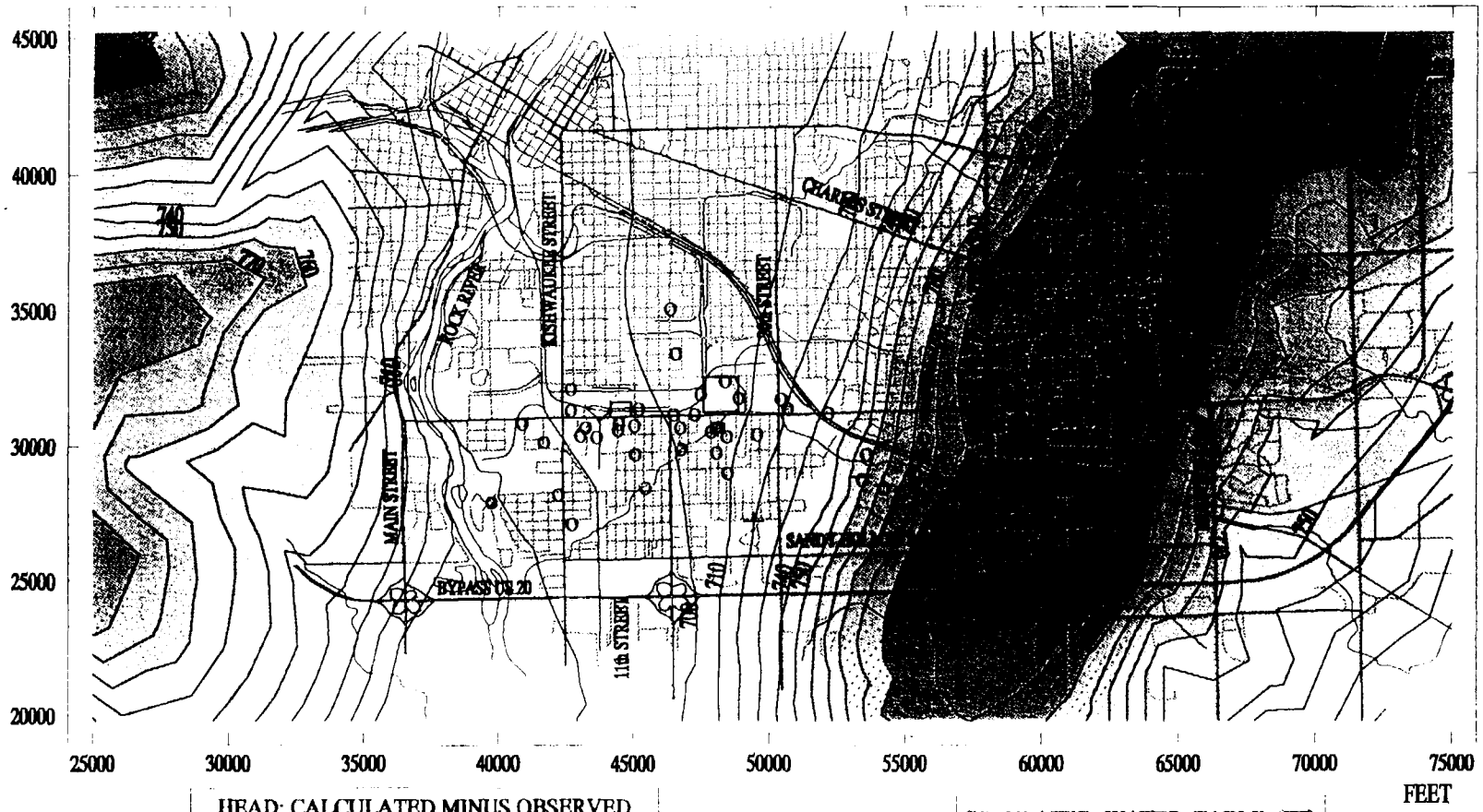
Another method of testing a model's sensitivity to consists of changing one parameter by a fixed amount and then re-calibrating the model by adjusting the other parameters so that the model can re-produce the observed heads.

This second method is used to evaluate non-uniqueness in the model. Non-uniqueness occurs in numerical groundwater models because of the linear relationship between flux, hydraulic conductivity, and gradients or water levels. With a linear relationship, the solution depends only on the ratio of the three parameters. As a result, a proportional set of parameter combinations will produce the same result. To eliminate non-uniqueness, the exact value of at least one of the parameters must be determined. However, this is typically difficult to achieve in a groundwater model, as some of the parameters used in a groundwater model are difficult to measure with any certainty over the large areas typically included in the model.

As an additional check of the model's sensitivity to recharge and as a check of the model's non-uniqueness, an additional simulation was conducted using 15 percent less recharge and hydraulic conductivity values also decreased by 15 percent.

As expected, the results of this simulation are similar to the calibration run. However, since the fluxes representing the pumping nodes were not changed for this simulation, this simulation produced heads that were slightly lower due to the impact of the lower conductivities around the pumping nodes.

The results from this simulation demonstrate that, due to inherent non-uniqueness, other combinations of recharge and hydraulic conductivity within a limited range could reasonably reproduce the observed water levels. The implication of this is that for future simulations which




HEAD: CALCULATED MINUS OBSERVED
HEAD (FEET), 10/26/93 - 10/26/93
o DELTA: 0.000 - 2.000

+/- DELTA: 5.000 - 8.000
+/- DELTA: 8.000 - 11.000
+/- DELTA: > 11.000
MEAN DIFFERENCE = -0.525
STD. DEVIATION = 3.651

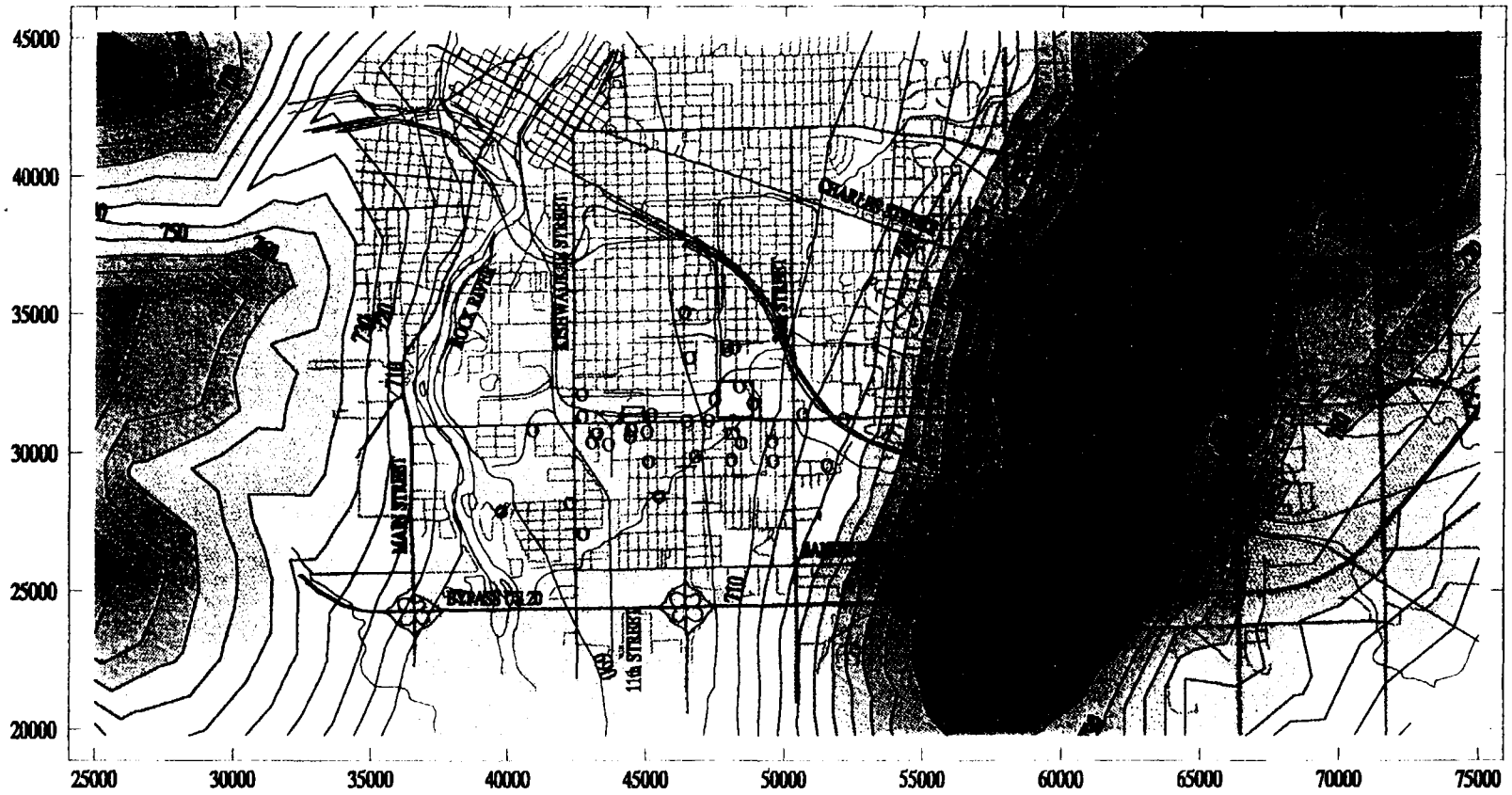
SIMULATED WATER TABLE (FT)
680 - 700
700 - 720
720 - 740
740 - 760
760 - 780
780 - 800
800 - 820
820 - 840

FIGURE M-1

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY

SIMULATED AND MEASURED PIEZOMETRIC HEAD DIFFERENCES
BASE CASE SIMULATION

CDM
environmental engineers, scientists, planners, & management consultants




HEAD: CALCULATED MINUS OBSERVED HEAD (FEET), 10/26/93 - 10/26/93

- o DELTA: 0.000 - 2.000
- +/- DELTA: 2.000 - 5.000
- +/- DELTA: 5.000 - 8.000
- +/- DELTA: 8.000 - 11.000
- +/- DELTA: > 11.000

MEAN DIFFERENCE = -3.311
STD. DEVIATION = 4.295

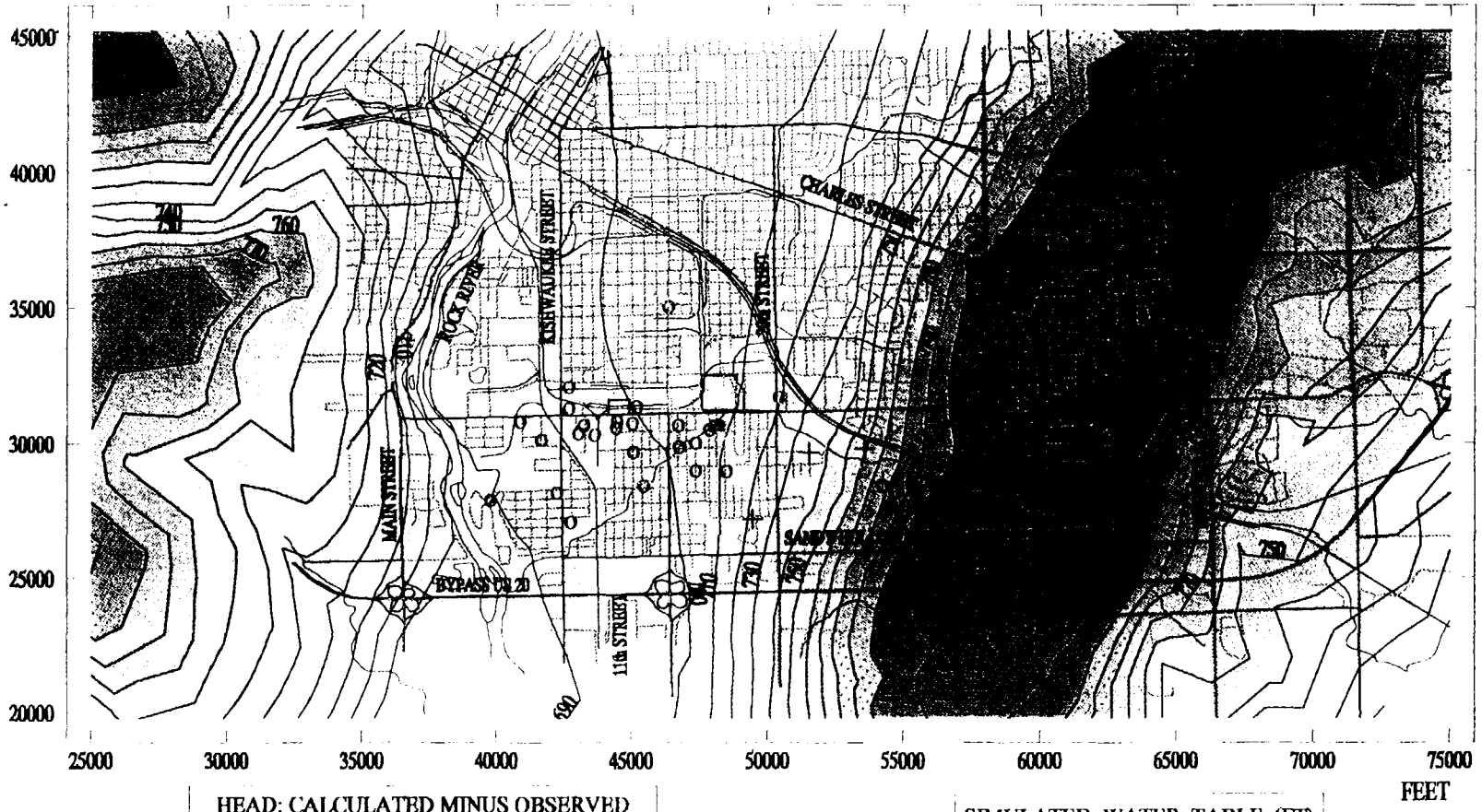
SIMULATED WATER TABLE (FT)

- 680 - 700
- 700 - 720
- 720 - 740
- 740 - 760
- 760 - 780
- 780 - 800
- 800 - 820
- 820 - 840

FIGURE M-2

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED PIEZOMETRIC HEAD DIFFERENCES
SENSITIVITY SIMULATION #1
RECHARGE DECREASED BY 15 PERCENT

CDM
environmental engineers, scientists, planners, & management consultants




HEAD: CALCULATED MINUS OBSERVED
HEAD (FEET), 10/26/93 - 10/26/93
o DELTA: 0.000 - 2.000

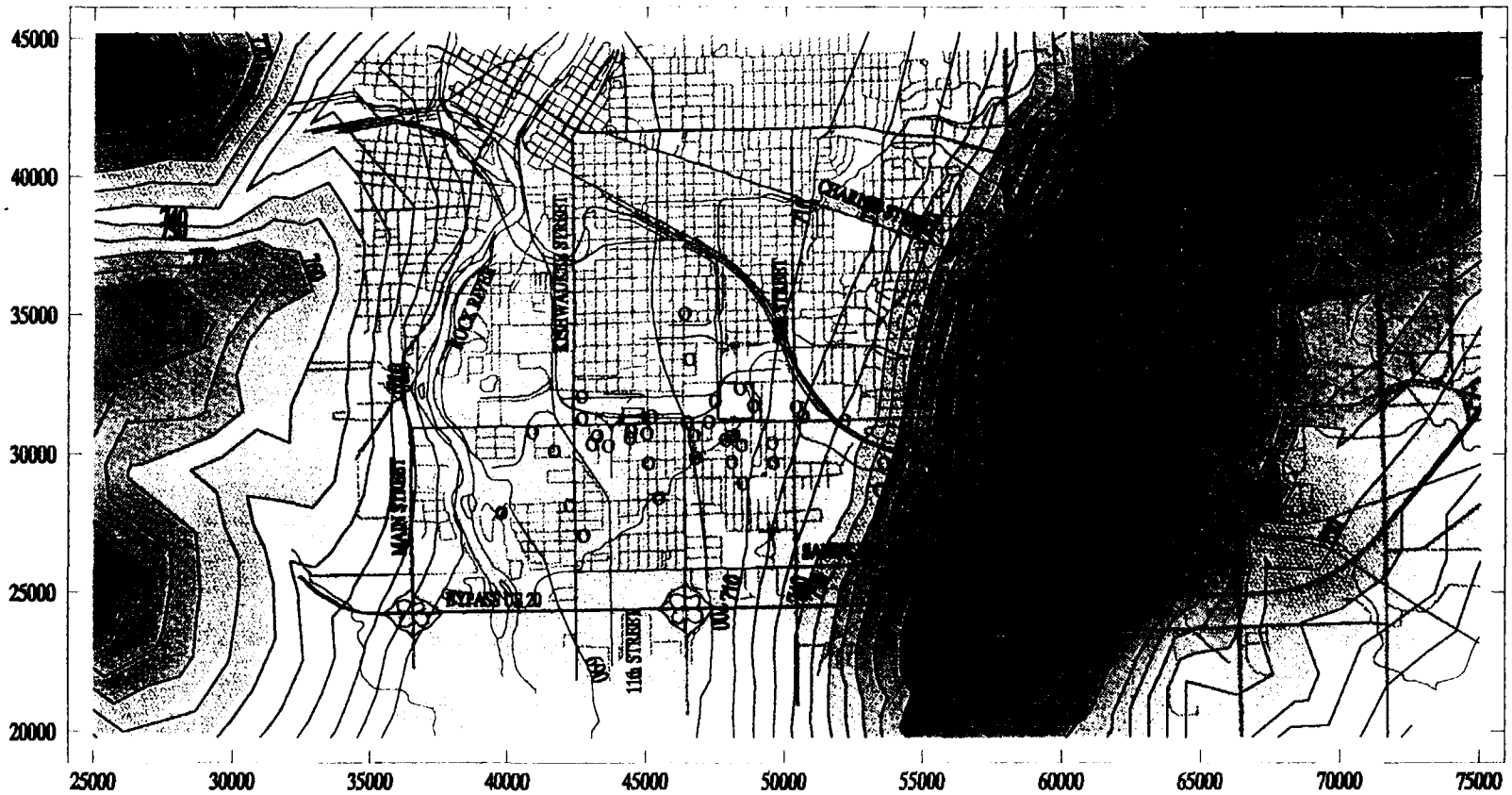
+/- DELTA: 5.000 - 8.000
+/- DELTA: 8.000 - 11.000
+/- DELTA: > 11.000
MEAN DIFFERENCE = 1.611
STD. DEVIATION = 3.566

SIMULATED WATER TABLE (FT)
680 - 700
700 - 720
720 - 740
740 - 760
760 - 780
780 - 800
800 - 820
820 - 840

FIGURE M-3

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED PIEZOMETRIC HEAD DIFFERENCES
SENSITIVITY SIMULATION #2
RECHARGE INCREASED BY 15 PERCENT

CDM
environmental engineers, scientists, planners, & management consultants




HEAD: CALCULATED MINUS OBSERVED
HEAD (FEET), 10/26/93 - 10/26/93
o DELTA: 0.000 - 2.000
+/- DELTA: 2.000 - 5.000
+/- DELTA: 5.000 - 8.000
+/- DELTA: 8.000 - 11.000
+/- DELTA: > 11.000
MEAN DIFFERENCE = -0.932
STD. DEVIATION = 3.575

SIMULATED WATER TABLE (FT)
680 - 700
700 - 720
720 - 740
740 - 760
760 - 780
780 - 800
800 - 820
820 - 840

FIGURE M-4

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED PIEZOMETRIC HEAD DIFFERENCES
SENSITIVITY SIMULATION #3
RECHARGE AND CONDUCTIVITY DECREASED BY 15 PERCENT

CDM
environmental engineers, scientists, planners, & management consultants

may include different pumping schemes, simulated transport velocities and pumping well capture zones will vary according to the specified combination of recharge and hydraulic conductivity. However, this may be accounted for in the evaluation process by incorporating a range of parameters values into the simulations of future conditions and developing a bracketed solution.

Transport Mass Balance

As part of the transport simulations, the numerical model computes a mass balance of contaminant (TCA/DCA) over the entire simulation period. For the calibration simulation, the mass balance at the end of the simulations is presented in Table M-2.

Table M-2. Mass Balance for Calibrated Model

| Component | Mass (kg) |
|---|---|
| Inflow from Sources | 26,928 |
| Discharged | 62* |
| Lost by Decay | 7,655 |
| Remaining in System | 19,211 |

*Includes 55 kg to UW35 and 7 kg to the Rock River

Conservation of Mass

The numerical code (DYNTRACK) used for the contaminant transport model uses the random-walk method. With this method, contaminant is represented by discrete particles, each representing an assigned value of mass. During a simulation, the model tracks each particle individually so that each particle may be individually accounted for. As a result, the model is able to conserve mass of the contaminant.

Numerical Dispersion

As part of the solution procedure, the numerical code (DYNTRACK) tracks each particle in space by real coordinates, not by the numerical grid. As a result, the model is able to minimize any numerical dispersion during a simulation. However, in computing contaminant concentrations, the model assigns each particle to the nearest node and calculates a nodal concentration, and this may result in some numerical dispersion. This is a one-time phenomenon which is not cumulative during the course of a simulation. To minimize this, care is taken to ensure that the number of particles representing the plume and the grid spacing used for contouring are appropriate for the problem. This may be checked by viewing the cloud of particles in conjunction with the concentration contours.

Mass Transport Sensitivity

As with the flow model, the transport model depends on the assigned parameters. These parameters include source strengths, source locations, source timing, dispersivity, retardation/effective porosity, and decay. In addition, since the transport model uses the flow field generated by the flow model, the transport model is also sensitive to the same parameters as the flow model.

Of these parameters, data was available for only the source locations and the source timing, as locations and general time periods of releases have been established. Values for the remaining parameters were developed based on the ability to reproduce the observed current distribution of the contaminant.

To evaluate the impact of minor variations in the parameters, a sensitivity analysis of the transport parameters was conducted. For this analysis, the individual transport properties were perturbed to determine the impact of slight changes on the computed contours.

In all, four additional simulations were performed to test the model's response to variations in the transport parameters, and the results are presented on Figures M-5 through M-11. A summary of changes made to the transport parameters for the four simulations is listed below:

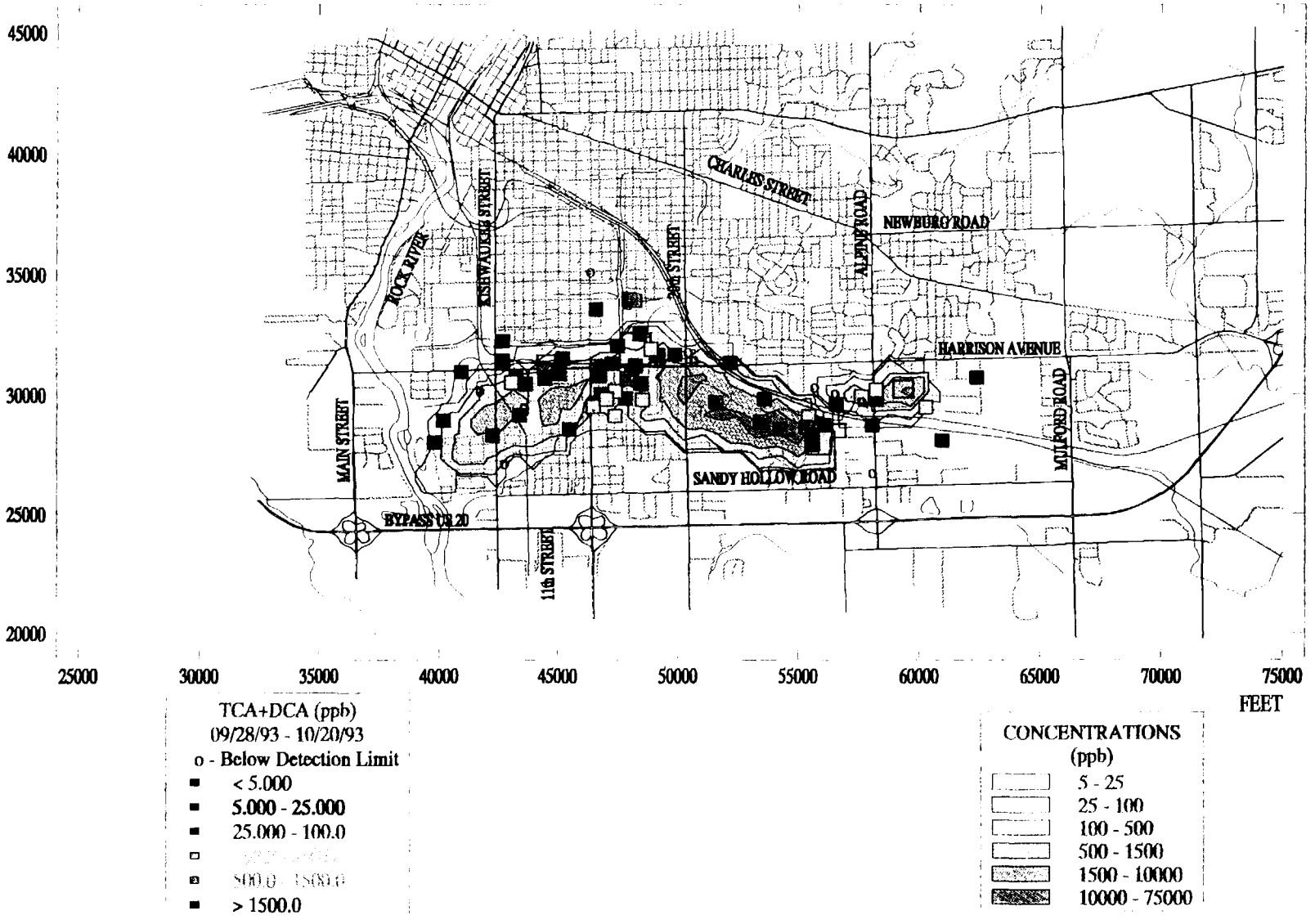
1. Retardation increased by 15 percent;
2. No decay;
3. Decay coefficient increased to 0.001 (Half-life reduced to 2 years);
4. Longitudinal and transverse dispersivities reduced by 50 percent;
5. Ratio of longitudinal to transverse dispersivity equal to 5; and
6. Ratio of longitudinal to transverse dispersivity equal to 20.

As shown, the sensitivity simulations produce contaminant contours that are similar to the results for the calibration simulation. This similarity suggests that the model results are somewhat insensitive to slight variations of the transport parameters. As a result of this insensitivity, a range of transport parameter values should be considered as part of any final evaluation of proposed remediation schemes.

For the calibrated transport model, a value of 100 feet was used for the longitudinal dispersivity ($\alpha_L$) and a value of 10 feet for the transverse dispersivity ($\alpha_T$). For sensitivity simulation #4, both the longitudinal and transverse dispersivity values were reduced by a factor of two ($\alpha_L$ = 50 feet and $\alpha_T$= 5 feet).

Because this simulation included changes in both the horizontal and transverse directions, two additional simulations were performed to evaluate the impact of dispersivity changes in the transverse direction only. For simulation #5, the transverse dispersivity was increased to 20 feet while the longitudinal remained at 100 feet ($\alpha_L/\alpha_T$ = 5). For simulation #6, the transverse dispersivity was decreased to 5 feet and the longitudinal was kept at 100 feet ($\alpha_L/\alpha_T$ = 20). The resulting contours for these simulations are presented in Figures M-10 and M-11, respectively.

The contours shown in Figure M-10 indicate that for $\alpha_L/\alpha_T = 5$, the contaminant plume spreads over a wider area than for the case in which $\alpha_L/\alpha_T = 20$ (Figure M-11). Although they differ somewhat, simulations #5 and #6 provide a reasonable representation of the observed contaminant distribution. Given the large range of values represented by the simulations and the relatively small changes in contaminant distribution, these results suggest insensitivity to changes in transverse dispersivity. As a result, any simulation of future conditions should include a range of values for transverse dispersivity.




TCA+DCA (ppb)
09/28/93 - 10/20/93
o - Below Detection Limit
< 5.000
5.000 - 25.000
25.000 - 100.0
100.0 - 500.0
500.0 - 1500.0
> 1500.0

CONCENTRATIONS (ppb)
5 - 25
25 - 100
100 - 500
500 - 1500
1500 - 10000
10000 - 75000

FIGURE M-5

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
BASE CASE SIMULATION

CDM
environmental engineers, scientists, planners, & management consultants

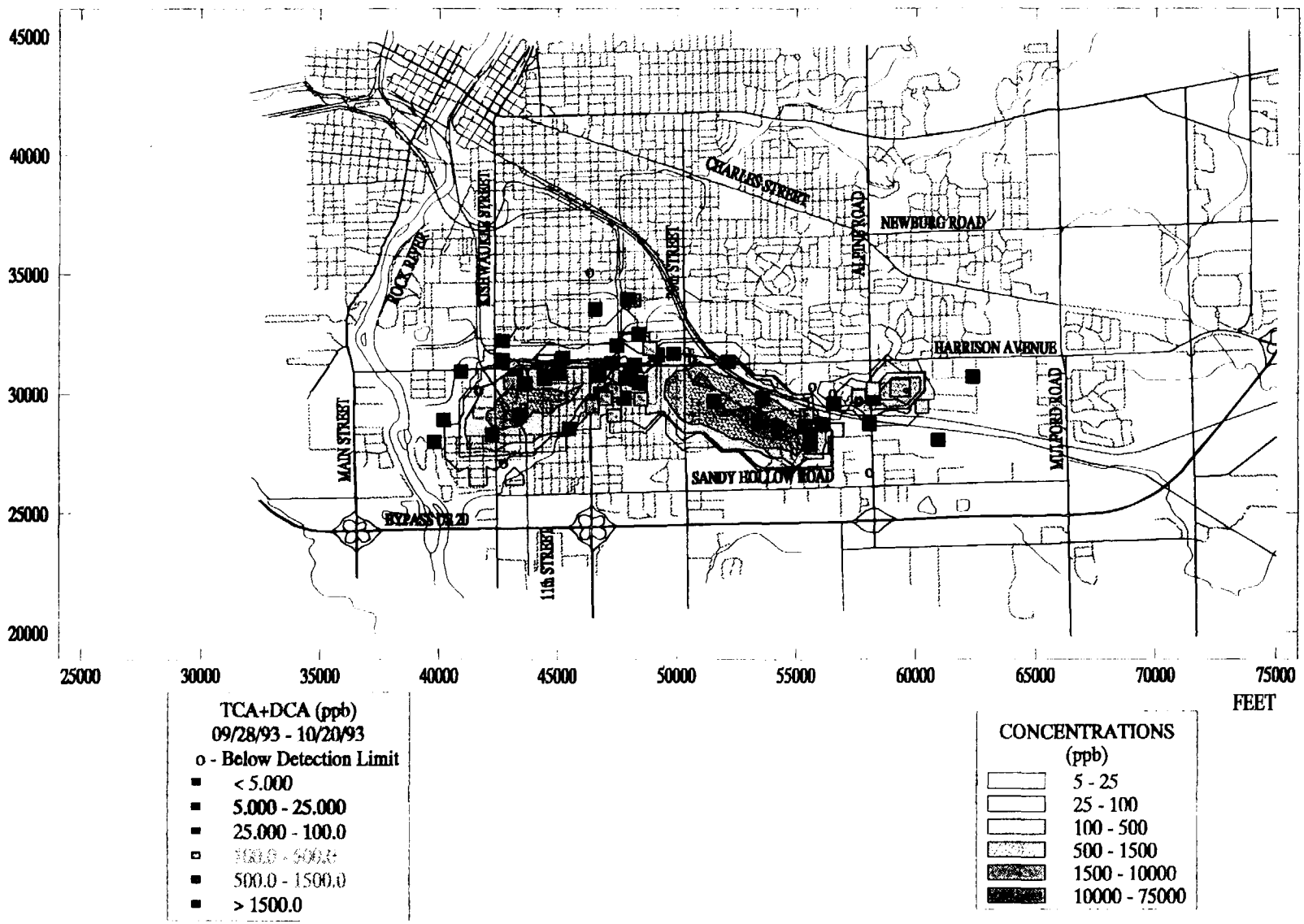



FIGURE
M-6

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #1

CDM
environmental engineers, scientists, planners, & management consultants

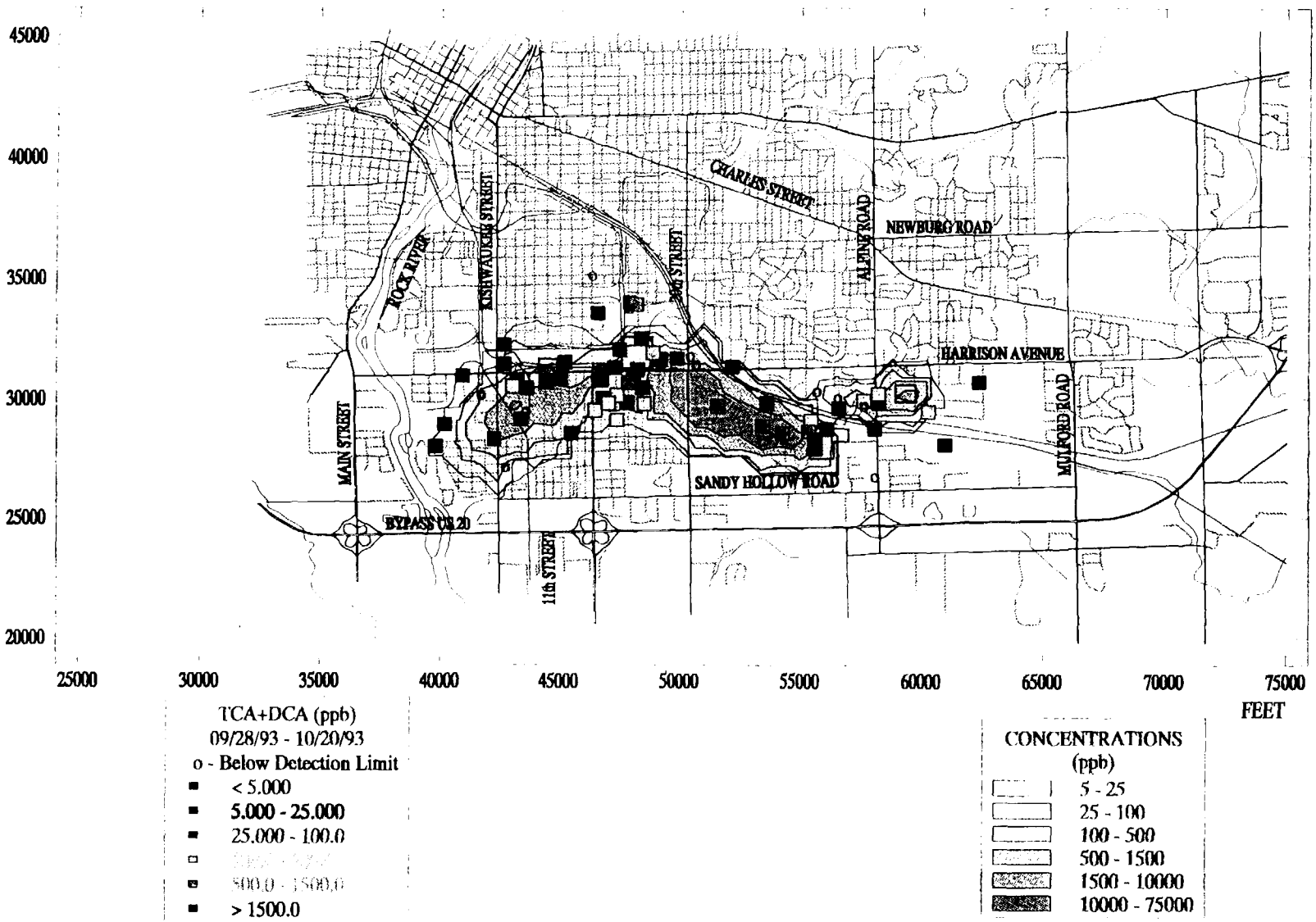



FIGURE
M-7

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #2

CDM
environmental engineers, scientists, planners, & management consultants

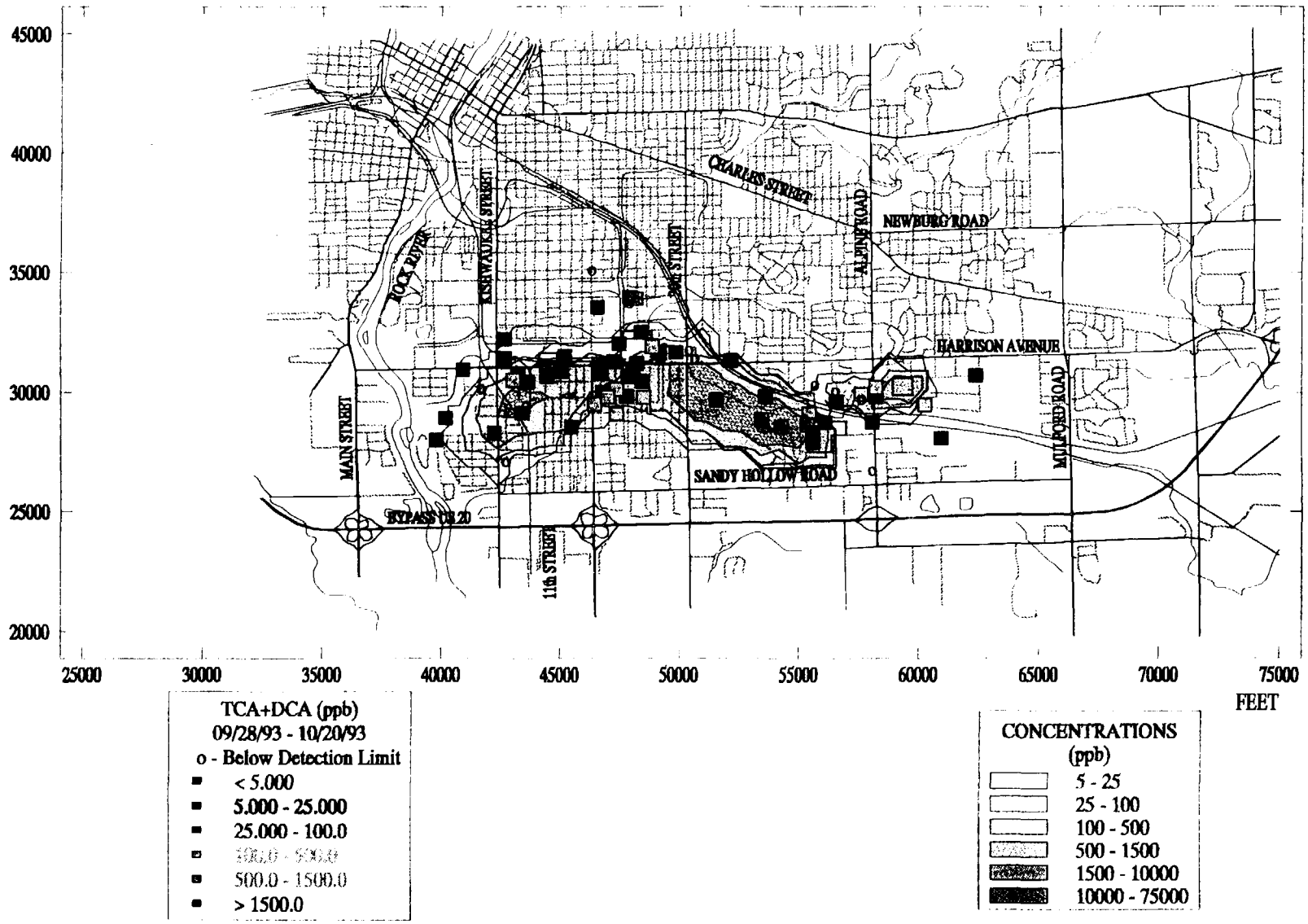



FIGURE
M-8

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #3

CDM
environmental engineers, scientists, planners, & management consultants

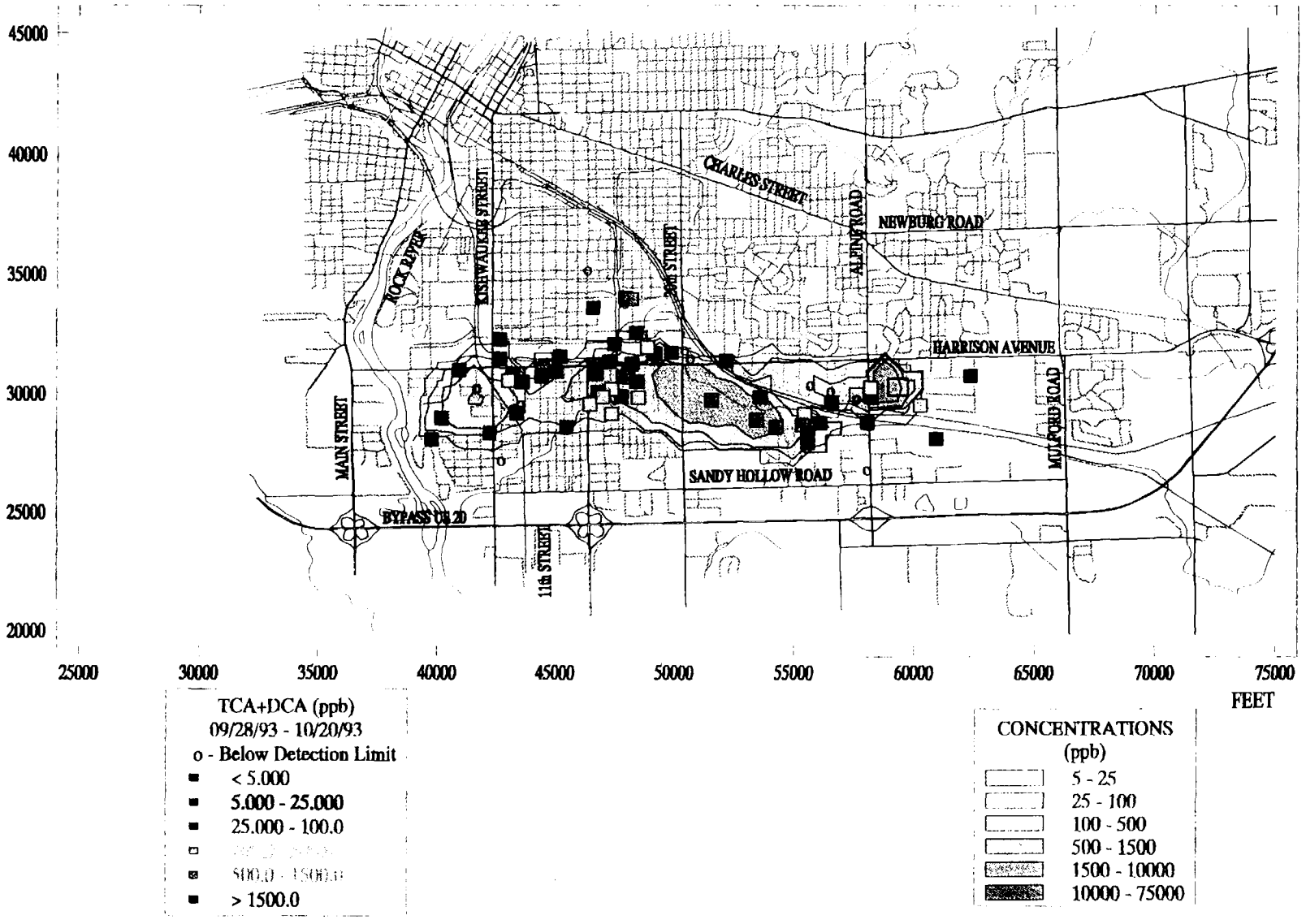



FIGURE
M-9

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #4

CDM
environmental engineers, scientists, planners, & management consultants

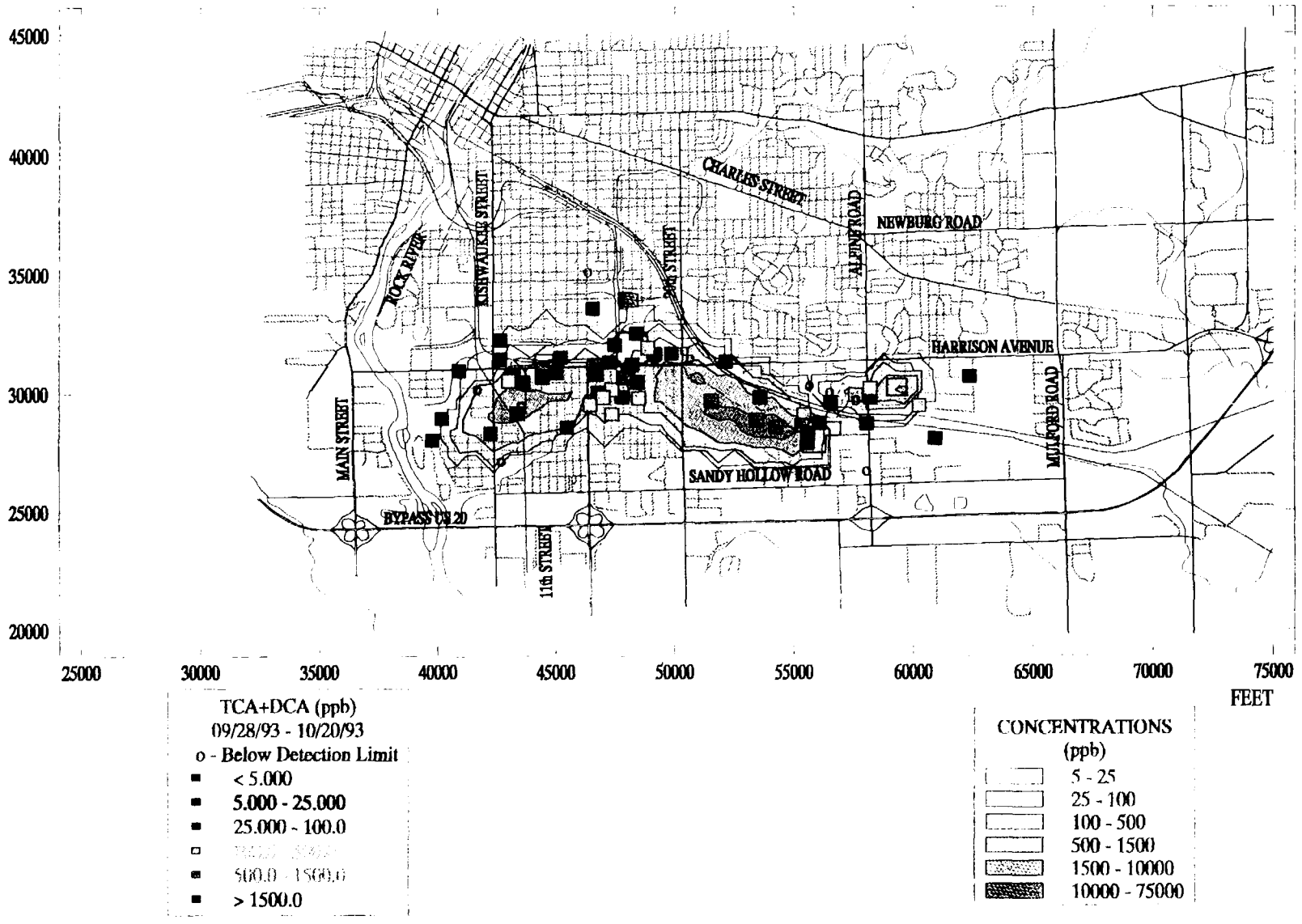



FIGURE
M-10

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #5

CDM
environmental engineers, scientists, planners, & management consultants

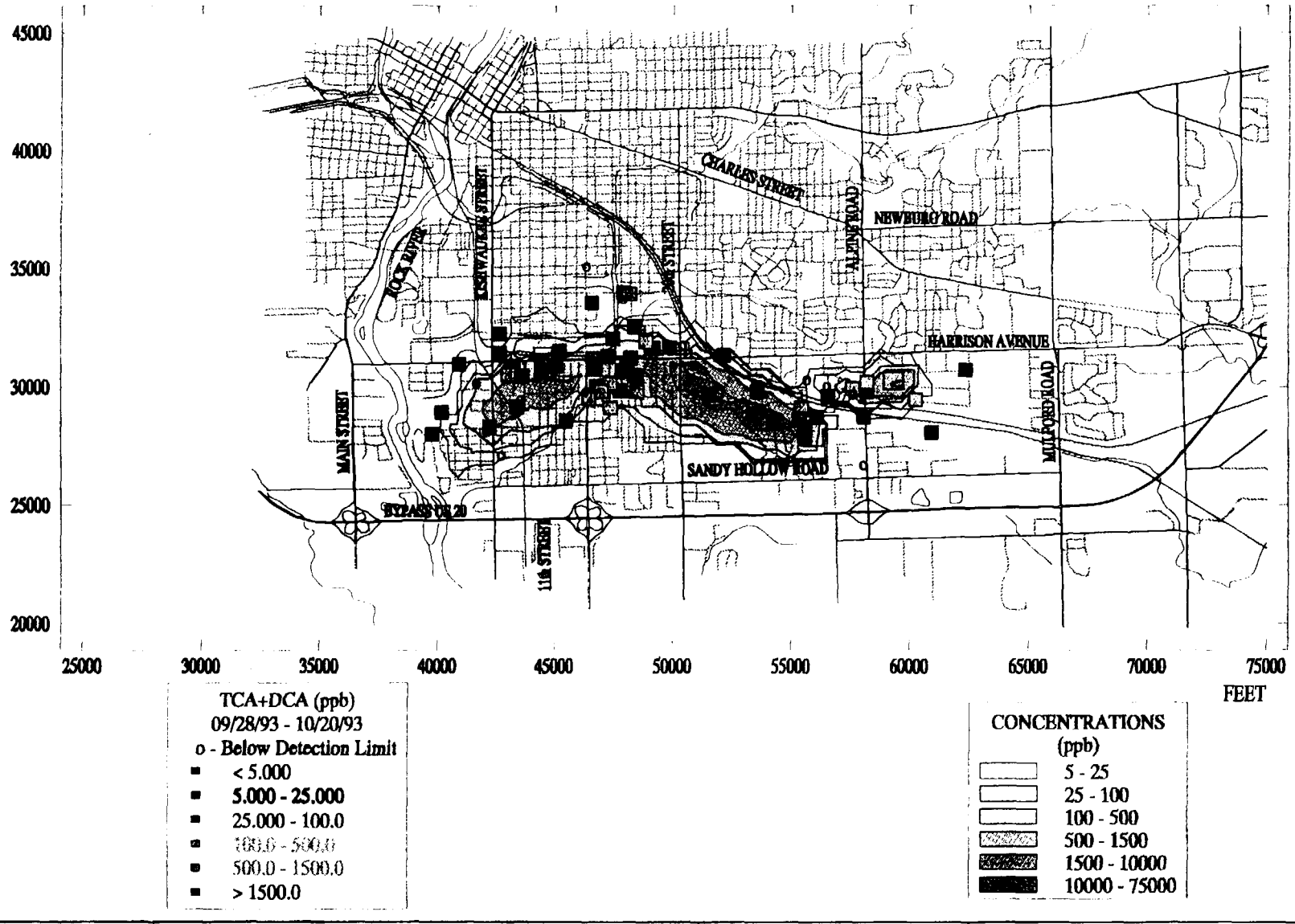



FIGURE
M-11

SOUTHEAST ROCKFORD GROUNDWATER CONTAMINATION STUDY
SIMULATED AND MEASURED 1993 TCA-DCA CONCENTRATIONS (ppb)
UNCONSOLIDATED DEPOSITS
TRANSPORT SENSITIVITY SIMULATION #6

CDM
environmental engineers, scientists, planners, & management consultants