Appendix C

Seismic Refraction Survey Results (Gartner Lee, Inc. 1993)

Gartner
Lee

Seismic Refraction Survey Results
Stauffer Management Company Facility
Skaneateles Falls, New York

Prepared for:

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GLI Reference 92-820

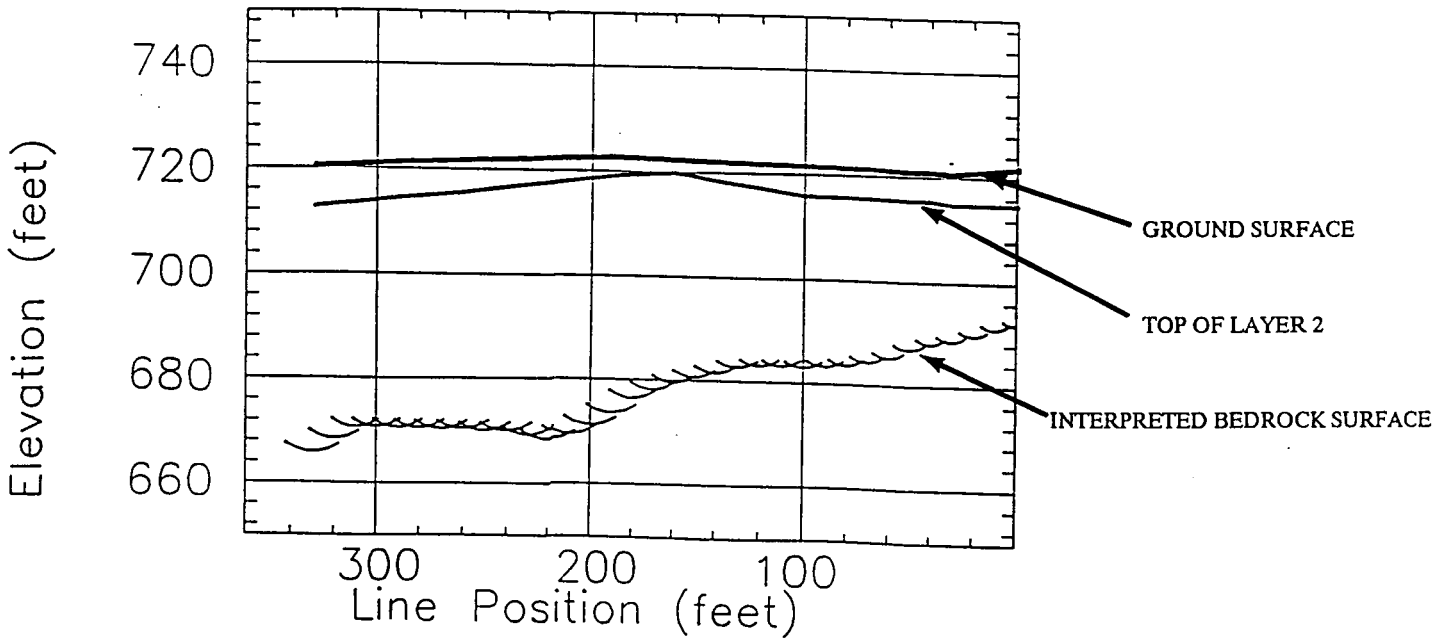
Professional Services in Environmental Management

FIGURES

LEGEND

TIE L1 = TIE POINT WITH SEISMIC LINE 1

MW1, RP1 = BOREHOLE LOCATIONS



1.0 Introduction, Purpose and Scope

On January 12th through 22nd, 1993, a seismic refraction survey was performed at the Stauffer Management Facility Site in Skaneateles Falls, NY. The site is an inactive chemical producing facility that is currently being studied as part of a remedial investigation by EA Engineering, Science and Technology (EA).

The study area is shown in Figure 1. The facility site and surrounding regions were mostly open fields with gently rolling topography. Skaneateles Creek flows generally south to north through the area. Trees and brush were present, primarily in the area extending out from the shores of the creek. Jordan Road trends north-south and is west of the facility grounds. Directly behind the residential properties that line the west side of this road, is an open farm field.

Borehole logs supplied to Gartner Lee, Inc. by EA indicate that near surface soils are primarily a clayey silt and the overburden material is described generically as a glacial till. Bedrock beneath the site is a limestone. At the time the seismic survey was performed, the ground was covered with approximately 2 to 6 inches of snow. This light snow cover appeared to minimize the incidence and thickness of ground frost.

A industrial landfill is located east of the facility identifiable by the mounded cap and the monitoring wells located around the perimeter of the landfill. Borehole data indicate that bedrock topography dips to the south from a local bedrock high beneath the landfill. Bedrock is reported to outcrop south of the study area. It was hypothesized that a possible bedrock valley or glacial outwash channel is located south of the landfill which, if present, may be relevant to the local ground water flow regime.

The purpose of the geophysical survey was to map bedrock topography at the site and assess the presence/absence of the possible bedrock valley.

All geophysical methods utilize interpretative techniques which can be significantly impacted by varying site conditions. Seismic data relies upon borehole or testpit control to interpret bedrock topography and overburden stratigraphy. An absence of control data for seismic surveys can result in errors in calculating depths to refractors. Therefore, where possible, confirmation of any geophysical anomalies identified or interpreted should be sought through the use of aerial photography, test pit and borehole information.

The following report discusses the methodologies, results and the conclusions of the geophysical survey.

2.0 Methodology

2.1 Line Locations

A Gartner Lee, Inc. geophysicist visited the site on December, 1992 with a geologist from EA at which time the location of seismic lines was discussed. At that time, some of the seismic line locations were slightly altered in order to maximize the effectiveness of the survey. The seismic lines through the wooded area by the creek were subsequently cleared of brush by staff from EA. A total of four seismic lines were located off the site property following prior landowner property access permission. The approximate locations of the seismic lines are shown on Figure 1. At the completion of the seismic survey, the elevations along the seismic lines were surveyed by EA.

2.2 Seismic Refraction Survey

Seismic line locations were selected to provide information on bedrock topography at the site. A total of 16 seismic refraction lines were surveyed during the investigation. These data were collected using a geophone spacing of 10 ft. All data were collected using a single 14 Hz geophone per channel.

A 48 channel Bison 9000 Digital Instantaneous Floating Point (DIFP) seismograph was utilized to collect seismic refraction data at the Site. Seismic data are collected by generating a shock wave and recording the travel time and amplitude of the wave at nearby locations. The shock wave travels downward into the earth and reflects/refracts back to surface off geologic strata. The amplitude of the returning signal is measured as a function of time with ultra-sensitive motion detectors (geophones), and transmitted through a cable to a digital recording device; (a seismograph).

A vacuum assisted weight drop (VAWD) was used as the seismic source. The VAWD propels, under a vacuum, a heavy weight down a 10 foot barrel where it strikes a steel plate to create the seismic source vibration. For seismic lines located in areas where it was not possible to use the VAWD (wooded areas), a 10 pound sledge hammer and steel plate was used as the seismic source. For each shot, data were stacked from 1-10 times. "Stacking" of shots is used to improve the signal-to-noise ratio of the data. All shots were stacked until good "first breaks" were observed on the QA/QC printout of the seismograph. First breaks are the time of onset of the refracted wave arrival. The accurate measurement of these first break times is a critical function involved with refraction analysis.

The data were collected using 48 channels per seismic spread. Each spread was overlapped 4 geophones as the line progressed. For each spread, 12 to 16 shots were

made at varying shot to geophone offsets. The far offset (typically 100 to 150 feet) was chosen so that all first breaks measured for that shot were refractions of the bedrock interface. This was necessary to provide complete GRM coverage of the bedrock refractor. Data were collected and stored on the 48 channel engineering seismograph. Each evening, data were transferred to a lap top computer and backed up on floppy disks.

2.3 Data Interpretation

The first step in data interpretation involved selecting the "first break" arrival times from the seismic traces. These measurements represent the arrival times of the p-wave seismic energy refracted along layers exhibiting significant velocity contrasts. From these data, the number and velocities of the subsurface layers are determined.

The Generalized Reciprocol Method (GRM) of analysis was used to convert the data from measurements of time to measurements of layer thickness. The GRM allows for the interpretation of data from a number of undulating refractors and was used to interpret the arrival times from each layer. The technique accepts variation in both the surface topography and the velocities of the upper layers.

Seismic data provides an estimation of layer thickness. The process of converting refraction arrivals in units of time (milliseconds) to depth (feet) has an approximate accuracy of $^{+}/_{-}$ 15%. However, due to the effect of hidden layers and poor signal quality on some lines, a larger error in layer thickness and depths may be expected. The relative changes in bedrock topography interpreted along profile lines are believed to be representative of subsurface conditions. Seismic profile data should be used as relative estimates to evaluate changes in overburden stratigraphy and bedrock topography.

3.0 Results

Results are presented in the form of depth profiles denoting velocity contrasts in the subsurface (Figures 2 through 13). The lower most refracting interface, denoted by arcs on the figures, is interpreted to be bedrock. The bedrock surface is taken as the intersection of the loci of these arcs. Depending upon the velocity contrasts observed in the data for a particular line, two or three refracting layers are interpreted. In the three layer case, the middle layer likely represents the approximate top of the saturated zone. In some lines, where the water table is near the bedrock interface, hidden layer conditions may exist. Tie points, (points where seismic lines cross or where well data are available), are plotted on the figures in the appropriate line position. Not all seismic tie points match exactly and the difference in observed absolute depth

measurements may be used as a guide in assessing relative accuracy. All references to topographic highs and lows are referenced to elevation in feet above sea level (fasl).

Seismic Line 1 (Figure 2)

Seismic Line 1 trends north-south and lies to the east of the landfill area. This line is located under a power line right of way. In some places along this seismic line, 60 hz power line noise was observed in the data. This is likely due to leaky insulators on some power poles. The southern terminus of this line is Skaneateles Creek.

Bedrock topography is interpreted to slope to the south from a high of approximately 696 fasl at Line Position 300 ft to a low of approximately 664 fasl at Line Position 950 ft. There is an approximate 10 ft difference in the interpreted bedrock elevation with the tie for Seismic Line 8. A reverse, far offset shot was not obtained due to the presence of Skaneateles Creek. This shot would have provided bedrock data at the very end of the line that may have resolved the ambiguities observed at the tie point. However, as bedrock is interpreted to be topographically higher on Seismic Line 9 (Figure 8) located south of the creek, it is reasonable to assume that the maximum bedrock low occurs in the vicinity of Line Position 950 ft.

Seismic Lines 2 and 2B (Figure 3)

Seismic lines 2 and 2B trend north-south and are located west of the landfill area. Seismic Line 2 is located in the wooded area adjacent to the creek. It was not possible to use the VAWD as a source on this line and the hammer and steel plate were substituted. The southern most 12 geophones were planted in the soft earth of the flood plain of Skaneateles Creek. Data quality from these geophones and seismic shots at these locations were of poor quality and uninterprettable. For this reason, the bedrock surface is not interpreted south of Line position 120 ft.

Bedrock topography on these lines is interpreted to dip to the south from a high of approximately 693 fasl at Line Position 580 ft to a low of approximately 670 fasl at Line Position 120 ft.

An eight foot difference in bedrock elevation is observed at the intersection of the two lines. This is not interpreted as a sharp eight foot drop in bedrock topography but is rather related to the inaccuracies of the seismic technique and the poor quality of the data collected in the woods on Seismic Line 2.

Seismic Lines 3A, 3B and 3C (Figure 4)

Seismic Lines 3A, 3B and 3C trend generally north-south and are located immediately to the east of Jordan Road. This line is believed to be located on the old railroad bed of the now abandoned Skaneateles Short Line Railway. The fill material from this rail bed, combined with seismic noise from vehicle traffic on Jordan Road resulted in data of marginal quality.

Bedrock is interpreted to be relatively shallow to the north and deeper towards the south. The topographic bedrock high is interpreted to occur at the southern end of Line 3A. The topographic bedrock low is interpreted to be 660 fasl at Line Position 300 ft of Seismic Line 3C. It should be emphasized that the data quality of Seismic Line 3C was particularly poor due to fill material and vehicle induced seismic noise.

Seismic Line 4 (Figure 5)

Seismic Line 4 trends north-south and is located in a farm field behind the residential properties to the west of Jordan Road. There was significant ground frost at the time of data acquisition, as such each geophone was placed below grade with a shovel in order to improve data quality.

Bedrock topography is interpreted to slope to the north from a high of approximately 695 fasl at Line position 0 ft to a low of 660 fasl at Line Position 770 ft. The steep change in surface topography at Line position 720 ft adversely affected the quality of the interpretation at the north end of this line. However, good tie points were obtained with Seismic Lines 7A and 8A.

Seismic Line 5

Property access could not be obtained for this location and hence, data were not collected.

Seismic Line 6 (Figure 6)

Seismic Line 6 trends west-east and is located north of the landfill area. Bedrock is interpreted as shallow and gently dipping to the west from a high of approximately 700 fasl at Line Position 450 ft to a low at 684 fasl at approximately Line Position 50 ft.

Seismic Line 7 Figure 7)

Seismic Line 7 trends west-east and is located roughly parallel to the woods south of the landfill area. The western-most 17 geophones were located on the soft flood plain of Skaneateles Creek. Signal quality from these geophones was poor. The parking lot to the west of the creek however, provided the opportunity to acquire far offset reverse shot data using the radio link trigger. These offset shots helped resolve some of the ambiguities inherent in poor quality data.

Bedrock topography is interpreted to be gently rolling at an elevation of approximately 680 fasl. Bedrock topographic highs are interpreted to occur at Line Positions 0 ft and 200 ft.

Seismic Line 7A (Figure 8)

Seismic Line 7A trends west-east and is located west of Jordan Road. The eastern end of this line is located on residential property and the eastern end is located in a field by the intersection of Line 4.

Bedrock topography is interpreted to dip gently to the west from a high of approximately 680 fasl at Line Position 0 to a low of approximately 665 fasl at Line Position 430 ft.

Seismic Line 8 (Figure 9)

Seismic Line 8 trends west-east and is located roughly parallel to Skaneateles Creek. This line is located entirely in the wooded area. The last 14 geophones are located in the soft earth of the flood plain of Skaneateles Creek which resulted in poor signal quality and generally uninterprettable data from these geophones.

Bedrock topography is interpreted to be gently dipping to the west. The apparent abrupt western dip in the bedrock elevation at Line Position 350 may be real or may be related to the poor quality data for the geophones located in the flood plain.

Seismic Line 8A (Figure 10)

Seismic Line 8A trends west-east. The eastern end of this line is located on residential property and from about Line position 400 ft to 1250 ft crosses a farm field.

Bedrock topography is interpreted to dip westward from Line Position 0 to approximately Line Position 250 and then is gently undulating at an approximate elevation 680 fasl.

A bedrock low is observed at approximately Line Position 950 ft.

Seismic Line 9 and 9A (Figure 11)

Seismic Lines 9 and 9A trend west-east to the south of Skaneateles Creek. Line 9 is located on a trail through the woods and Line 9A is located in a field west of Jordan Road.

Bedrock topography on both lines is interpreted to dip to the west with a relatively steep dip in bedrock topography observed on Line 9A.

The bedrock elevations interpreted on these lines do not correlate with each other. We recommend that the surface elevations be resurveyed for Lines 9 and 9a.

Seismic Line 10 (Figure 12)

Seismic Line 10 trends north-south and is the eastern-most line surveyed. Data quality on the northern end of Line 10 was excellent and degrades to the south. This may be due to the possible presence of fill material at the southern end of Line 10.

Bedrock topography is interpreted to be relatively flat lying at 698 fasl over the first 200 ft of this line and then gently dips to about 686 fasl at Line Position 430 ft.

Seismic Line 11 (Figure 13)

Seismic Line 11 trends west-east and crosses a paved parking lot. The eastern portion of this line ends at Skaneateles Creek and the western end is terminated at the intersection of Seismic Line 3B.

A power drill was used to auger holes for planting the geophones in the gravel sub-base. Data quality on this line was poor, likely due to a combination of the effects of

geophone plants in the gravel, geophone plants in the soft flood plain of Skaneateles Creek, and possibly the existence of fill material beneath the line.

Bedrock is interpreted to be flat lying at approximately 684 fasl.

4.0 Conclusions

The seismic survey at the Stauffer Chemical Management Facility site in Skaneateles Falls, NY was successful at mapping bedrock topography. Where available, monitoring well data provided depth control for the seismic interpretations. Some Seismic Lines, most notably 2, 3 and 8 provided data of marginal quality.

An apparent dip of bedrock along Seismic Line 9A suggest that a depression in the bedrock may be located south of the study area. A bedrock depression of approximately 660 to 670 fasl was observed at the western terminus of Seismic Line 9A and Line Position 300 ft on Line 3C.

Respectfully submitted,

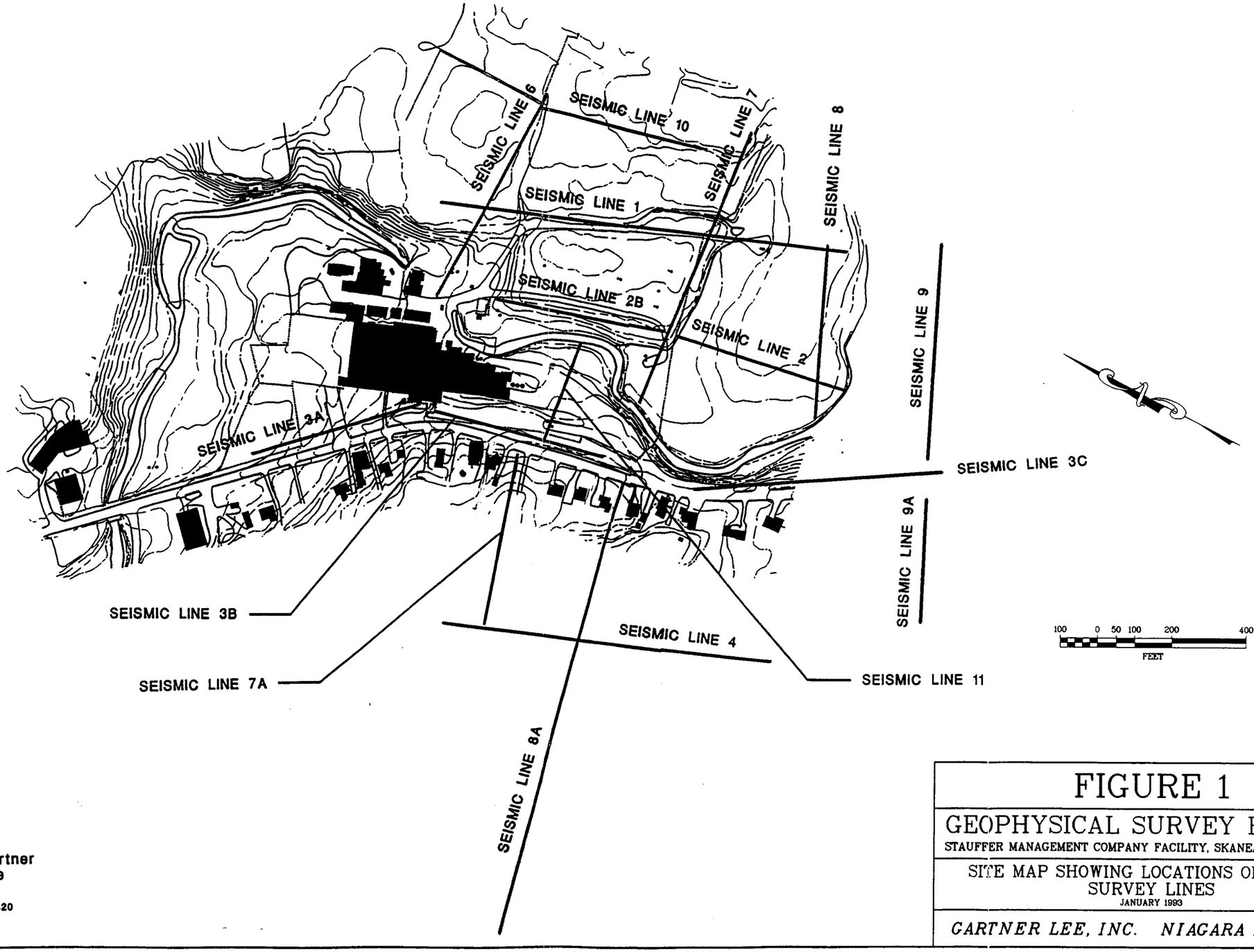
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John Luttinger
Geophysicist

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Principal
Hydrogeologist/Geophysicist

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FIGURE 1

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SITE MAP SHOWING LOCATIONS OF SEISMIC SURVEY LINES

JANUARY 1993

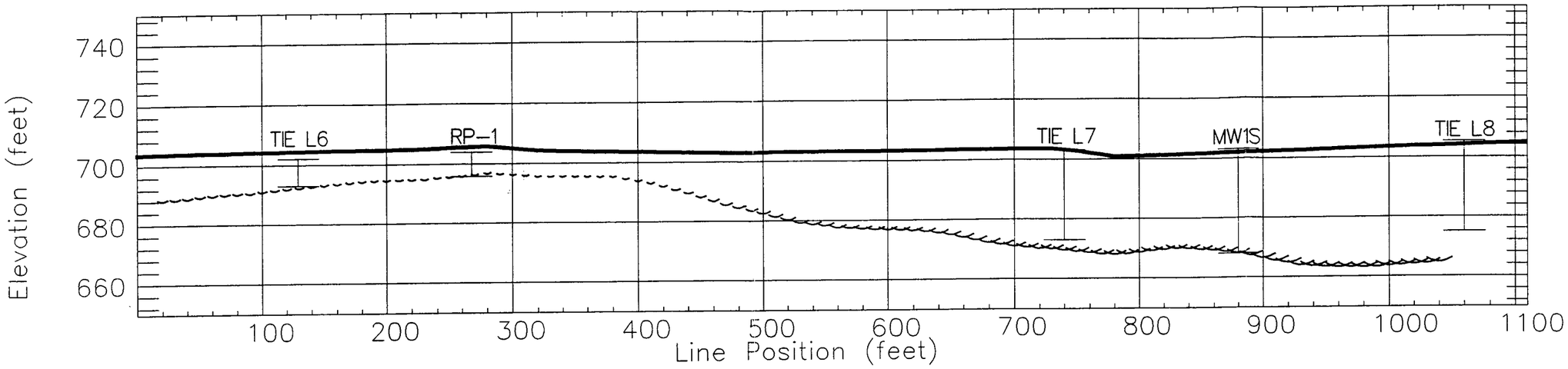
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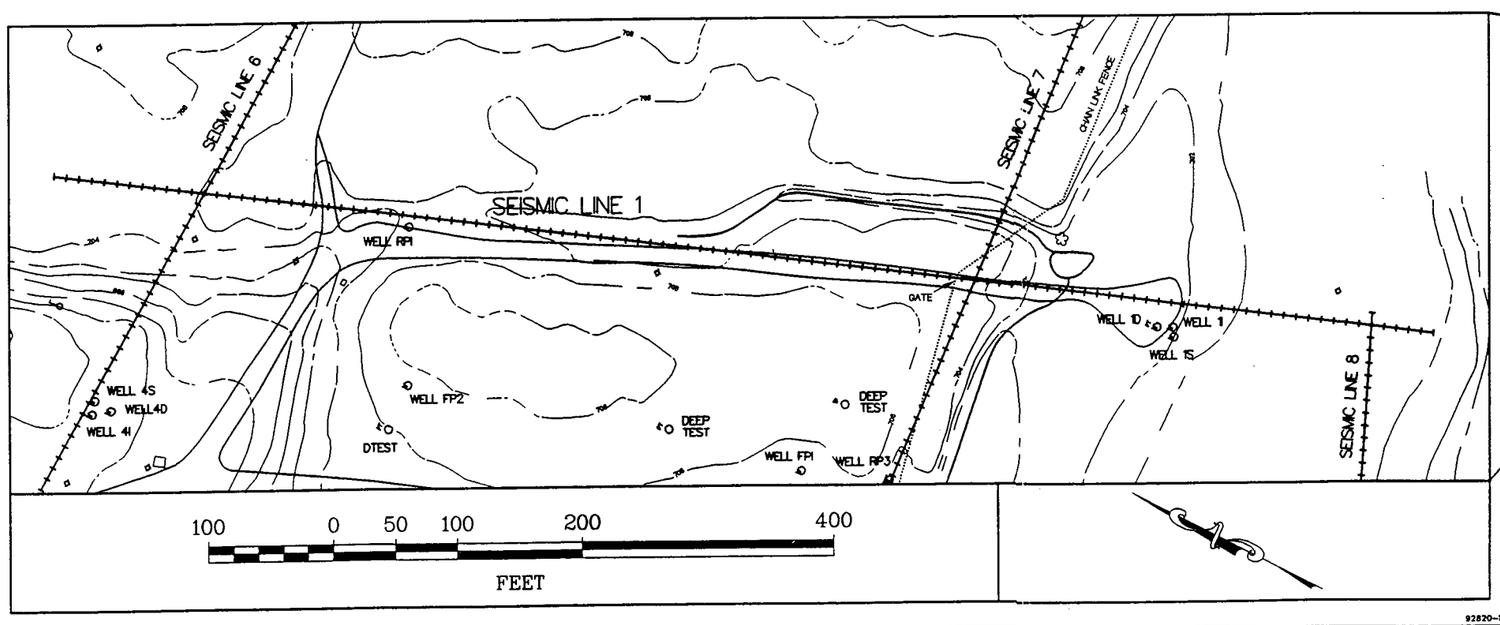
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NORTH

SOUTH





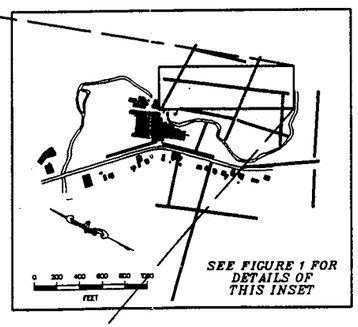


FIGURE 2

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 1

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

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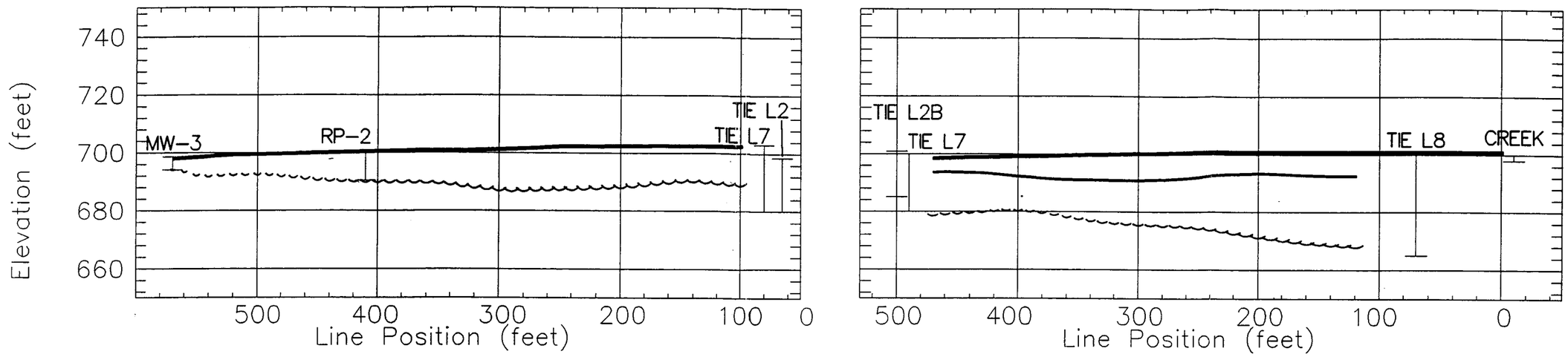
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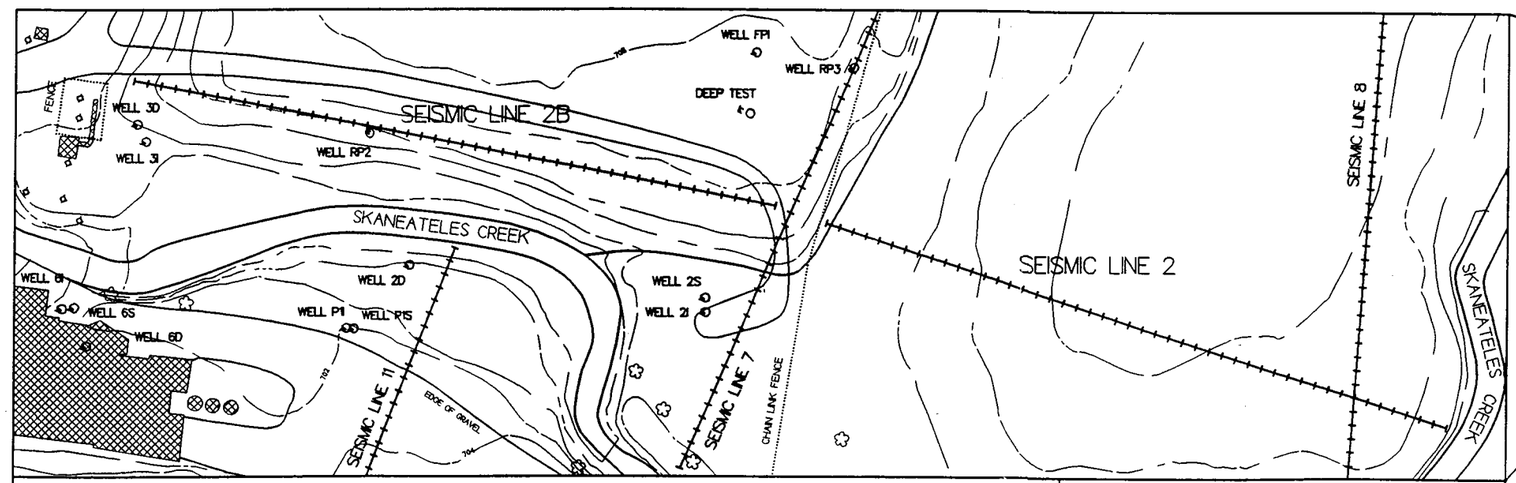
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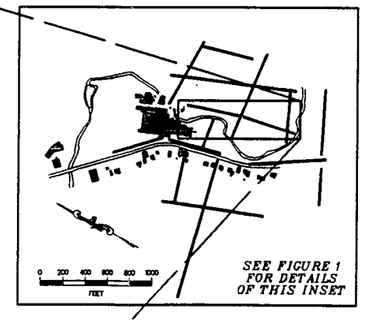
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NORTH 2B 2 SOUTH







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FIGURE 3

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINES 2 AND 2B

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

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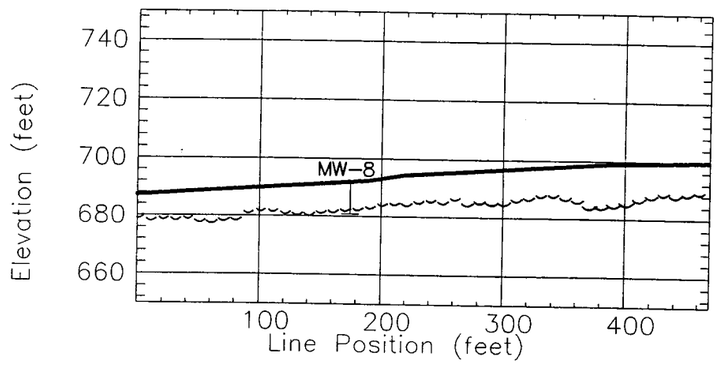
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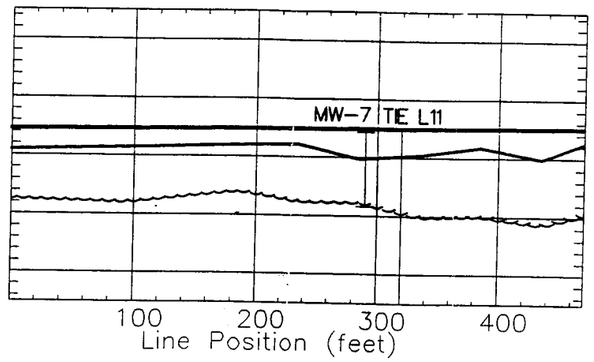
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NORTH

3A

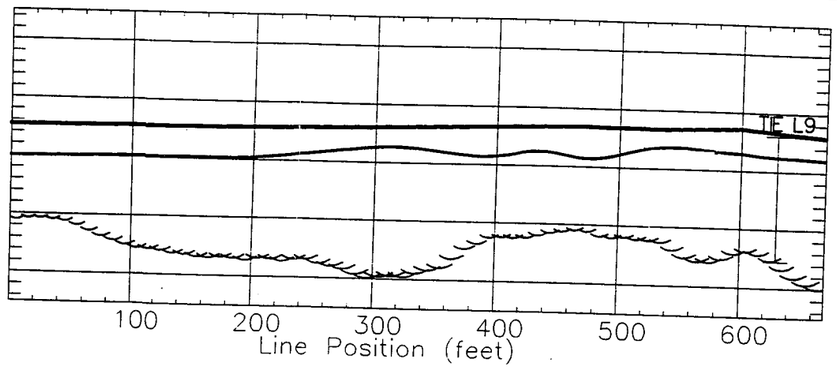


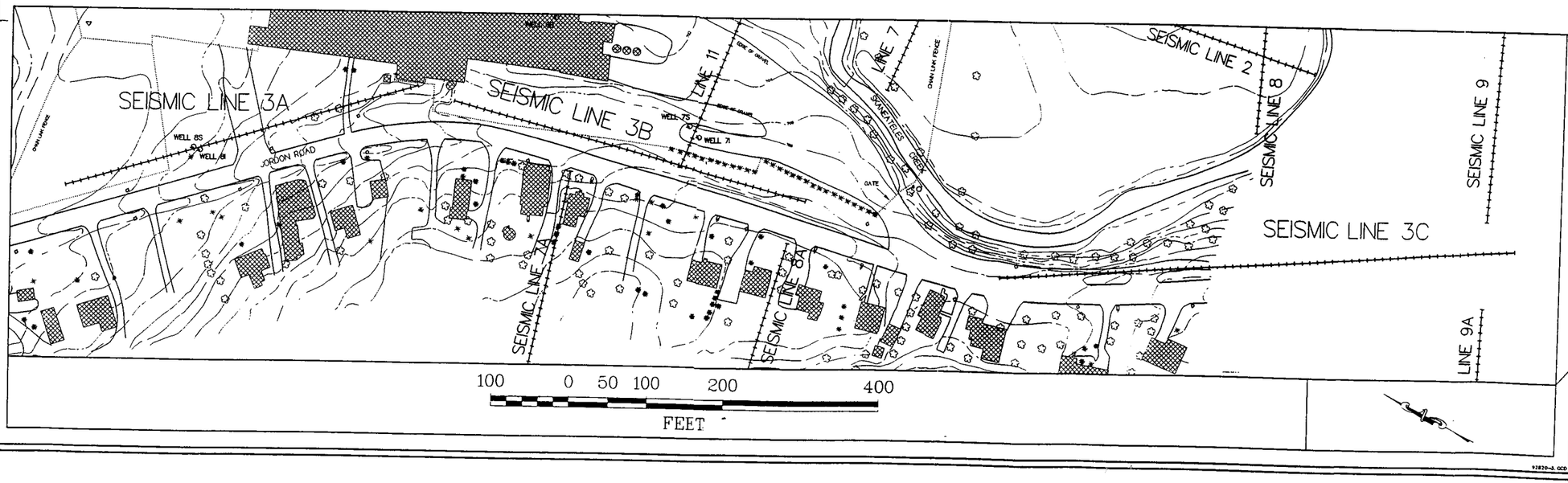
3B



3C

SOUTH





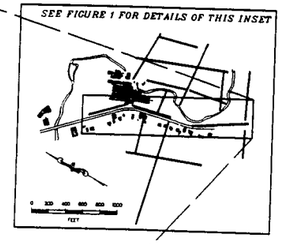


FIGURE 4

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, N

SEISMIC LINES 3A, 3B, AND 3C

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATIO

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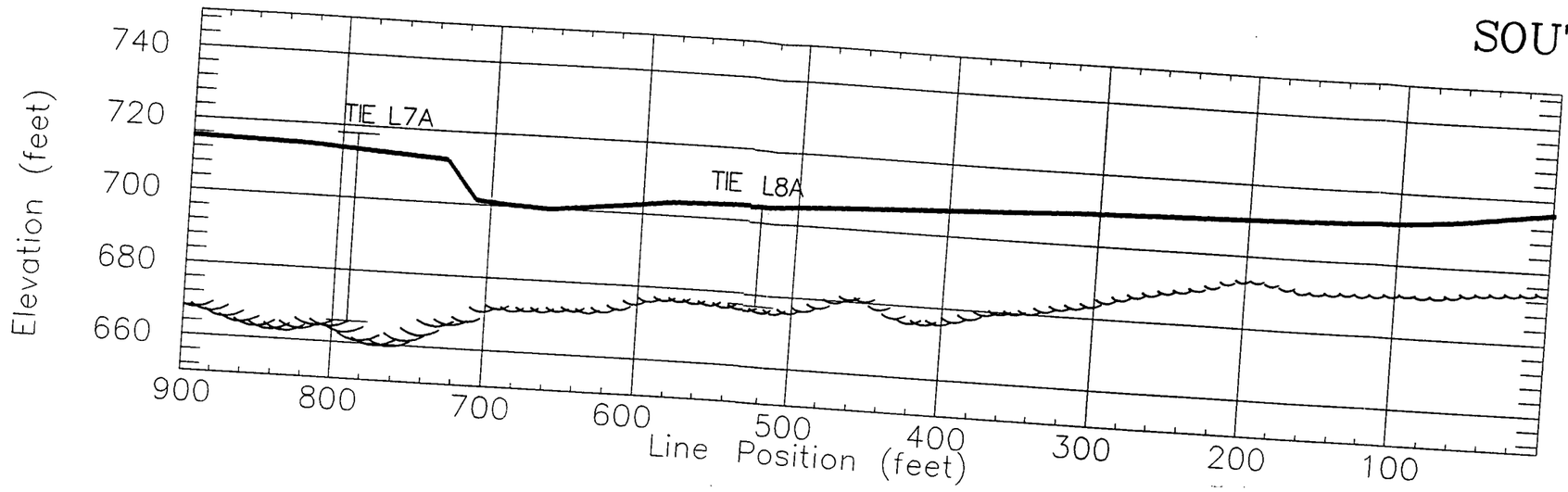
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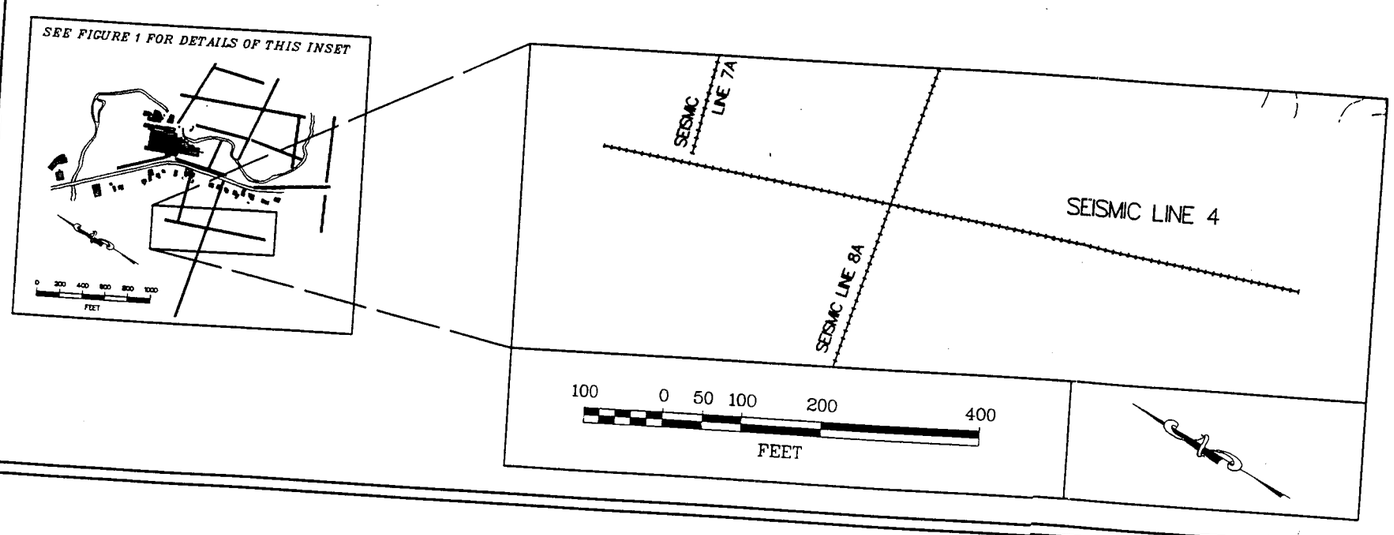
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η ⫞▾«$¶▫▴≡

NORTH

SOUTH





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FIGURE 5

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 4

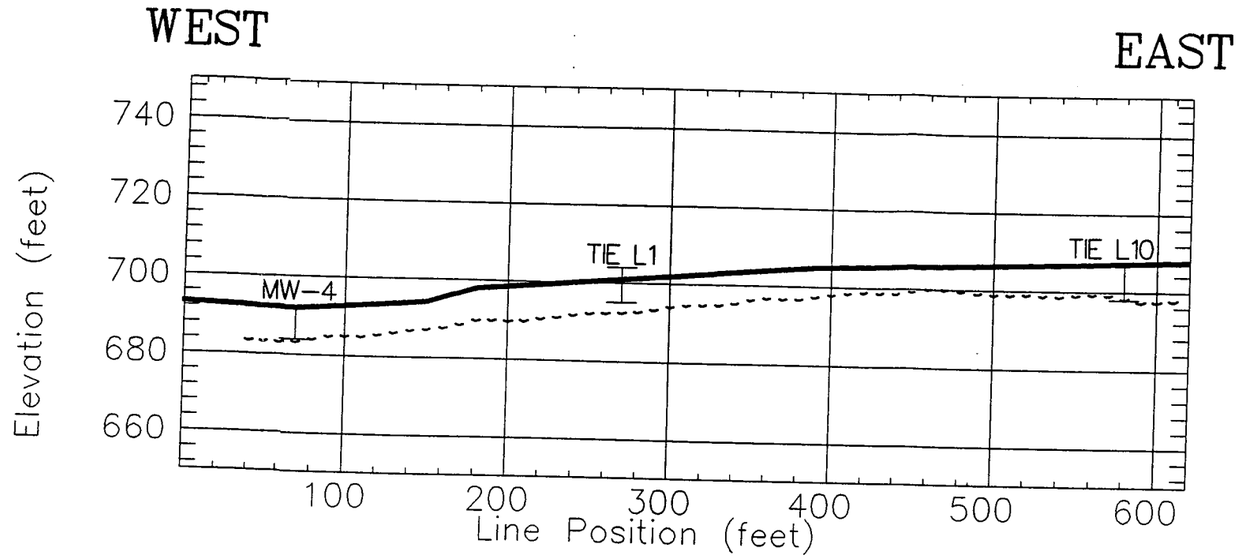
BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

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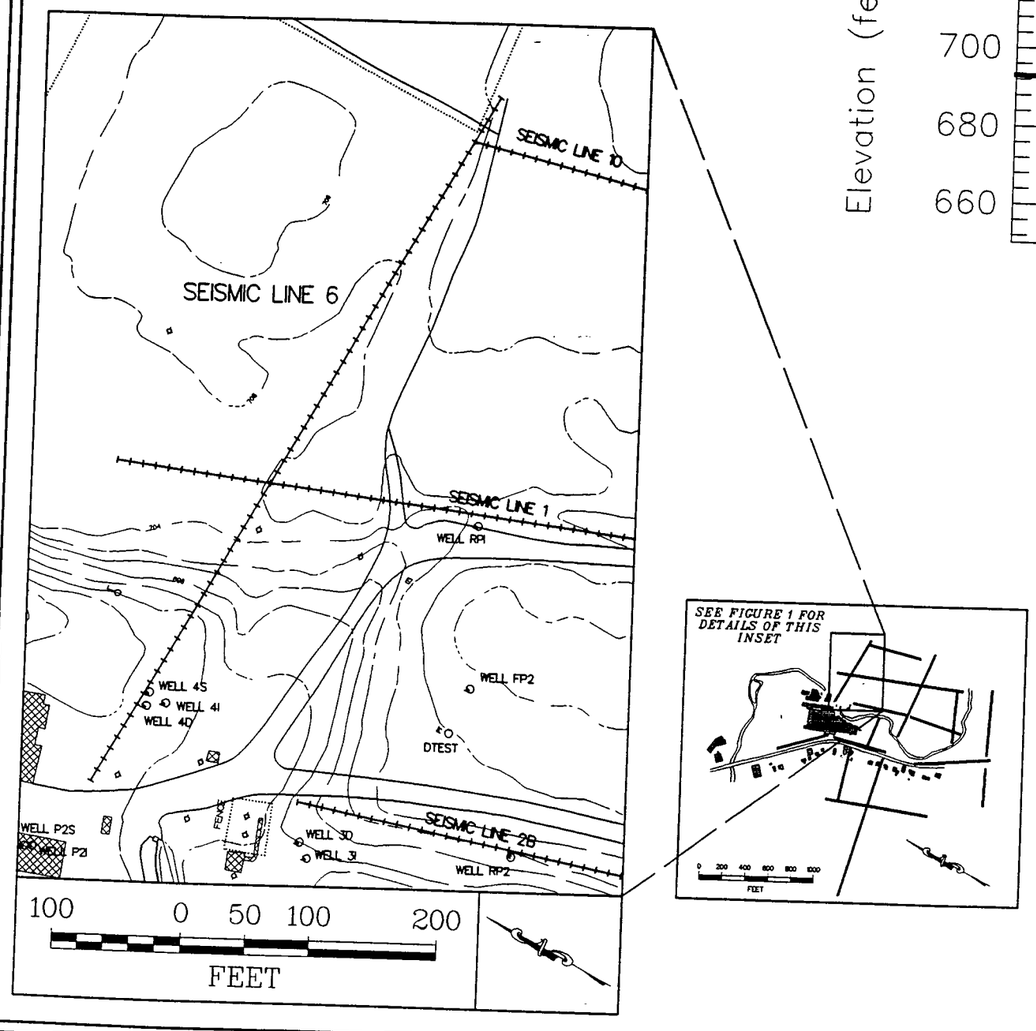


FIGURE 6

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 6

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

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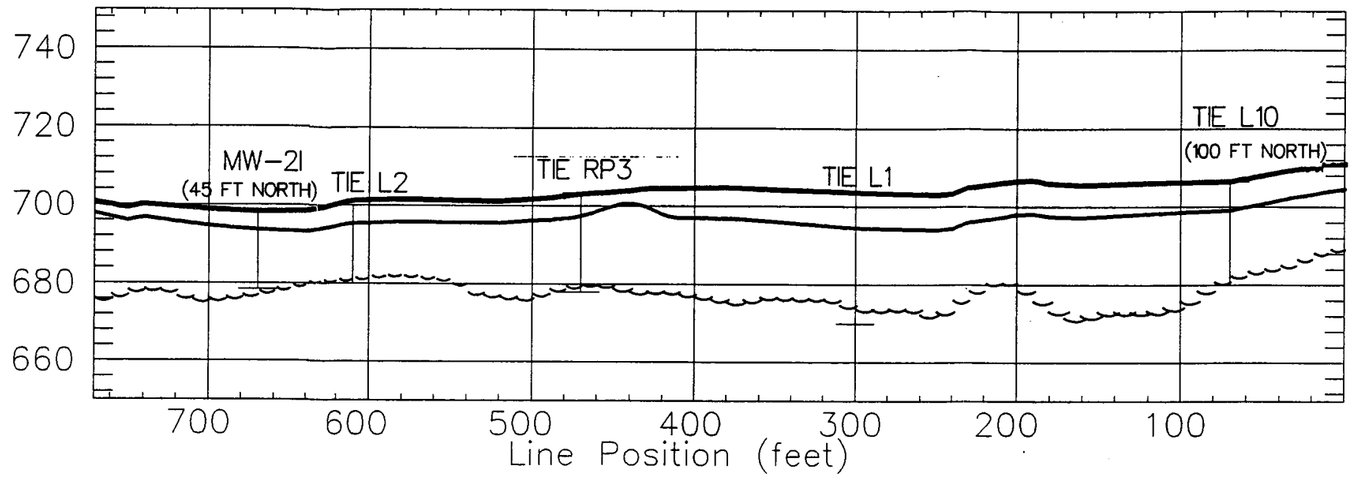
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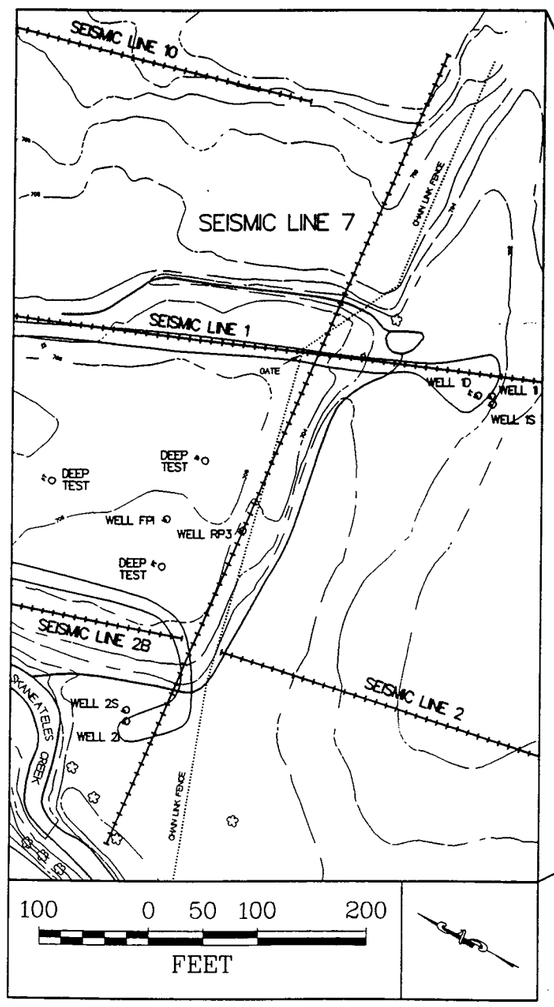
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WEST

EAST





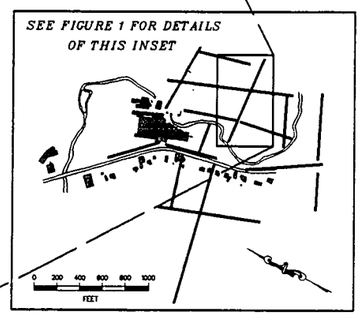


FIGURE 7

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 7

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

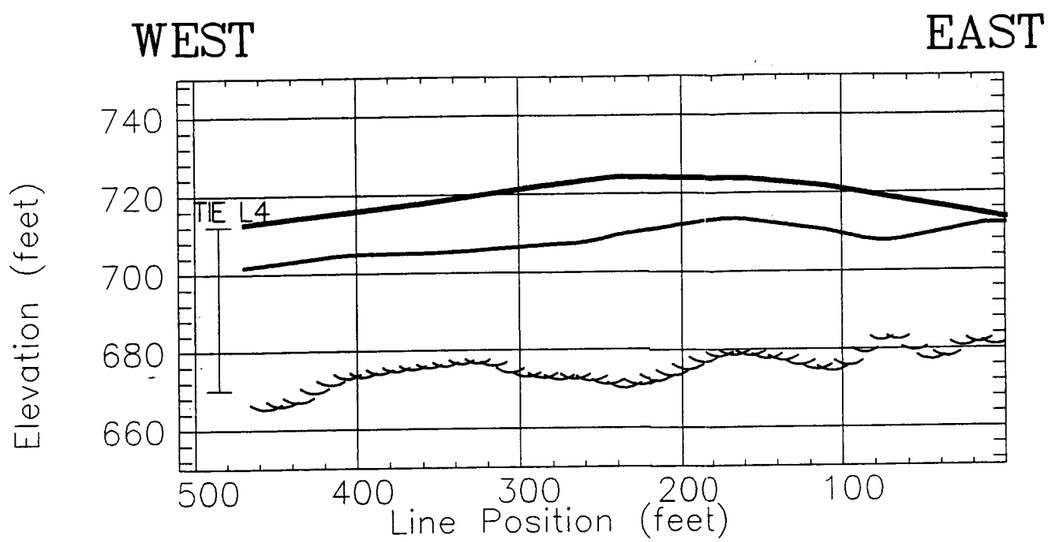
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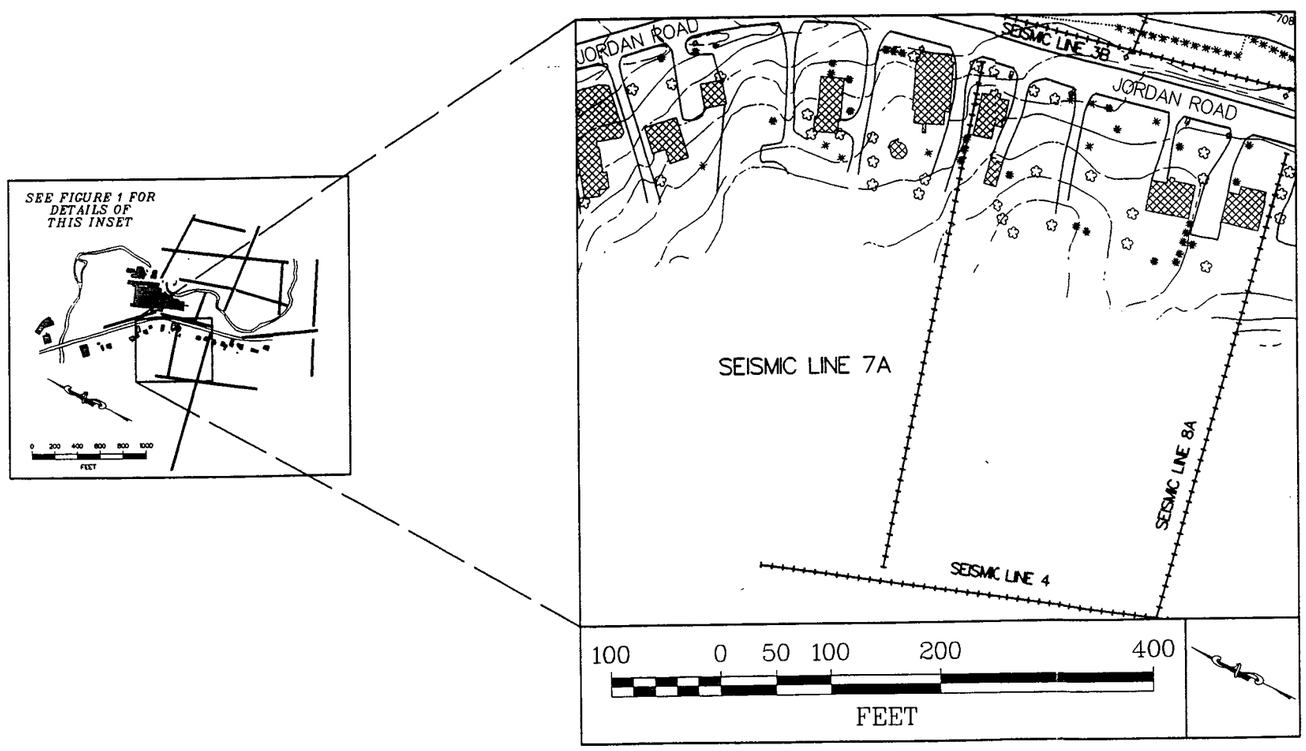
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FIGURE 8

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 7A

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

JANUARY 1993

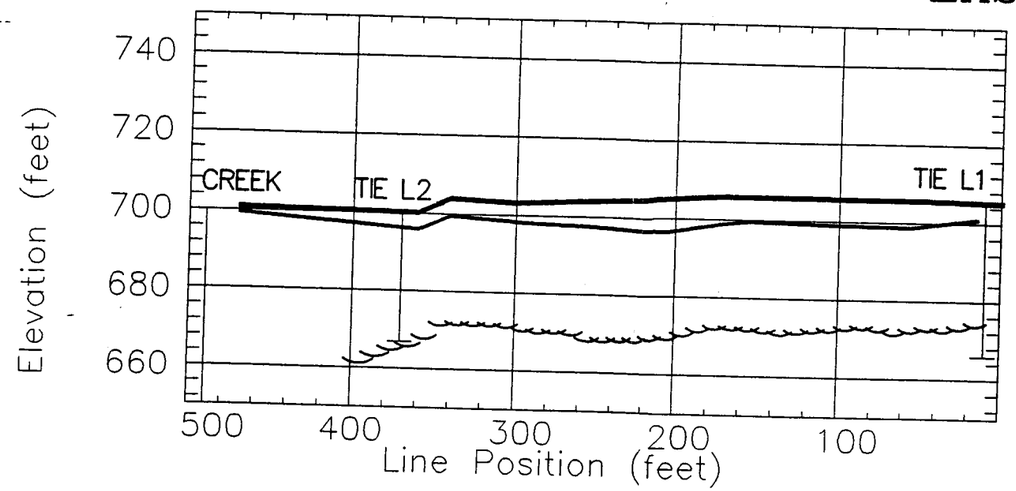
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WEST

EAST



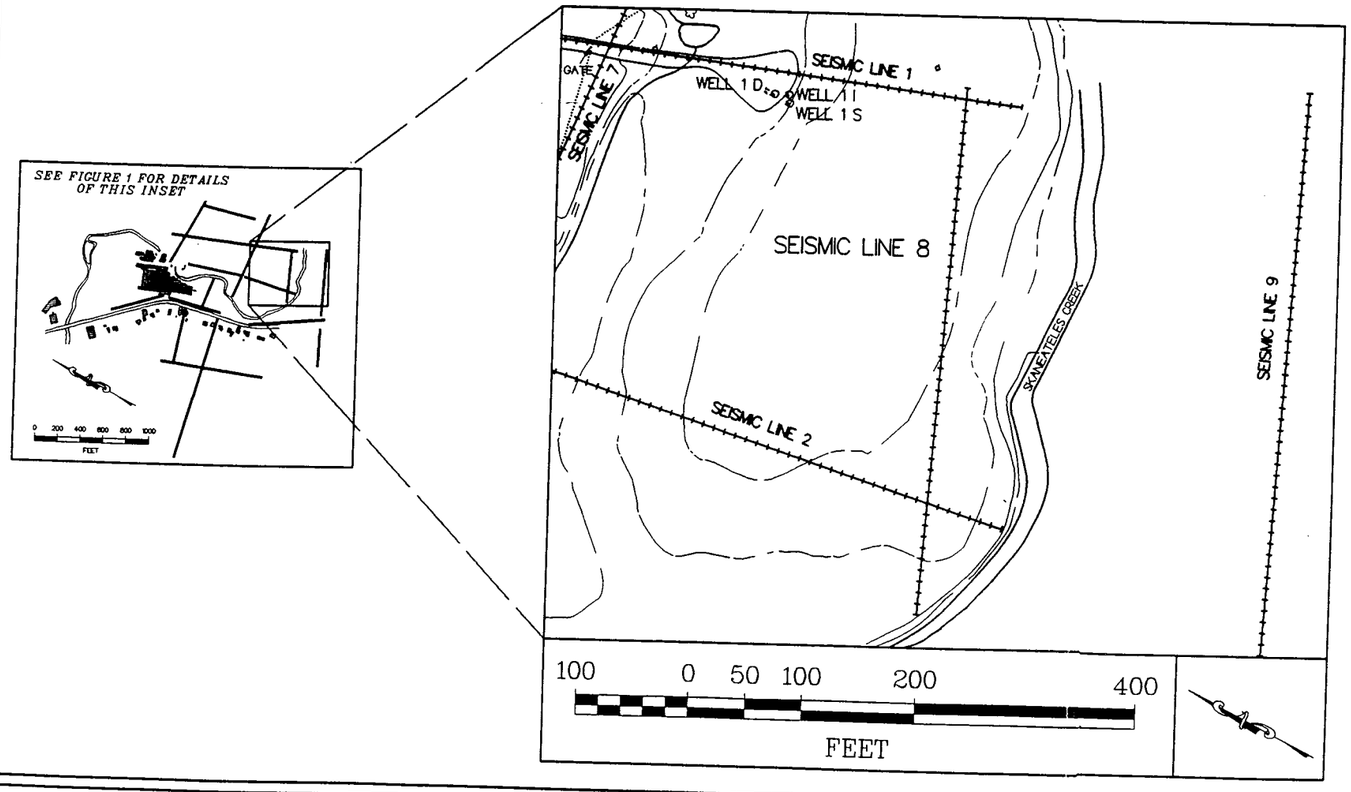


FIGURE 9

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 8

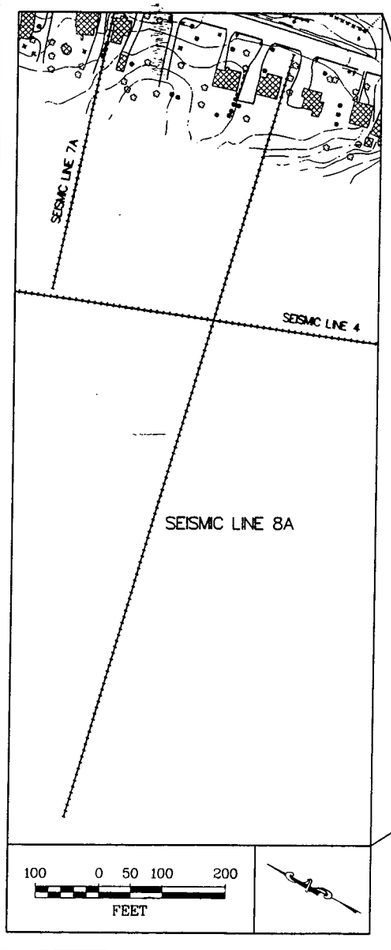
BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

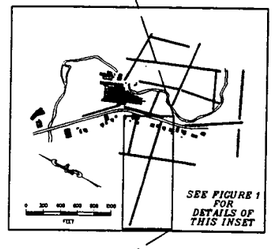
JANUARY 1993

GARTNER LEE, INC. NIAGARA FALLS, NY

92820-8.GCO

Gartner Lee
92-820





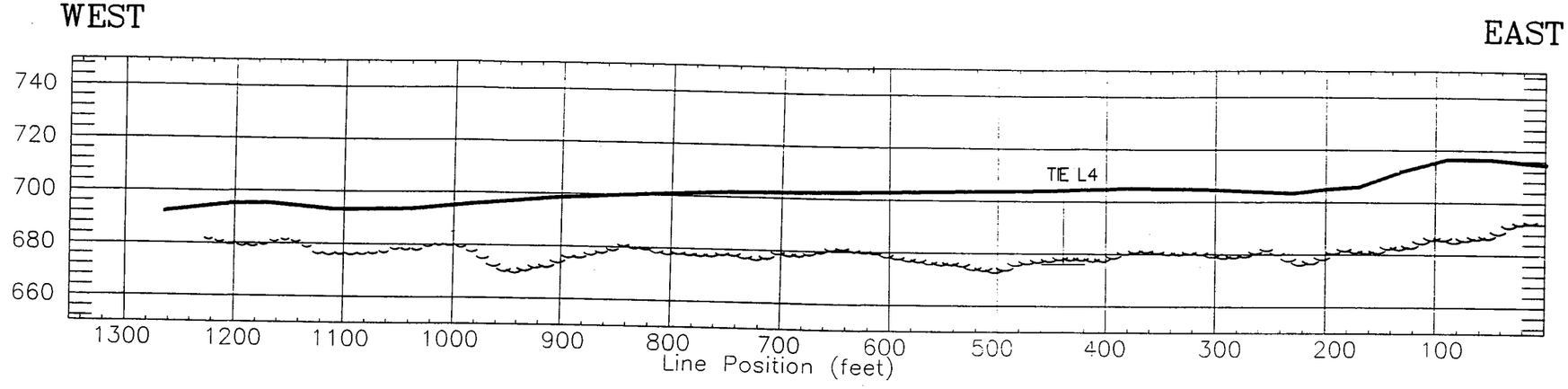


FIGURE 10

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 8A

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

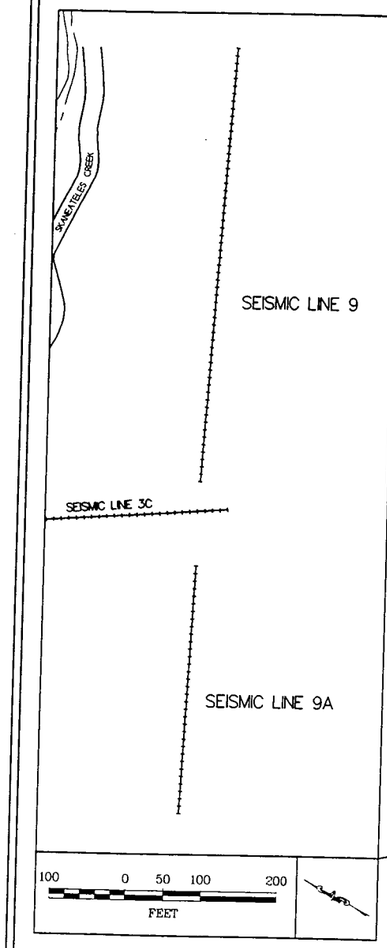
JANUARY 1993

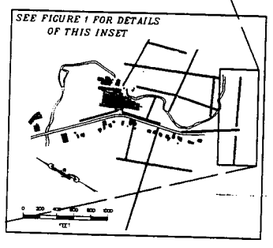
GARTNER LEE, INC. NIAGARA FALLS, NY

92820-8A.GCD

Gartner Lee

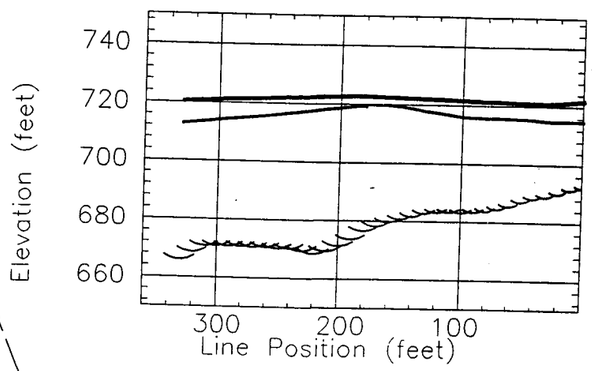
92-820





WEST

9A



EAST

9

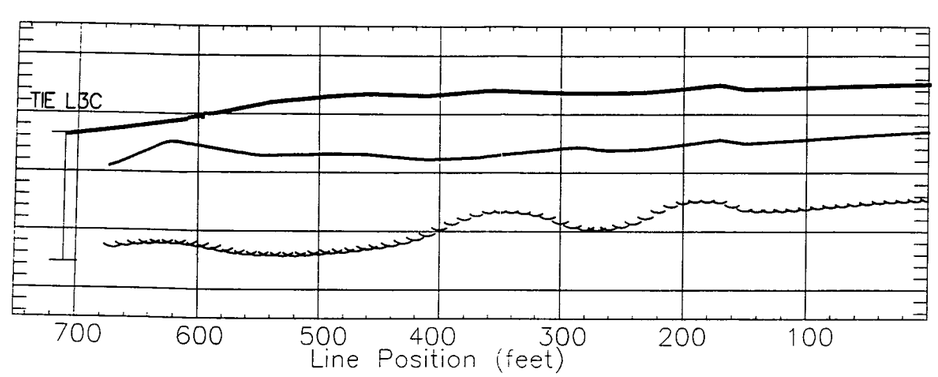


FIGURE 11

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINES 9 AND 9A

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

JANUARY 1993

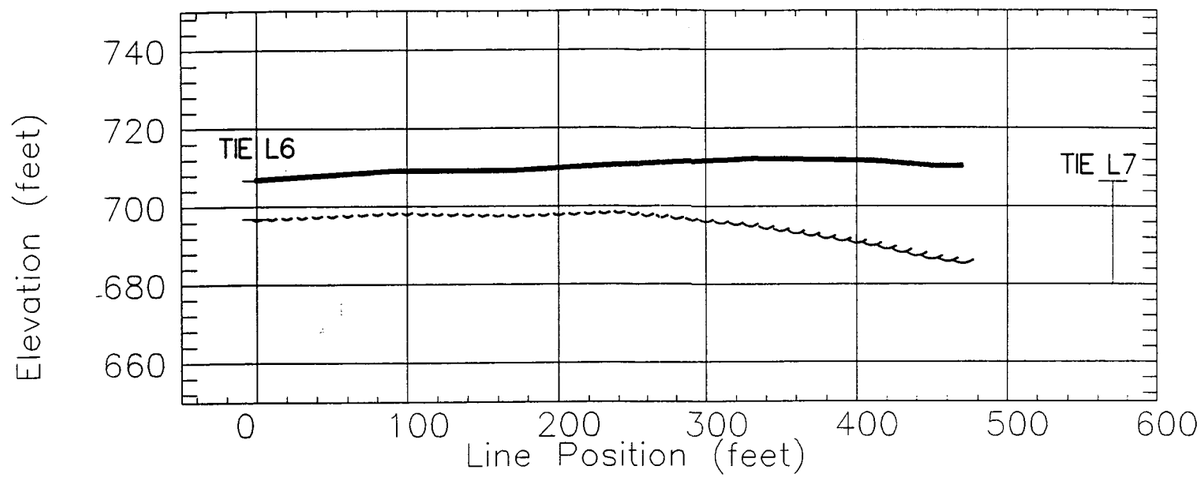
GARTNER LEE, INC. NIAGARA FALLS, NY

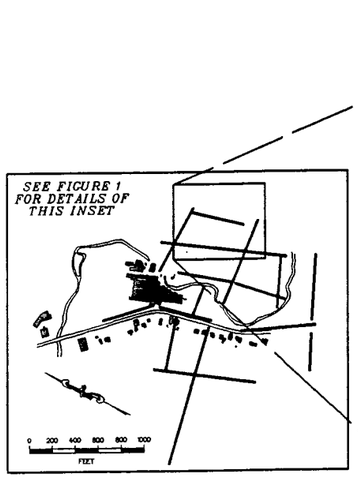
92820-9.GCD

Gartner Lee

92-820

NORTH SOUTH





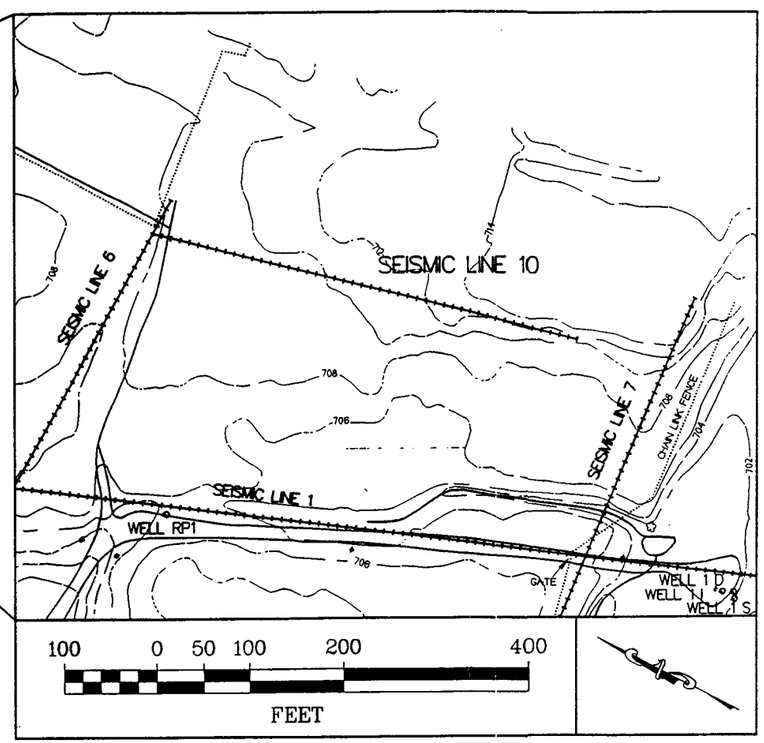


FIGURE 12

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 10

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

JANUARY 1993

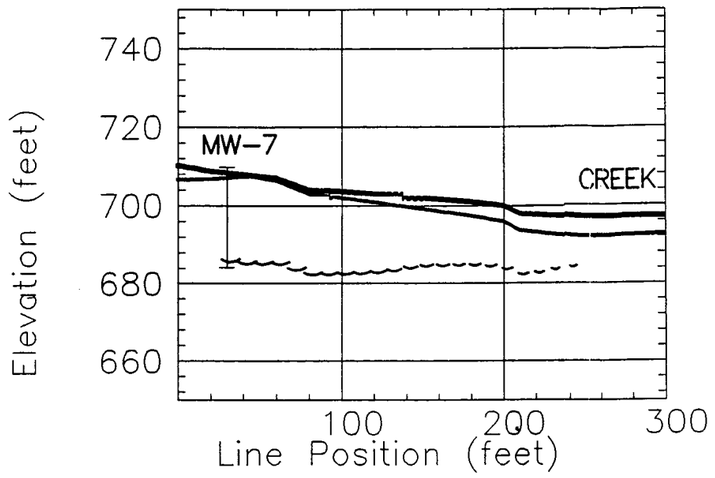
GARTNER LEE, INC. NIAGARA FALLS, NY

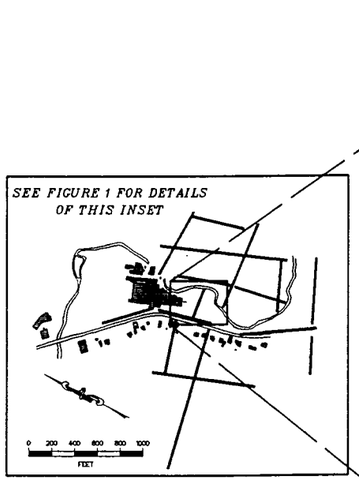
92820-10.GCD

Gartner Lee

92-820

WEST EAST





92820-11.GCD

FIGURE 13

GEOPHYSICAL SURVEY RESULTS

STAUFFER MANAGEMENT COMPANY FACILITY, SKANEATELES FALLS, NY

SEISMIC LINE 11

BEDROCK DEPTH INTERPRETATION WITH MAP SHOWING LINE LOCATION

JANUARY 1993

GARTNER LEE, INC. NIAGARA FALLS, NY

Appendix D

Analytical Data Tables

APPENDIX D - LIST OF TABLES

Number	Title
D-1	Volatile organics measured in soil vapor from former Organics Plant area.
D-2	Volatile organic analytes measured in landfill perimeter soil borings.
D-3	Extractable organic analytes measured in landfill perimeter soil borings.
D-4	Inorganic analytes measured in landfill perimeter soil borings.
D-5	Volatile organic analytes measured in landfill soil borings.
D-6A	Extractable organic compounds measured in landfill soil borings.
D-6B	Semi-volatile tentatively identified compounds measured in landfill soil borings.
D-7	Inorganic analytes measured in landfill soil borings.
D-8	Volatile organic analytes measured in soil boring samples from former Organics Plant area.
D-9A	Semi-volatile organic analytes measured in soil boring samples from former Organics Plant area.
D-9B	Semi-volatile tentatively identified compounds measured in soil boring samples from former Organics Plant area.
D-10	Inorganic analytes and total organic carbon measured in soil samples from former Organics Plant area.
D-11A	Organic analytes measured in creek seeps and seep sediment - Round 1.
D-11B	Organic analytes measured in creek seeps and seep sediment - Round 2.
D-12	Inorganic analytes measured in creek seeps and seep sediment.
D-13A	Organic analytes measured in overburden ground water - Round 1.
D-13B	Organic analytes measured in overburden ground water - Round 2.
D-14A	Inorganic analytes measured in overburden monitoring wells - Round 1.

APPENDIX D - LIST OF TABLES (Continued)

Number	Title
D-14B	Inorganic analytes measured in overburden monitoring wells - Round 2.
D-15	Water quality parameters measured in overburden ground water.
D-16A	Organic analytes measured in upper bedrock ground water - Round 1.
D-16B	Organic analytes measured in upper bedrock ground water - Round 2.
D-17A	Inorganic analytes measured in upper bedrock ground water - Round 1.
D-17B	Inorganic analytes measured in upper bedrock ground water - Round 2.
D-18	Water quality parameters measured in shallow bedrock ground water.
D-19A	Organic analytes measured in deep bedrock ground water - Round 1.
D-19B	Organic analytes measured in deep bedrock ground water - Round 2.
D-20A	Inorganic analytes measured in deep bedrock ground water - Round 1.
D-20B	Inorganic analytes measured in deep bedrock ground water - Round 2.
D-21	Water quality parameters measured in deep bedrock ground water.
D-22	Organic analytes measured in inorganic sludge basin wells.
D-23	Inorganic analytes measured in inorganic sludge basin wells.
D-24A	Organic analytes measured in stream surface water - Round 1.
D-24B	Organic analytes measured in stream surface water - Round 2.
D-25A	Inorganic analytes measured in surface water samples - Round 1.
D-25B	Inorganic analytes measured in surface water samples - Round 2.
D-26	Water quality parameters measured in surface water.
D-27A	Organic analytes measured in stream sediments - Round 1.
D-27B	Organic analytes measured in stream sediments - Round 2.

APPENDIX D - LIST OF TABLES (Continued)

Number	Title
D-28A	Inorganic analytes measured in stream sediments - Round 1.
D-28B	Inorganic analytes measured in stream sediments - Round 2.
D-29A	Organic analytes measured in basement seep - Round 1.
D-29B	Organic analytes measured in basement seep - Round 2.
D-30A	Inorganic analytes measured in basement seep - Round 1.
D-30B	Inorganic analytes measured in basement seep - Round 2.
D-31	Water quality parameters measured in basement seep.
D-32	Organic analytes measured in stormwater collection pit.
D-33	Inorganic analytes measured in stormwater collection pit.
D-34	Organic analytes measured in piezometer wipe sample.

TABLE D-1 VOLATILE ORGANICS MEASURED IN SOIL VAPOR FROM FORMER ORGANICS PLANT AREA

Analyte	Units	VP-1	VP-2	VP-3	VP-4	VP-5	VP-6	VP-7	VP-8	VP-9	VP-10	VP-11
		(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)
Toluene		(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)
Ethylbenzene		(<0.46U)	(<0.46U)	1.0	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)
m/p-Xylene		(<0.79U)	(<0.79U)	22.4	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)
o-Xylene		(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)
Methylene Chloride		0.2	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	0.3	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)
cis-1,2-Dichloroethene		(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)
trans-1,2-Dichloroethene		0.1	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)
1,1,1-Trichloroethane		(<0.019U)	0.1	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)
Trichloroethene		(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)
Tetrachloroethene		(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)

Analyte	Units	VP-16	VP-17	VP-18	VP-21	VP-23	VP-24	VP-25	VP-27	VP-28	VP-29	VP-30
		(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)
Toluene		(<0.42U)	(<0.42U)	1.3	(<0.42U)	3.0	(<0.42U)	(<0.42U)	0.1	(<0.42U)	(<0.42U)	0.4
Ethylbenzene		(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)
m/p-Xylene		0.7	(<0.79U)	13.8	(<0.79U)	91.4	1.3	1.1	5.8	(<0.79U)	7.1	6
o-Xylene		0.6	(<0.79U)	19.8	(<0.79U)	417.2	1.2	9.3	4.1	1	4	53.5
Methylene Chloride		(<0.32U)	0.2	(<0.32U)	(<0.32U)	4.9	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)
cis-1,2-Dichloroethene		(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	0.9	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)
trans-1,2-Dichloroethene		(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	6.2	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)
1,1,1-Trichloroethane		(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	0.1	(<0.019U)	(<0.019U)
Trichloroethene		(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)
Tetrachloroethene		(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)

Analyte	Units	VP-31	VP-32	VP-32D	VP-33	VP-34	VP-35	VP-36	VP-37	VP-38	VP-39	VP-43
		(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)	(ppm_v)
Toluene		0.2	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	0.3	0.1	(<0.42U)	0.7	1.5
Ethylbenzene		0.5	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	0.1	2.1	5.7
m/p-Xylene		5.5	1.5	1.5	0.1	(<0.79U)	(<0.79U)	(<0.79U)	0.5	0.1	1	0.9
o-Xylene		64.5	0.6	1	(<0.79U)	0.3	(<0.79U)	0.2	0.9	0.4	12.8	1.1
Methylene Chloride		(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	0.8	(<0.32U)	1.2	3
cis-1,2-Dichloroethene		(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	1.1	8.3
trans-1,2-Dichloroethene		(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	1.7	1.6
1,1,1-Trichloroethane		(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	0.1	(<0.019U)	(<0.019U)	(<0.019U)	(<0.019U)	0.2	1.1
Trichloroethene		(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)
Tetrachloroethene		(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)

NOTE:
U = Not detected. Detection limits shown as (<_U).

TABLE D-1 (Continued)

Analyte	Units	VP-44 (ppm_v)	VP-45 (ppm_v)	VP-46 (ppm_v)	VP-47 (ppm_v)	VP-48 (ppm_v)	VP-48D (ppm_v)	VP-49 (ppm_v)	VP-50 (ppm_v)	VP-51 (ppm_v)	VP-52 (ppm_v)	VP-53 (ppm_v)
Toluene		(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)
Ethylbenzene		(<0.46U)	(<0.46U)	(<0.46U)	0.2	(<0.46U)	(<0.46U)	3.7	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)
m/p-Xylene		(<0.79U)	(<0.79U)	(<0.79U)	0.5	(<0.79U)	(<0.79U)	2.1	(<0.79U)	0.1	(<0.79U)	(<0.79U)
o-Xylene		(<0.79U)	(<0.79U)	(<0.79U)	0.5	(<0.79U)	(<0.79U)	1	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)
Methylene Chloride		(<0.32U)	1.2	1.1	(<0.32U)	1.2	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)
cis-1,2-Dichloroethene		(<0.37U)	6.5	10.1	(<0.37U)	5.8	8.3	11.2	28.2	1.1	(<0.37U)	(<0.37U)
trans-1,2-Dichloroethene		(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	1.7
1,1,1-Trichloroethane		(<0.019U)	2.2	0.7	(<0.019U)	0.6	0.9	1.3	0.8	0.3	0.1	0.2
Trichloroethene		(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)
Tetrachloroethene		(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)

Analyte	Units	VP-54 (ppm_v)	VP-55 (ppm_v)	VP-56 (ppm_v)	VP-57 (ppm_v)	VP-59 (ppm_v)	VP-60 (ppm_v)	VP-61 (ppm_v)	VP-62 (ppm_v)	VP-63 (ppm_v)
Toluene		(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)	(<0.42U)
Ethylbenzene		0.9	4.6	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	(<0.46U)	2.6
m/p-Xylene		(<0.79U)	73.5	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	40
o-Xylene		(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)	(<0.79U)
Methylene Chloride		(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)	(<0.32U)
cis-1,2-Dichloroethene		(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)	(<0.37U)
trans-1,2-Dichloroethene		(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	(<0.81U)	4.2	(<0.81U)	(<0.81U)
1,1,1-Trichloroethane		(<0.019U)	(<0.019U)	0.3	(<0.019U)	(<0.019U)	(<0.019U)	0.1	(<0.019U)	0.3
Trichloroethene		(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)	(<0.022U)
Tetrachloroethene		(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)	(<0.009U)

TABLE D-2 VOLATILE ORGANIC ANALYTES MEASURED IN LANDFILL PERIMETER SOIL BORINGS

Analytes	SB02	SB03	SB04	SB05	SB05DUP	SB06	SB07
Depth	3.5-5.5 ft	3.5-5.0 ft	4.5-6.0 ft	0-1.5 ft	0-1.5 ft	1-3 ft	0.5-1.5 ft
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
VOLATILES							
Methylene Chloride	(<6U)	(<6U)	(<6U)	(<5U)	(<6U)	(<6U)	(<8U)
Acetone	5 J	9 J	26	6 J	6 J	(<11U)	5 J
2-Butanone	(<12 U)	(<12 U)	(<12 U)	(<10 U)	6 J	(<11U)	(<16U)
Tetrachloroethene	2 J	(<6U)	(<6U)	(<5U)	(<6U)	(<6U)	(<8U)
Toluene	(<6U)	(<6U)	4 J	(<5U)	(<6U)	(<6U)	(<8U)
Ethylbenzene	(<6U)	(<6U)	(<6U)	(<5U)	2 J	(<6U)	(<8U)
Xylenes (Total)	(<6U)	(<6U)	66	11	6 J	2 J	(<8U)
TICs-Known							
Undecane	---	---	---	---	---	---	---
TICs-Unknown	---	---	---	---	---	---	---
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported value is an estimate following data validation review.
--- = No detectable TICs.
Data validation results presented in data report 911652.

TABLE D-2 (Continued)

Units	SB08 1-3 ft (ug/kg)	SB09 2-4 ft (ug/kg)	SB10 3.5-5.5 ft (ug/kg)	SB11 5-7 ft (ug/kg)	SB12 4-6 ft (ug/kg)	SB13 1.3-3.5 ft (ug/kg)	SB14 4-6 ft (ug/kg)
VOLATILES							
Methylene Chloride	(<6U)	(<6U)	3 J	3 J	(<6U)	(<6U)	(<7U)
Acetone	58	(<13U)	21	6 J	26	(<12U)	39
2-Butanone	(<16 U)	(<13U)	7 J	(<11U)	12 J	6 J	25
Tetrachloroethene	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<7U)
Toluene	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	3 J
Ethylbenzene	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<7U)
Xylenes (Total)	7 J	(<6U)	(<6U)	1 J	(<6U)	(<6U)	670
TICs-Known							
Undecane	22 JN	---	---	---	---	---	---
TICs-Unknown	---	---	---	---	---	---	---
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1	1

TABLE D-2 (Continued)

Units	SB15 6-8 ft (ug/kg)	FB01 -01A (ug/l)	FB02 -01A (ug/l)	FB03 -01A (ug/l)
VOLATILES				
Methylene Chloride	(<6U)	(<5U)	(<5U)	(<5U)
Acetone	(<12U)	(<10U)	4 J	(<10U)
2-Butanone	(<12U)	(<10U)	4 J	(<10U)
Tetrachloroethene	(<6U)	(<5U)	(<5U)	(<5U)
Toluene	(<6U)	(<5U)	(<5U)	(<5U)
Ethylbenzene	(<6U)	(<5U)	(<5U)	(<5U)
Xylenes (Total)	(<6U)	(<5U)	(<5U)	(<5U)
TICs-Known				
Undecane	---	---	---	---
TICs-Unknown	---	---	---	---
Level (low or medium)	L	L	L	L
Dilution factor	1	1	1	1

TABLE D-3 EXTRACTABLE ORGANIC ANALYTES MEASURED IN LANDFILL PERIMETER SOIL BORINGS

Analytes	Depth Units	SB02 3.5-5.5 ft (ug/kg)	SB03 3.5-5.0 ft (ug/kg)	SB04 4.5-6.0 ft (ug/kg)	SB05 0-1.5 ft (ug/kg)	SB05DUP 0-1.5 ft (ug/kg)	SB06 1-3 ft (ug/kg)
SEMI-VOLATILES							
2-Methylphenol		(<400U)	(<400U)	(<390U)	20 J	40 J	(<370U)
4-Methylphenol		(<400U)	(<400U)	(<390U)	(<340U)	29 J	(<370U)
Naphthalene		(<400U)	(<400U)	(<390U)	67 J	180 J	41 J
2-Methylnaphthalene		(<400U)	(<400U)	(<390U)	55 J	140 J	31 J
Dimethyl Phthalate		(<400U)	(<400U)	(<390U)	(<340U)	(<370U)	19 J
Acenaphthylene		(<400U)	(<400U)	(<390U)	62 J	200 J	24 J
Acenaphthene		(<400U)	(<400U)	(<390U)	20 J	92 J	29 J
Dibenzofuran		(<400U)	(<400U)	(<390U)	33 J	120 J	29 J
Diethylphthalate		(<400U)	(<400U)	(<390U)	(<340U)	(<370U)	17 J
Fluorene		(<400U)	(<400U)	(<390U)	49 J	250 J	25 J
N-Nitrosodiphenylamine		(<400U)	(<400U)	(<390U)	(<340U)	(<370U)	23 J
Phenanthrene		(<400U)	(<400U)	(<390U)	460	1,800	45 J
Anthracene		(<400U)	(<400U)	(<390U)	87 J	390	15 J
Di-n-Butylphthalate		(<400U)	(<400U)	(<390U)	(<340U)	(<370U)	(<370U)
Fluoranthene		(<400U)	(<400U)	(<390U)	730	2,300	55 J
Pyrene		(<400U)	(<400U)	(<390U)	680	2,200	70 J
Benzo(a)Anthracene		(<400U)	(<400U)	(<390U)	460	1,500	(<370U)
bis(2-ethylhexyl)Phthalate		(<400U)	(<400U)	(<390U)	(<340U)	(<370U)	(<370U)
Chrysene		(<400U)	(<400U)	(<390U)	530	1,600	(<370U)
Benzo(b)Fluoranthene		(<400U)	(<400U)	(<390U)	600	2,000	40 J
Benzo(k)Fluoranthene		(<400U)	(<400U)	(<390U)	270 J	1,000	(<370U)
Benzo(a)Pyrene		(<400U)	(<400U)	(<390U)	360	1,300	(<370U)
o-Toluic Acid		(<2,000U)	(<2,000U)	(<2,000U)	60 J	49 J	(<2,000U)
m-Toluic Acid		(<2,000U)	(<2,000U)	(<2,000U)	(<1,800U)	(<1,900U)	(<2,000U)
p-Toluic Acid		(<2,000U)	(<2,000U)	(<2,000U)	(<1,800U)	(<1,900U)	(<2,000U)
TICs-Known							
2-Hexanone,5-methyl		---	---	---	---	---	---
Naphthalene,2-phenyl		---	---	---	---	360 JN	---
Phenanthrene,2,5-dimethyl		---	---	---	---	570 JN	---
Benzaldehyde,4-methyl		---	---	---	---	---	830 JN
Octane,2,4,6-trimethyl		---	---	---	---	---	---
Hexadecanoic acid,dioctyl		---	---	---	---	---	---
Ethanol,2,2'-[oxybis(2,1-ethyl		---	---	---	---	---	---
Phenol,4-(2,2,3,3-tetramethyl		---	---	---	---	---	---
Phenol,4-nonyl		---	---	---	---	---	---
Tetradecanoic acid		---	---	---	---	---	---
Phenol,nonyl-		---	---	---	---	---	---
Benzaldehyde,3-methyl-oxime		---	---	---	---	---	---
Octadecanoic acid		---	---	---	---	---	---
TICs-Unknown;n		430 J;1	860 J;2	350 J;1	3,570 J;11	11,840 J;17	14,220 J;22
PESTICIDES/PCBs							
4,4'-DDE		(<10U)	(<10U)	(<10U)	6 J	7 J	36
4,4'-DDD		(<10U)	(<10U)	(<10U)	(<8.3U)	(<8.9U)	6 J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported concentration is an estimated value following data validation review.
B = Compound detected in corresponding method blank.
JN = Presumptive identification and an estimated concentration.
--- = No detectable TICs.
Unknown TICs reported as total concentrations and total number of unknowns.

Data validation results provided in data report 911652.

TABLE D-3 (Continued)

Analytes	Depth Units	SB07 0.5-1.5 ft (ug/kg)	SB08 1-3 ft (ug/kg)	SB09 2-4 ft (ug/kg)	SB10 3.5-5.5 ft (ug/kg)	SB11 5-7 ft (ug/kg)	SB12 4-6 ft (ug/kg)
SEMI-VOLATILES							
2-Methylphenol		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
4-Methylphenol		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Naphthalene		48 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
2-Methylnaphthalene		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Dimethyl Phthalate		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Acenaphthylene		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Acenaphthene		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Dibenzofuran		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Diethylphthalate		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Fluorene		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
N-Nitrosodiphenylamine		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Phenanthrene		170 J	(<390U)	(<410U)	(<400U)	22 J	(<420U)
Anthracene		13 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Di-n-Butylphthalate		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Fluoranthene		210 J	(<390U)	(<410U)	(<400U)	21 J	(<420U)
Pyrene		150 J	(<390U)	(<410U)	(<400U)	23 J	(<420U)
Benzo(a)Anthracene		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
bis(2-ethylhexyl)Phthalate		(<530U)	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Chrysene		74 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Benzo(b)Fluoranthene		83 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Benzo(k)Fluoranthene		47 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
Benzo(a)Pyrene		50 J	(<390U)	(<410U)	(<400U)	(<380U)	(<420U)
o-Toluic Acid		(<2,700U)	(<2,000U)	(<2,100U)	(<2,100U)	(<2,000U)	(<2,000U)
m-Toluic Acid		(<2,700U)	(<2,000U)	(<2,100U)	(<2,100U)	(<2,000U)	(<2,000U)
p-Toluic Acid		(<2,700U)	(<2,000U)	(<2,100U)	(<2,100U)	(<2,000U)	(<2,000U)
TICs-Known							
2-Hexanone,5-methyl		---	---	---	---	---	---
Naphthalene,2-phenyl		---	---	---	---	---	---
Phenanthrene,2,5-dimethyl		---	---	---	---	---	---
Benzaldehyde,4-methyl		---	---	---	---	---	---
Octane,2,4,6-trimethyl		430 JN	---	---	---	---	---
Hexadecanoic acid,dioctyl		---	---	---	---	---	---
Ethanol,2,2'-[oxybis(2,1-ethyl		---	---	---	---	---	---
Phenol,4-(2,2,3,3-tetramethyl		---	---	---	---	---	---
Phenol,4-nonyl		---	---	---	---	---	---
Tetradecanoic acid		---	---	---	---	---	---
Phenol,nonyl-		---	---	---	---	---	---
Benzaldehyde,3-methyl-oxime		---	---	---	---	---	---
Octadecanoic acid		---	---	---	---	---	---
TICs-Unknown;n		5,240 J;8	1,310 J;2	1,260 J;2	2,370 J;4	7,410 J;6	3,480 J;4
PESTICIDES/PCBs							
4,4'-DDE		(<13U)	(<9.4U)	(<10U)	(<9.8U)	(<9.2U)	(<10U)
4,4'-DDD		(<13U)	(<9.4U)	(<10U)	(<9.8U)	(<9.2U)	(<10U)

TABLE D-3 (Continued)

Analytes	Depth Units	SB13 1.5-3.5 ft (ug/kg)	SB14 4-6 ft (ug/kg)	SB15 6-8 ft (ug/kg)	FB01 (ug/l)	FB02 (ug/l)	FB03 (ug/l)
SEMI-VOLATILES							
2-Methylphenol		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
4-Methylphenol		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Naphthalene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
2-Methylnaphthalene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Dimethyl Phthalate		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Acenaphthylene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Acenaphthene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Dibenzofuran		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Diethylphthalate		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Fluorene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
N-Nitrosodiphenylamine		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Phenanthrene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Anthracene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Di-n-Butylphthalate		150 J	220 J	170 J	(<5U)	(<5U)	(<10U)
Fluoranthene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Pyrene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Benzo(a)Anthracene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
bis(2-ethylhexyl)Phthalate		110 J	(<440U)	(<410U)	2 BJ	0.6 BJ	(<10U)
Chrysene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Benzo(b)Fluoranthene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Benzo(k)Fluoranthene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
Benzo(a)Pyrene		(<400U)	(<440U)	(<410U)	(<5U)	(<5U)	(<10U)
o-Toluic Acid		(<2,000U)	170 J	(<2,100U)	(<5U)	(<5U)	(<10U)
m-Toluic Acid		46 J	120 J	(<2,100U)	(<5U)	(<5U)	(<10U)
p-Toluic Acid		(<2,000U)	48 J	(<2,100U)	(<5U)	(<5U)	(<10U)
TICs-Known							
2-Hexanone,5-methyl		---	---	---	38 BJN	22 BJN	37 BJN
Naphthalene,2-phenyl		---	---	---	---	---	---
Phenanthrene,2,5-dimethyl		---	---	---	---	---	---
Benzaldehyde,4-methyl		---	---	---	---	---	---
Octane,2,4,6-trimethyl		---	---	---	---	---	---
Hexadecanoic acid,dioctyl		460 JN	---	---	---	---	---
Ethanol,2,2'-[oxybis(2,1-ethyl		---	290 JN	---	---	---	---
Phenol,4-(2,2,3,3-tetramethyl		---	450 JN	---	---	---	---
Phenol,4-nonyl		---	600 JN	---	---	---	---
Tetradecanoic acid		---	1,500 JN	---	---	---	---
Phenol,nonyl-		---	470 JN	---	---	---	---
Benzaldehyde,3-methyl-oxime		---	200 JN	---	---	---	---
Octadecanoic acid		---	2,700 JN	---	---	---	---
TICs-Unknown;n		1,810 J;2	9,800 J;10	2,680 J;4	---	---	---
PESTICIDES/PCBs							
4,4'-DDE		(<9.6U)	(<11U)	(<9.9U)	(<0.10U)	(<0.10U)	(<0.10U)
4,4'-DDD		(<9.6U)	(<11U)	(<9.9U)	(<0.10U)	(<0.10U)	(<0.10U)

TABLE D-4 INORGANIC ANALYTES MEASURED IN LANDFILL PERIMETER SOIL BORINGS

Analytes Depths Units	SB02 3.5-5.5 ft (mg/kg)	SB03 3.5-5.0 ft (mg/kg)	SB04 4.5-6.0 ft (mg/kg)	SB05 0-1.5 ft (mg/kg)	SB05DUP 0-1.5 ft (mg/kg)	SB06 1-3 ft (mg/kg)	SB07 0.5-1.5 ft (mg/kg)
Aluminum	16,200	19,700	13,800	10,700	8,800	4,180	12,100
Antimony	(<3.8U) J	(<3.2U) J	6.1 J	(<3.1U) J	2.8 BJ	(<3.3U) J	6.6 J
Arsenic	5.1 J	5.0 J	7.8 J	3.1 J	3.6 J	4.2 J	4.8 J
Barium	103	124	92.1	78.7	58.5	35.2	50.0
Beryllium	0.64	0.72	0.84	0.52	0.45	0.31 B	0.46 B
Cadmium	4.5 J	4.6 J	6.5 J	4.5 J	3.2 J	1.6 J	4.9 J
Calcium	87,300	53,100	2,510	93,900	148,000	177,000	53,600 B
Chromium	17.3 J	18.9 J	21.8 J	16.7 J	14.0 J	13.1 J	14.6 J
Cobalt	9.6	12.3	14.4	57.7	20.4	11.4	9.6
Copper	25.1	26.3	46.2	26.0	20.5	33.6	41.0
Iron	25,700	27,900	36,600	25,000	20,300	13,200	30,100
Lead	11.0	8.0 R	15.3	15.5	20.7	11.1	11.4 R
Magnesium	30,600 B	21,100 B	5,240	6,680	12,200 B	20,600 B	29,100 B
Manganese	469	838	827	632	543	372	406
Mercury	(<0.11U)	(<0.11U)	(<0.11U)	(<0.10U)	(<0.09U)	(<0.32U)	0.26
Nickel	26.0	27.4	48.4	29.0	24.8	16.9	25.1
Potassium	2,570	2,550	1,080	1,240	1,250	1,060	1,070
Selenium	(<0.08U)J	(<0.10U)J	0.18 BJ	(<0.10U)J	(<0.09U)J	(<0.09U)J	(<0.11U)J
Silver	2.7 J	1.9 J	1.2 J	2.7 J	4.1 J	4.9 J	2.5 J
Sodium	302 B	756	204 B	1,720	1,410	869	301 B
Thallium	(<0.17U)	(<0.20U)	0.31 B	(<0.20U)	(<0.19U)	(<0.18U)	(<0.21U)
Vanadium	17.4	18.4	21.9	11.5	10.8	8.4	16.2
Zinc	45.6 R	46.2 R	54.2 R	107 R	83.7 R	54.0 R	52.3 R
Cyanide	1.0 J	0.64	(<0.49U)	(<0.46U)	(<0.39U)	(<0.38U)	(<0.70U)
TOC	2,280	2,100	3,870	12,100	8,840	4,340	13,300

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below CRDL.
J = Reported concentration is an estimated value following data validation review.
R = Data is unusable.
NA = Not analyzed.

Data validation results provided in data report 911652.

TABLE D-4 (Continued)

Analytes / Depth / Units	SB08 1-3 ft (mg/kg)	SB09 2-4 ft (mg/kg)	SB10 3.5-5.5 ft (mg/kg)	SB11 5-7 ft (mg/kg)	SB12 4-6 ft (mg/kg)	SB13 1.5-3.5 ft (mg/kg)	SB14 4-6 ft (mg/kg)
Aluminum	18,300	17,400	15,500	13,200	19,600	11,700	13,000
Antimony	(<3.3U) J	5.3 BJ	4.0 BJ	4.5 J	5.0 BJ	(<2.9U) J	(<4.4U) J
Arsenic	4.5 J	4.8 J	5.2 J	5.4 J	2.7 J	2.2 J	5.0 J
Barium	86.1	78.3	74.4	64.9	52.7	53.8	115
Beryllium	0.68	0.69	0.62	0.64	0.76	0.41 B	0.89
Cadmium	5.0 J	4.8 J	4.0 J	4.6 J	4.9 J	3.2 J	5.5 J
Calcium	74,700	52,500 B	55,200	12,100 B	34,400 B	5,610	4,090
Chromium	18.4 J	20.8 J	16.5 J	22.8 J	25.2 J	13.2 J	20.8 J
Cobalt	9.6	10.9	9.3	9.2	11.2	5.7	9.9
Copper	24.7	26.0	22.8	23.1	26.4	11.8	21.5
Iron	26,500	21,300	25,700	26,300	27,000	17,100	32,100
Lead	9.2	10.7	12.6	14.4	15.2	7.4 R	16.4
Magnesium	27,900 B	16,900 B	23,200	6,050	18,200 B	3,400	3,690
Manganese	560	681	552	511	741	289	1,850
Mercury	(<0.10U)	0.10	(<0.10U)	(<0.10U)	(<0.11U)	(<0.10U)	0.19
Nickel	24.5	27.6	24.7	27.5	27.1	14	32.8
Potassium	3,460	2,940	2,070	1,660	2,200	566	1,240
Selenium	(<0.09U)J	0.40 BJ	(<0.11U)J	(<0.10U)J	(<0.11U)J	(<0.09U)J	(<0.12U)J
Silver	2.4 J	2.1 J	2.5 J	0.95 J	1.6 J	0.75 J	1.4 J
Sodium	177 B	91.7 B	90.2 B	857	852	76.4 B	5,190
Thallium	(<0.18U)	(<0.23U)	(<0.22U)	(<0.20U)	(<0.21U)	(<0.19U)	0.24 B
Vanadium	19.8	19.9	17.1	15.3	22.4	17.7	24.3
Zinc	42.6 R	44.5 R	44.8 J	61.3 R	44.1 R	29.3 R	58.5 R
Cyanide	(<0.49U)	(<0.62U)	(<0.45U)	(<0.39U)	(<0.52U)	(<0.62U)	(<0.52U)
TOC	6,300	7,200	11,800	7,230	29,500	18,000	9,940

TABLE D-4 (Continued)

Analytes Depth Units	SB15 6-8 ft (mg/kg)	FB01 (ug/l)	FB02 (ug/l)	FB03 (ug/l)
Aluminum	15,600	25.8 B	24.0 B	71.5 B
Antimony	3.7 BJ	(<34U)	(<34U)	(<34U)
Arsenic	6.1 J	(<2U)	(<2U)	(<2U)
Barium	58.1	(<5U)	(<5U)	(<5U)
Beryllium	0.84	(<1U)	(<1U)	(<1U)
Cadmium	6.1 J	(<5U)	(<5U)	(<5U)
Calcium	8,490	146 B	151 B	158 B
Chromium	26.3 J	(<4U)	(<4U)	(<4U)
Cobalt	13.4	(<9U)	(<9U)	(<9U)
Copper	33.9	6.3 B	3 B	5.9 B
Iron	32,100	49.5 B	66.2 B	124
Lead	16.5	(<1U)	1.1 B	(<1U)
Magnesium	6,900	34.1 B	(<30U)	72.8 B
Manganese	625	4.1 B	1.5 B	2.9 B
Mercury	(<0.10U)	(<0.2U)	(<0.2U)	(<0.2U)
Nickel	35.9	(<9U)	(<9U)	(<9U)
Potassium	1,260	(<69U)	151 B	(<69U)
Selenium	(<0.10U)J	(<1U)	(<1U)	(<1U)
Silver	1.0 J	(<2U)J	(<2U)J	(<2U)J
Sodium	809	(<136U)	(<136U)	(<136U)
Thallium	(<0.20U)	(<2U)R	(<2U)R	9.8 BR
Vanadium	20.9	(<3U)	(<3U)	(<3U)
Zinc	70.7 R	64.2	13.7 B	8.7 B
Cyanide	(<0.57U)	(<10U)J	(<10U)J	(<10U)J
TOC	6,340	NA	NA	NA

TABLE D-5 VOLATILE ORGANIC ANALYTES MEASURED IN LANDFILL SOIL BORINGS

Analytes		SB16 -01A	SB16 -02A	SB17 -01A	SB18 -01A	SB18 -02A	SB18 -03A
	Depth	3-4 ft	5.5-7 ft	4-6 ft	0-2 ft	5-7 ft	10-12 ft
	Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Methylene Chloride		(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	1,300 J
Acetone		26	25 J	(<13U)	(<12U)	(<12U)	(<1,500U)J
2-Butanone		12 J	(<12U)	(<13U)	(<12U)	(<12U)	(<1,500U)J
Benzene		(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	1,700 J
Chloroform		(<6U)	(<6U)	1 J	0.7 J	0.8 J	[7,300U]J
Chlorobenzene		(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<7,300U)J
1,2-Dichloroethene (total)		(<6U)	17	(<6U)	(<6U)	(<6U)	(<7,300U)J
Trichloroethene		(<6U)	2 J	(<6U)	(<6U)	(<6U)	(<7,300U)J
Tetrachloroethene		(<6U)	2 J	(<6U)	(<6U)	4 J	(<7,300U)J
Toluene		(<6U)	3 J	(<6U)	(<6U)	(<6U)	1,100 J
Ethylbenzene		(<6U)	(<6U)	(<6U)	(<6U)	(<6U)	(<7,300U)J
Xylenes (Total)		(<6U)	280	(<6U)	(<6U)	(<6U)	170,000J
TICs - Known		---	---	---	---	---	---
TICs - Unknown;n		---	3 J;1	---	---	---	---
Level (low or medium)		L	L	L	L	L	M
Dilution facter		1	1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
[-U] = Reported result was false-positive following data validation review.
J = Reported concentration is an estimated value following data validation review.
--- = No detectable TICs.
Unknown TICs reported as total concentration and total number of unknowns.
Samples SB-27-01A and SB27-02A were samples of the white and balck material present at the referenced depths.
Data validation results provided in data reports 911652 (SB16-01A only), 911664 (SB16-02A to SB21-01A), and 911691 (SB22-01A to SB27-01A).

TABLE D-5 (Continued)

Analytes		SB19 -01A	SB20 -01A	SB21 -01A	SB22 -01A	SB23 -01A	SB23 -02A
	Depth	5-7 ft	3-5 ft	12.5-14.5 ft	10-12 ft	10-12 ft	
	Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
Methylene Chloride		(<220,000U)J	(<77,000U)J	[6U]	(<760U)	2 J	(<6U)
Acetone		(<450,000U)J	(<150,000U)J	43 J	(<1500U)J	14 J	17 J
2-Butanone		(<450,000U)J	(<150,000U)J	35	6,400 J	(<11U)	(<11U)
Benzene		19,000 J	6,300 J	1 J	(<760U)	(<6U)	(<6U)
Chloroform		[220,000U]J	[<77,000]J	0.8 J	(<1500U)	1 J	(<6U)
Chlorobenzene		(<220,000U)J	(<77,000U)J	(<6U)	(<760U)	(<6U)	(<6U)
1,2-Dichloroethene (total)		(<220,000U)J	(<77,000U)J	(<6U)	(<760U)	(<6U)	(<6U)
Trichloroethene		(<220,000U)J	(<77,000U)J	(<6U)	(<760U)	(<6U)	(<6U)
Tetrachloroethene		(<220,000U)J	(<77,000U)J	0.9 J	(<760U)	(<6U)	(<6U)
Toluene		1,000,000J	11,000 J	16	660 J	2J	(<6U)
Ethylbenzene		92,000 J	(<77,000U)J	(<6U)	(<760U)	(<6U)	(<6U)
Xylenes (Total)		25,000,000J	2,000,000J	700	35,000	44	10
TICs - Known		---	---	---	---	---	---
TICs - Unknown;n		---	---	---	---	---	---
Level (low or medium)		M	M	L	M	L	L
Dilution facter		1	1	1	1	1	1

TABLE D-5 (Continued)

Analytes	Depth / Units	SB24 -01A 7-9 ft (ug/kg)	SB24 DUP -01A 7-9 ft (ug/kg)	SB25 -01A 8-10 ft (ug/kg)	SB26 -01A 4-6 ft (ug/kg)	SB27 -01A 5 ft (ug/kg)
Methylene Chloride		(<17U)	370 J	450 J	(<220,000U)J	(<170,000U)J
Acetone		55 J	(<2,000U)	(<1,900U)	(<450,000U)J	(<340,000U)J
2-Butanone		[49 U]	7,000 J	7,100 J	(<450,000U)J	(<340,000U)J
Benzene		3 J	(<990U)	290 J	(<220,000U)J	(<170,000U)J
Chloroform		(<17U)	(<990U)	(<930U)	(<220,000U)J	(<170,000U)J
Chlorobenzene		14J	210 J	89J	[220,000U]J	[170,000U]J
1,2-Dichloroethene (total)		(<17U)	(<990U)	(<1,900U)	(<220,000U)J	(<170,000U)J
Trichloroethene		(<17U)	(<990U)	110J	(<220,000U)J	(<170,000U)J
Tetrachloroethene		(<17U)	(<990U)	(<930U)	(<220,000U)J	(<170,000U)J
Toluene		41	500 J	19,000	27,000 J	330,000 J
Ethylbenzene		4 J	(<990U)	790 J	(<220,000U)J	(<170,000U)J
Xylenes (Total)		2,000 J	45,000	94,000 J	4,700,000 J	21,000,000 J
TICs - Known		---	---	---	---	---
TICs - Unknown;n		---	---	---	---	---
Level (low or medium)		L	L	L	M	M
Dilution facter		1	1	1	1	1

TABLE D-5 (Continued)

Analytes	Depth Units	SB27 -02A 6 ft (ug/kg)	FB03 (ug/L)	FB04 (ug/L)	FB05 (ug/L)
Methylene Chloride		3,600 J	(<5U)	2 J	(<5U)
Acetone		(<26,000U)	(<10U)	(<10U)	(<10U)
2-Butanone		(<26,000U)	(<10U)	(<10U)	(<10U) J
Benzene		(<13,000U)	(<5U)	(<5U)	(<5U)
Chloroform		(<13,000U)	(<5U)	(<5U)	(<5U)
Chlorobenzene		(<13,000U)	(<5U)	(<5U)	(<5U)
1,2-Dichloroethene (total)		(<13,000U)	(<5U)	(<5U)	(<5U)
Trichloroethene		(<13,000U)	(<5U)	(<5U)	(<5U)
Tetrachloroethene		2,700 J	(<5U)	(<5U)	(<5U)
Toluene		51,000	(<5U)	(<5U)	(<5U)
Ethylbenzene		(<13,000U)	(<5U)	(<5U)	(<5U)
Xylenes (Total)		1,200,000 J	(<5U)	(<5U)	(<5U)
TICs - Known		---	---	---	---
TICs - Unknown;n		---	---	---	---
Level (low or medium)		M	L	L	L
Dilution facter		1	1	1	1

TABLE D-6A EXTRACTABLE ORGANIC COMPOUNDS MEASURED IN LANDFILL SOIL BORINGS

Analytes	SB16 -01A	SB16 -02A	SB17 -01A	SB18 -01A	SB18 -02A	SB1[illegible] -03A
Depth	3-4 ft	5.5-7 ft	4-6 ft	0-2 ft	5-7 ft	10-12 ft
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
SEMI-VOLATILES						
Phenol	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	(<380U)
Benzyl alcohol	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	51 J
2-methyl phenol	(<380U)	(<390U)	64 J	(<380U)	(<390U)	54 J
4-methyl phenol	(<380U)	200 J	(<420U)	(<380U)	(<390U)	(<380U)
Benzoic acid	(<1,900U)	(<390U)	110 J	(<1,900U)	(<2,000U)	(<1,900U)
2,4-dimethyl phenol	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	(<380U)
Naphthalene	(<380U)	160 J	400 J	(<380U)	180 J	250 J
4-Chloroaniline	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	(<380U)
2-methyl naphthalene	(<380U)	330 J	140 J	(<380U)	150 J	200 J
Acenaphthylene	(<380U)	(<390U)	(<420U)	(<380U)	67 J	130 J
Acenaphthene	(<380U)	(<390U)	48 J	(<380U)	(<390U)	79 J
Dibenzofuran	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	140 J
Fluorene	(<380U)	(<390U)	(<420U)	(<380U)	180 J	280 J
N-nitrosodiphenylamine	(<380U)	490	(<420U)	(<380U)	(<390U)	(<380U)
Phenanthrene	(<380U)	540	160 J	(<380U)	610	2600
Anthracene	(<380U)	63 J	(<420U)	(<380U)	110 J	250 J
Di-n-butyl phthalate	170 J	[390U]	[390U]	[410U]	[390U]	(<380U)
Dibenzo(a,h)anthracene	(<380U)	(<390U)	(<420U)	(<380U)	(<390U)	230 J
Fluoranthene	(<380U)	220 J	140 J	(<380U)	910	1500 J
Pyrene	(<380U)	650 J	170 J	(<380U)	1100	2300 J
Butylbenzylphthalate	(<380U)	(<390U)J	(<420U)J	(<380U)	(<390U)	(<380U)J
Benzo(a)Anthracene	(<380U)	170 J	97 J	(<380U)	770	990 J
Bis(2-ethyl hexyl)phthalate	58 J	280 J	190 J	480	210 J	140 J
Chrysene	(<380U)	250 J	97 J	(<380U)	850	1100
Benzo(b)Fluoranthene	(<380U)	140 J	55 J	(<380U)	910	790
Benzo(k)Fluoranthene	(<380U)	*	80 J	(<380U)	550	810 J
Benzo(a)Pyrene	(<380U)	76 J	77 J	(<380U)	780	930 J
Indeno(1,2,3-cd)Pyrene	(<380U)	(<390U)J	(<420U)J	(<380U)	580	560 J
Benzo(g,h,i)Perylene	(<380U)	(<390U)J	(<420U)J	(<380U)	620	600 J
o-Toluic acid	(<2000U)	(<2000U)	4,000	(<2000U)	140 J	2,000
m-Toluic acid	(<2000U)	(<2000U)	3,000	(<2000U)	290 J	2,100
p-Toluic acid	(<2000U)	(<2000U)	240 J	(<2000U)	(<2000U)	190 J
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1
PESTICIDES/PCBs						
4,4'-DDE	(<9.2 U)	(<9.4 U)	(<200 U)	(<9.3 U)	(<190 U)	(<9.3 U)
4,4'-DDD	(<9.2 U)	(<9.4 U)	(<200 U)	(<9.3 U)	(<190 U)	(<9.3 U)
4,4'-DDT	(<9.2 U)	(<9.4 U)	(<200 U)	(<9.3 U)	(<190 U)	(<9.3 U)
Aroclor 1248	(<46 U)	(<47 U)	(<1,000 U)	(<47 U)	(<940 U)	(<47 U)
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	20	1	20	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
[-U] = Reported result was false positive following data validation review.
J = Reported value is an estimated concentration following data validation review.
B = Compound detected in corresponding method blank.
D = Reported result from diluted analysis.
Unknown TICs reported as total concentration and total number of unknowns.
--- = No detectable TICs.
* = Benzo(k)fluoranthene coeluted with benzo(b)fluoranthene.
Data validation results provided in data reports 911652 (SB16-01A), 911664 (SB16-02A through SB21-01A), and 911691 (SB22-01A through SB27-01A).

TABLE D-6A (Continued)

Analytes		SB19	SB20	SB21	SB22	SB23
		-01A	-01A	-01A	-01A	-01A
	Depth	5-7 ft	3-5 ft	12.5-14.5 ft	10-12 ft	10-12 ft
	Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
SEMI-VOLATILES						
Phenol		(<1,200U) J	(<410U)R	(<400U)	300 J	(<380U)
Benzyl alcohol		(<1,200U) J	(<410U)R	(<400U)	160 J	(<380U)
2-methyl phenol		(<1,200U) J	(<410U)R	(<400U)	43 J	(<380U)
4-methyl phenol		(<1,200U) J	(<410U)R	110 J	110 J	(<380U)
Benzoic acid		3000J	(<2000U)R	(<400U)	(<2,000U)	(<1800U)
2,4-dimethyl phenol		12,000 J	(<410U)	(<400U)	(<410U)	(<380U)
Naphthalene		330J	10,000 D	(<400U)	(<410U)	(<380U)
4-chloroaniline		(<1,200U) J	(<410U)	(<400U)	(<410U)	(<380U)
2-methyl naphthalene		(<1,200U) J	2,400	(<400U)	57 J	(<380U)
Acenaphthylene		(<1,200U) J	(<410U)	(<400U)	(<410U)	(<380U)
Acenaphthene		(<1,200U) J	(<410U)	(<400U)	(<410U)	(<380U)
Dibenzofuran		(<1,200U) J	(<410U)	(<400U)	(<410U)	(<380U)
Fluorene		(<1,200U) J	3600	(<400U)	(<410U)	(<380U)
N-nitrosodiphenylamine		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Phenanthrene		(<1,200U) J	140 J	(<400U)	(<410U)	(<380U)
Anthracene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Di-n-butyl phthalate		(<1,200U) J	(<410U)J	[400U]	[<410U]	[920U]
Dibenzo(a,h)anthracene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Fluoranthene		(<1,200U) J	45 J	(<400U)	(<410U)	(<380U)
Pyrene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Butylbenzylphthalate		(<1,200U) J	830 J	(<400U)	(<410U)	(<380U)
Benzo(a)Anthracene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Bis(2-ethyl hexyl)phthalate		(<1,200U) J	270 J	57 J	420 B	[380U]
Chrysene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Benzo(b)Fluoranthene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Benzo(k)Fluoranthene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Benzo(a)Pyrene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Indeno(1,2,3-cd)Pyrene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
Benzo(g,h,i)Perylene		(<1,200U) J	(<410U)J	(<400U)	(<410U)	(<380U)
o-Toluic acid		81,000 J	(<2100U)R	(<400U)	(<410U)	62 J
m-Toluic acid		(<120,000U)	(<2100U)R	(<400U)	250 J	1,300
p-Toluic acid		1,600,000	(<2100U)R	(<400U)	98 J	750
Level (low or medium)		M	L	L	L	L
Dilution factor		1	1	1	1	1
PESTICIDES/PCBs						
4,4'-DDE		(<570 U)	(<10 U)	(<10 U)	(<10 U)	(<9.2 U)
4,4'-DDD		(<570 U)	16	(<10 U)	(<10 U)	(<9.2 U)
4,4'-DDT		(<570 U)	(<10 U)	(<10 U)	(<10 U)	(<9.2 U)
Aroclor 1248		(<2,900 U)	(<49 U)	(<49 U)	230	(<46 U)
Level (low or medium)		M	L	L	L	L
Dilution factor		1	1	1	1	1

TABLE D-6A (Continued)

Analyte / Depth / Units	SB23 -02A 10-12 ft (ug/kg)	SB24 -01A 7-9 ft (ug/kg)	SB24 DUP -01A 7-9 ft (ug/kg)	SB25 -01A 8-10 ft (ug/kg)	SB26 -01A 4-6 ft (ug/kg)
SEMI-VOLATILES					
Phenol	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
Benzyl alcohol	(<380U)	(<2,800U)	(<2,600U)	2,200 J	(<29,000U)
2-methyl phenol	67 J	(<2,800U)	(<2,600U)	250 J	15,000 J
4-methyl phenol	99 J	(<2,800U)	(<2,600U)	470 J	10,000 J
Benzoic acid	(<1,900U)	(<13,000U)	(<2,600U)	(<12,000)R	(<140,000U)
2,4-dimethyl phenol	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)R	(<29,000U)
Naphthalene	(<380U)	(<2,800U)	(<2,600U)	1,000 J	(<29,000U)
4-chloroaniline	(<380U)	19,000	25,000	(<2,500U)J	(<29,000U)
2-methyl naphthalene	(<380U)	290 J	250 J	800 J	(<29,000U)
Acenaphthylene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
Acenaphthene	(<380U)	130 J	(<2,600U)	(<2,500U)J	(<29,000U)
Dibenzofuran	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
Fluorene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
N-nitrosodiphenylamine	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
Phenanthrene	(<380U)	570 J	370 J	(<2,500U)J	(<29,000U)
Anthracene	(<380U)	150 J	95 J	(<2,500U)J	(<29,000U)
Di-n-butyl phthalate	[990U]	[2,800U]	[2,600U]	[2,500U]J	(<29,000U)
Dibenzo(a,h)anthracene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)
Fluoranthene	(<380U)	560 J	290 J	(<2,500U)J	(<29,000U)
Pyrene	(<380U)	460 J	230 J	(<2,500U)J	(<29,000U)J
Butylbenzylphthalate	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Benzo(a)Anthracene	(<380U)	240 J	(<2,600U)	(<2,500U)J	(<29,000U)J
Bis(2-ethyl hexyl)phthalate	[380U]	[2,800U]	[2,600U]	(<2,500U)J	(<29,000U)J
Chrysene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Benzo(b)Fluoranthene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Benzo(k)Fluoranthene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Benzo(a)Pyrene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Indeno(1,2,3-cd)Pyrene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
Benzo(g,h,i)Perylene	(<380U)	(<2,800U)	(<2,600U)	(<2,500U)J	(<29,000U)J
o-Toluic acid	(<380U)	(<2,800U)	210 J	1,800 R	67,000
m-Toluic acid	350 J	670 J	2,100 J	2,400 R	120,000
p-Toluic acid	100 J	560 J	2,400 J	(<13,000U)R	5,800 J
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	100
4,4'-DDE	(<9.2 U)	19	22	22	(<2,800 U)J
4,4'-DDD	(<9.2 U)	(<13 U)	(<13 U)	12	(<2,800 U)J
4,4'-DDT	(<9.2 U)	6.1 J	(<13 U)	(<12 U)	(<2,800 U)J
Aroclor 1248	(<46 U)	(<66 U)	(<63 U)	(<60 U)	(<14,000 U)J
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	200

TABLE D-6A (Continued)

Analyte	Depth / Units	SB27 -03A 4-6 ft (ug/kg)	SB27 -04A 4-4.5 ft (ug/kg)	FB03 (ug/L)	FB04 (ug/L)	FB05 (ug/L)
SEMI-VOLATILES						
Phenol		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzyl alcohol		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
2-methyl phenol		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
4-methyl phenol		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzoic acid		(<210,000U)	(<220,000U)J	(<50U)	(<50U)	(<50U)
2,4-dimethyl phenol		110,000	63,000 J	(<10U)	(<10U)	(<10U)
Naphthalene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
4-chloroaniline		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
2-methyl naphthalene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Acenaphthylene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Acenaphthene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Dibenzofuran		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Fluorene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
N-nitrosodiphenylamine		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Phenanthrene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Anthracene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Di-n-butyl phthalate		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Dibenzo(a,h)anthracene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Fluoranthene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Pyrene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Butylbenzylphthalate		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzo(a)Anthracene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Bis(2-ethyl hexyl)phthalate		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	2 JB
Chrysene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzo(b)Fluoranthene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzo(k)Fluoranthene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzo(a)Pyrene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Indeno(1,2,3-cd)Pyrene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
Benzo(g,h,i)Perylene		(<42,000U)	(<220,000U)J	(<10U)	(<10U)	(<10U)
o-Toluic acid		(<220,000U)	(<2,200,000U)J	(<50U)	(<50U)	(<10U)
m-Toluic acid		500,000	8,500,000 UJ	(<50U)	(<50U)	(<10U)
p-Toluic acid		(<220,000U)	(<2,200,000U)J	(<50U)	(<50U)	(<10U)
Level (low or medium)		L	L	L	L	L
Dilution factor		50	100	1	1	1
4,4'-DDE		(<1,000 U)J	(<1,000 U)	(<0.10 U)	(<0.10 U)	(<0.10 U)
4,4'-DDD		(<1,000 U)J	(<1,000 U)	(<0.10 U)	(<0.10 U)	(<0.10 U)
4,4'-DDT		(<1,000 U)J	(<1,000 U)	(<0.10 U)	(<0.10 U)	(<0.10 U)
Aroclor 1248		(<5,100 U)J	(<5,200 U)	(<0.5 U)	(<0.5 U)	(<0.5 U)
Level (low or medium)		L	L	L	L	L
Dilution factor		100	100	1	1	1

TABLE D-6B SEMI-VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS MEASURED IN LANDFILL SOIL BORINGS

Analytes	SB16 -01A	SB16 -02A	SB17 -01A	SB18 -01A	SB18 -02A	SB18 -03A
Depth	3-4 ft	5.5 -7 ft	4-6 ft	0-2 ft	5-7 ft	10-12 ft
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
SEMI-VOLATILES						
TICs-known						
Benzamine,N,N-diethyl-3-methyl	---	1,000 JN	---	---	930 JN	1,500 JN
Benzene,1,1'-(1,2-ethanediyl	---	12,000 JN	4,000 JN	---	1,100 JN	---
Hexadecanoic acid	---	13,000 JN	---	---	---	---
Octadecanoic acid	---	13,000 JN	---	---	---	---
1(3H)-Isobenzofuranone	---	---	860 JN	---	---	---
Benzene,1,1'-oxybis	---	---	740 JN	---	---	---
Benzene,1,2-dimethyl-4-(phenyl	---	---	790 JN	---	200 JN	---
Heptadecane	---	---	650 JN	---	---	---
9-Hexadecanoic acid	---	---	---	160 JN	---	---
Hexadecanoic acid	---	---	---	300 JN	---	---
Phosphoric acid,tris(2-ethyl	---	---	---	---	1,300 JN	---
Benzaldehyde,4-methyl	---	---	---	---	750 JN	---
Ethanol,2-(hexyloxy)	---	---	---	---	---	240 JN
Benzenemethanol,2-methyl	---	---	---	---	---	'1,300 JN
Phenol,2,6-bis(1,1-dimethylene	---	---	---	---	---	400 JN
Dodecanamide,N,N-bis(2-hydro	---	---	---	---	---	330 JN
15-Tetracosenoic acid,methyl	---	---	---	---	---	15,000 JN
Octadecanoic acid	---	---	---	---	---	13,000 JN
Benzene,1,2,4,5-tetramethyl	---	---	---	---	---	---
1,2-Propanediol	---	---	---	---	---	---
Tetradecanoic acid	---	---	---	---	---	---
Pentadecanoic acid	---	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---	---
Benzene,1,4-dichloro-isocyanato	---	---	---	---	---	---
3-Pentamine	---	---	---	---	---	---
Benzenemethanimine	---	---	---	---	---	---
2-Propen-1-one,2-(4-methyl	---	---	---	---	---	---
2-Propen-1-one,3-(4-methyl	---	---	---	---	---	---
1,4-Benzenedicarboxaldehyde	---	---	---	---	---	---
Benzenemethanol,4-methyl-(9c	---	---	---	---	---	---
Toluic acid methyl ester Isomer	---	---	---	---	---	---
BNA TICs-unknown(n)	1,290 J;3	26,390 J;16	14,290 J;14	450 J;2	7,090 J;14	36,970 ;13
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1

NOTE:
J = Reported value is an estimate following data validation review.
JN = Presumptive identification and an estimated concentration.
R = Data is unusable.
Unknown TICs reported as total concentration and total number of unknowns.
Data validation results provided in data reports 911652 (SB16-01A), 911664 (SB16-02A through SB21-01A), and 911691 (SB22-01A through SB27-01A).

TABLE D-6B (Continued)

Analytes	SB19 -01A	SB20 -01A	SB21 -01A	SB22 -01A	SB23 -01A
Depth	5-7 ft	3-5 ft	12.5-14.5 ft	10-12 ft	10-12 ft
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
SEMI-VOLATILES					
TICs-known					
Benzamine,N,N-diethyl-3-methyl	---	2,000 JN	---	770 JN	---
Benzene,1,1'-(1,2-ethanediyl	---	---	---	---	---
Hexadecanoic acid	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
1(3H)-Isobenzofuranone	---	---	---	---	---
Benzene,1,1'-oxybis	---	---	---	---	---
Benzene,1,2-dimethyl-4-(phenyl	---	2,500 JN	---	---	---
Heptadecane	---	---	---	---	---
9-Hexadecanoic acid	---	---	---	640 JN	---
Hexadecanoic acid	---	12,000 JN	---	4,900 JN	1500 R
Phosphoric acid,tris(2-ethyl	---	---	---	---	---
Benzaldehyde,4-methyl	---	---	---	---	---
Ethanol,2-(hexyloxy)	---	---	---	---	---
Benzenemethanol,2-methyl	---	---	650 JN	540 JN	---
Phenol,2,6-bis(1,1-dimethylene	---	---	---	---	---
Dodecanamide,N,N-bis(2-hydro	---	---	---	---	---
15-Tetracosenoic acid,methyl	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
Benzene,1,2,4,5-tetramethyl	---	4,900 JN	---	---	---
1,2-Propanediol	---	---	---	2,600 JN	---
Tetradecanoic acid	---	---	---	960 JN	---
Pentadecanoic acid	---	---	---	---	---
Octadecanoic acid	---	---	---	2,700 JN	---
Benzene,1,4-dichloro-isocyanato	---	---	---	---	---
3-Pentamine	---	---	---	---	---
Benzenemethanimine	---	---	---	---	---
2-Propen-1-one,2-(4-methyl	---	---	---	---	---
2-Propen-1-one,3-(4-methyl	4,600 JN	---	---	---	---
1,4-Benzenedicarboxaldehyde	---	---	---	---	---
Benzenemethanol,4-methyl-(9c	89,000 JN	---	---	---	---
Toluic acid methyl ester Iso	3,200 JN	---	---	---	---
TICs-unknown(n)	376,200 J;13	115,800 J;15	1,650 J;5	32,400 J;10	13,150 J;4
Level (low or medium)	L\M	L	L	L	L
Dilution factor	1	1	1	1	1

TABLE D-6B (Continued)

Analyte / Depth / Units	SB23 -02A 10-12 ft (ug/kg)	SB24 -01A 7-9 ft (ug/kg)	SB24 DUP -01A 7-9 ft (ug/kg)	SB25 -01A 8-10 ft (ug/kg)	SB26 -01A 4-6 ft (ug/kg)
SEMI-VOLATILES					
TICs-known					
Benzamine,N,N-diethyl-3-methyl	---	---	---	---	---
Benzene,1,1'-(1,2-ethanediyl	---	---	---	---	---
Hexadecanoic acid	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
1(3H)-Isobenzofuranone	---	---	---	---	510,000 JN
Benzene,1,1'-oxybis	---	---	---	---	
Benzene,1,2-dimethyl-4-(phenyl	---	---	---	---	---
Heptadecane	---	---	---	---	---
9-Hexadecanoic acid	1,300 R		10,000 R	---	---
Hexadecanoic acid	2,000 R	7,500 R	10,000 R	19,000 R	---
Phosphoric acid,tris(2-ethyl	---	---	---	---	---
Benzaldehyde,4-methyl	---	---	---	---	---
Ethanol,2-(hexyloxy)	---	---	---	---	---
Benzenemethanol,2-methyl	670 JN	---	4,700 JN	24,000 JN	88,000 JN
Phenol,2,6-bis(1,1-dimethylene	---	---	---	---	---
Dodecanamide,N,N-bis(2-hydro	---	---	---	---	---
15-Tetracosenoic acid,methyl	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
Benzene,1,2,4,5-tetramethyl	---	---	---	---	---
1,2-Propanediol	---	---	---	---	---
Tetradecanoic acid	---	17,000 JN	16,000 JN	3,100 JN	---
Pentadecanoic acid	---	2,300 JN	---	---	---
Octadecanoic acid	---	48,000 JN	---	9,000 JN	---
Benzene,1,4-dichloro-isocyanato	---	3,800 JN	5,500 JN	---	---
3-Pentamine	---	---	2,200 JN	---	---
Benzenemethanimine	---	---	---	---	46,000 JN
2-Propen-1-one,2-(4-methyl	---	---	---	---	---
2-Propen-1-one,3-(4-methyl	---	---	---	---	65,000 JN
1,4-Benzenedicarboxaldehyde	---	---	---	---	---
Benzenemethanol,4-methyl-(9c	---	---	---	---	---
Toluic acid methyl ester Iso	---	---	---	---	---
TICs-unknown(n)	2230 J;8	330,800 J;15	291,100 J;14	263,900 J;16	4,927,000 J;17
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	100

TABLE D-6B (Continued)

Analyte	SB27 -03A 4-6 ft	SB27 -04A 4-4.5 ft	FB03	FB04	FB05
Depth					
Units	(ug/kg)	(ug/kg)	(ug/l)	(ug/l)	(ug/l)
SEMI-VOLATILES					
TICs-known					
Benzamine,N,N-diethyl-3-methyl	---	---	---	---	---
Benzene,1,1'-(1,2-ethanediyl	---	---	---	---	---
Hexadecanoic acid	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
1(3H)-Isobenzofuranone	---	---	---	---	---
Benzene,1,1'-oxybis	---	---	---	---	---
Benzene,1,2-dimethyl-4-(phenyl	---	---	---	---	---
Heptadecane	---	---	---	---	---
9-Hexadecanoic acid	---	---	---	---	---
Hexadecanoic acid	---	---	---	---	---
Phosphoric acid,tris(2-ethyl	---	---	---	---	---
Benzaldehyde,4-methyl	---	---	---	---	---
Ethanol,2-(hexyloxy)	---	---	---	---	---
Benzenemethanol,2-methyl	---	---	---	---	---
Phenol,2,6-bis(1,1-dimethylene	---	---	---	---	---
Dodecanamide,N,N-bis(2-hydro	---	---	---	---	---
15-Tetracosenoic acid,methyl	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
Benzene,1,2,4,5-tetramethyl	---	---	---	---	---
1,2-Propanediol	---	---	---	---	---
Tetradecanoic acid	---	---	---	---	---
Pentadecanoic acid	---	---	---	---	---
Octadecanoic acid	---	---	---	---	---
Benzene,1,4-dichloro-isocyanato	---	---	---	---	---
3-Pentamine	---	---	---	---	---
Benzenemethanimine	---	---	---	---	---
2-Propen-1-one,2-(4-methyl	---	---	---	---	---
2-Propen-1-one,3-(4-methyl	---	---	---	---	---
1,4-Benzenedicarboxaldehyde	32,000 JN	---	---	---	65,000 JN
Benzenemethanol,4-methyl-(9c	---	---	---	---	---
Toluic acid methyl ester Iso	---	---	---	---	---
TICs-unknown(n)	5,181,000 J;15	13,000,000 J;7	---	---	25 J;3
Level (low or medium)	L	L	L	L	L
Dilution factor	50	100	1	1	1

TABLE D-7 INORGANIC ANALYTES MEASURED IN LANDFILL SOIL BORINGS

Analytes	SB16 -01A	SB16 -02A	SB17 -01A	SB18 -01A	SB18 -02A	SB18 -03A
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	13,900	5,690	9,710	6,330	4,140	6,620
Antimony	3.1 BJ	(<3.5U) J	6.9 J	3.7 J	3.0 J	2.7 BJ
Arsenic	5.7 J	10.0 J	8.8 J	8.6 J	10.4 J	5.2 J
Barium	64.3	78.4	60.5	105	45.8	58.1
Beryllium	0.57	0.60	0.46 B	0.69	0.49	0.36 B
Cadmium	4.1 J	3.3 J	8.4 J	3.5 J	2.5 J	3.7 J
Calcium	67,400	11,000	17,200	8,790	42,900	50,500
Chromium	18.0 J	20.3	23.4	16.9	18.6	27.4
Cobalt	8.2	31.5 J	53.5 J	10.1 J	16.4 J	12.5 J
Copper	20.8	36.9 J	38.5 J	23.8 J	22.8 J	32.5 J
Iron	26,200	9,300	24,700	10,100	7,340	11,100
Lead	15.1	44.4	40.1	12.1	17.7	58.1
Magnesium	35,300 B	5,450 B	5,780 J	7,390	5,430 B	7,560 B
Manganese	599	636 J	638 J	635 J	431 J	465 J
Mercury	(<0.09U)	0.15	0.30	0.11	0.21	0.15
Nickel	24.7	22.2 J	44.5 J	23.9 J	16.6 J	23.3
Potassium	2,460	2,330	1,420	1,850	2,390	1,780
Selenium	(<0.12U)J	(<0.08U)J	(<0.11U)J	(<0.11U)J	(<0.10U)J	(<0.09U)J
Silver	2.8 J	1.6 J	2.1 J	0.46 BJ	3.2 J	3.8 J
Sodium	3,280	3,970	451 B	156 B	875	3570
Thallium	(<0.21 U)	(<0.16 U)R	(<0.21 U)	(<0.23 U)R	(<0.19 U)R	(<0.19 U)R
Vanadium	16.2	18.0	11.6	17.8	12.0	10.3
Zinc	37.4 R	91.5 J	301 J	45.2 J	101 J	190 J
Cyanide	(<0.57 U)	(<0.53 U)J	(<0.51 U)J	(<0.50 U)J	(<0.44 U)J	(<0.52 U)J
TOC	11,000	7,020	8,350	15,000	7,450	10,900

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below CRQL.
J = Reported value is an estimate following data validation review.
R = Unusable.
TOC = Total Organic Carbon.
Data validation results provided in data reports 911652 (SB16-01A), 911664 (SB16-02A through (SB21-01A), and 911691 (SB22-01A through SB2701A).

table-6.wk1

TABLE D-7 (Continued)

Analytes / Units	SB19 -01A (mg/kg)	SB20 -01A (mg/kg)	SB21 -01A (mg/kg)	SB22 -01A (mg/kg)	SB23 -01A (mg/kg)	SB23 -02A (mg/kg)
Aluminum	9,780 J	7,300	7,170	13,400	12,600	8,310
Antimony	(<9.1U)R	(<3.6)J	(<2.8U)J	(<3.1U)R	(<3.4U)J	(3.7U)J
Arsenic	5.2 J	2.0 J	4.4 J	3.6	9.1 J	6.3 J
Barium	92.5 J	46.5	62.9	53.0	76.4	59.1
Beryllium	0.52 J	0.32 B	0.58	0.63	0.54	0.37 B
Cadmium	9.5 J	1.8 J	3.3 J	4.6 J	3.8	3.1
Calcium	37,100 J	40,300	14,100	3,960	23,400 B	83,000
Chromium	33.0 J	21.2	18.7	52.5 J	15.2	13.6
Cobalt	1,260 J	122 J	9.7 J	14.7	8.0	5.9
Copper	44.7 J	38.4 J	25.3 J	35.2 J	20.2	19.1
Iron	57,000 J	5,020	10,400	29,400	24,300	20,100
Lead	20 J	106	13.2	35.9	11.0J	8.8 J
Magnesium	11,400 J	6,180 B	8,640	5,450	14,000 B	38,600 B
Manganese	582 J	299 J	674 J	551	628	400
Mercury	0.50 J	17.2	(<0.10U)	0.13	(<0.11U)	(<0.09U)
Nickel	32 J	15.4 J	22.1 J	28	20.5	18.1
Potassium	2,200 J	2,370	1,810	3,840	1,390	1,540
Selenium	(<3.2U)J	(<0.12U)J	(<0.11U)J	(<0.09U)J	0.13 BJ	(<0.10U)J
Silver	2.0 J	3.3 J	1.5 J	0.45 J	1.4 J	2.9 J
Sodium	15,300 J	5,860	7,010	41,000 B	388 B	6,310
Thallium	(<0.64U)J	0.32 B	(<0.22 U)	(<0.18U)J	(<0.21U)J	(<0.20U)J
Vanadium	13.9 J	7.8	17.4	13.0	16.1	12.0
Zinc	107 J	589 J	41.9 J	138 J	38.5	37.7
Cyanide	1.7 J	(<0.51 U)J	(<0.60 U)J	(<0.48U)	(<0.56U)	(<0.48U)
TOC		25,600	2,700		6,960	16,300

TABLE D-7 (Continued)

Analytes Units	SB24 -01A (mg/kg)	SB24 DUP -01A (mg/kg)	SB25 -01A (mg/kg)	SB26 -01A (mg/kg)	SB27 -03A (mg/kg)
Aluminum	19,900	43,900	8,120	19,100 J	1,160 J
Antimony	8.7 J	10.3 J	3.9 BJ	13.5 J	(<8.4U)J
Arsenic	7.7 J	8.1 BJ	18.5 J	11.7 J	0.78 BJ
Barium	157	135	89.5	175 J	51.1 J
Beryllium	0.68	0.82	0.41 B	1.1 J	(<0.25U)J
Cadmium	5.2	4.6	5.2	8.9 J	20.5 J
Calcium	18,000 B	11,400	26,300 B	83,300 BJ	6,060 J
Chromium	153	164	41.7	11 J	13.7 J
Cobalt	44.2	39.3	108	710 J	1,020 J
Copper	458	294	234	82.5 J	26.0 J
Iron	25,400	21,600	25,800	59,300 J	124,000 J
Lead	141	11.5	124	160 J	2.4 J
Magnesium	5,010	10,500	6,790	14,900 J	1,520 J
Manganese	826	519	347	1,360 J	411 J
Mercury	0.43	0.33	0.36	0.82 J	0.24 J
Nickel	28.4	35.4	19.0	99.2 J	19.7 J
Potassium	10,100	11,600	3,140	8,560 J	342 BJ
Selenium	(<0.11U)J	0.13 BJ	(<0.11U)J	(<2.2U)J	(<0.5U)J
Silver	1.7 J	2.0 J	1.3 J	3.6 J	0.98 J
Sodium	24,000	67,900 B	51,600 B	6,010 J	1,160 BJ
Thallium	(<0.23U)J	(<0.21U)J	(<0.20U)J	(<0.45U)J	(<0.50U)J
Vanadium	13.4	18.7	10.8	25.0 J	(<0.74U)J
Zinc	438	363	1,170	725 J	73.2 J
Cyanide	(<0.65U)	(<0.63U)	3.6	(<1.6U)J	1.4 J
TOC	28,100	21,400	8,000	35,600	141,000

TABLE D-7 (Continued)

Analytes	SB27 -04A	FB03	FB04	FB05
Units	(mg/kg)	(ug/L)	(ug/L)	(ug/L)
Aluminum	552	71.5 B	(<12U)	25.0 B
Antimony	(<3.6U)J	(<34U)	(<34U)	(<34U)
Arsenic	1.0 BJ	(<2U)	(<2U)	(<2U)
Barium	6.6 B	(<5U)	(<5U)	15.0 B
Beryllium	(<0.11U)	(<1U)	(<1U)	(<1U)
Cadmium	1.6	(<5U)	(<5U)	(<5U)
Calcium	1,570	158 B	99.9 B	1,380 B
Chromium	4.2	(<4U)	(<4U)	(<4U)
Cobalt	4,230	(<9U)	(<9U)	(<9U)
Copper	6.4	5.9 B	(<2U)	9.7 B
Iron	8,530	124	15.4 B	125
Lead	1.9	(<1U)	(<2U)	(<2U)
Magnesium	725	72.8 B	(<30U)	303 B
Manganese	45.9	2.9 B	1.0 B	5.0 B
Mercury	(<0.12U)	(<0.2U)	(<0.2U)	(<0.2U)
Nickel	20.6	(<9U)	(<9U)	(<9U)
Potassium	146 B	(<69U)	(<69U)	1,330 R
Selenium	(<0.11U)J	(<1U)	(<1U)	(<1U)N
Silver	(<0.21U)J	(<2U)N	(<2U)N	6.5 J
Sodium	90.1 B	(<136U)	314 B	2,310 J
Thallium	(<0.23U)J	9.8 B	(<2U)	(<2U)
Vanadium	0.61 B	(<3U)	(<3U)	(<3U)
Zinc	26.4	8.7 B	11.5 B	65.7J
Cyanide	(<0.58U)	(<10U)N	(<10U)	(<10U)
TOC	8,780			

TABLE D-8 VOLATILE ORGANIC ANALYTES MEASURED IN SOIL BORING SAMPLES FROM FORMER ORGANICS PLANT AREA

Analytes	Depth Zone Units	MW5-MWB-1 3-5 ft VZ (ug/kg)	MW5-SB-01 4.5-6.5 ft SZ (ug/kg)	MW5-SB-02 2-4 ft VZ (ug/kg)	MW5-SB-03 0.5-2.5 ft VZ (ug/kg)	MW5-SB-04 4-6 ft SZ (ug/kg)	MW5-SB-05 4.5-6.5 ft SZ (ug/kg)	MW5-SB-06 10-12 ft SZ (ug/kg)	MW5-SB-07 0.5-2.5 ft VZ (ug/kg)	MW5-SB-08 10-12 ft SZ (ug/kg)	MW5-SB-09 4.5-6.5 ft SZ (ug/kg)
TCL Analytes											
Acetone		(<15,000U)J	37 J	(<12U)J	(<12U)J	(<12U)J	22 J	18	(<12U)J	13 J	26 J
1,1-Dichloroethane		(<7,700U)J	(<18 U)	(<12U)	(<12U)	(<12U)	(<18U)	(<14U)	(<12U)	(<14U)	4 J
1,2-Dichloroethene (total)		(<7,700U)J	(<18 U)	2 J	(<12U)	(<12U)	(<18U)	(<14U)	(<12U)	(<14U)	(<15U)J
2-Butanone		(<150,000U)J	21	(<12U)	(<12U)	(<12U)	15 J	(<14U)	(<12U)	(<14U)	(<15U)
Benzene		(<7,700U)J	(<18 U)	(<12U)	(<12U)	(<12U)	(<18U)	(<14U)	(<12U)	(<14U)	(<15U)
Tetrachloroethene		(<7,700U)J	(<18 U)	1 J	(<12U)	(<12U)	(<18U)	(<14U)	(<12U)	(<14U)	(<15U)
Toluene		(<7,700U)J	37	(<12U)	(<12U)	(<12U)	(<18U)	(<14U)	(<12U)	(<14U)	(<15U)
Xylenes (total)		2,200,000 J	320,000 D	68	(<12U)	52,000 D	120,000 D	22	(<12U)	580	210
TICs											
Unknown (RT 10.69 min)			64 R	42 R	34 R	41 JN	54 R	49 R	46 R	45 BJ	22 R
Unknown (RT 12.54 min)										7 J	
Unknown (RT 26.13 min)			11 JN								
Unknown (RT 26.42 min)			29 JN				250 JN				
Unknown (RT 27.42 min)							16 JN				
Unknown C9H12 (RT 27.63 min)			29 JN			46 JN	95 JN				
Unknown (RT 28.39 min)							25 JN				
Unknown (RT 28.71 min)						47 JN	54 JN				18 JN
Unknown (RT 28.95 min)											
Unknown (RT 29.75 min)						19 JN	19 JN				22 JN
Unknown C10H14 (RT 30.09)						32 JN	14 JN				42 JN
Unknown (RT 30.27 min)						41 JN	21 JN				27 JN
Unknown C10H14 (RT 30.64)						21 JN					45 JN
Unknown C10H14 (RT 30.90)						72 JN	26 JN				52 JN
Unknown C10H14 (RT 31.06)						83 JN	30 JN				
Unknown (RT 31.22 min)											25 JN
Unknown (RT 31.31 min)						17 JN					
Level (low or medium)			L/M*	L	L	L/M*	L/M*	L	L	L	L
Dilution Factor			1	1	1	1	1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
JN = Presumptive identification, estimated value (TICs).
B = Analyte present in corresponding method blank.
J = Reported value is an estimate following data validation review.

* = Xylene data from medium level analysis.
Zones: SZ = Saturated zone; VZ = Vadose zone.

TABLE D-8 (Continued)

Analytes	Depth Zone Units	MW5-SB-10 4-6 ft SZ (ug/kg)	MW5-SB-11 6-8 ft SZ (ug/kg)	MW5-SB-12 4-6 ft SZ (ug/kg)	MW5-SB-13 2-4 ft SZ (ug/kg)	MW5-SB-14 0-2 ft VZ# (ug/kg)	MW5-SB-15 6-8 ft SZ (ug/kg)	MW5-SB-16 8-10 ft SZ (ug/kg)	MW5 - FB-01 --- --- (ug/L)	MW5 - TB-01 --- --- (ug/L)	MW5 - TB-02 --- --- (ug/L)	MW5 - FB-02 --- --- (ug/L)
TCL Analytes												
Acetone		(<12U)J	(<12U)J	(<16U)J	(<13U)J	40 J	140 BJ	20 BJ	(<10U)	(<10U)	(<10U)	(<10U)R
1,1-Dichloroethane		(<12U)	(<12U)	(<16U)	(<13U)	(<12U)	(<67U)	(<13U)	1 J	(<10U)	(<10U)	(<10U)
1,2-Dichloroethene (total)		(<12U)	(<12U)	(<16U)	(<13U)	(<12U)	(<67U)	(<13U)	(<10U)	(<10U)	(<10U)	(<10U)
2-Butanone		(<12U)J	(<12U)J	(<16U)J	(<13U)J	(<12U)J	59 J	13 J	(<10U)J	(<10U)J	(<10U)J	(<10U)J
Benzene		(<12U)	(<12U)	(<16U)	(<13U)	(<12U)	5 J	(<13U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene		(<12U)J	(<12U)J	(<16U)	(<13U)J	(<12U)J	(<67U)	(<13U)	(<10U)	(<10U)	(<10U)	(<10U)
Toluene		(<12U)	1 J	(<16U)	(<13U)	(<12U)	(<67U)	2 J	(<10U)	(<10U)J	(<10U)	(<10U)
Xylenes (total)		(<12U)	(<12U)	(<16U)	(<13U)	(<12U)	1,300	6 J	25 J	(<10U)J	(<10U)	(<10U)
TICs												
Unknown (RT 10.69 min)									30BJ	29BJ	30BJ	
Unknown (RT 12.54 min)												
Unknown (RT 26.13 min)												
Unknown (RT 26.42 min)												
Unknown (RT 27.42 min)												
Unknown C9H12 (RT 27.63 min)												
Unknown (RT 28.39 min)												
Unknown (RT 28.71 min)												
Unknown (RT 28.95 min)												
Unknown (RT 29.75 min)												
Unknown C10H14 (RT 30.09)												
Unknown (RT 30.27 min)												
Unknown C10H14 (RT 30.64)												
Unknown C10H14 (RT 30.90)												
Unknown C10H14 (RT 31.06)												
Unknown (RT 31.22 min)		2 J										
Unknown (RT 31.31 min)												
Level (low or medium)		L	L	L	L	L			L	L	L	L
Dilution Factor		1	1	1	1	1			1	1	1	1

TABLE D-9A SEMI-VOLATILE ORGANIC ANALYTES MEASURED IN SOIL BORING SAMPLES FROM FORMER ORGANICS PLANT AREA

Analytes	MW5-MWB-01	MW5-SB-01	MW5-SB-02	MW5-SB-03	MW5-SB-04	MW5-SB-05	MW5-SB-06	MW5-SB-07	MW5-SB-08	MW5-SB-09
Depth	3-5 ft	4.5-6.5 ft	2-4 ft	0.5-2.5 ft	4-6 ft	4.5-6.5 ft	10-12 ft	0.5-2.5 ft	10-12 ft	4.5-6.5 ft
Zone	VZ	SZ	VZ	VZ	SZ	SZ	SZ	VZ	SZ	SZ
Units	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)	(ug/kg)
1,4 Dichlorobenzene	(<600U)	(<600U)	(<380U)	220 J	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	(<15,000U)
Phenol	270 J	(<600U)	(<380U)	(<380U)	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	(<15,000U)
2-Methylphenol	280 J	(<600U)	(<380U)	(<380U)	(<390U)	1,400 J	(<450U)	(<410U)	(<480U)	(<15,000U)
4-Methylphenol	(<2,000U)	66 J	(<380U)	(<380U)	(<390U)	2,400 J	(<450U)	(<410U)	(<480U)	(<15,000U)
2,4-Dimethylphenol	3,700 J	210 J	(<380U)	(<380U)	(<390U)	2,900 J	(<450U)	(<410U)	(<480U)	(<15,000U)
Naphthalene	(<2,000U)	160 J	(<380U)	21 J	1,200	590 J	(<450U)	160 J	(<480U)	2,100 J
2-Methylnaphthalene	(<2,000U)	68 J	(<380U)	30 J	120 J	(<12,000U)	(<450U)	270 J	(<480U)	1,400 J
Acenaphthylene	(<2,000U)	70 J	26 J	(<380U)	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	770 J
Acenaphthene	(<2,000U)	64 J	20 J	(<380U)	(<390U)	(<12,000U)	(<450U)	29 J	(<480U)	(<15,000U)
Dibenzofuran	(<2,000U)	49 J	(<380U)	(<380U)	(<390U)	(<12,000U)	(<450U)	75 J	(<480U)	(<15,000U)
Fluorene	(<2,000U)	430 J	23 J	(<380U)	(<390U)	4,100 J	(<450U)	29 J	(<480U)	(<15,000U)
Phenanthrene	230 J	750	290 J	100 J	32 J	(<12,000U)	(<450U)	340 J	(<480U)	1,300 J
Anthracene	(<2,000U)	140 J	83 J	27 J	(<390U)	(<12,000U)	(<450U)	43 J	(<480U)	(<15,000U)
Carbazole	(<2,000U)	130 J	37 J	20 J	(<390U)	(<12,000U)	(<450U)	31 J	(<480U)	(<15,000U)
Di-n-butylphthalate	(<2,000U)	45 J	90 J	(<380U)	(<390U)	(<12,000U)	(<450U)	28 J	(<480U)	(<15,000U)
Fluoranthene	(<2,000U)	1,000	430	150 J	29 J	600 J	28 J	200 J	(<480U)	7,800 J
Pyrene	(<2,000U)	910	390	190 J	26 J	(<12,000U)	30 J	180 J	(<480U)	7,800 J
Benzo(a)anthracene	(<2,000U)	450 J	250 J	99 J	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	6,700 J
bis(2-Ethylhexyl)phthalate	(<2,000U)	(<600U)	(<380U)	(<380U)	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	(<15,000U)
Chrysene	(<2,000U)	510 J	340 J	150 J	(<390U)	(<12,000U)	(<450U)	170 J	(<480U)	6,600 J
Di-n-octyl phthalate	(<2,000U)	(<600U)	(<380U)	(<380U)	(<390U)	(<12,000U)	(<450U)	37 J	(<480U)	(<15,000U)
Benzo(b)fluoranthene	(<2,000U)	410 J	410	160 J	(<390U)	(<12,000U)	(<450U)	110 J	(<480U)	5,600 J
Benzo(k)fluoranthene	(<2,000U)	400 J	390	120 J	(<390U)	(<12,000U)	(<450U)	100 J	(<480U)	6,100 J
Benzo(a)pyrene	(<2,000U)	460 J	480	220 J	(<390U)	(<12,000U)	(<450U)	110 J	(<480U)	7,900 J
Indeno(123-cd)pyrene	(<2,000U)	300 J	410	180 J	(<390U)	(<12,000U)	(<450U)	68 J	(<480U)	3,800 J
Dibenzo(a,h)anthracene	(<2,000U)	(<600U)	170 J	(<380U)	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	(<15,000U)
Benzo(ghi)perylene	(<2,000U)	330 J	520	270 J	(<390U)	(<12,000U)	(<450U)	(<410U)	(<480U)	3,800 J
o-Toluic Acid	19,000	1,300 J	(<2,000U)	(<2,000U)	(<2,000U)	(<60,000U)	(<2,300U)	(<2,100U)	(<2,500U)	(<75,000U)
m-Toluic Acid	11,000	810 J	(<2,000U)J	(<2,000U)	(<2,000U)	46,000 J	(<2,300U)J	(<2,100U)	(<2,500U)	(<75,000U)J
p-Toluic Acid	14,000	(<3100U)	(<2,000U)	(<2,000U)	(<2,000U)	(<60,000U)	(<2,300U)	(<2,100U)	(<2,500U)	(<75,000U)
Level (low or medium)	L	L	L	L	L	L	L	L	L	M
Dilution Factor	5	1	1	1	1	20	1	1	1	1
Pest/PCB										
Aroclor 1248	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Analyte present in corresponding method blank.
J = Reporte[illegible]lue is an estimate following data validation review.

ND = None detected.
Zones: SZ = Saturated zone; VZ = Vadose zone.

TABLE D-9A (Continued)

Analytes	Depth Zone Units	MW5-SB-10 4-6 ft SZ (ug/kg)	MW5-SB-11 6-8 ft SZ (ug/kg)	MW5-SB-12 4-6 ft SZ (ug/kg)	MW5-SB-13 2-4 ft SZ (ug/kg)	MW5-SB-14 0-2 ft VZ (ug/kg)	MW5-SB-15 6-8 ft SZ (ug/kg)	MW5-SB-16 8-10 ft SZ (ug/kg)	MW5-FB-01 --- --- (ug/L)	MW5-FB-02 --- --- (ug/L)
1,4 Dichlorobenzene		(<390U)	(<390U)	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Phenol		(<390U)	(<390U)	(<520U)	(<430U)	(<410U)	(<440U)	(<430U)	(<10U)	(<10U)
2-Methylphenol		(<390U)	(<390U)	(<520U)	(<430U)	(<410U)	(<440U)	(<430U)	(<10U)	(<10U)
4-Methylphenol		(<390U)	(<390U)	(<520U)	(<430U)	(<410U)	(<440U)	(<430U)	(<10U)	(<10U)
2,4-Dimethylphenol		(<390U)	(<390U)	(<520U)	(<430U)	(<410U)	(<440U)	(<430U)	(<10U)	(<10U)
Naphthalene		(<390U)	(<390U)	(<520U)	(<430U)J	(<410U)J	46 J	(<430U)	(<10U)	(<10U)
2-Methylnaphthalene		(<390U)	53 J	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Acenaphthylene		(<390U)	41 J	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Acenaphthene		(<390U)	35 J	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Dibenzofuran		(<390U)	30 J	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Fluorene		(<390U)	55 J	(<520U)	(<430U)J	(<410U)J	28 J	(<430U)	(<10U)	(<10U)
Phenanthrene		(<390U)	270 J	(<520U)	(<430U)J	(<410U)J	560	(<430U)	(<10U)	(<10U)
Anthracene		(<390U)	78 J	(<520U)	(<430U)J	(<410U)J	80 J	(<430U)	(<10U)	(<10U)
Carbazole		(<390U)	21 J	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Di-n-butylphthalate		(<390U)	(<390U)	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	(<10U)	(<10U)
Fluoranthene		(<390U)	570	(<520U)	(<430U)J	(<410U)J	1,700	(<430U)	(<10U)	(<10U)
Pyrene		(<390U)	530	(<520U)	(<430U)J	(<410U)J	1,300	(<430U)	(<10U)	(<10U)
Benzo(a)anthracene		(<390U)	340 J	(<520U)	(<430U)J	(<410U)J	1,100	(<430U)	(<10U)	(<10U)
bis(2-Ethylhexyl)phthalate		(<390U)	(<340U)	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	1 J	(<10U)
Chrysene		(<390U)	290 J	(<520U)	(<430U)J	(<410U)J	880	(<430U)	(<10U)	(<10U)
Di-n-octyl phthalate		(<390U)	(<390U)	(<520U)	(<430U)J	(<410U)J	(<440U)	(<430U)	1 J	(<10U)
Benzo(b)fluoranthene		(<390U)	420	(<520U)	(<430U)J	(<410U)J	1,000	(<430U)	(<10U)	(<10U)
Benzo(k)fluoranthene		(<390U)	220 J	(<520U)	(<430U)J	(<410U)J	530	(<430U)	(<10U)	(<10U)
Benzo(a)pyrene		(<390U)	310 J	(<520U)	(<430U)J	(<410U)J	700	(<430U)	(<10U)	(<10U)
Indeno(123-cd)pyrene		(<390U)	120 J	(<520U)	(<430U)J	(<410U)J	330 J	(<430U)	(<10U)	(<10U)
Dibenzo(a,h)anthracene		(<390U)	45 J	(<520U)	(<430U)J	(<410U)J	100	(<430U)	(<10U)	(<10U)
Benzo(ghi)perylene		(<390U)	110 J	(<520U)	(<430U)J	(<410U)J	330 J	(<430U)	(<10U)	(<10U)
o-Toluic Acid		(<2,000U)	(<2,000U)	380 J	(<2,200U)	(<2100U)	(<2,300U)	(<2,200U)	(<50U)	(<50U)
m-Toluic Acid		(<2,000U)	(<2,000U)	100 J	(<2,200U)	(<2100U)	(<2,300U)	(<2,200U)	(<50U)J	(<50U)
p-Toluic Acid		(<2,000U)	(<2,000U)	(<2,700U)	(<2,200U)	(<2100U)	(<2,300U)	(<2,200U)	(<50U)	(<50U)
Level (low or medium)		L	L	L	L	L	L	L	L	L
Dilution Factor		1	1	1	1	1	1	1	1	1
Pest/PCB										
Aroclor 1248		ND	ND	ND	ND	ND	59	ND	ND	ND

TABLE D-9B SEMI-VOLATILE TENTATIVELY IDENTIFIED COMPOUNDS MEASURED IN SOIL BORING SAMPLES FROM FORMER ORGANICS PLANT AREA

Analytes / Sampling depth / Units	MW5-MWB-01 3-5ft (ug/kg)	MW5-SB-01 4.5-6.5 ft (ug/kg)	MW5-SB-02 2-4 ft (ug/kg)	MW5-SB-03 0.5-2.5 ft (ug/kg)	MW5-SB-04 4-6 ft (ug/kg)	MW5-SB-05 4.5-6.5 ft (ug/kg)	MW5-SB-06 10-12 ft (ug/kg)	MW5-SB-07 0.5-2.5 ft (ug/kg)	MW5-SB-08 10-12 ft (ug/kg)	MW5-SB-09 4.5-6.5 ft (ug/kg)
Unknown (RT 3.92 min)		970 JN					460 JN			
Unknown (RT 5.36 min)							230 JN			
Unknown Hydrocarbon (RT 5.37 min)									190 JN	6100 JN
Unknown (RT 6.65 min)										
Unknown (RT 7.25 min)										
Unknown (RT 7.16 min)					1,000 JN					
2-Cyclohexen-1-one (RT 8.12 min)					690 JN					8400 JN
Unknown C10H14 isomer,8.71 min					490 JN					5300 JN
Unknown C10H14 isomer,8.79 min										5300 JN
Unknown C10H14 isomer, 9.02 min					1,400 JN					16000 JN
Unknown C10H14 isomer,9.20 min					1,600 JN					21000 JN
Unknown C10H14 isomer,9.32 min				190 JN	490 JN					7600 JN
Unknown (RT 9.71 min)					880 JN					13000 JN
Unknown (RT 9.84 min)					1200JN					
Unknown C10H14 isomer,9.92 min					670JN					9900 JN
Unknown C10H12 isomer, 10.27 min			310 JN	3,300 JN						
Bicyclo[2.2.1]heptan-2-one,10.4 min										3800 JN
Unknown (RT 10,41 min)										14000 JN
Unknown C10H12 isomer, 10.47 min					1200 JN					
Unknown C10H14 isomer,10.48min										5300 JN
Unknown (RT 10.55 min)										
Ethanone,1 phenyl(RT 10.60 min)										
Unknown (RT 10.67 min)										6800 JN
Unknown C10H14 isomer, 10,79 min					270 JN					4600 JN
Unknown C11H16 isomer (RT 11.16 min)										3800 JN
Unknown C11H16 isomer, 11.36 min										
Unknown Alkylbenzene (11.52 min)										
Unknown (RT 11.77 min)										
Unknown (RT 11.90 min)								190 JN		
Unknown (RT 12.12 min)								210 JN		
Unknown (RT 12.52 min)			170 JN							
1(3H)-Isobenzofuranone (9Cl),13.67 min						5300 JN				
Unknown HC (RT 13.95 min)				140 JN				230 JN		
Unknown C12H10O isomer,14.31		730 JN								
Unknown C12H12 isomer, 14.64 min								330 JN		
Unknown Hydrocarbon (RT 14.81 min)								230 JN		
Level (low or medium)		L	L	L	L	L	L	L	L	L
Dilution factor		1	1	1	1	20	1	1	1	1

NOTE:
JN = Presu[illegible] identification, estimated value (TICs). J = Reported value is a [illegible]mate following data validation review.

TABLE D-9B (Continued)

Analytes Sampling depth Units	MW5-SB-10 4-6 ft (ug/kg)	MW5-SB-11 6-8 ft (ug/kg)	MW5-SB-12 4-6 ft (ug/kg)	MW5-SB-13 2-4 ft (ug/kg)	MW5-SB-14 0-2 ft (ug/kg)	MW5-SB-15 6-8 ft (ug/kg)	MW5-SB-16 8-10 ft (ug/kg)
Unknown (RT 3.92 min)							
Unknown (RT 5.36 min)							
Unknown Hydrocarbon (RT 5.37 min)							
Unknown (RT 6.65 min)	320 JN	230 JN	270 JN	280 JN	330 JN		
Unknown (RT 7.25 min)	95 JN	150 JN					
Unknown (RT 7.16 min)					99 JN		
2-Cyclohexen-1-one (RT 8.12 min)	100 JN	140 JN		100 JN	120 JN		
Unknown C10H14 isomer,8.71 min							
Unknown C10H14 isomer,8.79 min							
Unknown C10H14 isomer, 9.02 min							
Unknown C10H14 isomer,9.20 min							
Unknown C10H14 isomer,9.32 min							
Unknown (RT 9.71 min)							
Unknown (RT 9.84 min)							
Unknown C10H14 isomer,9.92 min							
Unknown C10H12 isomer, 10.27 min							
Bicyclo[2.2.1]heptan-2-one,10.4 min							
Unknown (RT 10,41 min)							
Unknown C10H12 isomer, 10.47 min							
Unknown C10H14 isomer,10.48min							
Unknown (RT 10.55 min)							
Ethanone,1 phenyl(RT 10.60 min)		160 JN	610 JN				
Unknown (RT 10.67 min)			400 JN				
Unknown C10H14 isomer, 10,79 min							
Unknown C11H16 isomer (RT 11.16 min)							
Unknown C11H16 isomer, 11.36 min							
Unknown Alkylbenzene (11.52 min)		60 JN					
Unknown (RT 11.77 min)			120 JN				
Unknown (RT 11.90 min)			860 JN				
Unknown (RT 12.12 min)							
Unknown (RT 12.52 min)							
1(3H)-Isobenzofuranone (9Cl),13.67 min							
Unknown HC (RT 13.95 min)							
Unknown C12H10O isomer,14.31							
Unknown C12H12 isomer, 14.64 min							
Unknown Hydrocarbon (RT 14.81 min)							
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1	1

TABLE D-9B (Continued)

Analytes Sampling depth Units	MW5-MWB-01 3-5ft (ug/kg)	MW5-SB-01 4.5-6.5 ft (ug/kg)	MW5-SB-02 2-4 ft (ug/kg)	MW5-SB-03 0.5-2.5 ft (ug/kg)	MW5-SB-04 4-6 ft (ug/kg)	MW5-SB-05 4.5-6.5 ft (ug/kg)	MW5-SB-06 10-12 ft (ug/kg)	MW5-SB-07 0.5-2.5 ft (ug/kg)	MW5-SB-08 10-12 ft (ug/kg)	MW5-SB-09 4.5-6.5 ft (ug/kg)
Unknown Hydrocarbon (RT 15.32 min)								250 JN		
Unknown C15H16 isomer,15.95		880 JN				12000 JN				
1(3H) Isobenzofuranone(15.96)	1,600 JN							450 JN		
Unknown (RT 16.58 min)				160 JN						
Unknown C12H17NO isomer,16.68		4,200 JN					160 JN			
Unknown C14H22O isomer,16.96 min					570 JN					
Benzene,1,1-oxybis(16.81)										
Unknown (RT 17.10 min)				310 JN						
Unknown C15H16 isomer,17.30 min						5300 J				
Stannane, chlorotris(2-methyl), 17.31 min		2,400 JN	970 JN	370 JNN						
Unknown (RT 17.85 min)				160 JN		4,100 J		490 JN		3000 JN
Unknown (RT 18.27 min)		610 JN								5300 JN
Unknown (RT 18.37 min)		880 JN								
Unknown C16H18 isomer,18.58		1,100 JN			200 JN	29000 JN			120 JN	
Unknown (RT 18.67 min)										
Unknown (RT 18.79 min)						11000 JN				3000 JN
Unknown (RT 18.94 min)				97 JN		3500 JN		430 JN		
Unknown (RT 19.04 min)			77 JN							
Unknown (RT 19.77 min)		790 JN				16000 JN				
Unknown (20.25 min)						3500 JN				
Unknown (20.58 min)										
Unknown C15H12, 20.69 min			77 JN		N			230 JN		
Unknown (RT 20.9 min)		2,100 JN			1,800 JN	270000 JN			410 JN	
Unknown HC (RT 21.08 min)			140 JN	170 JN				270 JN		
Unknown (RT 21.20 min)		2,700 JN				110000 JN				
Unknown (RT 21.28 min)						15000 JN				
Unknown (RT 21.44 min)						4100 JN				
Unknown HC (RT 22.07 min)			190 JN	160 JN				390 JN		
Benzene,1,1-(1,2-ethanediyl)(22.19)										
Unknown (RT 22.62 min)		1,000 JN		190 JN		6400 JN				
Unknown (RT 23.83 min)		1,200 JN								
Unknown (RT 23.93 min)			1,900 JN	270 JN	470 JN			470 JN		
Unknown (RT 24.10 min)										
Unknown Hydrocarbon (RT 24.81 min)			1,200 JN	450 JN	550 JN			350 JN	170 JN	
Unknown Hydrocarbon (RT 25.68 min)		1,200 JN	1,800 JN	720 JN	570 JN			290 JN		
Unknown (RT 25.85 min)										
Level (low or medium)		L	L	L	L	L	L	L	L	L
Dilution factor		1	1	1	1	20	1	1	1	1

TABLE D-9B (Continued)

Analytes Sampling depth Units	MW5-SB-10 4-6 ft (ug/kg)	MW5-SB-11 6-8 ft (ug/kg)	MW5-SB-12 4-6 ft (ug/kg)	MW5-SB-13 2-4 ft (ug/kg)	MW5-SB-14 0-2 ft (ug/kg)	MW5-SB-15 6-8 ft (ug/kg)	MW5-SB-16 8-10 ft (ug/kg)
Unknown Hydrocarbon (RT 15.32 min)							
Unknown C15H16 isomer,15.95							
1(3H) Isobenzofuranone(15.96)							
Unknown (RT 16.58 min)							
Unknown C12H17NO isomer,16.68							
Unknown C14H22O isomer,16.96 min							
Benzene,1,1-oxybis(16.81)							
Unknown (RT 17.10 min)							
Unknown C15H16 isomer,17.30 min							
Stannane, chlorotris(2-methyl), 17.31 min							
Unknown (RT 17.85 min)							
Unknown (RT 18.27 min)							
Unknown (RT 18.37 min)							
Unknown C16H18 isomer,18.58							
Unknown (RT 18.67 min)							
Unknown (RT 18.79 min)							
Unknown (RT 18.94 min)							
Unknown (RT 19.04 min)							
Unknown (RT 19.77 min)							
Unknown (20.25 min)			220 JN				
Unknown (20.58 min)			150 JN				
Unknown C15H12, 20.69 min							
Unknown (RT 20.9 min)			120 JN				
Unknown HC (RT 21.08 min)							
Unknown (RT 21.20 min)							
Unknown (RT 21.28 min)							
Unknown (RT 21.44 min)							
Unknown HC (RT 22.07 min)							
Benzene,1,1-(1,2-ethanediyl)(22.19)							
Unknown (RT 22.62 min)		160 JN					
Unknown (RT 23.83 min)							
Unknown (RT 23.93 min)							
Unknown (RT 24.10 min)			290 JN				
Unknown Hydrocarbon (RT 24.81 min)							
Unknown Hydrocarbon (RT 25.68 min)		210 JN					
Unknown (RT 25.85 min)		140 JN					
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1	1

TABLE D-9B (Continued)

Analytes Sampling depth Units	MW5-MWB-01 3-5ft (ug/kg)	MW5-SB-01 4.5-6.5 ft (ug/kg)	MW5-SB-02 2-4 ft (ug/kg)	MW5-SB-03 0.5-2.5 ft (ug/kg)	MW5-SB-04 4-6 ft (ug/kg)	MW5-SB-05 4.5-6.5 ft (ug/kg)	MW5-SB-06 10-12 ft (ug/kg)	MW5-SB-07 0.5-2.5 ft (ug/kg)	MW5-SB-08 10-12 ft (ug/kg)	MW5-SB-09 4.5-6.5 ft (ug/kg)
Unknown (RT 25.95 min)								290 JN		
Unknown Hydrocarbon (RT 26.48 min)		760 JN	1,500 JN	780 JN				310 JN		
Unknown Hydrocarbon (RT 27.25 min)		1,800 JN	1,200 JN	830 JN			140 JN	230 JN		
Unknown Hydrocarbon (RT 28.00 min)		550 JN	890 JN	680 JN	200 JN		91 JN		360 JN	
Unknown (RT 28.13 min)										
Unknown (RT 28.23 min)										
Unknown (RT 28.37 min)		1,100 JN			470 JN	7000 JN	140 JN			
Unknown (RT 28.63 min)										
Unknown Hydrocarbon (RT 28.77 min)		2,100 JN	910 JN	930 JN	490 JN	3500 JN	270 JN	780 JN	170 JN	9000 JN
Unknown (RT 29.33 min)										
Unknown C20H12 (RT 29.72 min)			560 JN							
Unknown (RT 30.12 min)										
Unknown (RT 30.45 min)							180 JN		140 JN	10000 JN
Unknown (RT 30.52 min)								660 JN		
Unknown Hydrocarbon (RT 30.55 min)		2,500 JN	1,000 JN	680 JN						
Unknown (RT 30.80 min)										
Unknown Hydrocarbon (RT 30.98 min)										
Unknown Hydrocarbon (RT 31.18 min)										
Unknown (RT 31.25 min)						4100 JN				
Unknown (RT 31.36 min)										
Benzo [E] Pyrene (RT 31.48 min)										
Unknown (RT 31.53 min)										
Unknown (RT 31.77 min)										
Unknown (RT 32.37 min)			430 JN	460 JN						
Unknown Hydrocarbon (RT 32.91 min)			330 JN							
Unknown Hydrocarbon (RT 33.17 min)										
Unknown Hydrocarbon (RT 33.73 min)			140 JN							
Unknown Hydrocarbon (RT 34.55 min)										
Unknown (RT 34.78 min)										
Unknown (RT 34.87 min)										
Level (low or medium)		L	L	L	L	L	L	L	L	L
Dilution factor		1	1	1	1	20	1	1	1	1

TABLE D-9B (Continued)

Analytes Sampling depth Units	MW5-SB-10 4-6 ft (ug/kg)	MW5-SB-11 6-8 ft (ug/kg)	MW5-SB-12 4-6 ft (ug/kg)	MW5-SB-13 2-4 ft (ug/kg)	MW5-SB-14 0-2 ft (ug/kg)	MW5-SB-15 6-8 ft (ug/kg)	MW5-SB-16 8-10 ft (ug/kg)
Unknown (RT 25.95 min)		97 JN					
Unknown Hydrocarbon (RT 26.48 min)							
Unknown Hydrocarbon (RT 27.25 min)			160 JN				
Unknown Hydrocarbon (RT 28.00 min)							
Unknown (RT 28.13 min)							
Unknown (RT 28.23 min)		80 JN					
Unknown (RT 28.37 min)							
Unknown (RT 28.63 min)			580 JN				
Unknown Hydrocarbon (RT 28.77 min)							
Unknown (RT 29.33 min)		97 JN					
Unknown C20H12 (RT 29.72 min)							
Unknown (RT 30.12 min)			440 JN				
Unknown (RT 30.45 min)		140 JN	390 JN				
Unknown (RT 30.52 min)			830 JN				
Unknown Hydrocarbon (RT 30.55 min)							
Unknown (RT 30.80 min)			770 JN				
Unknown Hydrocarbon (RT 30.98 min)		240 JN					
Unknown Hydrocarbon (RT 31.18 min)		270 JN					
Unknown (RT 31.25 min)			690 JN				
Unknown (RT 31.36 min)							
Benzo [E] Pyrene (RT 31.48 min)		280 JN					
Unknown (RT 31.53 min)			440 JN				
Unknown (RT 31.77 min)			920 JN				
Unknown (RT 32.37 min)							
Unknown Hydrocarbon (RT 32.91 min)							
Unknown Hydrocarbon (RT 33.17 min)		270 JN					
Unknown Hydrocarbon (RT 33.73 min)							
Unknown Hydrocarbon (RT 34.55 min)		85 JN					
Unknown (RT 34.78 min)		85 JN					
Unknown (RT 34.87 min)			630 JN				
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1	1

TABLE D-10 INORGANIC ANALYTES AND TOTAL ORGANIC CARBON MEASURED IN SOIL SAMPLES FROM FORMER ORGANICS PLANT AREA

Analytes	MW5 MWB-1	MW5 SB-01	MW5 SB-2B	MW5 SB-03	MW5 SB-04	MW5 SB-05	MW5 SB-06	MW5 SB-07	MW5 SB-08	MW5 SB-09
Depth (ft)	3-5 ft	4.5-6.5	2-4	0.2-2.5	4-6	4.5-6.5	10-12	2.5-4.5	10-12	4.5-6.5
Zone	VZ	SZ	VZ	VZ	SZ	SZ	SZ	VZ	SZ	SZ
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aluminum	8,390 J	7,370	11,400	3,270	6,360	16,500	4,570	3,060	6,160	2,150
Antimony	1.9 J	11.8 J	11.0 J	30.2 J	(<6.7U)J	(<8.7U)J	(<6.7U)J	10.4 J	(<8.1U)J	18,2 J
Arsenic	8.2 J	24.7 J	11.6 J	11.6 J	2.9 J	8.3 J	5.0 J	7.2 J	11.5 J	8.7 J
Barium	138 J	1,130 J	155 J	645 J	26.0 J	269 J	78.4 J	108 J	120 J	270 J
Beryllium	0.54 J	0.46 B	0.61	0.31 B	0.33 B	0.95	0.39 B	0.44	0.43 B	0.26 B
Cadmium	3.6 J	5.9 J	9.0 J	39.6 J	1.1 J	5.8 J	1.9 J	6.3 J	3.8 J	3.3 J
Calcium	45,000 J	48,200	11,900	79,700	161,000	6,940	98,900	2,080	12,500	7,500
Chromium	26.4 J	162 J	18.5 J	42.7 J	9.7 J	77.3 J	20.8 J	12.8 J	11.2 J	74.5 J
Cobalt	10.7 J	30.3 J	11.0	16.8	5.7	22.5J	17.9 J	6.3	14.0	4.2 B
Copper	318 J	547	1,000	22,300	15.2	165	40.2	3,140	29.9	238
Iron	24,700 J	20,300	36,400	134,000	12,500	32,300	11,400	33,600	24,100	13,000
Lead	63.2 J	1,580 J	1,290 J	2,870 J	5.6 S	302 J	206 J	445 J	35.4 J	339 J
Magnesium	8,560 J	9,920	5,830	5,300	18,800	6,890	8,610	1,240	3,950	2,280
Manganese	344 J	280	802	631	357	270	422	221	482	76.8
Mercury	0.67 R	25.2 J	6.2 J	7.3 J	(<0.11U)J	5.0 J	0.63 J	0.79 J	(<0.13U)J	2.0 J
Nickel	32.7 J	34.8	45.6	97.5 J	16.0 J	43.3 J	22.5 J	30.4 J	29.6 J	13.5 J
Potassium	926 J	965	1,210	336 B	1,350	3,080	1,060	374 B	985	252 B
Selenium	0.25 J	(<0.16U)J	(<0.11U)J	(<0.10U)J	(<0.07U)J	0.17 J	(<0.10U)J	(<0.11U)J	(<0.14U)J	0.33 BJ
Silver	(<0.37U)J	(<1.2U)	(<0.92U)	(<0.76U)	(<1.0U)	(<0.13U)	(<1.0U)	(<0.80U)	(<1.2U)	(<0.94U)
Sodium	913 J	1,210 J	411 B	144 B	135 B	1,570 J	311 B	136 B	258 B	336 B
Thallium	0.43 J	(<0.48U)	(<0.32U)	(<0.30U)	(<0.22U)	(<0.51U)	(<0.30U)	(<0.32U)	(<0.43U)	(<0.44U)
Vanadium	14.8 J	14.8 J	17.6 J	5.6	10.8 J	26.3 J	11.0 J	9.0	13.2 J	6.2
Zinc	421 J	1,160	2,470	15,600	22.5	310	126	1,320	85.2	786
Cyanide	(<0.11U)	0.24 J	0.15 J	0.39 J	(<0.11U)J	(<0.18U)J	(<0.14U)J	(<0.12U)J	(<0.15U)J	0.48 J
Organic Carbon		NR	NR	20,200 J	8,050 J	NR	NR	NR	NR	26,600 J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below CRQL.
J = Reported value is an estimate following data validation review.

NR = Analysis not required.
Zones: SZ = Saturated zone; VZ = Vadose zone.

TABLE D-10 (Continued)

Analytes	MW5 SB-10	MW5 SB-11	MW5 SB-12	MW5 SB-13	MW5 SB-14	MW5 SB-15	MW5 SB-16	MW5 FB-01	MW5 FB-02
Depth (ft)	4-6	6-8	4-6	2-4	0-2	6-8 ft	8-10 ft	---	---
Zone	SZ	SZ	SZ	SZ	VZ	SZ	SZ	---	---
Units	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(ug/L)	(ug/L)
Aluminum	14,400	9,320	9,980	14,400	16,000	6,170	4,820	34.1 B	(<16U)
Antimony	(<1.9U)J	(<1.6U)J	(<2.6U)J	(<1.9U)J	(<1.5U)J	11.8	1.3	(<17U)	(<17U)
Arsenic	5.6 J	8.3 J	7.1 J	7.5 J	15.6 J	33.1	6.7	(<2U)	(<2U)
Barium	87.7	134	102	157	120	1,380	45.2	(<89U)	(<89U)
Beryllium	0.54 B	0.45 B	0.47 B	0.59	0.75	0.54	0.45	(<1U)	(<1U)
Cadmium	3.5 J	2.5 J	3.5 J	4.1 J	4.4 J	9.1 J	1.4 J	(<3U)	(<3U)
Calcium	2,860	57,400	40,400	11,600	4,100	18,700	95,700	136 B	201 B
Chromium	19	25.2	60.1	43.4	21.9	99.8	9.0	(<7U)	(<7U)
Cobalt	7.5	6.9	31.1	10.6	11.0	12.8	12.1	(<13U)	(<13U)
Copper	18.1 J	43.5 J	297 J	75.4 J	18.9 J	1,210 J	30.4 J	5.5 B	(<3U)J
Iron	25,900	19,000	21,400	28,700	33,600	58,100	17,500	151	246 J
Lead	7.8 J	96.3	220	256	16.6	3,030 J	14.4 J	(<1U)	(<1U)
Magnesium	6,940	12,000	13,400	8,990	6,960	2,740 J	8,910 J	95 B	55.9 B
Manganese	729	668	740	245	1,320	6,130	924	3.6 B	3.6 B
Mercury	(<1.0U)	0.21	2.1	3.4	(<1.0U)	0.86 J	0.12 J	(<0.2U)	(<0.2U)
Nickel	25.7 J	18.6 J	28.2 J	33.8 J	38.6 J	166 J	30.7 J	(<26U)	(<26U)J
Potassium	1,820	1,560	1,640	1,330	2,530	890	958	(<96U)	(<96U)
Selenium	(<0.1U)J	0.22 J	(<0.63U)J	0.13 J	(<0.1U)J	0.49 J	(<0.07U) J	(<1U)	(<1U)
Silver	(<0.34U)J	(<0.28U)J	2.6 J	(<0.34U)J	(<0.26U)J	(<0.26U) J	(<0.16 U)J	3 B	(<2U)J
Sodium	73.4 J	160 J	136 BJ	121 J	97.1 J	366 J	251	129 B	299 B
Thallium	(<0.1U)	(<0.11U)	0.13 B	0.22 B	0.15 B	0.25	0.21	(<1U)	(<1U)
Vanadium	20.9	17.5	18.7	23.6	26.6	12.1	11.2	(<4U)	(<4U)
Zinc	39.5	122	253	184	64.4	4,590	552	11 B	22.5 J
Cyanide	(<0.121U)J	(<0.110U)J	(<0.164U)J	(<0.133U)J	(<0.123U)J	---	---	---	---
Organic Carbon	NR	NR	NR	NR	NR	NR	NR	NR	NR

TABLE D-11A ORGANIC ANALYTES MEASURED IN CREEK SEEPS AND SEEP SEDIMENT - ROUND 1

Analytes	Units	CS01 -01A (ug/L)	CS02 -01A (ug/L)	CS03 -01A (ug/L)	CS04 -01A (ug/L)	SS03 -01A (ug/kg)	TB (ug/L)
VOLATILES							
Acetone		(<10U)	49	(<50U)	(<50U)	(<17U)	(<10U)
Methylene chloride		(<5U)	(<5U)	[9U]	[6U]	[9U]	(<5U)
1,2-Dichloroethene (total)		(<5U)	33	670	80	84	(<5U)
Trichloroethene		(<5U)	10	260	72	54	(<5U)
Tetrachloroethene		(<5U)	3 J	100	560	34	(<5U)
Toluene		(<5U)	8	53	20	13	(<5U)
Xylenes		(<5U)	150	570	570	200	(<5U)
TICs - Known		---	---	---	---	---	---
TICs - Unknown		---	---	---	---	---	---
Level (low or medium)		L	L	L	L	L	L
Dilition factor		1	1	5	5	1	1
SEMI-VOLATILES							
Phenol		(<10U)	(<10U)	81	47	(<570U)	NA
o-Methylphenol		(<10U)	11	16 J	10 J	(<570U)	NA
m+p-Methylphenol (coelutes)		(<10U)	4 J	11 J	8 J	(<570U)	NA
2,4-Dimethylphenol		(<10U)	(<10U)	(<10U)	(<10U)	190 J	NA
Bis(2-ethyl hexyl)phthalate		1 J	(<10U)	2 J	2 J	(<570U)	NA
Napthalene		(<10U)	(<10U)	(<10U)	2 J	(<570U)	NA
Phenanthrene		(<10U)	(<10U)	(<10U)	15	(<570U)	NA
Anthracene		(<10U)	(<10U)	1 J	3 J	(<570U)	NA
Fluorene		(<10U)	(<10U)	(<10U)J	2 J	(<570U)	NA
Fluoranthene		(<10U)	(<10U)	(<10U)	28	(<570U)	NA
Pyrene		(<10U)	(<10U)	(<10U)J	18	(<570U)	NA
Benzo(a)anthracene		(<10U)	(<10U)	(<10U)J	10 J	(<570U)	NA
Chrysene		(<10U)	(<10U)	(<10U)	11	(<570U)	NA
Benzo(b)fluoranthene		(<10U)	(<10U)	(<10U)	19	(<570U)	NA
Benzo(k)fluoranthene		(<10U)	(<10U)	(<10U)	19	(<570U)	NA
Benzo(a)pyrene		(<10U)	(<10U)	(<10U)	8 J	(<570U)	NA
o-Toluic acid		(<50U)	86,000 D	79,000 D	23,000 D	7,200	NA
m-Toluic acid		(<50U)	46,000 D	40,000 D	13,000 D	4,800	NA
p-Toluic acid		(<50U)	15,000 D	8,800 D	1,800 D	710	NA
TICs - known							
Benzamine,N,N-diethyl-3-methyl		---	310 JN	760 JN	83 JN	---	NA
Benzenemethanol, 2-methyl		---	810 JN	1,500 JN	---	---	NA
Phenol, 4-(tetramethylbutyl)		---	---	1,900 JN	250 JN	---	NA
1(3H)-Isobenzofuranone		---	---	---	420 JN	---	NA
TICs - unknown		---	604 J;15	9,414 J;15	2,357 J;13	47,000 J;1	NA
Level (low or medium)		L	L	L	L	L	L
Dilition factor		1	1/500 *	1/500 *	1/200 *	1/500 *	1
PESTICIDES/PCBs							
None detected		U	UJ	UJ	UJ	U	U

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Report value is an estimate.
[-U] = Reported value was false positive following data validation.
JN = Presumptive identification, estimated value.
--- = No detectable TICs.
NA = Not applicable.
D = Sample value from diluted analysis.
* = Dilution factor for toluic acid results.

Values shown for unknown TICs are the total concentration and total number of unknowns.
Data validation results provided in data report 920461.

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TABLE D-11B ORGANIC ANALYTES MEASURED IN CREEK SEEPS AND SEEP SEDIMENT - ROUND 2

Analytes	Units	CS01 -01B (ug/L)	CS02 -01B (ug/L)	CS03 -01B (ug/L)	CS04 -01B (ug/L)	SS03 -01B (ug/kg)	TB (ug/L)
VOLATILES							
Acetone		Dry	Dry	(<10U)	Dry	82 BJ	
1,2-Dichloroethene (total)				12 J		83	
Chloroform				4		[32U]	
2-Butanone				(<10U)		18 J	
Toluene				(<10U)		12 J	
Xylenes				(<10U)		320	
TICs - Known				---		---	
TICs - Unknown				---		---	
Level (low or medium)				L		L	
Dilition factor				5		2	
SEMI-VOLATILES							
2-Methylphenol		Dry	Dry	5 J	Dry	(<530U)	
o-Toluic acid				8 J		89 J	
m-Toluic acid				3 J		(<2,600U)	
p-Toluic acid				2 J		(<2,600U) J	
TICs - known							
Cyclohexen-1-one				7 JN		--	
TICs - unknown				74 J;19		780 J; 3	
Level (low or medium)				L		L	
Dilition factor				1		1	
PESTICIDES/PCBs							
None detected		Dry	Dry	U	Dry	U	

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Report value is an estimate following data validation review.
[-U] = Reported value was false positive following data validation.
JN = Presumptive identification, estimated value.

Values shown for unknown TICs are the total concentration and total number of unknowns.
Data validation results provided in data report.

TABLE D-12 INORGANIC ANALYTES MEASURED IN CREEK SEEPS AND SEEP SEDIMENT

Analyte / Units	CS01 (ug/L)	CS02 (ug/L)	CS03 (ug/L)	CS04 (ug/L)	SS03 (mg/kg)
Aluminum	1,710	6,160	29,300	6,850	8,610
Antimony	114 J	99.3 J	269	150 J	(<3.4U)J
Arsenic	5.7 B	95.4	170	29.2	2.2
Barium	164 BJ	144 B	491	70.8 B	119 J
Beryllium	(<1U)	(<1U)	1.8 B	(<1U)	0.49 B
Cadmium	(<5U)	(<5U)J	8.7 J	(<5U)J	2.2 J
Calcium	72,200	27,600	51,500	63,400	11,600
Chromium	8.0 B	36.6	92.4	35.3	18.0
Cobalt	(<8U)	(<8U)	28.3 B	11.4 B	8.1 B
Copper	29.1 J	97.8 J	158 J	135 J	29.8 J
Iron	8,840	10,000	34,600	9,320	16,000
Lead	87.8	117	194	112	24.0
Magnesium	12,500	5,550	16,300	14,100	7,680
Manganese	785	271	778	369	185
Mercury	1.1 J	0.80 J	1.3 J	0.53 J	0.14
Nickel	(<8U)	81.8	238	58	18.8 J
Potassium	2,450 B	6,500	13,000	22,700	926
Selenium	(<2U)	(<20U)	(<40U)	(<20U)	0.25 BJ
Sodium	31,300	1,300,000	2,670,000	1,020,000	4,810
Thallium	(<1U)	(<1U)	1.3 B	1.0 B	0.23 B
Vanadium	(<4U)	75.3 J	172 J	45.1 BJ	13.1
Zinc	51.4 J	90.6 J	244 J	131 J	52.2 J
Cyanide	(<10U)	(<10U)	(<10U)	(<10U)	2.2 J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRQL.
J = Reported concentration is an estimated value following data validation review.
Data validation results provided in data report 920461.

TABLE D-13A ORGANIC ANALYTES MEASURED IN OVERBURDEN GROUND WATER - ROUND 1

Analytes	Units	GW01S -01A (ug/L)	GW02S -01A (ug/L)	GW04S -01A (ug/L)	GW06S -01A (ug/L)	GW07S -01A (ug/L)	GW08S -01A (ug/L)
VOLATILES							
Vinyl Chloride		(<10U)	(<10U)	(<10U)	(<10U)J	5 J	(<10U)
Acetone		(<10U)	19	(<10U)	(<10U)J	(<10U)	(<10U)
1,2-Dichloroethene (Total)		(<5U)	(<5U)	(<5U)	(<5U)J	18	(<5U)
Trichloroethene		(<5U)	(<5U)	(<5U)	(<5U)J	2 J	(<5U)
Tetrachloroethene		(<5U)	(<5U)	2 J	(<5U)J	(<5U)	(<5U)
Toluene		(<5U)	(<5U)	(<5U)	(<5U)J	2 J	(<5U)
Xylenes (Total)		(<5U)	4 J	4 J	(<5U)J	19	(<5U)
TICs - Known		---	---	---	---	---	---
TICs - Unknown		---	---	---	---	---	---
SEMI - VOLATILES							
2-Methylphenol		(<10U)	(<20U)J	(<10U)	(<10U)	15	(<10U)
4-Methylphenol		(<10U)	(<20U)J	(<10U)	(<10U)	11	(<10U)
Benzoic Acid		(<50U)	(<100U)J	(<50U)	(<50U)	4 J	(<50U)
Dimethylphthalate		(<10U)	21J	(<10U)	(<10U)	(<10U)	(<10U)
Phenanthrene		(<10U)	(<20U)J	(<10U)	2 J	(<10U)	(<10U)
Fluoranthene		(<10U)	(<20U)J	(<10U)	4 J	(<10U)	(<10U)
Pyrene		(<10U)	(<20U)J	(<10U)	3 J	(<10U)	(<10U)
Benzo(a)Anthracene		(<10U)	(<20U)J	(<10U)	2 J	(<10U)	(<10U)
bis(2-Ethylhexyl)phthalate		(<10U)	(<20U)J	(<10U)	3 J	2 J	(<10U)
Chrysene		(<10U)	(<20U)J	(<10U)	2 J	(<10U)	(<10U)
Benzo(b)Fluoranthene		(<10U)	(<20U)J	(<10U)	1 J	(<10U)	(<10U)
Benzo(k)Fluoranthene		(<10U)	(<20U)J	(<10U)J	1 J	(<10U)	(<10U)
Benzo(a)Pyrene		(<10U)	(<20U)J	(<10U)J	2 J	(<10U)	(<10U)
p-Toluic Acid		(<50U)	(<100U)J	(<50U)	(<50U)	(<2,500U)	(<50U)
m-Toluic Acid		(<50U)	(<100U)J	(<50U)	(<50U)	(<2,500U)	(<50U)
o-Toluic Acid		(<50U)	(<100U)J	(<50U)	(<50U)	11,000 D	(<50U)
TICs - Known							
Benzamide, N,N-diethyl-3-methyl		---	---	10 J	---	---	16J
2,4-pentanediol,2 methyl		---	---	---	---	---	9J
Benzomethane,.Alpha.Alpha.		---	---	---	---	---	8J
1(3H)-Isobenzofuranone		---	---	---	---	---	110J
TICs - Unknown;n		---	---	1000 J;1	24 J;2	26 J;1	---
PESTICIDES							
None Detected							

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported concentration is an estimated value following data validation review.
NA = Not applicable.
D = Data reported from diluted analysis.
Values shown for unknown TICs are the total concentration and total number of unknowns.

TABLE D-13A (Continued)

Analytes	Units	GW FB-1 (ug/L)	GW FB-2 (ug/L)	TB-3 (ug/L)	TB-4 (ug/L)	TB-5 (ug/L)
VOLATILES						
Vinyl Chloride		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Acetone		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
1,2-Dichloroethene (Total)		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Trichloroethene		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Tetrachloroethene		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Toluene		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Xylenes (Total)		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
TICs - Known		---	---	---	---	---
TICs - Unknown		---	---	---	---	---
SEMI - VOLATILES						
2-Methylphenol		(<10U)	(<10U)	NA	NA	NA
4-Methylphenol		(<10U)	(<10U)	NA	NA	NA
Benzoic Acid		(<10U)	(<10U)	NA	NA	NA
Dimethylphthalate		(<10U)	(<10U)	NA	NA	NA
Phenanthrene		(<10U)	(<10U)	NA	NA	NA
Fluoranthene		(<10U)	(<10U)	NA	NA	NA
Pyrene		(<10U)	(<10U)	NA	NA	NA
Benzo(a)Anthracene		(<10U)	(<10U)	NA	NA	NA
bis(2-Ethylhexyl)phthalate		(<10U)	(<10U)	NA	NA	NA
Chrysene		(<10U)	(<10U)	NA	NA	NA
Benzo(b)Fluoranthene		(<10U)	(<10U)	NA	NA	NA
Benzo(k)Fluoranthene		(<10U)	(<10U)	NA	NA	NA
Benzo(a)Pyrene		(<10U)	(<10U)	NA	NA	NA
p-Toluic Acid		(<50U)	(<50U)	NA	NA	NA
m-Toluic Acid		(<50U)	(<50U)	NA	NA	NA
m-Toluic Acid		(<50U)	(<50U)	NA	NA	NA
TICs - Known						
Benzamide, N,N-diethyl-3-methyl		---	---	NA	NA	NA
2,4-pentanediol,2 methyl		---	---	NA	NA	NA
Benzomethane,.Alpha.Alpha.		---	---	NA	NA	NA
1(3H)-Isobenzofuranone		---	---	NA	NA	NA
TICs - Unknown		---	---	NA	NA	NA
PESTICIDES						
None Detected						

TABLE D-13B ORGANIC ANALYTES MEASURED IN OVERBURDEN GROUND WATER - ROUND 2

Analytes	Units	GW01S -01B (ug/L)	GW02S -01B (ug/L)	GW04S -01B (ug/L)	GW05S -01B (ug/L)	GW06S -01B (ug/L)	GW07S -01B (ug/L)
VOLATILES							
Vinyl Chloride	Dry		(<10U)	(<10U)	(<1,000U)	(<10U)	5 J
1,1-Dichloroethane			(<10U)	(<10U)	(<1,000U)	(<10U)	(<10U)
1,2-Dichloroethene (Total)			(<10U)	(<10U)	(<1,000U)	(<10U)	85
Toluene			(<10U)	(<10U)	270 J	(<10U)	6 J
Xylenes (Total)			(<10U)	26	28,000	(<10U)	41
TICs - Known			---	---	---	---	---
TICs - Unknown			---	---	---	---	---
Level (Low or Medium)			L	L	L	L	L
Dilution Factor			1	1	100	1	1
SEMI - VOLATILES							
Phenol	Dry		(<10U)	(<10U)	12	(<10U) J	(<10U) J
1,3-Dichlorobenzene			(<10U)	1 J	(<10U)	(<10U)	(<10U) R
2-Methylphenol			1 J	(<10U)	13	(<10U)	9 J
4-Methylphenol			(<10U)	(<10U)	150 J	(<10U)	7 J
2,4-Dimethylphenol			(<10U)	14	(<10U)	(<10U)	(<10U)
Dimethylphthalate			(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Pentachlorophenol			(<25U) J	(<25U) J	2 J	(<25U) J	(<25U)
Naphthalene			(<10U)	(<10U)	11	2 J	(<10U) R
2-methylnaphthalene			(<10U)	(<10U)	(<10U)	0.8 J	(<10U) R
Acenaphthene			(<10U)	(<10U)	(<10U)	1 J	(<10U) R
Dibenzofuran			(<10U)	(<10U)	(<10U)	0.7 J	(<10U) R
Fluorene			(<10U)	(<10U)	(<10U)	2 J	(<10U) R
Phenanthrene			(<10U)	(<10U)	5 J	15	(<10U) R
Anthracene			(<10U)	(<10U)	0.8 J	5 J	(<10U) R
Carbazole			(<10U)	(<10U)	3 J	(<10U)	(<10U) R
Fluoranthene			(<10U)	(<10U)	2 J	27	(<10U) R
Pyrene			(<10U)	(<10U)	1 J	27	(<10U) R
Benzo(a)Anthracene			(<10U)	(<10U)	(<10U)	14	(<10U) R
Di-n-butyl phthalate			[10U] J	(<10U) J	(<10U)	[10U] J	[10U] J
bis(2-Ethylhexyl)phthalate			[10U] J	[10U]	(<10U)	[10U] J	[10U] J
Chrysene			(<10U) J	(<10U)	(<10U)	13	(<10U) R
Benzo(b)Fluoranthene			(<10U)	(<10U)	(<10U)	19	(<10U) R
Benzo(a)Pyrene			(<10U)	(<10U)	(<10U)	10	(<10U) R
o-Toluic Acid			1,500 DJ	17 J	6,300 DJ	(<50U) J	14,000 DJ
m-Toluic Acid			160 DJ	(<50U)	4,800 DJ	(<50U) J	6,500 DJ
p-Toluic Acid			(<50U)	(<50U)	270 J	(<50U) J	700 DJ
TICs - Known							
Benzenemethanol, 2-methyl ...			--	--	--	--	5 JN
TICs - Unknown;n			27 J;7	18 J;4	3,944 J;20	26 J;7	64 J;10
PESTICIDES							
None Detected	Dry		U	U	UJ	U	U

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported concentration is an estimated value following data validation review.
NA = Not applicable.
D = Data reported from diluted analysis.
*: Dilution used for xylene results labeled "D."
Values shown for unknown TICs are the total concentration and total number of unknowns.

TABLE D-13B (Continued)

Analytes	Units	GW08S -01B (ug/L)	GW12S -01B (ug/L)	GW18S -01B (ug/L)
VOLATILES				
Vinyl Chloride		(<10U)	(<10U)	(<10U)
1,1-Dichloroethane		(<10U)	(<10U)	3 J
1,2-Dichloroethene (Total)		(<10U)	(<10U)	(<10U)
Toluene		(<10U)	(<10U)	(<10U)
Xylenes (Total)		(<10U) J	55	450 D
TICs - Known		---	---	
TICs - Unknown		---	---	
Level (Low or Medium)		L	L	L
Dilution Factor		1	1	1/10*
SEMI - VOLATILES				
Phenol		(<10U)	(<10U)	(<10U)
1,3-Dichlorobenzene		(<10U)	(<10U)	(<10U)
2-Methylphenol		(<10U)	(<10U)	(<10U)
4-Methylphenol		(<10U)	(<10U)	(<10U)
2,4-Dimethylphenol		(<10U)	(<10U)	4 J
Dimethylphthalate		(<10U)	(<10U)	(<10U)
Prentachlorophenol		(<25U)	(<25U)	(<25U)
Naphthalene		(<10U)	2 J	(<10U)
2-methylnaphthalene		(<10U)	(<10U)	(<10U)
Acenaphthene		(<10U)	(<10U)	(<10U)
Dibenzofuran		(<10U)	(<10U)	(<10U)
Fluorene		(<10U)	(<10U)	(<10U)
Phenanthrene		(<10U)	(<10U)	(<10U)
Anthracene		(<10U)	(<10U)	(<10U)
Carbazole		(<10U)	(<10U)	(<10U)
Fluoranthene		(<10U)	(<10U)	(<10U)
Pyrene		(<10U)	(<10U)	(<10U)
Benzo(a)Anthracene		(<10U)	(<10U)	(<10U)
Di-n-butyl phthalate		(<10U)	(<10U)	(<10U)
bis(2-Ethylhexyl)phthalate		1 J	(<10U)	4 J
Chrysene		(<10U)	(<10U)	(<10U)
Benzo(b)Fluoranthene		(<10U)	(<10U)	(<10U)
Benzo(a)Pyrene		(<10U)	(<10U)	(<10U)
o-Toluic Acid		(<50U)	100 J	2 J
m-Toluic Acid		(<50U)	40 J	(<50U)
p-Toluic Acid		(<50U)	(<50U)	(<50U)
TICs - Known				
Benzamide, N,N-diethyl-3-methyl		--	--	--
TICs - Unknown;n		16 J;2		209 J;19
PESTICIDES				
None Detected		UJ	U	UJ

TABLE D-14A INORGANIC ANALYTES MEASURED IN OVERBURDEN MONITORING WELLS - ROUND 1

Analyte Units	GW01S (ug/L)	GW02S (ug/L)	GW04S (ug/L)	GW06S (ug/L)	GW07S (ug/L)	GW08S (ug/L)	GWFB01 (ug/L)	GWFB02 (ug/L)
Aluminum	19,300	7,720 J	885 J	1,690	6,040	933	(<11U)	(<87U)J
Antimony	(<20.0U)R	(<20.0U)R	(<20.0U)R	22.2 B	(<20.0U)	20.8 B	(<20U)	(<18U)NR
Arsenic	(<2.0U)J	21.8 J	2.9 BJ	8.9 R	44.0 R	7.3 R	(<2.0U)	39.2 J
Barium	385J	163 J	63.6 J	146 B	266	50.2 B	(<6U)	80.6 BJ
Beryllium	1.3 BR	(<1.0U) J	(<1.0U) J	(<1.0U)	0.58	(<1.0U)	(<1.0U)	(<1.0U)R
Calcium	504,000	78,400	43,400	20,600	155,000	121,000	369 B	93.2 B
Chromium	43.2 J	17.3 J	5.6 BJ	27.0	17.7	2,550	(<3U)	(<4U)J
Cobalt	27.3 B	11.7 B	(<11.0 U)	(<11.0 U)	12.6	20.7 B	(<11.0 U)	(<11.0 U)
Copper	80.2 J	44.7 J	15.0 BJ	458	47.7 J	52.4 J	11.0 BJ	9.6 BR
Iron	69,800 J	13,600 J	1,970 J	5,740	16,800	23,200	30.2 B	21.8 BJ
Lead	26.7	13.7 R	6.9 R	390	15.1	(<2.0U)J	(<2.0U)J	(<2.0U)R
Magnesium	119,000	17,200	10,200	4,360 B	35,100	20,800	108 B	(<78U)R
Manganese	1,460 J	334 J	578 J	159	430	437	3.0 B	(<5U)R
Nickel	50.7 J	53.7 J	20.3 BJ	20.9 B	46.9	923	(<5U)	(<8U)R
Potassium	4,890 B	4,390 B	4,270 B	71,100	5,350	2,910 B	(<203U)	(<203U)
Sodium	71,400 R	438,000 R	246,000 R	276,000 J	529,000 J	268,000 J	846 BJ	206 B
Vanadium	32.3 R	31.9 J	(<6.0U)J	12.4 B	30.6	5.7 B	(<4U)	(<6U)R
Zinc	163	92.7	26.1	643	68.4	217	(<16U)	(<16U)J
Cyanide	(<10U)	13	(<10U)	(<10U)J	(<10U)J	(<10U)J	18 J	(<10U)J

NOTE:
U = Not detected. Sample quantitaion limits are shown as (<_U).
B = Reported value is below the CRQL.
J = Reported concentration is an estimated value following data validation review.
R = Reported data is unusable following data validation review.

TABLE D-14B INORGANIC ANALYTES MEASURED IN OVERBURDEN MONITORING WELLS - ROUND 2

Analyte Units	GW01S (ug/L)	GW02S (ug/L)	GW04S (ug/L)	GW05S (ug/L)	GW06S (ug/L)	GW07S (ug/L)	GW08S (ug/L)	GW12S (ug/L)
Aluminum	Dry	42,800	508	14,000	2,700	5,690	2,140	2,580
Antimony		(<2U)	(<2U)	34.9 B	23.9 B	(<2U)	(<3U)	(<17U)
Arsenic		20.5 J	7.3 BJ	45.2	9.1 B J	46.3 J	30.5	4.7 B
Barium		430	(<89U)	490	222	116 B	(<89U)	231
Beryllium		2.4 B	(<1U)	1.1 B	(<1U)	(<1U)	(<1U)	(<1U)
Cadmium		14.7 J	(<3U) J	(<3U)	(<3U)	(<3U)	3.1 B	(<3U)
Calcium		169,000	46,600	35,800	47,000	80,500	80,700	79,100
Chromium		78.8	(<7U)	172	24.2	20	6,870	10.9
Cobalt		57.2	(<13U)	28.8 B	(<13U)	(<13U)	22.7 B	(<13U)
Copper		172	9.2 B	1,320	778	22.8 B	220 J	14.1 B
Iron		94,200 R	1,040 R	31,100	7,350	12,500	19,000	11,600
Lead		117	3.7 J	1,370	988	8.0 J	6.7	50.3
Magnesium		47,400	11,200	11,100	14,700	19,600	21,000	37,800
Manganese		1,350	688	651	378 J	245 J	401	352
Mercury		0.4	(<0.2U)	5.0	2.8	(<0.2U)	(<0.2U)	(<0.2U)
Nickel		154	(<26U)	93.1	27.6 B	42.0	1,090	92.5
Potassium		10,300	4,840 B	20,200	85,800	4,530 B	3,610 B	11,800
Selenium		(<1U) J	(<1U) J	1.5 B	1.1 B J	(<5U)	1.2 B J	(<1U)
Sodium		504,000	197,000	577,000	277,000	655,000	714,000	433,000
Vanadium		107	4.1 B	75.6	19.8	52.6	23.2 B	8.2 B
Zinc		450	23.8 J	1,080	1,140 J	87.0 J	51.8 J	40.7
Cyanide		28.0 J	(<10U) J	(<10U)	(<10U)	13.0	(<10U)	(<10U)

NOTE:
U = Not detected. Sample quantitaion limits are shown as (<_U).
B = Reported value is below the CRQL.
J = Reported concentration is an estimated value following data validation review.
R = Reported data is unusable following data validation review.

TABLE D-14B (Continued)

Analyte Units	GW14S (ug/L)	GW18S (ug/L)
Aluminum	Dry	32,600
Antimony		(<3U)
Arsenic		15.7
Barium		483
Beryllium		2.7 B
Cadmium		11.4
Calcium		243,000
Chromium		110
Cobalt		49.1 B
Copper		153 J
Iron		76,200
Lead		130
Magnesium		50,500
Manganese		7,460
Mercury		0.91
Nickel		184
Potassium		13,700
Selenium		(<1U) J
Sodium		50,100
Vanadium		76.5
Zinc		635
Cyanide		(<10U)

TABLE D-15 WATER QUALITY PARAMETERS MEASURED IN OVERBURDEN GROUND WATER

Analyte / Units	GW01S (mg/L)	GW02S (mg/L)	GW04S (mg/L)	GW06S (mg/L)	GW07S (mg/L)	GW08S (mg/L)
Chloride	4.8	26.0	9.8	54.9	98.7	344
Fluoride	(<0.2U)	1.4	1.4	0.59	2.2	(<0.2U)
Ammonia	(<0.1U)	1.8	0.5	0.6	8	(<0.1U)
Nitrate	0.3	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	3.9
Sulfate	(<125U)	(<500U)	22.8	(<1,000U)	(<500U)	(<50U)
Alkalinity	395	516	4,770	710	1,300	410
Hardness	1,750	267	150	69.4	531.6	387.8
Total suspended solids	651	309	57	269	742	218
Dissolved organic carbon	69.1	35.9	25.8	41.6	149	29.9

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).

table-10.wk1

TABLE D-16A ORGANIC ANALYTES MEASURED IN UPPER BEDROCK GROUND WATER - ROUND 1

Analytes	GW01I -01A	GW02I -01A	GW03I -01A	GW03I DUP -01A	GW04I -01A	GW05I -01A	GW06I -01A
Units	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
VOLATILES							
Chloroethane	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	31	(<5U)
Vinyl Chloride	(<10U)	(<10U)	(<200U)	(<200U)	(<50U)	3 J	(<10U)
Methylene Chloride	(<5U)	(<5U)	[100U]	[100U]	(<25U)	(<5U)	(<5U)
Acetone	(<10U)	130	(<200U)	(<200U)	(<50U)	(<10U)	(<10U)
1,1-Dichloroethene	(<5U)	(<5U)	(<100U)	(<100U)	(<25U)	10	(<5U)
1,2-Dichloroethene (Total)	13	8	160	140	160	9	(<5U)
Trichloroethene	1 J	2 J	190	180	32	(<5U)	(<5U)
Benzene	(<5U)	1 J	(<100U)	(<100U)	(<25U)	(<5U)	(<5U)
4-Methyl-2-Pentanone (MIBK)	(<10U)	(<10U)	(<200U)	(<200U)	71	(<10U)	(<10U)
Tetrachloroethene	3 J	(<5U)	2,300	2,300	110	(<5U)	(<5U)
Toluene	(<5U)	19	68	66	60	(<5U)	(<5U)
Xylenes (Total)	8	580	2,100	2,100	2,100	110	(<5U)
VOA TICs - Known	---	---	---	---	---	---	---
VOA TICs - Unknown;n	---	---	---	---	---	12J;1	---
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	1	20	20	5	1	1
SEMI - VOLATILES							
Benzyl alcohol	(<50U)	26 J	14 J	26 J	(<50U)	(<50U)	(<50U)
Bis(2-chloroethoxy)methane	(<50U)	(<50U)	(<50U)J	150	(<50U)	(<50U)	(<50U)
Phenol	60	140	34 J	62	51	(<10U)	22
2-Methylphenol	3 J	(<50U)	(<50U)J	10 J	11 J	(<10U)	2 J
4-Methylphenol	4 J	29 J	(<50U)J	19 J	25 J	3 J	17
Nitrobenzene	3 J	(<50U)	11 J	18 J	(<10U)	(<10U)	(<10U)
2,4-Dimethylphenol	14	(<50U)	(<50U)J	320 J	14 J	(<10U)	10
Benzoic Acid	70	(<50U)	(<50U)J	11 J	330	(<10U)	5 J
Naphthalene	(<10U)	(<50U)	(<50U)J	(<40U)J	(<10U)	(<10U)	9 J
Pentachlorophenol	(<50U)	8 J	(<250U)J	(<200U)J	(<50U)	(<50U)	(<50U)
Phenanthrene	(<10U)	(<50U)	(<50U)J	(<40U)J	(<10U)	(<10U)	1 J
Benzo(a)anthracene	(<10U)	(<50U)J	(<10U)J	(<10U)J	(<10U)	(<10U)	(<10U)
bis(2-Ethylhexyl)phthalate	(<10U)	(<50U)J	(<50U)J	(<40U)	(<10U)	2 J	1 J
Di-n-octylphtalate	(<10U)	(<50U)J	(<50U)J	(<40U)	(<10U)	(<10U)	
2,4-Dinitrotoluene	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
Dimethyl phthalate	(<50U)	(<50U)	(<50U)J	24 J	(<50U)	(<50U)	(<50U)
m-Toluic Acid	11,000 D	30,000 DJ	1,800 DJ	50,000 D	19,000 J	840 J	2,100 D
p-Toluic Acid	1,200 DJ	720 DJ		5,400 DJ	(<250U)	100	160 DJ
o-Toluic Acid	16,000 D	87,000 DJ	3,000 DJ	78,000 D	32,000 J	1,900 DJ	3,300 J
BNA TICs- Known							
Butanoic acid	26 J	240 J	--	140 J	--	--	--
Pentanoic acid	150 J	--	--	--	--	--	--
Benzenemethanol,4-methyl	20 J	--	--	--	--	--	--
Benzamide,N,N-diethyl-methyl	18 J	40 J	30 J	56 J	100 J	--	--
Propanoic acid,2-methyl	--	270 J	90 J	--	--	--	--
Hexanoic acid	--	110 J	65 J	140 J	--	--	--
Hexadecanoic acid	--	--	--	140 J	--	--	--
Hexanedioic acid	--	90 J	--	--	--	--	--
9-Octadecanoic acid	--	900 J	--	--	--	--	--
1-Hexanol,2-ethyl	--		20 J	--	--	--	--
Benzoic acid,2-methyl	--	--	40 J	--	--	--	--
Decanoic acid	--	--	25 J	--	--	--	--
9-Hexadecanoic acid	--	--	95 J	--	--	--	--
10-Octadecanoic acid,methyl	--	--	290 J	--	--	--	--
1(3H)-Isobenzofuranone	--	--	--	--	520 J	--	--
Benzomethanol.alpha.	--	--	--	48 J	--	--	--
Bicyclo[2.2.1]heptan-1-ol	--	--	--	32 J	--	--	--
Ethanol,2-phenoxy-	--	--	--	32 J	--	--	--
2,4-pentanediol,2-methyl	--	--	--	--	--	--	--
Hexanoic acid,2-methyl	--	--	--	--	--	--	--
2,5-Furandione,3,4-diethyl	--	--	--	--	--	--	--
Hexanoic acid,2-ethyl	--	--	--	--	--	--	--
Butanamide,N-(oxypropyl)	--	--	--	--	--	--	--
Phenol,4,4'-Butylidenebis[2-	--	--	--	--	--	--	--
BNA TICs - Unknown;n	136 J;4	3,035 J;11	6,408 J;7	4,256 J;11	2,600 J;8	582 J;15	188 J;2
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1/100	5/3,000 *	5/150 *	5/150 *	5	1/10 *	1/20 *
PESTICIDES							
None Detected							

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported concentration is an estimated value following data validation review.
[-U] = Value was false positive following data validation review.
NA = Not applicable.
D = Reported result from diluted analysis.
* = Dilution factors for toluic acid labeled "D."

Values shown for unknown TICs are the total concentation and total number of unknowns.
Data validation results provided in data reports 920398 (MW1I-MW4I) and 920396 (MW5I-MW11I).

TABLE D-16A (Continued)

Analytes / Units	GW07I -01A (ug/L)	GW08I -01A (ug/L)	GW09I -01A (ug/L)	GW010I -01A (ug/L)	GW011I -01A (ug/L)
VOLATILES					
Chloroethane	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Vinyl Chloride	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Methylene Chloride	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Acetone	23	(<10U)	(<10U)	(<10U)	(<10U)
1,1-Dichloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
1,2-Dichloroethene (Total)	93	(<5U)	(<5U)	(<5U)	(<5U)
Trichloroethene	37	(<5U)	(<5U)	(<5U)	(<5U)
Benzene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
4-Methyl-2-Pentanone (MIBK)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene	26	(<5U)	(<5U)	(<5U)	(<5U)
Toluene	16	(<5U)	(<5U)	(<5U)	(<5U)
Xylenes (Total)	280	(<5U)	(<5U)	(<5U)	(<5U)
VOA TICs - Known	---	---	---	---	---
VOA TICs - Unknown;n	---	---	---	---	---
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	1
SEMI - VOLATILES					
Benzyl alcohol	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
Bis(2-chloroethoxy)methane	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
Phenol	9 J	(<10U)R	(<10U)	(<10U)	(<10U)
2-Methylphenol	18	(<10U)	(<10U)J	(<10U)	(<10U)
4-Methylphenol	28	(<10U)R	(<10U)J	(<10U)	(<10U)
Nitrobenzene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
2,4-Dimethylphenol	(<10U)	(<10U)R	(<10U)J	(<10U)	(<10U)
Benzoic Acid	190 E	(<50U)R	(<50U)J	(<50U)	(<50U)
Naphthalene	(<10U)	(<10U)	(<10U)J	(<10U)	(<10U)
Pentachlorophenol	(<50U)	(<50U)R	(<50U)J	(<50U)	(<50U)
Phenanthrene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Benzo(a)anthracene	(<10U)	5 J	(<10U)	(<10U)	(<10U)
bis(2-Ethylhexyl)phthalate	5 J	5 J	4 J	7 J	160
Di-n-octylphtalate	(<10U)	(<10U)	(<10U)	(<10U)	3 J
2,4-Dinitrotoluene	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
Dimethyl phthalate	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
m-Toluic Acid	960 DJ	(<50U)R	(<50U)	(<50U)	(<50U)
p-Toluic Acid	(<10,000U)	(<50U)R	(<50U)	(<50U)	(<50U)
o-Toluic Acid	24,000 D	(<50U)R	(<50U)	(<50U)	(<50U)
BNA TICs- Known					
Butanoic acid	100 J	---	---	---	---
Pentanoic acid	--	---	---	---	---
Benzenemethanol,4-methyl	--	---	---	---	---
Benzamide,N,N-diethyl-methyl	97 J	---	---	---	---
Propanoic acid,2-methyl	--	---	---	---	---
Hexanoic acid	--	---	---	---	---
Hexadecanoic acid	--	---	---	---	---
Hexanedioic acid	--	---	---	---	---
9-Octadecanoic acid	--	---	---	---	---
1-Hexanol,2-ethyl	--	---	---	---	---
Benzoic acid,2-methyl	--	---	---	---	---
Decanoic acid	--	---	---	---	---
9-Hexadecanoic acid	--	---	---	---	---
10-Octadecanoic acid,methyl	--	---	---	---	---
1(3H)-Isobenzofuranone	--	---	---	---	---
Benzomethanol.alpha.	26 J	---	---	---	---
Bicyclo[2.2.1]heptan-1-ol	--	---	---	---	---
Ethanol,2-phenoxy-	39 J	---	---	---	---
2,4-pentanediol,2-methyl	44 J	---	---	---	---
Hexanoic acid,2-methyl	--	---	---	---	---
2,5-Furandione,3,4-diethyl	--	---	---	---	---
Hexanoic acid,2-ethyl	--	---	---	---	---
Butanamide,N-(oxypropyl)	--	---	---	---	---
Phenol,4,4'-Butylidenebis[2-	--	--	--	--	11 J
BNA TICs - Unknown;n	626 J;13	26 J;1	9 J;1	23 J;2	178 J;10
Level (low or medium)	L	L	L	L	L
Dilution factor	1/200 *	1	1	1	1
PESTICIDES					
None Detected					

TABLE D-16A (Continued)

Analytes	GWFB01	GWFB02	GWTB-2	GWTB-3	GWTB-4	GWTB-5
Units	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
VOLATILES						
Chlorothene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Vinyl Chloride	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Methylene Chloride	(<5U)	(<5U)	(<5U)	2 J	(<5U)	(<5U)
Acetone	(<10U)	(<10U)	31	(<10U)	(<10U)	(<10U)
1,1-Dichloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
1,2-Dichloroethene (Total)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Trichloroethene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Benzene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
4-Methyl-2-Pentanone (MIBK)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene	(<5U)	2 J	(<5U)	(<5U)	(<5U)	(<5U)
Toluene	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Xylenes (Total)	(<5U)	5 J	(<5U)	(<5U)	(<5U)	(<5U)
VOA TICs - Known	---	---	---	---	---	---
VOA TICs - Unknown;n	---	---	---	---	---	---
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1
SEMI - VOLATILES						
Benzyl alcohol	(<50U)	(<50U)	NA	NA	NA	NA
Bis(2-chloroethoxy)methane	(<50U)	(<50U)	NA	NA	NA	NA
Phenol	(<10U)J	(<10U)	NA	NA	NA	NA
2-Methylphenol	(<10U)	(<10U)	NA	NA	NA	NA
4-Methylphenol	(<10U)J	(<10U)	NA	NA	NA	NA
Nitrobenzene	(<10U)	(<10U)	NA	NA	NA	NA
2,4-Dimethylphenol	(<10U)J	(<10U)	NA	NA	NA	NA
Benzoic Acid	(<50U)J	(<50U)	NA	NA	NA	NA
Naphthalene	(<10U)	(<10U)	NA	NA	NA	NA
Pentachlorophenol	(<50U)J	(<50U)	NA	NA	NA	NA
Phenanthrene	(<10U)	(<10U)	NA	NA	NA	NA
Benzo(a)anthracene	(<10U)	(<10U)	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	(<10U)	(<10U)	NA	NA	NA	NA
Di-n-octylphtalate	(<10U)	(<10U)	NA	NA	NA	NA
2,4-Dinitrotoluene	(<50U)	(<50U)	NA	NA	NA	NA
Dimethyl phthalate	(<50U)	(<50U)	NA	NA	NA	NA
m-Toluic Acid	(<50U)	(<50U)	NA	NA	NA	NA
p-Toluic Acid	(<50U)	(<50U)	NA	NA	NA	NA
o-Toluic Acid	(<50U)	(<50U)	NA	NA	NA	NA
BNA TICs- Known						
Butanoic acid	---	---	NA	NA	NA	NA
Pentanoic acid	---	---	NA	NA	NA	NA
Benzenemethanol,4-methyl	---	---	NA	NA	NA	NA
Benzamide,N,N-diethyl-methyl	---	---	NA	NA	NA	NA
Propanoic acid,2-methyl	---	---	NA	NA	NA	NA
Hexanoic acid	---	---	NA	NA	NA	NA
Hexadecanoic acid	---	---	NA	NA	NA	NA
Hexanedioic acid	---	---	NA	NA	NA	NA
9-Octadecanoic acid	---	---	NA	NA	NA	NA
1-Hexanol,2-ethyl	---	---	NA	NA	NA	NA
Benzoic acid,2-methyl	---	---	NA	NA	NA	NA
Decanoic acid	---	---	NA	NA	NA	NA
9-Hexadecanoic acid	---	---	NA	NA	NA	NA
10-Octadecanoic acid,methyl	---	---	NA	NA	NA	NA
1(3H)-Isobenzofuranone	---	---	NA	NA	NA	NA
Benzomethanol.alpha.	---	---	NA	NA	NA	NA
Bicyclo[2.2.1]heptan-1-ol	---	---	NA	NA	NA	NA
Ethanol,2-phenoxy-	---	---	NA	NA	NA	NA
2,4-pentanediol,2-methyl	---	---	NA	NA	NA	NA
Hexanoic acid,2-methyl	---	---	NA	NA	NA	NA
2,5-Furandione,3,4-diethyl	---	---	NA	NA	NA	NA
Hexanoic acid,2-ethyl	---	---	NA	NA	NA	NA
Butanamide,N-(oxypropyl)	---	---	NA	NA	NA	NA
Phenol,4,4'-Butylidenebis[2-	---	---	NA	NA	NA	NA
BNA TICs - Unknown;n	---	1000 J;1	NA	NA	NA	NA
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1
PESTICIDES						
None Detected			NA	NA	NA	NA

TABLE D-16B ORGANIC ANALYTES MEASURED IN UPPER BEDROCK GROUND WATER - ROUND 2

Analytes	GW01I -01B	GW02I -01B	GW03I -01B	GW04I -01B	GW05I -01B	GW06I -01B	GW07I -01B
Units	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)	(ug/L)
VOLATILES							
Chloroethane	14	(<20U)	(<50U)	(<100U)	49	(<10U)	(<100U)
Vinyl Chloride	(<10U)	(<20U)	(<50U)	(<100U)	21	(<10U)	(<100U)
Acetone	(<10U)	39	(<50U)	(<100U)	(<10U)	(<10U)	(<100U)
1,1-Dichloroethane	(<10U)	(<20U)	(<50U)	(<100U)	150	(<10U)	(<100U)
1,2-Dichloroethene (Total)	120	20	1,500	300	100	4 J	200
Trichloroethene	29	(<20U)	54	11 J	(<10U)	2 J	12 J
Benzene	(<10U)	(<20U)	(<50U)	(<100U)	(<10U)	(<10U)	(<100U)
Tetrachloroethene	100	(<20U)	190	34 J	(<10U)	(<10U)	(<100U)
Toluene	11	22	37 J	(<100U)	9 J	3 J	19 J
Ethyl benzene	(<10U)	(<20U)	(<50U)	(<100U)	1 J	(<10U)	(<100U)
Xylenes (Total)	290	670	1,400	1,900	430 D	50	300
VOA TICs - Known	---	---	---	---	---	---	---
VOA TICs - Unknown;n	7 J;1	---	---	---	12J;1	---	---
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	1	2	5	10	1/10+	1	10
SEMI - VOLATILES							
Phenol	2,400 J	370	(<10U)	28	(<10U)	27	24
2-Methylphenol	30 J	26 J	(<10U)	(<10U)	(<10U)	4 J	14 J
4-Methylphenol	69 J	55 J	(<10U)	(<10U)	(<10U)	14	12 J
2,4-Dimethylphenol	(<100U)	(<100U)	(<10U)	(<10U)	(<10U)	(<10U)	(<20U)
Naphthalene	(<100U)	(<100U)	(<10U)	(<10U)	2 J	8 J	(<20U)
Di-n-butyl phthalate	(<100U)	(<100U)	(<10U)	(<10U)	(<10U)	(<10U)	(<20U)
bis(2-Ethylhexyl)phthalate	(<100U)	(<100U)	(<10U)	(<10U)	(<10U)	(<10U)	(<20U)
Fluorene	(<100U)	(<100U)	(<10U)	(<10U)	(<10U)	(<10U)	(<20U)
o-Toluic Acid	190,000 DJ	220,000 DJ	28,000 J	42,000 DJ	1,300 J	7,900 D	64,000 J
m-Toluic Acid	150,000 DJ	100,000 DJ	16,000 J	32,000 DJ	310 J	7,700 D	42,000 J
p-Toluic Acid	89,000 J	240,000 J	9,200 J	12,000 J	69	920 DJ	16,000 J
BNA TICs- Known							
Bimethyl benzoic acid	--	--	--	--	--	--	--
Bicyclo[2.2]heptan-2-one	--	--	--	--	--	--	--
Benzene, 1,1'-oxybis	--	--	--	--	--	--	--
2-methylbenzenemethanol	--	--	--	--	--	150 JN	--
2-methylcyclopentanol	--	--	--	--	--	7 JN	--
Benzaminde, N,N-diethyl-3-methyl ...	--	--	370 JN	--	--	--	--
BNA TICs - Unknown;n	1,590 J;20	17,598 J;20	2,213 J;19	1,113 J;20	657 J;20	356 J;18	469 J;20
Level (low or medium)	L	L	L	L	L	L	L
Dilution factor	10/5,000*	10/5,000 *	1	1/2,000 *	1	1/100 *	2/100 *
PESTICIDES/PCBs							
4,4'-DDE	(<0.1U)	(<0.1U)	0.23	0.61	(<0.1U)	(<0.1U)	(<0.1U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported concentration is an estimated value following data validation review.
[-U] = Value was false positive following data validation review.
NA = Not applicable.
D = Reported result from diluted analysis.
* = Dilution factors for toluic acid labeled "D."
+ = Dilution factors for xylenes labeled "D."

Values shown for unknown TICs are the total concentation and total number of unknowns.
Data validation results provided in data report 931235.

TABLE D-16B (Continued)

Analytes / Units	GW08I -01B (ug/L)	GW08I DUP -01B (ug/L)	GW09I -01B (ug/L)	GW010I -01B (ug/L)	GW011I -01B (ug/L)
VOLATILES					
Chloroethane	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Vinyl Chloride	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Acetone	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
1,1-Dichloroethane	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
1,2-Dichloroethene (Total)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Trichloroethene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Benzene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Toluene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Ethyl benzene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Xylenes (Total)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
VOA TICs - Known	---	---	---	---	---
VOA TICs - Unknown;n	---	---	24 J;2	---	39 J;1
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	1
SEMI - VOLATILES					
Phenol	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
2-Methylphenol	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
4-Methylphenol	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
2,4-Dimethylphenol	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Naphthalene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Di-n-butyl phthalate	(<10U)	(<10U)	(<10U)	2 J	(<10U)
bis(2-Ethylhexyl)phthalate	(<10U)	(<10U)	(<10U)	4 J	49
Fluorene	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
o-Toluic Acid	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
m-Toluic Acid	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
p-Toluic Acid	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)
BNA TICs- Known					
Bimethyl benzoic acid	--	--	--	--	--
Bicyclo[2.2]heptan-2-one	--	--	--	--	--
Benzene, 1,1'-oxybis	--	--	--	--	--
2-methylbenzenemethanol	--	--	--	--	--
2-methylcyclopentanol	--	--	--	--	--
Benzaminde, N,N-diethyel-3-methy	--	--	--	--	--
BNA TICs - Unknown;n	26 J;1		9 J;1		178 J;10
Level (low or medium)	L		L	L	L
Dilution factor	1		1	1	1
PESTICIDES/PCBs					
4,4'-DDE	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)

TABLE D-16B (Continued)

Analytes / Units	GW12I -01B (ug/L)	GW13I -01B (ug/L)	GW14I -01B (ug/L)	GW15I -01B (ug/L)	GW16I -01B (ug/L)	GW16I -01R (ug/L)
VOLATILES						
Chloroethane	32 J	(<10U)	(<10U)	Dry	(<10U)	NA
Vinyl Chloride	(<50U)	(<10U)	(<10U)		(<10U)	
Acetone	(<50U)	(<10U)	(<10U)		(<10U) J	
1,1-Dichloroethane	39 J	(<10U)	(<10U)		(<10U)	
1,2-Dichloroethene (Total)	26 J	(<10U)	(<10U)		23	
Trichloroethene	(<50U)	(<10U)	(<10U)		(<10U)	
Benzene	(<50U)	4 J	(<10U)		(<10U)	
Tetrachloroethene	(<50U)	(<10U)	(<10U)		(<10U)	
Toluene	(<50U)	(<10U)	(<10U)		2 J	
Ethyl benzene	(<50U)	(<10U)	(<10U)		(<10U)	
Xylenes (Total)	1,700	(<10U)	(<10U)		9 J	
VOA TICs - Known	---	---	---		---	
VOA TICs - Unknown;n	---	---	---		---	
Level (low or medium)	L	L	L		L	
Dilution factor	5	1	1		1	
SEMI - VOLATILES						
Phenol	2 J	(<10U)	(<10U)	Dry	(<10U) J	(<10U)
2-Methylphenol	1 J	(<10U)	(<10U)		0.9 J	2 J
4-Methylphenol	2 J	(<10U)	(<10U)		0.8 J	4 J
2,4-Dimethylphenol	(<10U)	(<10U)	(<10U)		0.6 J	(<10U)
Naphthalene	1J	(<10U)	(<10U)		(<10U)	(<10U)
Di-n-butyl phthalate	(<10U)	(<10U)	(<10U)		[10U] J	(<10U)
bis(2-Ethylhexyl)phthalate	3 J	3 J	(<10U)		[10U]	[10U]
Fluorene	2 J	(<10U)	(<10U)		(<10U)	(<10U)
o-Toluic Acid	76	(<50U)	32 J		4,500 DJ	3,100 D
m-Toluic Acid	29 J	(<50U)	11 J		1,200 DJ	560 D
p-Toluic Acid	470 DJ	(<50U)	12 J		190 DJ	(<50U)
BNA TICs- Known						
Bimethyl benzoic acid	--	--	--		2 JN	--
Bicyclo[2.2]heptan-2-one	--	--	--		12 JN	--
Benzene, 1,1'-oxybis	110 JN	--	--		--	--
2-methylbenzenemethanol	--	--	--		--	--
2-methylcyclopentanol	--	--	--		--	--
Benzaminde, N,N-diethyl-3-methy	--	--	--		--	4 JN
BNA TICs - Unknown;n	2,218 J;19	93 J;15	--		56 J;11	21 J; 7
Level (low or medium)	L	L	L			
Dilution factor	1	1	1			
PESTICIDES						
4,4'-DDE	(<0.1U)	(<0.1U)	(<0.1U)	Dry	(<0.1U) J	--

NOTE:
Well MW-16I sampled twice during Round 2 program. Labeled "GW-16I-01R"
NA = Not analyzed.

TABLE D-16B (Continued)

Analytes / Units	GW17I -01B (ug/L)	GW18I -01B (ug/L)	FB-01B (8/27/93) (ug/L)	TB-01B (ug/L)	TB-02B (ug/L)	TB-02 (ug/L)	TB(9/3) (ug/L
VOLATILES							
Chloroethane	Dry	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Vinyl Chloride		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Acetone		(<10U) R	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
1,1-Dichloroethane		3 J	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
1,2-Dichloroethene (Total)		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Trichloroethene		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Benzene		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Toluene		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Ethyl benzene		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Xylenes (Total)		490 D	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
VOA TICs - Known			---	---	---		
VOA TICs - Unknown;n		135 J;9	---	---	---		
Level (low or medium)		L	L	L	L		
Dilution factor		1/5*	1	1	1		
SEMI - VOLATILES							
Phenol	Dry	(<10U)	(<10U)				
2-Methylphenol		(<10U)	(<10U)				
4-Methylphenol		(<10U)	(<10U)				
2,4-Dimethylphenol		7 J	(<10U)				
Naphthalene		3 J	(<10U)				
Di-n-butyl phthalate		(<10U)	(<10U)				
bis(2-Ethylhexyl)phthalate		1 J	(<10U)				
Fluorene		(<10U)	(<10U)				
o-Toluic Acid		5 J	(<50U)				
m-Toluic Acid		(<50U)	(<50U)				
p-Toluic Acid		(<50U)	(<50U)				
BNA TICs- Known							
Bimethyl benzoic acid		--	--				
Bicyclo[2.2]heptan-2-one		--	--				
Benzene, 1,1'-oxybis		--	--				
2-methylbenzenemethanol		--	--				
2-methylcyclopentanol		--	--				
Benzaminde, N,N-dietheyl-3-methyl ...		--	--				
BNA TICs - Unknown;n		209 J;20	--				
Level (low or medium)		L	L				
Dilution factor		1	1				
PESTICIDES							
4,4'-DDE	Dry	(<0.1U) J	(<0.1U)				

TABLE D-17A INORGANIC ANALYTES MEASURED IN UPPER BEDROCK GROUND WATER - ROUND 1

Analyte Units	SMC-GW01I (ug/L)	SMC-GW02I (ug/L)	SMC-GW03I (ug/L)	SMC-GW03I DUP (ug/L)	SMC-GW04I (ug/L)	SMC-GW05I (ug/L)	SMC-GW06I (ug/L)	SMC-GW07I (ug/L)	SMC-GW07I DUP (ug/L)	SMC-GW08I (ug/L)	SMC-GW09I (ug/L)
Aluminum	10,700 J	1,760 J	156 J	138 BJ	2,460 J	259	261	947	1,230	107 B	167 B
Arsenic	60.7 J	910 J	46.7 J	37.3 BJ	44.1 J	22.6 R	12.8 R	98.6 R	125 R	(<2.0U)	16.5
Barium	142 BJ	284 J	41.0 BJ	34.9 BJ	163 BJ	326	87.8 B	129 B	139 B	44.2 B	254
Beryllium	1.2 R	(<1.0U) J	(<1.0U) J	(<1.0U) J	(<1.0U) J	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)
Calcium	126,000 B	9,160	6,270	6,550	72,200	34,900	6,180	26,400	29,900	71,100	142,000
Chromium	33.1 J	53.2 J	41.3 J	38.1 J	44.6 J	17.1	34.2	22.8	26.0	(<3.0U)	(<3.0U)
Cobalt	42.4 B	19.0 B	17.3 B	13.8 B	35.6 B	(<11.0U)	(<11.0U)	(<11.0U)	11.1 B	(<11.0U)	12.9 B
Copper	63.3 R	42.1 J	63.4 J	69.8 J	87.2 J	27.7 J	84.0 J	62.1 J	69.7 J	15.2 BJ	10.6 B
Iron	17,600 J	3,750 J	1,900 J	3,980 J	5,700 J	24,100	1,670	13,500	20,200	6,590	10,700 J
Lead	20.5 BR	(<20.0U) R	62.7 R	57.1 R	84.1 R	41.0 S	122	(<2.0U)J	31.1	(<2.0U)J	(<2.0U)
Magnesium	18,000	201 B	904 B	886 B	5,160	8,720	542 B	3,230 B	3,600 B	14,600	25,800
Manganese	491 J	23.1 J	122 J	134 J	690 J	175	45.9	113	149	58.4	637
Mercury	0.26 R	0.53 J	0.24 R	0.28 R	0.55 J	(<0.20U)	0.65	0.35 R	0.34 R	(<0.20U)	(<0.20U)
Nickel	222 J	254 J	65.4 J	82.1 J	122 J	38.5 B	20.7 B	71.2	76.2	6.0 B	8.6 B
Potassium	5,530	17,300	48,100	46,700	26,500	16,500	54,900	29,800	30,400	2,860 B	3,570 B
Selenium	(<10U) R	(<10U) R	(<10U) R	(<10U) R	(<10U) R	(<20U)J	(<2U) J	(<20U) J	(<20U) J	2.0 BJ	(<2U)
Sodium	1,230,000 R	7,950,000 R	2,130,000 R	2,240,000 R	1,260,000 R	361,000	527,000	1,170,000	1,190,000	396,000	188,000
Thallium	(<1.0U)J	1.1 BJ	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)J	(<1.0U)
Vanadium	62.6 R	343 J	78.7 J	82.6 J	89.7 J	11.4 B	44.5 B	106	112	(<4.0U)	(<4.0U)
Zinc	49.3J	27.3	22.6	43.5	58.0	23.5	28.8	22.7	34.9	(<16.0U)	25.6
Cyanide	(<10U)	20	12	(<10U)	(<10U)	(<10U)	10 J	72 J	79 J	(<10U)J	(<10U)J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRQL.
R = Data is unusable following data validation review.
J = Reported value is an estimate following data validation review.

Data validation results provided in data reports 920398 (MW1I-MW4I) and 920396 (MW5I-MW11I).

TABLE D-17A (Continued)

Parameter Units	SMC-GW010I (ug/L)	SMC-GW011I (ug/L)	SMC-GW_FB1 (ug/L)	SMC-GW_FB2 (ug/L)
Aluminum	212	233	(<11U)	(<87U) J
Arsenic	(<1.0U)	1.1 B	(<2U) N	39.2 J
Barium	39.1 B	55.4 B	(<6U)	80.6 J
Beryllium	(<1.0U)	(<1.0U)	(<1U)	(<1.0U) R
Calcium	96,200	87,100	369 B	93.2 B
Chromium	(<3.0U)	6.5 B	(<3U)	(<4U) J
Cobalt	14.8 B	(<11U)	(<11U)	(<11 U)
Copper	19.0 B	53.9	11 BJ	9.6 R
Iron	3,560 J	4,970 J	30.2 B	21.8 J
Lead	2.5 B	4.0 W	(<2U)J	(<2U) J
Magnesium	23,900	21,100	108 B	(<78 U)
Manganese	34.3	48.2	3 B	(<5U) R
Mercury	(<0.20U) N	(<0.20U)	(<0.20U)	(<0.20U) R
Nickel	(<5.0U)	15.9 B	(<5 U)	(<8U) R
Potassium	802 B	1,190 B	(<203U)	(<203U)
Selenium	(<2U)	(<2U)	(<2U) NJ	(<1U) R
Sodium	7,670	19,500	846 B	206 B
Thallium	(<4.0U)	(<1.0U)	(<1.0U)J	(<1.0U)J
Vanadium	(<4.0U)	(<4.0U)	(<4 U)	(<6U) R
Zinc	(<16.0U)	25.6	(<16 U)	(<16 U)J
Cyanide	(<10U)J	(<10U)J	(<10U)J	(<10U)J

TABLE D-17B INORGANIC ANALYTES MEASURED IN UPPER BEDROCK GROUND WATER - ROUND 2

Analyte Units	SMC-GW01I (ug/L)	SMC-GW02I (ug/L)	SMC-GW03I (ug/L)	SMC-GW04I (ug/L)	SMC-GW05I (ug/L)	SMC-GW06I (ug/L)	SMC-GW07I (ug/L)	SMC-GW08I (ug/L)	SMC-GW08I DUP (ug/L)	SMC-GW09I (ug/L)	SMC-GW010I (ug/L)
Aluminum	801	751	36.2 B	2,650	241	1,660	726	46.1 B	44.1 B	558	1,620
Arsenic	472	631	30.8	(<3U)	52.6	21.9	114	(<3U)	18.5	9.4 B	(<3U)
Barium	134	265	(<89U)	189 B	280	127 B	107 B	(<89U)	(<89U)	220	(<89U)
Beryllium	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Cadmium	(<3U)	(<3U)	(<3U)	(<3U)	(<3U)	(<3U)	(<3U)	3.2 B	3.2 B	(<3U)	(<3U)
Calcium	18,500	6,140	7,210	55,600	23,100	15,100	20,700	87,800	88,900	127,000	32,100
Chromium	48.8	34.9	34.1	48.9	15.7	33.9	30.3	(<7U)	(<7U)	(<7U)	11.9
Cobalt	40.0 B	16.7 B	(<13U)	38.0 B	(<13U)	(<13U)	(<13U)	(<13U)	(<13U)	33.8 B	23.0 B
Copper	33.6	42.5	43.2	94.5	12.3 B	89.7	38.6	(<3U)	(<3U)	(<3U)	10.7 B
Iron	11,600	3,900	1,970	8,540	25,500	17,300	20,400	30,000	30,100	10,100	21,500
Lead	(<5U)	(<5U)	41.2	114	41.7	128	17.8	1.6 B	7.4	1.3 B	2.7 B
Magnesium	1,280 B	73.1	1,040 B	3,460 B	7,310	2,710 B	1,270 B	19,000	19,300	23,100	30,100
Manganese	150	30.2	175	978	136	135	128	177	188	651	103
Mercury	0.32	0.28	(<0.2U)	0.39	(<0.2U)	0.52	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Nickel	441	166	53.0	106	35.5	34.3	77.8	(<26U)	(<26U)	26.7 B	(<26U)
Potassium	2,780	19,000	33,300	25,800	15,000	52,800	28,100	4,360	4,570	4,860 B	16,700
Selenium	(<10U)	(<20U)	(<5U)	6.4	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1.7 B
Sodium	4,770,000	4,300,000	1,240,000	940,000	408,000	516,000	1,420,000	385,000	398,000	177,000	46,800
Thallium	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)	(<2U)
Vanadium	170	206	75.1	79.5	17.2 B	52.8	136	(<4U)	(<4U)	(<4U)	7.5 B
Zinc	47.9	155	35.0	83.2	36.8	53.3	72	57.1	21.2	26.6	31.6
Cyanide	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	36	(<10U)	(<10U)	(<10U)	(<10U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRQL.
R = Data is unusable following data validation review.
J = Reported value is an estimate following data validation review.

TABLE D-17B (Continued)

Parameter Units	SMC-GW011I (ug/L)	SMC-GW012I (ug/L)	SMC-GW013I (ug/L)	SMC-GW014I (ug/L)	SMC-GW015I (ug/L)	SMC-GW016I (ug/L)	SMC-GW018I (ug/L)
Aluminum	1,560	125 B	1,100	366	Dry	32,500	410
Arsenic	(<3U)	16.5	(<3U)	(<3U)		41.6 J	3.9 B
Barium	(<89U)	165 B	(<89U)	(<89U)		653	190 B
Beryllium	(<1U)	(<1U)	(<1U)	(<1U)		2.5 B	(<1U)
Cadmium	(<3U)	(<3U)	(<3U)	3.3 B		12.1 J	5.0
Calcium	114,000	53,600	80,600	33,300		666,000	86,300
Chromium	41.4	7.7 B	23.8	(<7U)		60.4	13.1
Cobalt	15.0 B	33.4 B	(<13U)	(<13U)		73.2	(<13U)
Copper	31.0	8.1 B	(<3U)	(<3U)		167	10.1 B
Iron	8,670	13,000	44,500	30,500		97,500 R	35,300
Lead	3.5	15.0	5.0	2.7 B		31.7 J	12.2
Magnesium	24,600	22,000	19,300	17,300		82,400	20,100
Manganese	136	216	709	551		2,270	792
Mercury	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)		(<0.2U)	(<0.2U)
Nickel	303	99.0	(<26U)	28.8 B		167	(<26U)
Potassium	5,420	9,300	2,310 B	4,300 B		22,800	4,490 B
Selenium	(<1U)	(<1U)	(<1U)	(<1U)		2.0 BJ	(<1U)
Sodium	44,800	348,000	30,900	96,900		460,000	101,000
Thallium	(<2U)	(<2U)	(<2U)	(<2U)		(<2U) J	(<1U) J
Vanadium	(<4U)	5.1 B	(<4U)	(<4U)		76.3	(<4U)
Zinc	48.6	63.2	135	41.6		303	33.8 J
Cyanide	(<10U)	11	15	(<10U)		20 J	(<10U)

TABLE D-18 WATER QUALITY PARAMETERS MEASURED IN UPPER BEDROCK GROUND WATER

Analyte / Units	GW01I (mg/L)	GW02I (mg/L)	GW03I (mg/L)	GW03I DUP (mg/L)	GW04I (mg/L)	GW05I (mg/L)	GW06I (mg/L)	GW07I (mg/L)	GW07I DUP (mg/L)
Chloride	74.1	291.0	60.0	60.7	46.0	78.9	99.5	91.4	96.9
Fluoride	5.1	32.9	21.6	26.0	11.8	0.31	1.1	8.9	8.4
Ammonia	0.6	1.3	11.0	11.0	4	8.8	3.7	15	15
Nitrate	(<0.2U)	(<0.2U)	0.6	0.6	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Sulfate	(<500U)	(<500U)	(<500U)	(<500U)	(<500U)	(<1,000U)	(<1,000U)	(<125U)	(<1000U)
Alkalinity	1,740	15,800	4,770	4,990	4,340	864	132	2,170	1,980
Hardness	704	23.7	19.4	20.0	202	123.1	69.4	79.2	89.5
Total suspended solids	362	27	19	25.0	184	57	40	63	59
Dissolved organic carbon	191	726	368	193	77.9	112	84.2	171	266

Analyte / Units	GW08I (mg/L)	GW09I (mg/L)	GW010I (mg/L)	GW011I (mg/L)	GW-FB1 (mg/L)	GW-FB2 (mg/L)	GW-FB3 (mg/L)
Chloride	340	317	12.9	28.5	(<1.0U)	(<1.0U)	(<1.0U)
Fluoride	0.28	0.29	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Ammonia	(<0.1U)	0.6	(<0.1U)	(<0.1U)	(<1.0U)	(<0.1U)	(<1.0U)
Nitrate	1.8	(<0.2U)	1.6	4.4	(<0.2U)	(<0.2U)	(<0.2U)
Sulfate	42.5	(<25U)	18.9	20.9	(<5U)	(<5U)	(<5U)
Alkalinity	486	295	415	263	1	1.1	1
Hardness	237.7	460.8	338.6	304.4	1.4	0.23	1
Total suspended solids	67	33	49	62	(<4U)	(<4U)	(<4U)
Dissolved organic carbon	33.0	75.8	55.7	35.9	2.3	(<0.5U)	2.3

NOTE:
U = Not detected. Sample quantitation limits reported as (<_U).

TABLE D-19A ORGANIC ANALYTES MEASURED IN DEEP BEDROCK GROUND WATER - ROUND 1

Analytes	Units	GW01D -01A (ug/l)	GW02D -01A (ug/l)	GW03D -01A (ug/l)	GW04D -01A (ug/l)	GW05D -01A (ug/l)	GW06D -01A (ug/l)	GW09D -01A (ug/l)	GW010D -01A (ug/l)	GW011D -01A (ug/l)	GWFB03 (ug/l)	GWTB-7 (ug/l)	GWTB-8 (ug/l)	GWTB-9 (ug/l)
VOLATILES														
Methylene chloride		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	1 J	(<5U)	2 J	1 J
Acetone		15	20	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	31	(<10U)	(<10U)
Chloroform		(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	1 J
1,1-Dichloroethane		(<5U)	2 J	(<5U)	2 J	2 J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
1,2-Dichloroethene (total)		94	2 J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Trichloroethene		(<5U)	4 J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Benzene		3 J	2 J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
4-Methyl-2-Pentanone (MIBK)		2 J	(<10U)	(<10U)	1 J	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
Tetrachloroethene		4 J	9	6	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Toluene		23	6	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Ethyl benzene		3 J	2 J	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
Xylenes (total)		520	150	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)
VOA TICs-known		---	---	---	---	---	---	---	---	---	---	---	---	---
VOA TICs-unknown		---	---	---	---	---	---	---	---	---	---	---	---	---
Level (low or medium)		L	L	L	L	L	L	L	L	L	L	L	L	L
Dilution factor		1	1	1	1	1	1	1	1	1	1	1	1	1
SEMI - VOLATILES														
Phenol		22	(<10U)	(<10U)	(<20U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	NA	NA	NA
2-Methylphenol		7 J	(<10U)	(<10U)	(<20U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	NA	NA	NA
4-Methylphenol		9 J	(<10U)	(<10U)	(<20U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	NA	NA	NA
2,4-Dimethylphenol		(<10U)	29	(<10U)	(<20U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	NA	NA	NA
Benzoic Acid		(<50U)	76	(<50U)	(<100U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	NA	NA	NA
Pentachlorophenol		(<50U)	5 J	(<50U)	(<100U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	NA	NA	NA
bis(2-Ethylhexyl)phthalate		(<10U)	(<10U)	14	(<20U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	NA	NA	NA
o-Toluic Acid		20,000 D	5,400 D	(<50U)	610	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	NA	NA	NA
m-Toluic Acid		9,000 D	3,600 D	(<50U)	(<100U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	NA	NA	NA
p-Toluic Acid		1,100 DJ	400 D	(<50U)	(<100U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	(<50U)	NA	NA	NA
BNA TICs-known		---	---	---	---	---	---	---	---	---	---	NA	NA	NA
BNA TICs - Unknown;n		494 J;14	156 J;9	---	---	13 J;1	---	---	46 J;1	---	1000 J;1	NA	NA	NA
Level (low or medium)		L	L	L	L	L	L	L	L	L	L	L	L	L
Dilution factor		1/100 *	1/25 *	1	1	1	1	1	1	1	1	1	1	1
PESTICIDES														
None Detected		UJ	UJ		UJ	UJ								
Level (low or medium)		L	L	L	L	L	L	L	L	L	L	L	L	L
Dilution factor		1	1	1	1	1	1	1	1	1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
UJ = Not detected, estimated value.
Values shown for unknown TICs are the total concentration and total number of unknowns.
J = Reported concentration is an estimated value following data validation review.

D = Reported result from diluted analysis.
NA = Not applicable.
--- = No detectable TICs.
* = Dilution factor for toluic acid results.

Data validation results provided in data reports 920508 and 920562.

TABLE D-19B ORGANIC ANALYTES MEASURED IN DEEP BEDROCK GROUND WATER - ROUND 2

Analytes	Units	GW01D -01B (ug/L)	GW02D -01B (ug/L)	GW03D -01B (ug/L)	GW04D -01B (ug/L)	GW05D -01B (ug/L)	GW06D -01B (ug/L)	GW07D -01B (ug/L)	GW09D -01B (ug/L)	GW010D -01B (ug/L)	GW011D -01B (ug/L)	GW013D -01B (ug/L)	GW014D -01B (ug/L)	GW015D -01B (ug/L)
VOLATILES														
Methylene chloride		Dry	Dry	Dry	Dry	Dry	Dry	(<10U)	(<10U)	Dry	Dry	(<10U)	Dry	(<10U)
Acetone								47 J	(<10U) J			(<10U) J		(<10U) J
Chloroform								(<10U)	(<10U)			(<10U)		(<10U)
1,1-Dichloroethane								5 J	(<10U)			(<10U)		(<10U)
1,2-Dichloroethene (total)								4 J	(<10U)			(<10U)		(<10U)
Trichloroethene								4 J	(<10U)			(<10U)		(<10U)
Benzene								(<10U)	(<10U)			(<10U)		(<10U)
4-Methyl-2-Pentanone (MIBK)								(<10U)	(<10U)			(<10U)		(<10U)
Tetrachloroethene								11	(<10U)			(<10U)		(<10U)
Toluene								4 J	(<10U)			(<10U)		(<10U)
Ethyl benzene								(<10U)	(<10U)			(<10U)		(<10U)
Xylenes (total)								330	(<10U)			(<10U)		(<10U)
VOA TICs-known														
Methyl tertiary butyl ether		---	---	---	---	---	---	3 J	---	---	---	---		---
VOA TICs-unknown		---	---	---	---	---	---	---	---	---	---	6 J;1		---
Level (low or medium)		L	L	L	L	L	L		L	L	L	L		L
Dilution factor		1	1	1	1	1	1		1	1	1	1		1
SEMI - VOLATILES														
Phenol		Dry	Dry	Dry	Dry	Dry	Dry	35 J	(<10U) J	Dry	Dry	(<10U) J	Dry	(<10U)
2-Methylphenol								10 J	(<10U)			(<10U)		(<10U)
4-Methylphenol								9 J	(<10U)			(<10U)		(<10U)
2,4-Dimethylphenol								(<10U)	(<10U)			(<10U)		(<10U)
Pentachlorophenol								60 J	(<25U) J			(<25U) J		(<25U)
Naphthalene								1 J	(<10U)			(<10U)		(<10U)
Di-n-butyl phthalate								[10U] J	[10U] J			[10U] J		[10U] J
bis(2-Ethylhexyl)phthalate								[22U] J	[10U]			53 B		[10U] J
o-Toluic Acid								17,000 DJ	(<50U) J			(<50U) J		(<50U)
m-Toluic Acid								17,000 DJ	(<50U) J			(<50U) J		(<50U)
p-Toluic Acid								1,300 DJ	(<50U) J			(<50U) J		(<50U)
BNA TICs-known														
4,4'-Butylidenebis(2								---	---			---		4 JN
BNA TICs - Unknown;n								---	3 J;1			13 J;2		31 J;3
Level (low or medium)								L	L			L		
Dilution factor								1	1			1		
PESTICIDES														
4,4'-DDE								0.14 J	(<0.10U) J			(<0.10U)		(<0.10U)
Level (low or medium)		L	L	L	L	L	L	L	L	L				
Dilution factor		1	1	1	1	1	1	1	1	1				

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
UJ = Not detected, estimated value.
Values shown for unknown TICs are the total concentration and total number of unknowns.
J = Reported concentration is an estimated value following data validation review.

D = Reported result from diluted analysis.
NA = Not applicable.
--- = No detectable TICs.
* = Dilution factor for Toluic acid results.

R = Data is unusable.

Data [illegible]n results provided in data reports 920508 and 920562.

Analytes Units	GW016D -01B (ug/L)	GW17D -01B (ug/L)
VOLATILES		
Methylene cl	(<10U)	(<10U)
Acetone	(<10U) J	(<10U) J
Chloroform	(<10U)	(<10U)
1,1-Dichloroe	(<10U)	(<10U)
1,2-Dichloroe	(<10U)	(<10U)
Trichloroethe	(<10U)	(<10U)
Benzene	(<10U)	(<10U)
4-Methyl-2-P	(<10U)	(<10U)
Tetrachloroe	(<10U)	(<10U)
Toluene	(<10U)	(<10U)
Ethyl benzer	(<10U)	(<10U)
Xylenes (tota	(<10U)	(<10U)
VOA TICs-known		
Methyl tertia.	---	---
VOA TICs-u.	---	---
Level (low or	L	L
Dilution factc	1	1
SEMI - VOLATILES		
Phenol	(<10U) J	(<10U)
2-Methylphe	(<10U)	(<10U)
4-Methylphe	(<10U)	(<10U)
2,4-Dimethyl	(<10U)	(<10U)
Pentachlorop	(<25U) J	(<10U) J
Naphthalene	(<10U)	(<10U)
Di-n-butyl ph	[10U] J	[10U] J
bis(2-Ethylhe	[10U] J	1 BJ
m-Toluic Aci	(<50U) J	(<50U)
p-Toluic Acic	(<50U) J	(<50U)
o-Toluic Acic	(<50U) J	(<50U)
BNA TICs-known		
4,4'-Butylide	12 JN	3 JN
BNA TICs - u	193 J 15	18 J;1
Level (low or	L	L
Dilution factc	1	
PESTICIDES		
4,4'-DDE	(<0.10U)	(<0.10U)
Level (low or	L	L
Dilution factc	1	1

TABLE D-20A INORGANIC ANALYTES MEASURED IN DEEP BEDROCK GROUND WATER - ROUND 1

Analyte Units	GW01D (ug/L)	GW02D (ug/L)	GW03D (ug/L)	GW04D (ug/L)	GW05D (ug/L)	GW06D (ug/L)	GW09D (ug/L)	GW010D (ug/L)	GW011D (ug/L)	GW-FB3 (ug/L)
Aluminum	114 B	281	126 B	145 B	123 R	(<87.0U)	220	87.2 R	186 R	(<87U)
Antimony	(<52.0U)	(<52.0U)	(<52.0U)	(<52.0U)	(<52.0U)	(<52.0U)	(<52.0U)	55.6 B	(<52.0U)	(<52.0U)
Arsenic	90.5 B	73.3	(<2.0U)	3.8 B	(<1.0U)	(<2.0U)	(<2.0U)	(<1.0U)	(<1.0U)	(<2U)
Barium	55.4 B	46.2 B	106 B	123 B	544 R	96.0 B	36.7 B	80.0 R	204 R	(<8.0U)
Calcium	4,700 B	27,600	76,800	72,800	73,100	73,300	63,200	52,500	86,100	115 B
Chromium	18.6	(<5.0U)	(<5.0U)	(<5.0U)	(<4.0U)	(<5.0U)	(<4.0U)	(<4.0U)	(<4.0U)	(<5U)
Cobalt	16.1 B	(<11.0U)	(<11.0U)	(<11.0U)	(<8.0U)	(<11.0U)	(<8.0U)	(<8.0U)	(<8.0U)	(<11 U)
Copper	35.5 R	35.6 R	23.4 R	18.6 R	11.1 B	12.2 R	9.8 B	12.3 B	18.0 B	18.3 B
Iron	1,600	960	588	668	355	223	678	427	422	28.0 B
Lead	5.8 J	2.1 J	(<2.0U)	4.7J	(<2.0U)	(<2.0U)	(<1.0U)J	(<2.0U)	(<2.0U)	(<2U)
Magnesium	517 BJ	10,300 J	24,600 J	22,800 J	20,200	23,900 J	14,300	11,400	20,300	167 B
Manganese	139 J	31.2 J	33.4 J	22.7 J	6.1 B	6.9 BJ	8.0 B	4.0 B	6.6 B	(<5U)
Mercury	0.21 R	1.2	(<2.0U)	(<2.0U)	(<2.0U)	(<0.20U)	0.66 J	(<0.20U)	(<0.20U)	(<0.20U)
Nickel	134	27.1 B	17.2 B	15.7 B	(<8.0U)	14.8 B	(<8.0U)	(<8.0U)	8.9 B	(<11U)
Potassium	2,700 R	2,740 R	2,570 R	3,200 R	1,250 R	2,790 R	2,360 B	2,270 R	2,430 R	587
Sodium	1,530,000	1,070,000	56,600	77,400	36,000 J	72,300	31,100	20,000 J	26,600 J	1,160 B
Thallium	1.2 B	1.3 B	(<1.0U)	(<1.0U)	(<1.0U)J	(<1.0U)	(<1.0U)	(<1.0U)J	(<1.0U)J	(<1.0U)
Vanadium	58.5	21.4 B	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6.0U)	(<6U)
Zinc	(<16.0U)	(<16.0U)	31.8	(<16.0U)	(<16.0U)	(<16.0U)	20.4	(<16.0U)	(<16.0U)	(<16 U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRQL.
J = Reported value is an estimate after data review.
R = Data is unusable.

table15b.wk1

Data validation results provided in data reports 920508 and 920582.

TABLE D-20B INORGANIC ANALYTES MEASURED IN DEEP BEDROCK GROUND WATER - ROUND 2

Analyte Units	GW01D (ug/L)	GW02D (ug/L)	GW03D (ug/L)	GW04D (ug/L)	GW05D (ug/L)	GW06D (ug/L)	GW07D (ug/L)	GW09D (ug/L)	GW010D (ug/L)	GW011D (ug/L)
Aluminum	Dry	Dry	Dry	Dry	Dry	Dry	789	2,420	Dry	Dry
Antimony							3.9 BJ	(<2U)J		
Arsenic							149 J	(<2U)		
Barium							(<89U)	104 B		
Cadmium							(<3U)	3.9 B		
Calcium							16,100	67,000		
Chromium							32.5	(<7U)		
Cobalt							(<13U)	(<13U)		
Copper							35.8	(<3U)		
Iron							15,600	26,000		
Lead							11.0 B	5.8		
Magnesium							999 B	13,300		
Manganese							144 J	114 J		
Mercury							0.36	(<0.2U)		
Nickel							68.0	(<26U)		
Potassium							9,290	1,890 B		
Sodium							4,220,000	11,300		
Thallium							(<2U) J	(<2U)		
Vanadium							141	(<4U)		
Zinc							91.8 J	63.8 J		
Cyanide							12.0	27.0		

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRQL.
J = Reported value is an estimate after data review.
R = Data is unusable.

TABLE 20B (Continued)

Analyte Units	GW13D (ug/L)	GW14D (ug/L)	GW15D (ug/L)	GW16D (ug/L)	GW17D (ug/L)
Aluminum	836	Dry	1,870	993	1,130
Antimony	(<2U)		(<2U)	(<2U)	(<2U)
Arsenic	(<2U) J		2.0 BJ	(<2U) J	5.4 B J
Barium	106 B		(<89U)	188 B	110 B
Cadmium	(<3U)		(<3U)	9.1 J	(<3U) J
Calcium	90,200		69,300	122,000	69,600
Chromium	(<7U)		(<7U)	19.2	(<7U)
Cobalt	(<13U)		(<13U)	(<13U)	(<13U)
Copper	3.1 B		10.5 B	(<3U)	4.2 B
Iron	2,110		7,750	55,200 R	16,500 R
Lead	4.4		2.9 B	1.8 BJ	3.0 J
Magnesium	24,300		19,900	46,000	21,700
Manganese	53.3 BJ		158 J	589	204
Mercury	(<0.2U)		(<0.2U)	(<0.2U)	(<0.2U)
Nickel	(<26U)		(<26U)	(<26U)	(<26U)
Potassium	2,150 B		2,360 B	8,610	27,000
Sodium	27,400		10,800	68,500	37,500
Thallium	(<2U)		(<2U)	(<2U) J	(<2U) J
Vanadium	(<4U)		5.0 B	(<4U)	(<4U)
Zinc	52.1 J		49.3 J	99.3	39.8 J
Cyanide	(<10U)		(<10U)	(<10U) J	(<10U) J

TABLE D-21 WATER QUALITY PARAMETERS MEASURED IN DEEP BEDROCK GROUND WATER

Analyte / Units	GW01D (mg/L)	GW02D (mg/L)	GW03D (mg/L)	GW04D (mg/L)	GW05D (mg/L)	GW06D (mg/L)	GW09D (mg/L)	GW010D (mg/L)	GW011D (mg/L)
Chloride	92.5	60.2	27	28.2	41.6	33.2	47.5	28.6	37.2
Fluoride	10	2.2	0.33	0.58	(<0.2U)	0.27	(<0.2U)	0.22	(<0.2U)
Ammonia	3.8	1.1	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	0.2	(<0.1U)	0.2
Nitrate	(<0.2U)	2.1	2.9	2.6	1.1	3.4	1.3	1.2	2.4
Sulfate	(<50U)	62.9	40.8	59.9	26.8	34.8	21.1	19.7	21.4
Alkalinity	3160	2930	305	365	213	299	178	70.2	205
Hardness	13.9	111	293	276	265.7	282	217	178	298.6
Total suspended solids	22	114	48	89	21	11	99	7	30
Dissolved organic carbon	677	458	88.6	112	17.1	39.5	57.6	19.6	23

Analyte / Units	GW-FB1 (mg/L)	GW-FB2 (mg/L)	GW-FB3 (mg/L)
Chloride	(<1.0U)	(<1.0U)	(<1.0U)
Fluoride	(<0.2U)	(<0.2U)	(<0.2U)
Ammonia	(<1.0U)	(<0.1U)	(<1.0U)
Nitrate	(<0.2U)	(<0.2U)	(<0.2U)
Sulfate	(<5U)	(<5U)	(<5U)
Alkalinity	1	1.1	1
Hardness	1.4	0.23	1
Total suspended solids	(<4U)	(<4U)	(<4U)
Dissolved organic carbon	2.3	(<0.5U)	2.3

NOTE:
U = Not detected. Sample quantitation limits reported as (<_U).

TABLE D-22 ORGANIC ANALYTES MEASURED IN INORGANIC SLUDGE BASIN WELLS

Analyte	Units	SPW-01 (ug/L)	SPW-02 (ug/L)	SPW-03 (ug/L)
Volatiles				
None detected		(<10U)	(<10U)	(<10U)
Semi-volatiles				
Bis(2-ethylhexyl)phthalate		0.7 J	1 J	0.8 J
TICs - known				
Phenol, 4,4'-buylidenebis[2 ...		--	8 JN	--
TICs - unknown;n		--	17 J; 3	7 J; 2
Pesticides/PCBs		U	U	U

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
J = Reported value is an estimate following data validation review.

TABLE D-23 INORGANIC ANALYTES MEASURED IN INORGANIC SLUDGE BASIN WELLS

Analyte Units	SPW-01 (ug/L)	SPW-02 (ug/L)	SPW-03 (ug/L)
Aluminum	100 B	252	106 B
Arsenic	(<2.0U)	(<2.0U)	6.3 B J
Barium	91.0 B	(<89.0U)	(<89.0U)
Calcium	70,500	68,400	72,200
Copper	16.7 B	(<3.0U)	(<3.0U)
Iron	470	1,590	10,500
Lead	2.8 B	3.5	1.2 B
Magnesium	19,900	17,900	15,200
Manganese	206	17.4	202
Nickel	37.3 B	(<26.0U)	(<26.0U)
Potassium	1,440 B	1,380 B	1,640 B
Sodium	26,400	14,500	1,200 B
Zinc	54.6 J	44.9 J	18.5 B J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
J = Reported value is an estimate following data validation review.

TABLE D-24A ORGANIC ANALYTES MEASURED IN STREAM SURFACE WATER - ROUND 1

Analytes	Units	SW01 -01A (ug/L)	SW01 Dup (ug/L)	SW02 -01A (ug/L)	SW03 -01A (ug/L)	SW04 -02A (ug/L)	SWFB01 -01A (ug/L)	TB1 (ug/L)
VOLATILES								
Acetone		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	(<10U)	13
TICs - Known		---	---	---	---	---	---	---
TICs - unknown		---	---	---	---	---	---	---
Level (low or medium)		L	L	L	L	L	L	L
Dilution factor		1	1	1	1	1	1	1
SEMI-VOLATILES								
Bis(2-ethyl hexyl)phthalate		(<10U)	(<10U)	210 DJ	(<10U)	(<10U)J	(<10U)	NA
TICs - Known		---	---	---	---	---	---	NA
TICs - unknown (total;n)		10 J;1	172 J;2	34 J;1	---	---	---	NA
Level (low or medium)		L	L	L	L	L	L	L
Dilution factor		1	1	1/2 *	1	1	1	1
PESTICIDES/PCBs								
None detected		U	U	U	U	U	U	U
Level (low or medium)		L	L	L	L	L	L	L
Dilution factor		1	1	1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported value is an estimate following data validation review
* = Bis(2-ethylhexyl)phthalate result from diluted analysis
--- = No detectable TICs.
NA = Not applicable.
D = Reported result from diluted analysis.

Values shown for unknown TICs are the total concentration and total number of unknowns.
Data validation results provided in data report 920386.

tabls-20.wk1

TABLE D-24B ORGANIC ANALYTES MEASURED IN STREAM SURFACE WATER - ROUND 2

Analytes	Units	SW01 -01B (ug/L)	SW01 Dup (ug/L)	SW02 -01B (ug/L)	SW03 -01B (ug/L)	SW04 -01B (ug/L)
VOLATILES						
None Detected		(<10U)	(<10U)	(<10U)	(<10U)	(<10U)
TICs - Known		---	---	---	---	---
TICs - unknown		---	---	---	---	---
Level (low or medium)		L	L	L	L	L
Dilution factor		1	1	1	1	1
SEMI-VOLATILES						
Bis(2-ethyl hexyl)phthalate		(<10U)	(<10U)	(<10U)	0.7 BJ	(<10U)
TICs - Known						
Hexadecanoic acid, mono ...		---	---	2 JN	---	---
TICs - unknown (total;n)		---	5 J;2	119 J;3	---	---
Level (low or medium)		L	L	L	L	L
Dilution factor		1	1	1	1	1
PESTICIDES/PCBs						
None detected		U	U	U	U	U
Level (low or medium)		L	L	L	L	L
Dilution factor		1	1	1	1	1

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
J = Reported value is an estimate following data validation review.
* = Bis(2-ethylhexyl)phthalate result from diluted analysis
--- = No detectable TICs.
NA = Not applicable.
D = Reported result from diluted analysis.

Values shown for unknown TICs are the total concentration and total number of unknowns.

TABLE D-25A INORGANIC ANALYTES MEASURED IN SURFACE WATER SAMPLES - ROUND 1

Analytes Units	SW-1 (ug/L)	SW-1 DUP (ug/L)	SW-2 (ug/L)	SW-3 (ug/L)	SW-4 (ug/L)	SW-FB (ug/L)
Aluminum	81.0 B	104 B	121 B	102 B	164 B	(<11U)
Antimony	81.5 J	87.6 J	83.2 J	76.8 J	90.8 J	(<52U)
Arsenic	(<1.0U)	(<1.0U)	1.2 B	(<1.0U)	(<1.0U)	(<1U)
Barium	81.1 BJ	66.1 BJ	80.9 BJ	102 BJ	75.2 BJ	36.8 B
Calcium	60,300	56,700	55,900	52,800	58,100	461 B
Copper	19.4 BR	32.4 R	16.4 BR	16.5 BR	21.7 BR	14.5 BR
Iron	91.2 B	94.6 BJ	187	113	278	(<6U)
Lead	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	3.4	(<2U)
Magnesium	12,900	12,100	12,100	11,400	12,400	(<78U)
Manganese	15.6	14.5 B	18.5	14.1 B	24.6	(<2U)
Potassium	1,660 B	1,390 B	1,540 B	1,530 B	1,440 B	(<389U)
Sodium	29,600	28,300	30,200	28,300	30,400	701 B
Zinc	(<3.0U)	5.6 BJ	7.8 BJ	9.9 BJ	6.8 BJ	(<3U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
R = Data is unusable following data validation review.
J = Result was positively identified but is an estimated value following data validation review.

table-17.wk1

TABLE D-25B INORGANIC ANALYTES MEASURED IN SURFACE WATER SAMPLES - ROUND 2

Analytes Units	SW-1 (ug/L)	SW-1 DUP (ug/L)	SW-2 (ug/L)	SW-3 (ug/L)	SW-4 (ug/L)
Aluminum	90.8 B	87.9 B	91.0 B	87.5 B	72.1 B
Calcium	38,200	39,400	38,100	40,500	40,200
Copper	10.9 B	3.6 B	3.8 B	4.2 B	14.5 B
Iron	73.4 B	91.4 B	95.5 B	133	75.3 B
Lead	(<1U) J	(<1U) J	1.1 B J	1.0 B R	(<1U) R
Magnesium	7,930	8,180	7,920	8,410	8.360
Manganese	7.2 B	7.4 B	7.8 B	7.7 B	7.2 B
Potassium	1,430 B	1,480 B	1,470 B	1,570 B	1,510
Selenium	(<1U) J	(<1U) J	(<1U) J	1.2 B R	(<1U) R
Sodium	8,800	9,040	8,890	9,480	8,900

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
R = Data is unusable following data validation review.
J = Result was positively identified but is an estimated value following data validation review.

table-17.wk1

TABLE D-26 WATER QUALITY PARAMETERS MEASURED IN SURFACE WATER

Analyte / Units	SW-1 (mg/L)	SW-1 DUP (mg/L)	SW-2 (mg/L)	SW-3 (mg/L)	SW-4 (mg/L)	SW-FB (mg/L)
Chloride	53.6	55.6	57.0	53.9	53.8	(<1U)
Fluoride	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Ammonia	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Nitrate	1.1	1.1	1.1	1.2	1.2	(<0.2U)
Sulfate	19.2	14.1	20.3	20.9	19.8	(<5U)
Alkalinity	139	165	161	154	135	1.08
Hardness	203.7	191.4	189.4	178.8	196.1	1.2
Total suspended solids	(<4U)	(<4U)	(<4U)	(<4U)	(<4U)	(<4U)
Dissolved organic carbon	52.5	37.9	13.8	28.8	28.4	(<0.5U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).

TABLE D-27A ORGANIC ANALYTES MEASURED IN STREAM SEDIMENTS - ROUND 1

Analytes Units	SD01 -01A (ug/kg)	SD01 DUP (ug/kg)	SD02 -01A (ug/kg)	SD03 -01A (ug/kg)	SD04 -01A (ug/kg)	SDFB01 -01A (ug/l)
VOLATILES						
Acetone	[14U]	(<13U)	[12U]	(<12U)	[75U]	16
Tetrachloroethene	(<7U)	(<6U)	(<6U)	16	(<8U)J	(<5U)
Xylenes (total)	(<7U)	(<6U)	(<6U)	2 J	(<8U)J	(<5U)
TICs - known	---	---	---	---	---	---
TICs - unknown;n	---	6 J;1	---	---	11 J;1	---
Level (low or medium)	L	L	L	L	L	L
Dilution factor	1	1	1	1	1	1
SEMI-VOLATILES						
Naphthalene	(<4,400U)	(<850U)	(<4,100U)	1,100	(<1,000U)	(<10U)
2-methyl naphthlalene	(<4,400U)	(<850U)	(<4,100U)	700 J	(<1,000U)	(<10U)
Acenaphthene	(<4,400U)	(<850U)	(<4,100U)	1,900	(<1,000U)	(<10U)
Dibenzofuran	(<4,400U)	(<850U)	(<4,100U)	2,500	(<1,000U)	(<10U)
Fluorene	(<4,400U)	(<850U)	(<4,100U)	2,400	(<1,000U)	(<10U)
Phenanthrene	2,100 J	130 J	450 J	11,000	(<1,000U)	(<10U)
Anthracene	560 J	(<850U)	(<4,100U)	3,600	(<1,000U)	(<10U)
Fluoranthene	2,100 J	250 J	680 J	10,000	(<1,000U)	(<10U)
Pyrene	1,800 J	450 J	630 J	15,000 D	(<1,000U)	(<10U)
Benzo(a) anthracene	1,000 J	140 J	(<4,100U)	4,700	(<1,000U)	(<10U)
Chrysene	1,000 J	160 J	(<4,100U)	4,500	(<1,000U)	(<10U)
Benzo(b)fluoranthene	440 J	110 J	(<4,100U)	3,800	(<1,000U)	(<10U)
Benzo(k)fluoranthene	540 J	140 J	(<4,100U)	3,500	(<1,000U)	(<10U)
Benzo(a)pyrene	620 J	96 J	(<4,100U)	4,600	(<1,000U)	(<10U)
Indeno(1,2,3-cd)pyrene	(<4,400U)	(<850U)	(<4,100U)	3,000	(<1,000U)	(<10U)
Dibenzo(a,h)anthracene	(<4,400U)	(<850U)	(<4,100U)	1,600	(<1,000U)	(<10U)
Benzo(g,h,i)perylene	(<4,400U)	(<850U)	(<4,100U)	3,200	(<1,000U)	(<10U)
TICs - known						
Dibenzofuran, 4-methyl	---	---	---	23,000 J	---	---
9,10-Phenanthrenedione	---	---	---	31,000 J	---	---
Dibezothiophene	---	---	---	53,000 J	---	---
9H-Fluoren-9-imine	---	---	---	25,000 J	---	---
5H-Indeno[1,2-b]pyridine	---	---	---	140,000 J	---	---
9,10-Anthracenedione	---	---	---	45,000 J	---	---
TICs - unknown;n	---	---	580,000 J;1	798,000 J;11	334,000 J;2	---
Level (low or medium)	L	L	L	L	L	L
Dilution factor	5	5	1	1/2 *	1	1
PESTICIDES/PCBs						
None detected	U	U	U	U	U	U

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
[-U] = Value was false positive following data validation review.
J = Reported value is an estimate following data validation review.
--- = No detectable TICs.
* = Pyrene data from diluted result.

Values shown for unknown TICs are the total concentrations and total number of unknowns.
Data validation results provided in data report 920391.

table-19.wk1

TABLE D-27B ORGANIC ANALYTES MEASURED IN STREAM SEDIMENTS - ROUND 2

Analytes / Units	SD01 -01B (ug/kg)	SD01 DUP (ug/kg)	SD02 -01B (ug/kg)	SD03 -01B (ug/kg)	SD04 -01B (ug/kg)
VOLATILES					
Vinyl chloride	(<13U)	(<13U)	(<17U)	12 J	(<16U)
Acetone	(<13U) J	(<13U) J	[49U] J	330 J	160 J
Carbon disulfide	(<13U)	(<13U)	(<17U)	9 J	(<16U)
1,2-Dichloroethene	(<13U)	(<13U)	(<17U)	1,100 D	(<16U)
Chloroform	[13U]	[13U]	[17U]	[24U]	[16U]
2-Butanone	(<13U)	(<13U)	(<17U)	62	35
Toluene	(<13U)	(<13U)	(<17U)	48	(<16U)
Ethylbenzene	(<13U)	(<13U)	(<17U)	7 J	(<16U)
Xylenes (total)	(<13U)	(<13U)	(<17U)	3,600 D	(<16U)
TICs - known	---	---	---	---	---
TICs - unknown;n	---	---	---	---	---
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1/5*	1
SEMI-VOLATILES					
2-Methylphenol	(<430U)	(<430U)	(<560U)	200 J	(<520U)
Naphthalene	(<430U)	(<430U)	86 J	(<800U)	(<520U)
Acenaphthene	(<430U)	(<430U)	130 J	(<800U)	(<520U)
Dibenzofuran	(<430U)	(<430U)	89 J	(<800U)	(<520U)
Fluorene	(<430U)	(<430U)	140 J	(<800U)	(<520U)
Phenanthrene	54 J	54 J	1,300	170 J	(<520U)
Anthracene	(<430U)	(<430U)	230 J	(<800U)	(<520U)
Carbazole	(<430U)	(<430U)	160 J	(<800U)	(<520U)
Fluoranthene	140 J	170 J	1,800	390 J	(<520U)
Pyrene	110 J	140 J	1,400	350 J	(<520U)
Benzo(a) anthracene	100 J	120 J	980	250 J	(<520U)
Chrysene	68 J	97 J	750	250 J	(<520U)
Benzo(b)fluoranthene	89 J	120 J	1,100	550 J	(<520U)
Benzo(k)fluoranthene	59 J	73 J	490 J	(<800U)	(<520U)
Benzo(a)pyrene	79 J	98 J	780	290 J	(<520U)
Indeno(1,2,3-cd)pyrene	(<430U)	(<430U)	230 J	140 J	(<520U)
Benzo(g,h,i)perylene	(<430U)	(<430U)	230 J	130 J	(<520U)
o-Toluic acid	(<2,100U)	(<2,100U)	(<2,700U)	630 J	(<2,500U)
m-Toluic acid	(<2,100U)	(<2,100U) J	(<2,700U) J	240 J	(<2,500U) J
p-Toluic acid	(<2,100U) J	(<2,100U)	(<2,700U)	42 J	(<2,500U)
TICs - known	--	--	--	--	--
TICs - unknown;n	100 J;1	--	1,850J;7	2,690 J;9	--
Level (low or medium)	L	L	L	L	L
Dilution factor	1	1	1	1	1
PESTICIDES/PCBs					
Dieldrin	4.2 J	(<4.3U)	4.6 J	(<8.0U)	(<5.2U)
Methoxychlor	17 R	(<22U)	21 JN	(<41U)	(<27U)
Endrin ketone	8.0 R	(<4.3U)J	12 JN	5.2 R	(<5.2U)J
gamma-chlordane	2.6	(<2.2U)	2.8 R	(<4.1U)	(<2.7U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<__U).
[-U] = Value was false positive following data validation review.
--- = No detectable TICs.
J = Reported value is an estimate following data validation review.
R = Data is unusable.
JN = Presumptive presence, estimated concentration.

Values shown for unknown TICs are the total concentrations and total number of unknowns.

TABLE D-28A INORGANIC ANALYTES MEASURED IN STREAM SEDIMENTS

Analyte / Units	SD01 (mg/kg)	SD01DUP (mg/kg)	SD02 (mg/kg)	SD03 (mg/kg)	SD04 (mg/kg)	SD-FB (ug/L)
Aluminum	3,270	3,730	3,510	4,480	6,690	(<11U)
Antimony	81.1 J	71.5 J	60.5 J	91.7 J	60.4 J	(<52U)
Arsenic	2.4	3.2	2.7	3.1	1.2 B	(<1U)
Barium	36.9 J	60.7 J	97.1 J	68.4 J	71.8 J	59.1 B
Beryllium	0.20 B	0.24 B	0.25 B	0.28 B	0.37 B	(<1U)
Cadmium	1.8 J	1.9 J	1.8 J	1.6 J	1.3 J	(<5U)
Calcium	88,400	40,500	27,700	82,500	3,950	1,170 B
Chromium	7.4 J	10.4 J	6.9 J	11.0 J	12.0 J	(<4U)
Cobalt	4.1 B	9.0	4.3 B	4.1 B	4.4 B	(<11U)
Copper	41.8 J	56.8 J	53.7 J	21.2 J	16.7 J	16.1 B
Iron	11,300	11,600	12,100	12,400	11,500	15.1 B
Lead	181	55.8	293	63.2	12.8	(<2U)
Magnesium	7,130	10,900	7,500	32,200	3,310	205 B
Manganese	233	239	195	227	98.1	26.2
Nickel	16.1 J	23.6 J	16.0 J	15.8 J	16.2 J	(<8U)
Potassium	368 B	387 B	408 B	510 B	604 B	(<389U
Silver	3.4 J	2.2 J	2.3 J	3.2 J	(<1.3U)J	-
Sodium	136 B	90.0 B	109 B	334 B	110 B	3,960 B
Vanadium	6.1 B	5.0 B	6.7	8.3	9.5	(<4U)
Zinc	97.4 J	155 J	102 J	79.7 J	44.1 J	6.8B
Cyanide	0.13 J	0,13 J	0.12 J	0.11 J	0.12 J	---
Total organic carbon	16,400	4,300	11,000	9,600	16,000	---

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
R = Reported value was unusable following data validation review.

Data validation results provided in data report 920391.

TABLE D-28B INORGANIC ANALYTES MEASURED IN STREAM SEDIMENTS - ROUND 2

Analyte / Units	SD01 (mg/kg)	SD01DUP (mg/kg)	SD02 (mg/kg)	SD03 (mg/kg)	SD04 (mg/kg)
Aluminum	3,110	3,580	4,770	4,750 J	6,260
Arsenic	2.1	4.2	3.0	3.9 J	6.5
Barium	50.9	49.7	132	193 J	52.6
Beryllium	0.23 B	0.21 B	0.31 B	0.29 BJ	0.33 B
Cadmium	2.2 J	1.4	2.2	2.0 J	1.8 J
Calcium	54,000	58,900	24,100	51,900 J	20,300
Chromium	9.8 J	8.1	18.1	30.1 J	18.3 J
Cobalt	5.4	3.8 B	5.6 B	4.7 BJ	5.7
Copper	351 J	52.9	128	57.9 J	23.2 J
Iron	13,900	9,730	12,600	12,200 J	11,700
Lead	104 J	64.7	215	125 J	28.4 J
Magnesium	10,600	11,900	7,940	11,600 J	10,900
Manganese	414	500	148	433 J	205
Mercury	0.19	1.5	2.0	0.95 J	0.21
Nickel	15.8	14.3	20.6	48.7 J	16.2
Potassium	350	468 B	553	645 BJ	700
Selenium	(<0.12U) J	(<0.13U)	0.68 B	0.33 BJ	0.17 BJ
Silver	(<0.18U)	(<0.19U)	0.37 B	(<0.31U)J	(<0.21U)
Sodium	61.8 B	69.1 B	82.7 R	1,670 J	187 B
Vanadium	6.6	6.1	8.5	8.0 J	10.2
Zinc	229	104	177	146 J	44.5
Cyanide	(<24) R	(<24) R	(<32) R	(<0.47U) R	(<0.30U) R

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
J = Reported value is an estimate following data validation review.
R = Reported value was unusable following data validation review.

Data validation results provided in data report 931455.

TABLE D-29A ORGANIC ANALYTES MEASURED IN BASEMENT SEEP - ROUND 1

Analyte	Units	BS01 (ug/L)	BS01 DUP (ug/L)	BS-FB (ug/L)
VOLATILES				
Methylene chloride		(<5U)	(<5U)	1 J
Acetone		16	(<10U)	(<10U)
1,1-Dichloroethane		9	8	(<5U)
1,2-Dichloroethene (total)		2 J	2 J	(<5U)
1,1,1-Trichloroethane		3 J	3 J	(<5U)
Trichloroethene		2 J	2 J	(<5U)
Tetrachloroethene		4 J	5	(<5U)
Xylenes (total)		240	220	(<5U)
TICs-known		---	---	---
TICs-unknown		---	---	---
Level (low or medium)		L	L	L
Dilution factor		1	1	1
SEMI-VOLATILES				
2,4-Dimethyl phenol		9 J	15	(<10U)
Pentachlorophenol		2 J	5 J	(<50U)
o-Toluic acid		350 DJ	1,600 DJ	(<50U)
m-Toluic acid		23 J	4,100 DJ	(<50U)
p-Toluic acid		(<150U)	(<50U)	(<50U)
TICs-known				
Benzene, acetic acid		20 J	---	---
1(3H)-Isobenzofuran		48 J	82 J	---
Phenol, 4-nonyl		---	40 J	---
Phenol, nonyl-		---	28 J	---
TIC-unknown;n		434 J;9	1,084 J;16	---
Level (low or medium)		L	L	L
Dilution factor		1/3 *	1/25 *	1
PESTICIDES/PCB				
None Detected		U	U	U

NOTE:

J = Reported concentration is an estimated value following data validation review.
U = Not detected. Sample quantitation limits are shown as (<_U).
D = Reported result from diluted analysis.
* = Tolic acid results from diluted analysis.
Values shown for unknown TICs are the total concentration and total number of unknowns.
--- = No detectable TICs.

Data validation results provided in data report 920398.

table16a.wk1

TABLE D-29B ORGANIC ANALYTES MEASURED IN BASEMENT SEEP - ROUND 2

Analyte	Units	BS01 (ug/L)	BS01 DUP (ug/L)	FB2-01B (ug/L)
VOLATILES				
1,1-Dichloroethane		5 J	5 J	(<10U)
Trichloroethene		2 J	2 J	(<10U)
Tetrachloroethene		(<10U)	1 J	(<10U)
Toluene		10	11	(<10U)
Ethyl benzene		10 J	13	(<10U)
Xylenes (total)		1,700 D	2,500 D	(<10U)
TICs-known		---	---	---
TICs-unknown		---	---	---
Level (low or medium)		L	L	L
Dilution factor		1/10+	1/10+	1
SEMI-VOLATILES				
2,4-Dimethyl phenol		16	13	(<50U)
Pentachlorophenol		11 J	10 J	(<50U)
o-Toluic acid		260 DJ	180 DJ	(<50U)
m-Toluic acid		220 DJ	530 DJ	(<50U)
p-Toluic acid		(<50U)	(<50U)	(<50U)
TICs-known				
None		---	---	---
TIC-unknown;n		488 J;20	493 J;20	---
Level (low or medium)		L	L	L
Dilution factor		1/20 *	1/50 *	1
PESTICIDES/PCB				
None Detected				

NOTE:

J = Reported concentration is an estimated value following data validation review.
U = Not detected. Sample quantitation limits are shown as (<_U).
D = Reported result from diluted analysis.
* = Toluic acid results from diluted analysis.
+ = Xylene results from diluted analysis.
Values shown for unknown TICs are the total concentration and total number of unknowns.
--- = No detectable TICs.

Data validation results provided in data report 931339.

TABLE D-30A INORGANIC ANALYTES MEASURED IN BASEMENT SEEP - ROUND 1

Analyte Units	SMC- BS01 (ug/l)	SMC- BS01 DUP (ug/l)	SMC- BS-FB (ug/l)
Aluminum	129 B	125 B	(<87 U)
Arsenic	39.8	40.7	(<2U)
Barium	56.0 B	67.0 B	30.1 B
Calcium	31,500	32,200	156 B
Chromium	18.1	16.7	(<4U)
Copper	111	102	(<6U)R
Iron	2,540	2,420	(<11U)
Lead	122	106	(<2U)
Magnesium	6,950	7,150	(<78U)
Manganese	103	101	(<5U)R
Mercury	0.34 R	1.3	(<0.2U)
Nickel	17.3 BR	(<8.0U)R	(<8U)R
Potassium	31,600	28,300	(<203U)
Sodium	1,130,000 R	1,070,000 R	480 R
Vanadium	37.9 BR	32.7 BR	(<6U)R
Zinc	60.3 J	51.6 J	(<16U)J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.
R = Unusable data.

Data validation results provided in data report 920398.

table16b.wk1

TABLE D-30B INORGANIC ANALYTES MEASURED IN BASEMENT SEEP - ROUND 2

Analyte Units	SMC-BS01 (ug/l)	SMC-BS01 DUP (ug/l)	SMC-FB-2 (ug/l)
Aluminum	129 B	142 B	(<16 U)
Arsenic	59.9	55.2	(<2U)
Calcium	24,000	23,200	78.7 B
Chromium	19.6	17.7	(<7U)
Copper	154	160	5.3 B
Iron	4,700	4,420	9.3 B
Lead	180	167	(<1U)
Magnesium	5,060	4,970	(<48U)
Manganese	177	170	(<1U)
Mercury	0.79	0.80	(<0.2U)
Potassium	57,800	57,600	(<96U)
Sodium	882,000	904,000	230 B
Vanadium	49.7	53.1	(<4U)
Zinc	62.9	61.0	(<9U)

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below the CRDL.

Data validation results provided in data report 931339.

table16b.wk1

TABLE D-31 WATER QUALITY PARAMETERS MEASURED IN BASEMENT SEEP

Parameter Units	BS01 (mg/l)	BS01 DUP (mg/l)	BS-FB (mg/l)
Chloride	142	121	(<1U)
Fluoride	1.3	1.3	(<0.2U)
Ammonia	1.4	1.5	(<0.1U)
Nitrate	0.4	0.4	(<0.2U)
Sulfate	(<500U)	(<500U)	(<5U)
Alkalinity	1,650	1,770	1.1
Hardness	107	110	0.39
Total suspended solids	34	43	(<4U)
Dissolved organic carbon	40.3	114	0.53

NOTE:
U = Not detected. Sample quantitation limits reported as (<_U).

Data validation results provided in data report 920398.

table-12.wk1

TABLE D-32 ORGANIC ANALYTES MEASURED IN STORMWATER COLLECTION PIT

Analytes	Units (ug/L)
VOLATILES	
Acetone	26 J
1,1-Dichloroethane	28
1,2-Dichloroethene (total)	9 J
1,1,1-Trichloroethane	1 J
Trichloroethene	2 J
Tetrachloroethene	5 J
Xylenes (total)	3 J
TICs - known	---
TICs - unknown	
Unknown (RT 18.5 min)	29 R
	1
Level (Low or medium)	L
Dilution Factor	1
Semi-volaitiles	
2-Methylphenol	0.8 J
2,4-Dimethylphenol	2 J
Bis(2-ethylhexyl)phthalate	4 J
TICs - known	
Hexadecanoic acid	3 JN
TICs - unknown;n	59 J;9
Level (Low or medium)	L
Dilution factor	1
Pesticide/PCBs	
Endosulfan I	0.014 R
4,4'-DDE	0.010 R
Level (Low or medium)	L
Dilution factor	1

NOTE:
J = Reported value is below CRQL (except for TICs).
J = Reported value is an estimate (for TICs).
B = Analyte present in corresponding method blank.
JN = Presumptive identification, estimated concentration (for TICs).
R = Data is unusable.

TABLE D-33 INORGANIC ANALYTES MEASURED IN STORMWATER COLLECTION PIT

Analytes Units	(ug/L)
Aluminum	246
Barium	53.2 B
Cadmium	(<5U)J
Calcium	26,200
Copper	58.0
Iron	915
Lead	12.8 J
Magnesium	3,460 B
Manganese	43.4
Mercury	0.30
Nickel	21.8 B
Potassium	4,410 B
Silver	(<10U)J
Sodium	53,500
Zinc	93.7
Cyanide	(<10U)J

NOTE:
U = Not detected. Sample quantitation limits are shown as (<_U).
B = Reported value is below CRDL.
J = Reported result is an estimate following data validation review.

TABLE D-34 ORGANIC ANALYTES MEASURED IN PIEZOMETER WIPE SAMPLE

Analytes	Units	WP-28D -01A (ng/wipe)	WPFB-01 -01A (ng/wipe)
SEMI-VOLATILES			
Di-n-butyl phthalate		[41,000U]	55,000 B
Bis(2-ethylhexyl)phthalate		(<330U)	1,600
Di-n-octyl phthalate		(<330U)	1,200
TICs - known			
3-penten-2-one, 4-methyl		---	30,000 JN
TICs - unknown;n		311,000 J;4 520,000 R;5	55,900 J;6 97,000 JN;2
PCBs			
None detected		U	U

NOTE:

U = Not detected. Sample quantitation limits are shown as (<__U).
B = Analyte detected in corresponding method blank.
R = Data is unusable.
JN = Presumptive identification, estimated concentration.
--- = No detectable TIC.
Values shown for unknown TICs are the total concentration and total number of unknowns.
[-U] = Data was false positive following data validation review.

Appendix E

Data Validation Reports

APPENDIX E - LIST OF TABLES

Number	Title
E-1	Analytical quality assurance splits and calculated RPDs for organic analytes measured in landfill soil borings (Round 1).
E-2	Analytical quality assurance splits and calculated RPDs for inorganic analytes measured in landfill soil borings (Round 1).
E-3	Analytical quality assurance splits and calculated RPDs for organic analytes measured in north area soil borings (Round 2).
E-4	Analytical quality assurance splits and calculated RPDs for inorganic analytes measured in north area soil borings (Round 2).
E-5	Analytical quality assurance splits and calculated precision for organic analytes identified in Skaneateles Creek sediment.
E-6	Analytical quality assurance splits and calculated RPDs for organic analytes measured in creek seeps and seep sediment.
E-7	Analytical quality assurance splits and calculated precision for inorganic analytes measured in creek seeps and seep sediment.
E-8	Analytical quality assurance splits and calculated precision for organic analytes measured in groundwater (Round 1).
E-9	Analytical quality assurance splits and calculated precision for organic analytes measured in groundwater (Round 2).
E-10	Analytical quality assurance splits and calculated precision for inorganic analytes measured in groundwater (Round 1).
E-11	Analytical quality assurance splits and calculated precision for inorganic analytes measured in groundwater (Round 2).

APPENDIX E

DATA VALIDATION AND USABILITY SUMMARY

E.1 INTRODUCTION

This appendix contains the data validation reports for samples collected at the Stauffer Management Company (SMC) Skaneateles Falls, New York site. Samples were analyzed following the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) methods for Target Compound List (TCL) volatile organics, TCL semi-volatile organics, TCL pesticides/polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals plus cyanide. The 3 toluic acid isomers were analyzed as part of the semi-volatile fraction. Data were validated for compliance with the ASP and reviewed for data usability following the most current U.S. Environmental Protection Agency (EPA) Region 2 protocols.

Data usability qualifiers were applied based upon the EPA guidelines. The following qualifiers were used and are defined below:

U = The material was analyzed for, but was not detected above, the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

UJ = The material was analyzed for, but was not detected. The associated value is estimated and may be inaccurate or imprecise.

J = The analyte was analyzed for and was positively identified, but the associated numerical value may not be consistent with the amount actually present in the environmental sample.

R = Data is unusable.

Analytical results which were qualified with "UJ" or "J" are still usable, with the limitations defined above. Data which are qualified with an "R" are unusable and were not evaluated in this Remedial Investigation.

This summary contains an overview of the validation and usability results, and also provides a comparison to the split samples collected for analysis by the oversight contractor.

E.2 DATA VALIDATION SUMMARY

This summary is divided into subsections by matrix type and sampling round (when applicable) for clarity. The data validation reports contain detailed review of the analytical samples.

E.2.1 Landfill Perimeter Soil Borings

The validation results are provided in Data Report No. 911652. All organic data results were valid and acceptable except for non-compliant quality control (QC) noted for calibrations, internal standard areas, and blank contamination. Acetone and 2 polycyclic aromatic hydrocarbons (PAHs) (anthracene and benzo[k]fluoranthene) were qualified as estimates (no bias determined) due to initial and continuing calibration criteria exceedances. A potential high bias in the reported results for 8 analytes in SB-08 for 8 volatile organics was the result of low internal standard area. The 2-butanone and 2 phthalate compounds were considered false-positives since they were identified in corresponding method blanks.

All inorganic data results were valid and acceptable except for non-compliant QC noted for initial calibration verification, CRDL standard recoveries, and spike sample recoveries. Cyanide was qualified as an estimate (low bias) in SB-02 due to initial calibration verification outside of the lower limit. Zinc was rejected and cadmium was qualified as an estimate (high bias) in all soil samples due to CRDL standard recoveries outside of control limits. Antimony, arsenic, lead, and selenium were qualified as estimates (low bias) in all soil samples due to spike sample recoveries below the lower control limit.

All general chemistry (total organic carbon) results were valid and acceptable.

E.2.2 Landfill Interior Soil Borings

The validation results are provided in Data Report Nos. 911664 and 911691. All organic data results were valid and acceptable except for non-compliant QC noted for holding times, calibrations, acid surrogate recovery, internal standard areas, and blank contamination. The volatile analyses of 4 samples (SB-18-03, SB20-01, SB26-01, and SB27-01) and semi-volatile analyses of 2 samples (SB27-04 and SB25-01) were outside of the technical holding time. All volatile and semi-volatile results were qualified as estimates (low bias). Acetone was qualified as an estimate (no bias determined) in 4 samples due to continuing calibration criteria exceedance. Positive acid extractable analytes were qualified as estimates (low bias) and non-detect acid extractable analytes were rejected in 2 samples due to low acid surrogate recovery. A potential low bias in the reported results for 5 samples resulted from low internal standard areas. The 2-butanone and 2 phthalate compounds were considered false-positives since they were identified in corresponding method blanks.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike sample recoveries, and ICP serial dilution. Cadmium, copper, nickel, silver, and zinc were qualified as estimates (high bias) in 7 soil samples, and lead as an estimate (high bias) in 1 sample due to CRDL standard recoveries outside of control limits. Thallium was qualified as an estimate (low bias) in 5 samples due to CRDL standard recoveries outside of control limits. Arsenic was rejected in 3 samples due to poor spike recovery. Antimony, cobalt, selenium, silver, and cyanide were qualified as estimates (low bias) in 17 soil samples due to spike sample recoveries below the lower control limit. Manganese was qualified as an estimate (no bias determined) in 6 samples, and zinc in 1 sample, due to ICP serial dilution outside the control limit.

All general chemistry (total organic carbon) results were valid and acceptable.

E.2.3 Surface Water - Round 1

The validation results are provided in Data Report No. 920386. All organic data results were valid and acceptable except for non-compliant QC noted for holding times (for re-analyses only) and surrogate recoveries. The re-analyses of 2 samples were outside of the technical holding time. The affected results were qualified as estimates (low bias). All semi-volatile analytes were qualified as estimates (low bias) in 1 sample (SW-04) due to low surrogate recoveries.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries. Antimony, chromium, copper, nickel, and zinc were qualified as estimates (high bias) in all samples and mercury was rejected in all samples due to CRDL standard recoveries outside of control limits.

All general chemistry results were valid and acceptable.

E.2.4 Surface Water - Round 2

The validation results are provided in Data Report No. 931455. All organic data results were valid and acceptable except for non-compliant QC noted for initial and continuing calibration.

Initial and continuing calibration criteria exceedances resulted in acetone and methylene chloride being qualified as estimates in all 4 samples. Semi-volatile and pesticide/PCB calibration exceedances resulted in 9 semi-volatiles and 8 pesticide compounds also being qualified as estimates in the 4 samples.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, matrix spike recoveries, and duplicate sample analysis. Zinc was qualified as an estimate (high bias) for 2 samples (SW-01 and SW-02). Matrix spike recovery exceedances resulted in antimony and cadmium being estimates in 3 of the samples, and lead, selenium, arsenic, and thallium being rejected (low bias) in 2 of the samples (SW-03 and SW-04). Cyanide was qualified as an estimate in all 4 samples due to %D criteria exceedances of duplicate sample analysis.

E.2.5 Stream Sediment - Round 1

The validation results are provided in Data Report No. 920391. All organic data results were valid and acceptable except for non-compliant QC noted for holding times (pesticide/PCB fraction), internal standards, and blank contamination.

The pesticide/PCB analyses of all 4 samples were outside of the technical holding time. The affected results were qualified as estimates (low bias). All volatile analytes were qualified as estimates (high bias) in SD-04 due to low internal standard areas; some of the semi-volatile analytes in SD-04 were qualified as estimates (low bias) due to internal standard

areas outside of control limits. A phthalate compound was considered a false-positive in the samples since it was present in the corresponding method blank. Acetone was considered a false-positive in the samples since it was present in the corresponding field blank.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries and sample spike analysis. Antimony, chromium, copper, nickel, silver, and zinc were qualified as estimates (high bias) in all samples due to CRDL standard recoveries outside of control limits. Cyanide was qualified as an estimate (low bias) in all samples due to low spike recovery.

All general chemistry (total organic carbon) results were valid and acceptable.

E.2.6 Stream Sediment - Round 2

The validation results are provided in Data Report No. 931455. All organic data results were valid and acceptable except for non-compliant QC noted for initial and continuing calibrations, method blank contamination, compound identification, holding times (pesticide/PCB fraction), internal standards, and blank contamination.

Seven volatile compounds, 4 semi-volatile compounds, and 8 pesticide results were qualified as estimates (no bias defined) affecting 4 samples, 2 samples, and 4 samples, respectively, for non-compliant initial and continuing calibrations. Acetone in SD-01 was considered a false-positive due to method blank contamination. Chloroform was also a false-positive in all 4 samples due to method blank contamination. Nine pesticides were rejected in 3 samples due to dual column quantification outside of control limits.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, sample spike analysis, duplicate sample analysis, ICP serial dilutions, and percent solids. Silver was rejected in SD-02 for CRDL recoveries outside of control limits (bias high). Antimony, cadmium, lead, and selenium were qualified as estimates (low bias), affecting all 4 samples, due to low spike recovery. Due to similar low spike recoveries, cyanide was rejected in the 4 samples. Copper was qualified as an estimate in 3 of the samples for exceedance of %D criteria for duplicate sample analyses. Failure of serial dilution %D criteria resulted in the qualification of all 4 samples as estimates for chromium. Sample SD-03 had percent solids of less than 50 percent resulting in all analytes qualified as estimates.

E.2.7 Creek Seeps and Seep Sediment - Round 1

The validation results are provided in Data Report No. 920461. All organic data results were valid and acceptable except for non-compliant QC noted for surrogate recoveries and internal standard areas. The pesticide/PCB analytes were qualified as estimates (low bias) in 3 samples due to surrogate recoveries below the lower control limit. Several semi-volatile analytes were qualified as estimates in 1 sample (CS-03) due to internal standard areas outside of control limits.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate analysis, and ICP serial dilution.

Antimony, barium, cadmium, and copper were qualified as estimates (high bias) in all creek seep samples, and cadmium, copper, nickel, and zinc were qualified as estimates in the seep sediment sample, due to CRDL standard recoveries outside of control limits. Antimony, cadmium, selenium, and silver were qualified as estimates (low bias) in the seep sediment sample due to spike recoveries below the lower control limits. Cyanide was qualified as an estimate (low bias) in the seep sediment due to low spike recovery. Mercury was qualified as an estimate in all seep samples due to duplicate sample analysis outside of the control limit. Barium was qualified as an estimate in the seep sediment, copper, and vanadium as estimates in 3 seep samples, and zinc as an estimate in all 4 seep samples due to ICP serial dilution outside of control limits.

E.2.7 Creek Seeps and Seep Sediment - Round 2

The validation results for the 1 creek seep sample and 1 creek sediment sample, analyzed in Round 2, are provided in Data Report No. 931455. All organic data results were valid and acceptable except for non-compliant QC noted for initial and continuing calibrations and method blank contamination.

Initial and continuing calibration non-conformances resulted in 2 volatile compounds and 2 semi-volatile compounds being qualified as estimates in creek seep Sample CS-03. Likewise, in SS-03, the seep sediment sample, 5 volatile compounds, and 1 semi-volatile compound (p-toluic acid) were qualified as estimates due to initial and continuing calibration criteria exceedances. Detectable chloroform was qualified as non-detectable in SS-03 due to method blank contamination.

Pesticide/PCB and inorganic metals analyses (including cyanide) were not performed on the 2 Round 2 samples.

Although the analytical results were valid or received usability qualifiers following data validation, the second round results were not used since they showed poor comparability with the Round 1 results.

E.2.8 Overburden Groundwater - Round 1

The validation results are provided in Data Report Nos. 920396 and 920398. All organic data results were valid and acceptable except for non-compliant QC noted exceedances of technical holding times, surrogate recoveries, and internal standard areas.

All semi-volatile analytes were qualified as estimates (low bias) in Sample MW-2S due to exceedance of technical holding times. All acid extractable analytes were qualified as estimates (low bias) in 1 sample (MW-6S) due to low acid surrogate recoveries. All pesticide/PCB analytes were qualified as estimates (low bias) in 3 samples due to low surrogate recoveries. Six semi-volatile analytes were qualified as estimates (high bias) in 1 sample (MW-4S) due to low internal standard area.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, and ICP serial dilution.

Selenium was qualified as an estimate (high bias) in Sample MW-6S; selenium and copper were qualified as estimates (high bias) in Sample MW-7S; and copper, lead, and selenium were qualified as estimates (high bias) in MW-8S, due to CRDL standard recoveries above the upper control limit. Mercury was rejected in 2 samples (MW-2S and MW-4S) and beryllium, mercury, and vanadium were rejected in 1 sample (MW-1S) due to CRDL standard recoveries outside of the control limits. Arsenic was rejected in 2 samples due to high spike recoveries, and selenium and thallium were qualified as estimates (low bias) in 3 samples due to spike recoveries below the lower control limit. Cyanide was qualified as an estimate (low bias) in 3 samples due to low spike recovery. Copper and arsenic were qualified as estimates (low bias) in 4 samples. Sodium was qualified as an estimate (unknown bias) in 3 samples and rejected in 1 sample (MW-1S) due to ICP serial dilution outside of the control limits.

E.2.9 Overburden Groundwater - Round 2

The validation results are provided in Data Report Nos. 931455 and 931235. All organic data results were valid and acceptable except for non-compliant QC noted exceedances of initial and continuing calibration criteria, surrogate recoveries, internal standards recoveries, and method blank contamination.

Acetone was qualified as an estimate in 6 of the samples due to initial and continuing calibration criteria exceedances. In 2 of the samples (MW-18S and MW-8S), acetone was rejected for the same criteria. Eight other volatile organic analyte parameters were also qualified as estimates (bias undetermined) due to calibration non-conformances. These qualifications affected 6 of the samples.

Base neutral extractable analyses indicated initial and continuing calibration exceedances for the 31 compounds. All 31 compounds were estimates in 8 samples, and 11 of the 31 compounds were rejected in Sample MW-7S. Biases were not specified in the data validation report. Two surrogates exceeded criteria resulting in MW-7S data being rejected for all compounds with the exception of 1 compound. Internal standard non-compliances resulted in the estimation of 3 PAHs, 2 phthalates, and 3,3-dichlorobenzidine in MW-2S. Method blank contamination affected 3 samples when two common laboratory contaminants were qualified as non-detect in 3 of the samples due to laboratory contamination. Pesticide/PCB analysis results were affected by surrogate recoveries (bias undetermined) and all compounds were qualified as estimates for 2 of the samples. For 6 of the samples, all compounds were bias low for surrogate recoveries and were, therefore, qualified as estimates.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, laboratory control sample analysis, ICP serial dilution, and furnace QC analysis.

Arsenic was rejected in 2 samples and estimates in 3 others due to low matrix spike recoveries. Similarly, 2 samples were qualified as estimates (low bias) for lead and thallium, and selenium was also qualified as estimates (bias low) in 4 samples. All qualifications were a result of low matrix spike recoveries. Poor duplication of analyses resulted in the qualification as estimate for cyanide and zinc in 2 samples. The laboratory control sample indicated a low bias affecting selenium in 2 of the samples, of which both were qualified as estimates. Copper (in 3 samples) and manganese (in 2 samples) were qualified as estimates due to exceedance of serial dilution percent difference. For the same exceedance, iron was rejected in 2 samples (MW-2S and MW-4S). Two samples were qualified as estimates for zinc due to bias high CRDL standard recoveries. Biases determined by analytical spikes were observed for furnace analyses (no bias specified) affecting the following parameters: thallium (4 samples), lead (1 sample), and selenium (1 sample). All parameters were qualified as estimates.

E.2.10 Upper Bedrock Groundwater - Round 1

The validation results are provided in Data Report Nos. 920396 and 920398. All organic data results were valid and acceptable except for non-compliant QC noted exceedance of surrogate recoveries.

All acid extractable analytes were qualified as estimates (low bias) in 1 sample (MW-9I) due to low acid surrogate recoveries, and all acid extractable analytes were rejected in 1 sample (MW-8I) due to poor surrogate recovery. All pesticide/PCB analytes were qualified as estimates (low bias) in 3 samples due to low surrogate recoveries.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, and ICP serial dilution.

Selenium and copper were qualified as estimates (high bias) in 2 samples (MW-5I and MW-6I), and lead, selenium, and copper were qualified as estimates (high bias) in MW-8I, due to CRDL standard recoveries above the upper control limit. Mercury was rejected in 1 sample (MW-7I) due to CRDL standard recoveries outside of the control limits. Beryllium, copper, vanadium, and mercury were rejected, and zinc was qualified as an estimate in Sample MW-1I due to CRDL standard recoveries outside of control limits. Silver was qualified as an estimate (low bias) in 3 samples, arsenic was rejected in 3 samples due to high spike recoveries, and selenium and thallium were qualified as estimates (low bias) in 4 samples due to spike recoveries below the lower control limit. Cyanide was qualified as an estimate (low bias) in 2 samples due to low spike recovery. Iron was qualified as an estimate (low bias) in 3 samples due to ICP serial dilution precision outside of control limits. Sodium was rejected in 1 sample (MW-3I) due to ICP serial dilution outside of control limits.

E.2.11 Upper Bedrock Groundwater - Round 2

The validation results are provided in Data Report Nos. 931235 and 931455. All organic data results were valid and acceptable except for non-compliant QC in the initial and continuing calibrations, and surrogate recoveries.

For volatile organic analyte analysis, initial and continuing calibration exceedances resulted in 4 ketones and 2 halogenated compounds being qualified as estimates, affecting a maximum of 16 samples. Acetone was rejected in 2 samples for the same criteria. Semi-volatile analysis also indicated initial and continuing calibration exceedances. The toluic acid isomers (*m*-, *o*-, *p*-) and 2-4-Dinitrophenol were qualified as estimates for initial and continuing calibration exceedances, affecting 12 samples. Hexachlorocyclopentadiene and 4 nitrophenol were also qualified as estimates for calibration criteria exceedances in 3 of the samples (bias undefined). For samples MW-6S and MW-7S, parameters associated with 2-fluorobiphenyl and terphenyl-d14 surrogates were qualified as estimates due to poor recoveries (bias undefined). Pesticide/PCB analysis results were affected by surrogate recoveries (bias low for 2 samples and undefined for 14 samples). All the compounds were qualified as estimates in the 16 samples. In 1 sample, 2 BHC compounds were qualified as estimates due to initial and continuing calibration criteria exceedances (bias undetermined).

All inorganic data results were valid and acceptable except for non-compliant QC noted for serial dilution, furnace spike recoveries, matrix spike recoveries, ICP serial dilution, CRDL recoveries, and duplicate sample analysis.

Three samples were qualified as estimates for copper, and iron was rejected in 1 sample (MW-16I) due to serial dilution QC criteria exceedances. Both lead (MW-1I and MW-2I) and selenium (MW-1I) were rejected for furnace spike recoveries (bias low), affecting a total of 3 samples. Selenium was also qualified as an estimate for furnace spike recoveries affecting 6 samples. Matrix spike recovery exceedances (bias low) for lead, selenium, and thallium resulted in the qualification of these parameters as estimates, affecting 15 of the samples. Similarly, arsenic was qualified as an estimate in 12 samples and rejected in 4 samples. Both aluminum and manganese were qualified as estimates for ICP serial dilution criteria exceedances, affecting 10 samples. Iron was rejected in one of the samples (MW-16I) for ICP serial dilution. Zinc was qualified as an estimate due to CRDL recoveries, affecting only 1 sample. One sample was affected by the exceedance of duplicate sample analysis criteria resulting in the qualification of cyanide as an estimate. Low recoveries of selenium in the laboratory control sample (LCS) resulted in the qualification of 1 sample as an estimate for selenium.

E.2.12 Deep Bedrock Groundwater - Round 1

The validation results are provided in Data Report Nos. 920508 and 920562. All organic data results were valid and acceptable except for non-compliant QC noted exceedances of technical holding times and surrogate recoveries.

All pesticide/PCB analytes were qualified as estimates (low bias) in MW-5D due to exceedance of the technical holding times. All pesticide/PCB analytes were qualified as estimates (low bias) in 3 samples due to low surrogate recoveries.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, and ICP serial dilution.

Mercury was rejected in MW-1D, silver and cadmium were qualified as estimates (low bias) in 6 samples, and lead was qualified as an estimate in 6 samples due to CRDL standard recoveries outside of control limits. Silver was qualified as an estimate (low bias) in 2 samples (MW-10D and MW-11D) due to CRDL standard recoveries outside of control limits. Silver was qualified as an estimate in 2 samples (MW-6D and MW-9D) and mercury was qualified as an estimate in 1 sample (MW-9D) due to spike recoveries below the lower control limit. Silver and thallium were qualified as estimates (low bias) in 3 samples due to spike recoveries below the lower control limit. Mercury was qualified as an estimate (bias undetermined) in 1 sample and barium in 3 samples due to duplicate sample analysis outside of control limits. Copper and potassium were rejected in 5 samples and magnesium and manganese were qualified as estimates in 5 samples. Aluminum, barium, and potassium were rejected in 2 samples and sodium was qualified as an estimate in 3 samples due to ICP serial dilution outside of control limits.

E.2.13 Deep Bedrock Groundwater - Round 2

The validation results are provided in Data Report No. 931455. All organic data results were valid and acceptable except for non-compliant QC noted for calibrations, surrogate recoveries, method blank contamination, and compound identification criteria.

Initial and continuing calibration QC exceedances were determined to affect all 6 samples. Of the volatile organic analyte analyses, only 2 parameters were qualified as estimates (acetone and chloromethane). Of the semi-volatiles, most of the TCL compounds were affected by calibration criteria exceedances. In most cases, the qualifications were estimations, however, there were 10 rejected parameters affecting sample MW-7D. MW-7D was also affected by surrogate recoveries. Bias was not presented in the data validation reports, however, all base/neutral compounds were rejected with the exception naphthalene and 2 phthalates in MW-7D. Common laboratory contaminants were in 5 of the samples. Pesticide/PCB analyses required qualifications for both calibration and surrogate recoveries. Two samples were affected (low bias) and all compounds were qualified as estimates with the exception of 4,4'-DDT (MW-9D) which was rejected due to dual column quantification outside of control limits. Pesticide calibration verification failures affected 4 of the samples causing 7 pesticides to be estimates.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, ICP serial dilution, and furnace spike recoveries.

Zinc was qualified as an estimate (bias high) in 4 of the samples and silver was rejected in 1 of the samples due to CRDL recoveries (bias high). Spiked sample recoveries indicated matrix interferences (low bias) for cadmium, lead, selenium, arsenic, and thallium. All parameters were qualified as estimates, affecting 5 of the samples. Duplication of analysis indicated poor precision by the laboratory and, therefore, both cyanide and zinc were qualified as estimates.

Serial dilution outside of control limits resulted in the qualification of manganese as an estimate in 4 samples and rejection of iron in 1 sample. Thallium and antimony were qualified as estimates in MW-07D due to furnace spike recovery failure (bias undetermined).

E.2.14 North Area Soil Borings

Soil borings were collected from the are north of the Main Plant Building only during Phase II field program. The validation results are provided in Data Report Nos. MW5-SB01, 930779 and 931104. All organic data results were valid and acceptable except for non-compliant QC noted for holding times, initial and continuing calibrations, internal standard area, surrogates, MS/MSD analyses, %D for LCS recoveries, and method blank contamination.

Non-detectable volatile organic and pesticide/PCBs results in MW5-SBFB were qualified as estimates due to exceedance in the holding time criteria. Several volatile analytes in this sample was qualified as estimates due to initial or continuing calibration criteria exceedances. Acetone was rejected in 2 of the samples (MWFB1601 and MWTB15/1601) due to continuing calibration %D of greater than 90 percent.

Nine volatile organic analyte analytes in MW5-SB09 were qualified as estimates (high bias) due to an internal standard area below the lower control limit. Chloroform and xylene (total) were considered as false-positives, affecting 3 samples, due to method blank and field blank contamination. Semi-volatile analyses indicated that initial calibration criteria non-compliances resulted in 2 compounds being qualified as estimates in 6 of the samples. Two semi-volatile surrogates failed to meet criteria (bias not determined) in 2 of the samples (MW5-SB13 and MW5-SB14), resulting in the base/neutral compounds being qualified as estimates. Six MS/MSD recoveries and 9 RPDs in the base neutral analytes were outside criteria establishing that matrix interferences may be suspected, however, no data validation actions were taken according to EPA protocol. A common laboratory contaminant, bis(2-ethylhexyl)phthalate, was detected in the semi-volatile method blank resulting in 4 of the detectable samples being qualified as false-positives.

Initial and continuing calibration criteria exceedances in the pesticide/PCB analyses resulted in 7 pesticides being qualified as estimates in 7 samples. Pesticide/PCB compound identification criteria was exceeded resulting in 5 compounds being rejected affecting 3 samples. Five pesticides (non-detectables) were qualified as estimates affecting 5 of the associated samples, as a result of the %D between the two columns on the LCS sample.

All inorganic data results were valid and acceptable except for non-compliant QC noted for CRDL standard recoveries, spike recoveries, duplicate sample analysis, ICP serial dilution and furnace spike recoveries.

Iron, silver, and zinc were qualified (bias high) as estimates due to CRDL recoveries, affecting 3 of the samples. Nickel was qualified as an estimate (bias low) in 1 sample due to CRDL recoveries. Spiked sample recoveries (bias low) resulted in 7 samples being qualified as estimates for 5 of the metals. Cadmium and mercury had recoveries of greater than 200 percent, and were qualified as estimates (bias high). Cyanide spike recoveries indicated a matrix interference (low bias) and resulted in 5 samples (non-detectables) being qualified as estimates. ICP serial dilution non-conformances required that 5 parameters be qualified as estimates affecting 7 of the samples. Analytical spike recoveries for selenium and arsenic confirmed qualifications resulting from matrix spike results (low bias) in 7 of the samples.

E.3 EVALUATION OF SPLIT SAMPLE DATA

Split samples for chemical analysis of soil, sediment, groundwater, surface water, and seeps were collected by NYSDEC as part of the Project Quality Assurance Program. Although all efforts were made to ensure a homogenous source for the split samples, minor differences in the sample matrix effects can result in varying analytical results. Therefore, aqueous-based matrices are more reliable splits when compared to solid matrices. The latter are more properly defined as sample duplicates or sample co-locates.

The split samples were analyzed by an independent laboratory (IT-Pennsylvania [IT-Pa]) and validated by the NYSDEC oversight contractor for compliance with the ASP. The following is a matrix-specific discussion of the results of the split samples and comparison to the results reported by EA Laboratories.

The comparisons were based upon the calculated relative percent differences (RPDs) between the 2 reported concentrations, and review of absolute concentrations. An RPD of 50 percent or greater was used as an indicator of possible analytical discrepancies. Absolute values were not used since positive and negative RPD values represent the laboratory bias. Positive RPD values indicate a higher value reported by the EA laboratories, whereas a negative RPD represents a higher value reported by IT-Pa.

E.3.1 Landfill Perimeter Soil Borings

Two landfill perimeter soil samples (SB02 and SB09) were collected and split in the field for separate analyses as a measure of the quality of the analytical data. The RPDs of the split organic and inorganic analysis compared to EA Laboratories' data is presented in Tables E-1 and E-2.

E.3.1.1 Organics

In SB02, 2 TCL volatile compounds were detected. Both results were below the sample quantitation limit (SQL) and were detected by EA Laboratories but were not confirmed by the split laboratory (positive RPD). One of these compounds was acetone, which is a

common laboratory contaminant and can be considered a false-positive at the observed concentration. The other volatile organic (tetrachloroethene) was detected at trace (sub-SQL) concentrations. Inter-laboratory variation is expected when the observed concentrations are at or below the SQL and the sample matrix is a solid. No positive semi-volatile or pesticide/PCB results were reported by either laboratory for this sample, indicating good inter-laboratory duplication.

Sample SB09 showed no detectable volatile organic, semi-volatile organic, or pesticide/PCB results by both EA Laboratories and IT-Pa, indicating good inter-laboratory duplication.

E.3.1.2 Inorganics

The EA Laboratories and IT-Pa inorganic results for the 2 interior soil borings are compared in Table E-2.

Sample SB02 had 21 metal parameters detected, with 4 RPDs having absolute values greater than 50 percent. Three analytes (cadmium, silver, and cyanide) were identified at a greater concentration by EA Laboratories than IT-Pa and antimony was observed by IT-Pa and not EA Laboratories. Comparison of the zinc results yielded an RPD of -200 percent since the EA Laboratories result was rejected based upon EPA usability criteria. Most of the observed differences greater than 50 percent were for analytes which were present at low concentrations. The remaining analytes showed acceptable inter-laboratory variation.

SB09 had 23 detectable metal parameters. Of the 23 results, 7 had RPDs greater than 50 percent. Four analytes (cadmium, mercury, selenium, and silver) were reported at greater concentrations by EA Laboratories than IT-Pa (positive RPD), antimony was observed at greater concentrations by IT-Pa than EA Laboratories, and thallium was reported by IT-Pa and not EA Laboratories. Comparison of the zinc results yielded an RPD of -200 percent since the EA Laboratories result was rejected based upon EPA usability criteria.

Most of the observed differences greater than 50 percent were for analytes which were present at low concentrations. The remaining analytes showed acceptable inter-laboratory variation.

E.3.2 Landfill Interior Soil Borings

Three samples (SB18-03A, SB23-01A, and SB27-01A) from the landfill interior soil borings were collected and split in the field for separate analyses as a measure of the quality of the analytical data. The RPDs of the split organic and inorganic analysis compared to EA Laboratories' data are presented in Tables E-1 and E-2.

E.3.2.1 Organics

SB18-03A had 4 TCL volatile and 25 TCL semi-volatile compounds detected. All 4 volatile compounds identified had RPDs greater than 50 percent, with EA Laboratories reporting concentrations greater than those reported by IT-Pa. Three of these compounds were not detected by IT-Pa. Of the 25 semi-volatile results reported, 14 had RPDs greater than

50 percent, with 9 reported at greater concentrations by EA Laboratories than IT-Pa. Seven of these 9 compounds were not detected by IT-Pa. IT-Pa reported 4 compounds (2-methylphenol, bis(2-ethylhexyl)phthalate, pentachlorophenol, and *p*-toluic acid) at greater concentrations than reported by EA Laboratories. The remaining analytes showed acceptable inter-laboratory variation. There were no detectable semi-volatile or pesticide/PCB compounds identified by either laboratory.

SB23-01A had 5 TCL volatile and 3 TCL semi-volatile compounds detected. All 5 volatile compounds identified had RPDs greater than 50 percent, with EA Laboratories reporting greater concentrations than those reported by IT-Pa. Four of these volatile compounds were not detected by IT-Pa. However, this inter-laboratory variation can be dismissed due to trace (sub-SQL) concentrations reported by both laboratories. The only semi-volatile compounds detected were the toluic acid isomers. For all three isomers, EA Laboratories' results were not confirmed by IT-Pa, which reported no detectable results (i.e., RPD of +200 percent). There were no detectable semi-volatile or pesticide/PCB compounds identified by either laboratory.

SB27-01A showed 2 volatile compounds (toluene and xylenes). The RPD exceeded 50 percent only for the toluene result, which was identified by EA Laboratories but not IT-Pa. However, this inter-laboratory variation can be dismissed due to the high dilution factor required for this sample. The remaining analytes showed acceptable inter-laboratory variation. There was no detectable semi-volatile or pesticide/PCB compounds identified by either laboratory.

E.3.2.2 Inorganics

SB18-01A showed 21 metal parameters, with 19 having RPDs greater than 50 percent. Four of these were detected by EA Laboratories and not IT-Pa, although this inter-laboratory variation can be dismissed since all 4 analytes were present at trace concentrations. The remaining analytes were present at greater concentrations by IT-Pa. This variation may have been due to a non-homogenous soil matrix.

SB23-01A showed 22 metal parameters, with 6 having RPDs greater than 50 percent. Three of these (beryllium, cadmium, and selenium) were detected by EA Laboratories and not IT-Pa, and 2 (antimony and thallium) were detected by IT-Pa and not EA Laboratories. The remaining analytes showed acceptable inter-laboratory variation.

E.3.3 North Area Soil Borings

In Round 2, 3 samples (MW5-SB04, MW5-SB05, and MW5-SB16) were collected and split in the field for separate analyses as a measure of the quality of the analytical data. The RPDs of the split organic and inorganic analysis compared to EA Laboratories' data is presented in Tables E-3 and E-4.

E.3.3.1 Organics

MW5-SB04 had 1 TCL volatile, 11 semi-volatile, and 3 pesticide/PCB compounds detected. IT-Pa reported a greater concentration for the single volatile result (xylenes) than reported by EA Laboratories. In both cases, the observed concentration was greater than 50 mg/kg, requiring the use of the medium level analytical protocol by the laboratories. Some of the variation may be attributable to different dilution factors and aliquot volumes used by the 2 laboratories. Ten of the 11 semi-volatile results were reported at a greater concentration by IT-Pa compared to EA Laboratories. This inter-laboratory variation is not significant the semi-volatile organics since the observed concentrations were reported below the SQLs. There were no detectable pesticide/PCBs in the EA Laboratories sample but IT-Pa reported 3 pesticides (4,4'-DDT, 4,4'-DDE, and 4,4'-DDD). The source of this variation is not apparent from the data provided.

MW5-SB05 had 4 TCL volatile, 13 semi-volatile, and 13 pesticide/PCB compounds detected. Three of the 4 volatile compounds showed greater than 50 percent RPD. In all 3 cases the reported concentrations were less than the SQL which is the likely source of the inter-laboratory variation. Seven of the 13 semi-volatile results showed greater than 50 percent RPD, with the results reported by IT-Pa greater than those from EA Laboratories in 6 of the cases. IT-Pa detected 13 pesticide/PCB compounds which were not confirmed by EA Laboratories. The IT-Pa data was flagged with a "P" indicating that the analytical duplication (quantified as the percent difference between the dual analyses) was greater than 25 percent. Depending upon the actual value of the percent difference, some of the inter-laboratory variation may be attributed to the analyses.

MW5-SB16 had 4 TCL volatile, 1 semi-volatile, and 1 pesticide/PCB compounds detected. Five results had RPDs greater than 50 percent. Of the 5, 4 had RPDs of 200 indicating that compounds were detected by one laboratory but not by the other laboratory. Two of the compounds were detected by the EA Laboratories but were not detected by IT-Pa. All analyte concentrations were not above the SQL. The remaining 2 RPDs of 200 were negative indicating that IT-Pa's detectable results were not confirmed by EA Laboratories. All analyte concentrations were not above the SQL.

The remaining RPD above 50 percent was for 2-butanone (74 percent) with EA Laboratories results being greater than IT-Pa results. The discrepancy in the data may be dismissed due to low level concentrations. Both laboratories reported concentrations below the SQL.

E.3.3.2 Inorganics

In MW5-SB04, 19 metal parameters were detected, with 1 showing an RPD greater than 50 percent. This analyte (antimony) was detected by IT-Pa but not EA Laboratories. All of the remaining analytes showed acceptable inter-laboratory variation.

In MW5-SB05, 22 metal parameters were detected, with 6 showing an RPD greater than 50 percent. Two of these analytes (cadmium and zinc) were reported at a greater concentration by EA Laboratories, while the remaining analytes (lead, selenium, silver and

thallium) were reported at a greater concentration by IT-Pa. Most of these analytes were reported at low concentrations by both laboratories indicating that this inter-laboratory variation was not significant.

No analytical results were reported by IT-Pa for comparison to sample MW5-SB16 results.

E.3.3 Stream Sediments

In Round 1, 1 creek sediment sample (SD03-01A) was collected and split in the field for separate analyses as a measure of the quality of the analytical data. The RPDs of the split organic analysis compared to EA Laboratories' data is presented in Table E-5.

E.3.3.1 Organics

Sample SD03-01A had 3 TCL volatile and 19 semi-volatile compounds detected, with 22 results showing an RPD greater than 50 percent. All 3 volatile results showed RPD greater than 50 percent, with EA Laboratories showing greater concentration than IT-Pa for 2 of the results. All 19 semi-volatile results had RPDs greater than 50 percent, with EA Laboratories reporting 17 results at greater concentrations than those reported by IT-Pa. Most of these were PAHs, which are extremely sensitive to matrix characteristics due to their high K_d-values. IT-Pa reported toluic acid when none was detected by EA Laboratories. There were no reported pesticide/PCBs by either laboratory.

E.3.3.2 Inorganics

No split sample results for inorganics were provided.

E.3.4 Creek Seeps and Seep Sediment

In Round 1, 2 creek seeps (CS01-01A and CS03-01A) and the seep sediment sample (SS03-01A) were collected and split in the field for separate analyses as a measure of the quality of the analytical data. The RPDs for organic and inorganic data of the split analysis compared to EA Laboratories' data is presented in Tables E-6 and E-7.

E.3.4.1 Organics

In CS01-01A, 1 TCL volatile and 3 semi-volatile compounds were detected. The single volatile and 2 of the 3 semi-volatile results had RPDs greater than 50 percent. The volatile compound methylene chloride was reported by IT-Pa but not EA Laboratories. This compound is a common laboratory contaminant and may be a false positive result. The 2 semi-volatile compounds (butyl benzyl phthalate and pentachlorophenol) were reported by IT-Pa but not EA Laboratories. This does not indicate a significant inter-laboratory discrepancy since the 2 compounds were present at trace (sub-SQL) concentrations. There were no pesticide/PCBs reported by either laboratory.

CS03-01A had 7 TCL volatile compounds and 8 TCL semi-volatile compounds detected. Three of the 7 volatile results (acetone, methylene chloride and toluene) showed RPDs

greater than 50 percent, with IT-Pa reporting greater concentrations than EA Laboratories. The different acetone and methylene chloride results are not significant since these are common laboratory contaminants. Five semi-volatile compounds were reported by EA Laboratories but not by IT-Pa. All of the concentrations were low and may not be reflective of significant inter-laboratory variation since the IT-Pa data appears to have been heavily diluted to permit quantification of toluic acid. IT-Pa reported a greater concentration for all 3 toluic acid isomers than reported by EA Laboratories. This may have been due to different dilution factors.

In SS03-01A, 6 TCL volatile compounds and 9 TCL semi-volatile compounds were detected. Five of the 6 volatile compounds showed RPDs greater than 50 percent, with all but one of these reported at a greater concentration by IT-Pa than EA Laboratories. Six of the 9 semi-volatile compounds showed RPDs greater than 50 percent, with all but the *o*-toluic acid results reported at a greater concentration by IT-Pa than EA Laboratories. Most of these compounds were reported below the SQL indicating that the inter-laboratory variation was not significant.

Table E-7 compares the laboratory results from the creek seep and seep sediment samples.

E.3.4.2 Inorganics

In CS01-01A, 17 inorganics were detected, with 7 (antimony, cobalt, copper, lead, mercury, nickel, and zinc) showing RPDs greater than 50 percent. Six of the 7 analytes were detected at a greater concentration by IT-Pa than EA Laboratories. Antimony was reported by EA Laboratories but not IT-Pa, and cobalt and nickel were reported by IT-Pa but not EA Laboratories. The mercury RPD is minor since the reported concentrations by both laboratories are similar. Comparison of the remaining analyte concentrations to the RPDs shows that, with 5 exceptions (antimony, copper, lead, nickel, and zinc) there was acceptable inter-laboratory variation for this sample.

In CS03-01A, 22 inorganics were detected, with 12 (antimony, arsenic, cadmium, calcium, copper, lead, magnesium, manganese, mercury, potassium, thallium, and cyanide) showing RPDs greater than 50 percent. With 2 exceptions (arsenic and cyanide), EA Laboratories reported greater concentrations than IT-Pa.

In SS03-01A, 22 inorganics were detected, with 3 (cadmium, thallium, and cyanide) having RPDs greater than 50 percent. In all cases, EA Laboratories reported a positive result while these analytes were not detected by IT-Pa. This does not indicate a significant inter-laboratory variation since the concentrations were at or below the SQL. The remaining analytes showed acceptable inter-laboratory precision.

E.3.5 Shallow Groundwater

Two overburden groundwater samples (GW01S-01A and GW04S-01A) were collected in Round 1, and split in the field for separate analyses as a measure of the quality of the analytical data. A sample of overburden groundwater (GW05S-01B) and landfill leachate

(LFP-1) were collected and split in Round 2. The RPDs of the split Round 1 and Round 2 organic results are shown in Tables E-8 and E-9, and for the split Round 1 and 2 inorganic results in Tables E-10 and E-11.

E.3.5.1 Organics

The comparison of the Round 1 split organic samples for overburden groundwater is shown in Table E-8. There were no detectable volatile organic or pesticide/PCB compounds by either laboratory in Round 1 sample GW-01S. The single positive semi-volatile result [bis(2-ethylhexyl)phthalate] reported by IT-Pa was at concentrations typical of laboratory background and likely is a false-positive result. There were no detectable semi-volatile organic or pesticide/PCB compounds by either laboratory in Round 1 sample GW-04S. Two volatile organics were reported by EA Laboratories with one of these confirmed by IT-Pa. The single discrepancy is not significant since the compound (tetrachloroethene) was present at trace levels. The results show acceptable inter-laboratory variation for these Round 1 samples.

The comparison of the Round 2 split organic samples for overburden groundwater is shown in Table E-9. Round 2 sample GW05S-01B showed 2 TCL volatile and 14 TCL semi-volatile compounds detected, with 12 compounds having an RPD greater than 50 percent. In all but one case (2,4-dimethylphenol), EA Laboratories identified a compound which was not confirmed by IT-Pa. However, this inter-laboratory variation is not significant since most of the compounds were present at near SQL concentrations. There were no detectable pesticide/PCBs by either laboratory in this sample. The results show acceptable inter-laboratory variation for these Round 2 sample.

Round 2 sample LFP-1 had 2 TCL volatile, 6 TCL semi-volatile, and 4 pesticide/PCB compounds detected. Of those 12 results, 11 had RPDs greater than 50 percent. One of the volatile compounds was identified by EA Laboratories but not IT-Pa. This discrepancy might have been an artifact of the dilution required to obtain xylenes within the calibrated range. Four of the 6 semi-volatile compounds were reported at a greater concentration by IT-Pa, and 1 of the 6 was reported at a greater concentration by EA Laboratories. All 4 pesticide results were reported at a greater concentration by IT-Pa.

E.3.5.2 Inorganics

The comparison of the Round 1 split organic samples for overburden groundwater is shown in Table E-10. In GW01S-01A, 17 inorganics were detected, with 4 (arsenic, beryllium, sodium, and vanadium) showing RPDs greater than 50 percent. For arsenic, IT-Pa reported the presence of this analyte but it was not detected by EA Laboratories. This is not indicative of a significant discrepancy since arsenic was present at a sub-SQL concentration. The EA Laboratories results for the remaining 3 analytes were rejected based upon EPA usability criteria and were treated as non-detects for these comparisons. The remaining analytes showed acceptable inter-laboratory variation.

In Round 1 sample GW04S-01A, 16 inorganics were detected, with 6 (cobalt, copper, lead, nickel, sodium, and vanadium) showing RPDs greater than 50 percent. Two of these (copper

and nickel) were reported at a greater concentration by EA Laboratories than IT-Pa. Cobalt and vanadium were identified by IT-Pa but not EA Laboratories. This is not indicative of a significant discrepancy since these analytes were present at sub-SQL concentrations. The EA Laboratories results for the remaining 3 analytes were rejected based upon EPA usability criteria and were treated as non-detects for these comparisons. The remaining analytes showed acceptable inter-laboratory variation.

The comparison of the Round 2 split organic samples for the single overburden groundwater sample and leachate water sample are shown in Table E-11. In Round 2 sample GW05S-01B, 22 inorganics were detected, with 3 (selenium, silver, and thallium) showing RPDs greater than 50 percent. Selenium was reported at a greater concentration by EA Laboratories, and silver and thallium were reported at a greater concentration by IT-Pa. However, this discrepancy is not significant since all 3 analytes were reported at sub-SQL concentrations. The remaining analytes showed acceptable inter-laboratory variation.

In Round 2 sample LFP-1, 20 inorganics were identified, with 13 showing RPDs greater than 50 percent. Three analytes (cadmium, copper, and mercury) were reported at a greater concentration by EA Laboratories, and the remaining 10 were reported at a greater concentration by IT-Pa. Some of this inter-laboratory variation can be attributed to solids content. Aluminum is a useful indicator of solids content and IT-Pa reported a larger concentration for aluminum than EA Laboratories. Therefore, the apparent discrepancy may be due to matrix effects.

E.3.6 Upper Bedrock Groundwater

One upper bedrock groundwater sample (GW03I-01A) was collected in Round 1, and split in the field for separate analyses as a measure of the quality of the analytical data. A sample of upper bedrock groundwater (GW18I-01B) was collected and split in Round 2. The RPDs of the split Round 1 and Round 2 organic results are shown in Tables E-8 and E-9, and for the split Round 1 and 2 inorganic results in Tables E-10 and E-11.

E.3.6.1 Organics

In Round 1 sample GW03I-01A, 5 TCL volatile, 6 TCL semi-volatile, and 2 pesticide/PCB compounds were detected. All of the volatile results showed RPDs less than 50 percent, indicating acceptable inter-laboratory precision. Three of the 6 semi-volatile compounds were detected by EA Laboratories and not IT-Pa. However, this may be artifactual since the IT-Pa analyses appears to have been heavily diluted to permit quantification of toluic acid within the calibrated range. IT-Pa reported toluic acid isomer concentrations approximately 10 times that reported by EA Laboratories. The source of this discrepancy is not apparent from the information provided. The toluic acid concentrations reported by IT-Pa for this sample replaced those reported by EA Laboratories for the evaluation of the nature and extent of contamination and risk assessment.

In Round 2 sample GW18I-01B, 4 TCL volatile, 6 TCL semi-volatile, and 1 pesticide/PCB compounds were detected. Two of the 4 volatile compounds showed RPDs greater than 50 percent, with IT-Pa reporting the presence of these compounds which were not detected

by EA Laboratories. However, this discrepancy is not significant since the 2 analytes were present at trace levels. IT-Pa reported the presence of 3 toluic acid isomers when none were detected by EA Laboratories. The source of this variation is not apparent from the information provided. The toluic acid concentrations reported by IT-Pa for this sample replaced those reported by EA Laboratories for the evaluation of the nature and extent of contamination and risk assessment. IT-Pa reported 1 pesticide at trace levels which was not detected by EA Laboratories. This is not indicative of a significant discrepancy since this analyte was present at sub-SQL concentrations.

E.3.6.2 Inorganics

Table E-10 compares the inorganic results from the 2 laboratories. In Round 1 sample GW03I-01A, 18 inorganics were detected, with 5 (antimony, cobalt, copper, iron, and sodium) showing RPDs greater than 50 percent. Antimony was detected by IT-Pa but not EA Laboratories. This discrepancy is not significant since this analyte was present at a sub-SQL concentration. Cobalt was reported at a greater concentration by EA Laboratories; and iron, lead, and sodium were reported at greater concentrations by IT-Pa. The EA Laboratories results for lead and sodium were rejected based upon EPA usability criteria and were treated as non-detects for these comparisons. The remaining analytes showed acceptable inter-laboratory variation.

Table E-11 compares the inorganic results from the 2 laboratories for Round 2 sample GW18I-01B. In this sample, 16 inorganics were detected, with 3 (cadmium, cobalt, and nickel) showing RPDs greater than 50 percent. Cadmium was detected by EA Laboratories but not IT-Pa, and cobalt and nickel were detected by IT-Pa but not EA Laboratories. This is not indicative of a significant discrepancy since these analytes were present at sub-SQL concentrations. The remaining analytes showed acceptable inter-laboratory variation.

E.3.7 Deep Bedrock Groundwater

Two deep bedrock groundwater samples (GW02D-01A and GW-09D-01A) were collected in Round 1, and split in the field for separate analyses as a measure of the quality of the analytical data. Three samples of deep bedrock groundwater (GW-07D-01B, GW-15D-01B, and GW-16D-01B) and 1 sample from a sludge basin well (SPW-1) were collected and split in Round 2. The RPDs of the split Round 1 and Round 2 organic results are shown in Tables E-8 and E-9, and for the split Round 1 and 2 inorganic results in Tables E-10 and E-11.

E.3.7.1 Organics

Table E-8 compares the organic results from both laboratories for the Round 1 samples. In Round 1 sample GW02D, 11 TCL volatile compounds and 5 TCL semi-volatile were detected, with 10 showing RPDs greater than 50 percent. Four of the 6 volatile results which showed RPDs greater than 50 percent were calculated at a greater concentration by EA Laboratories. This discrepancy is not significant since these analytes were present at a sub-SQL concentration. Two of the 4 semi-volatile organics were reported at a greater concentration by EA Laboratories than IT-Pa. IT-Pa reported approximately 10 times greater

concentration for the *ortho-* and *para*-toluic acid isomers than reported by EA Laboratories. The source of this discrepancy is not apparent from the information provided. The toluic acid concentrations reported by IT-Pa for this sample replaced those reported by EA Laboratories for the evaluation of the nature and extent of contamination and risk assessment.

Round 1 sample GW09D-01A showed no detectable TCL volatile compounds for both laboratories. Two semi-volatile compounds were detected by IT-Pa below the SQL but were not detected by EA Laboratories. The results are indicative of acceptable inter-laboratory variation.

Table E-9 compares the organic results from both laboratories for the Round 2 samples. In Round 2 sample GW07D-01B, 8 TCL volatile, 9 TCL semi-volatile, and 4 pesticide/PCB compounds were detected, with 12 RPDs greater than 50 percent. One volatile compound was detected by IT-Pa and not EA Laboratories. This is not considered a significant discrepancy since the reported concentration was less than the SQL. Six of the 7 semi-volatile compounds were reported at a greater concentration by EA Laboratories than IT-Pa. Four of these were phenolic compounds which were present at sub-SQL concentrations and thus does not represent a significant discrepancy. EA Laboratories reported m-toluic acid when none was reported by IT-Pa. However, this discrepancy may have been due to the dilution required to obtain toluic acid within the calibrated range.

For Round 2 sample GW15D-01B, both laboratories reported no detectable analytes.

For Round 2 sample GW16D-01B, EA Laboratories reported no detectable analytes. IT-Pa detected 2 TCL volatiles and 1 TCL semi-volatile. This does not indicate a significant discrepancy since these compounds were present at sub-SQL concentrations.

Round 2 sample SPW-1 had 1 TCL volatile and 2 pesticide/PCB compounds detected, with all 3 showing RPDs greater than 50 percent. This does not indicate a significant discrepancy since these compounds were present at sub-SQL concentrations.

E.3.7.2 Inorganics

Table E-10 compares the laboratory inorganic results for the 2 Round 1 samples. Eighteen inorganics were detected in GW02D-01A, with 7 (chromium, copper, mercury, potassium, thallium, zinc, and cyanide) showing RPDs greater than 50 percent. Two of these analytes (mercury and thallium) were reported at a greater concentration by EA Laboratories than by IT-Pa, and 2 (zinc and cyanide) were detected by IT-Pa and not EA Laboratories. Copper and potassium were detected by IT-Pa but the EA Laboratories results were rejected based upon EPA usability criteria and were treated as non-detects for these comparisons. The remaining analytes showed acceptable inter-laboratory variation.

In Round 1 sample GW09D-01A, 11 inorganics were detected, with 3 (barium, copper, and mercury) showing RPDs greater than 50 percent. Copper and mercury were detected at a greater concentration by EA Laboratories, and barium was detected at a greater concentration

by IT-Pa. However, this discrepancy is not significant since the results were at or below the SQLs for all of these analytes. The remaining analytes showed acceptable inter-laboratory variation.

Table E-11 compares the laboratory inorganic results for the Round 2 samples. Round 2 sample GW07D-01B had 19 inorganics detected, with 10 showing RPDs greater than 50 percent. Seven analytes were reported at a greater concentration by EA Laboratories than IT-Pa, and 3 analytes reported at a greater concentration by IT-Pa. Some of this inter-laboratory variation can be attributed to solids content. Aluminum is a useful indicator of solids content and EA Laboratories reported a greater concentration for aluminum than IT-Pa. Therefore, the apparent discrepancy may be due to matrix effects.

In Round 2 sample GW015D-01B, 15 inorganics were detected with 4 (arsenic, barium, chromium, and nickel) showing RPDs greater than 50 percent. EA Laboratories reported a greater concentration for arsenic than reported by IT-Pa, and did not detect the remaining 3 analytes. However, this discrepancy is not significant since the reported concentrations were all below the SQL. The remaining analytes showed acceptable inter-laboratory variation.

In Round 2 sample GW16D-01B, 19 inorganics were detected, with 7 (antimony, arsenic, beryllium, cobalt, copper, nickel, and vanadium) showing RPDs greater than 50 percent. In all but 1 case (cadmium), these analytes were detected by IT-Pa but not EA Laboratories. However, this discrepancy is not significant since the reported concentrations were all below the SQL. The remaining analytes showed acceptable inter-laboratory variation.

In Round 2 sample SPW-1, 14 inorganics were detected, with 4 showing RPDs greater than 50 percent. Aluminum and iron were detected at a greater concentration by EA Laboratories than n IT-Pa, with the remaining 2 analytes reported by IT-Pa and not EA Laboratories. However, this discrepancy is not significant since the reported concentrations were all below the SQL. The remaining analytes showed acceptable inter-laboratory variation.

TABLE E-1 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULCATED RPDS FOR ORGANIC ANALYTES MEASURED IN LANDFILL SOIL BORINGS (ROUND 1)

	LANDFILL PERIMETER SOIL BORINGS						LANDFILL INTERIOR SOIL BORINGS								
Analytes Dep Uni	SB02 3.5-3.5 ft (ug/kg)	SPLIT SB02 3.5-3.5 ft (ug/kg)	RPD	SB09 2-4 ft (ug/kg)	SPLIT SB09 2-4 ft (ug/kg)	RPD	SB18 -03A 10-12 ft (ug/kg)	SPLIT SB18 -03A 10-12 ft (ug/kg)	RPD	SB23 -01A 10-12 ft (ug/kg)	SPLIT SB23 -01A 10-12 ft (ug/kg)	RPD	SB27 -01A 5 ft (ug/kg)	SPLIT SB27 -01A 5 ft (ug/kg)	RPD
VOLATILES															
Methylene Chloride							1,300 J		200	2 J		200			
Acetone	5 J		200							14 J		200			
2-Butanone															
Benzene							1,700 J		200						
Chloroform										1 J		200			
Trichloroethane															
Tetrachloroethene	2 J		200												
Toluene							1,100 J		200	2 J		200	330,000 J		200
Ethylbenzene															
Xylenes (Total)							170,000 J	61,000	94	44 J	5 J	159	21,000,000 J	32,000,000	-42
SEMI-VOLATILES															
	None	None													
Benzyl alcohal	Detected	Detected					51 J		200						
2-Methylphenol							54 J	120 J	-76						
4-Methylphenol															
2,4-Dimethylphenol															
Naphthalene							250 J	280 J	-11						
2-Methylnaphthalene							200 J	190	5						
Dimethyl Phthalate															
Acenaphthylene							130 J	130 J	0						
Acenaphthene							70 J	110 J	-44						
Dibenzofuran							140 J		200						
Diethylphthalate															
Fluorene							280 J	260 J	7						
N-Nitrosodiphenylamine															
Phenanthrene							2,600 J	1,300	67						
Anthracene							250 J	290 J	-15						
Dibenzo(a,h)anthracene							230 J		200						
Di-n-Butylphthalate															
Fluoranthene							1,500	1,400	7						
Pyrene							2,300 J		200						
Benzo(a)Anthracene							990 J	630 J	44						
bis(2-ethylhexyl)Phthalate							140 J	480 J	-110						
Chrysene							1,100 J	780 J	34						
Benzo(b)Fluoranthene							790 J	500 J	45						
Benzo(k)Fluoranthene							810 J	530 J	42						
Benzo(a)Pyrene							930 J	420 J	76						
Indeno(1,2,3-cd)Pyrene							560 J		200						
Benzo(g,h,i)Perylene							600 J		200						
Pentachlorophenol								250 J	-200						
o-Toluic Acid							2,000 J		200	62 J		200			
m-Toluic Acid							2,100 J	2,300	-9	1300		200			
p-Toluic Acid							190 J	9,300	-192	750		200			

TABLE E-2 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED RPDS FOR INORGANIC ANALYTES MEASURED IN LANDFILL SOIL BORINGS (ROUND 1)

	LANDFILL PERIMETER SOIL BORINGS						LANDFILL INTERIOR SOIL BORINGS								
Analytes Depths Units	SB02 3.5-5.5 ft (mg/kg)	SPLIT SB02 3.5-5.5 ft (mg/kg)	*RPD*	SB09 2-4 ft (mg/kg)	SPLIT SB09 2-4 ft (mg/kg)	*RPD*	SB18 -03A (mg/kg)	SPLIT SB18 -03A (mg/kg)	*RPD*	SB23 -01A (mg/kg)	SPLIT SB23 -01A (mg/kg)	*RPD*	SB27 -01A (mg/kg)	SPLIT SB27 -01A (mg/kg)	*RPD*
Aluminum	16,200	12,400	*27*	17,400	13,100	*28*	6,620	6,390	*4*	12,600	12,500	*1*	552	1,000	*-58*
Antimony		33	*-200*	5 J	33 J	*-145*	3 J		*200*		27	*-200*		11.5	*-200*
Arsenic	5 J	5	*10*	5 J	6	*-22*	5 J	3	*48*	9 J	6	*49*	1		*200*
Barium	103	81	*24*	78	79	*-1*	58	168	*-97*	76	79	*-3*	7		*200*
Beryllium	1	1	*-33*	1	1 B	*4*	0.36		*200*	1		*200*			
Cadmium	5 J	1	*110*	5 J	1 B	*141*	4 J	1	*90*	4		*200*	1.6	0.8	*69*
Calcium	87,300	70,300	*22*	52,500 B	46,500	*12*	50,500	89,500	*-56*	23,400 B	14,000	*50*	1,570 B	2,400	*-42*
Chromium	17 J	22	*-23*	21 J	20	*4*	27 J	75	*-93*	15	19	*-22*	4.2	4.3	*-2*
Cobalt	10	11 B	*-10*	11	13	*-20*	13	52	*-122*	8	10	*-26*	4,230	3,720	*13*
Copper	25	36	*-34*	26	36	*-33*	33	71	*-74*	20	26	*-27*	6.4	11.6	*-58*
Iron	25,700	19,000	*30*	21,300	21,600	*-1*	11,100	50,000	*-127*	24,300	21,300	*13*	8,530	8,240	*3*
Lead	11	9	*20*	11	9	*13*	58	178	*-102*	11 J	13	*-14*	1.9	10.8	*-140*
Magnesium	30,600 B	21,300	*36*	16,900 B	17,600	*-4*	7,560 B	14,100	*-60*	14,000 B	9,000	*43*	725	1,100	*-41*
Manganese	469	509	*-8*	681	701	*-3*	465	455	*2*	628	613	*2*	45.9	71.6	*-44*
Mercury				0.10		*200*	0.15	0.34	*-78*						
Nickel	26	26	*2*	28	31	*-10*	23	46	*-65*	21	24	*-16*	20.6	29.3	*-35*
Potassium	2,570	2,270	*12*	2,940	1,930	*41*	1,780	2,830	*-46*	1,390	1,820	*-27*	146		*200*
Selenium				0.40 J		*200*				0.13 J		*200*			
Silver	3 J	1 B	*121*	2 J	1 B	*103*	3.8 J		*200*	1 J	1	*76*			
Sodium	302 B	257 B	*16*	92 B	116 B	*-23*	3,570	9,450	*-90*	388 B	593 B	*-42*	90.1 B		*200*
Thallium					0.25 J	*-200*					0.23	*-200*			
Vanadium	17	20	*-11*	20	20	*0*	10.3		*200*	16	23	*-35*	0.61 B		*200*
Zinc	46 R	49	*-200*	45 R	45	*-200*	1,980	1,260		39	43	*-10*	26.4	19.7	*29*
Cyanide	1 J		*200*												

TABLE E-3 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULCATED RPDS FOR ORGANIC ANALYTES MEASURED IN NORTH AREA SOIL BORINGS (ROUND 2)

Analytes Units	MW5-SB04 (ug/kg)	SPLIT MW5-SB04 (ug/kg)	RPD	MW5-SB05 (ug/kg)	SPLIT MW5-SB05 (ug/kg)	RPD	MW5-SB16 (ug/kg)	SPLIT MW5-SB16 (ug/kg)	RPD
VOLATILES									
Acetone				22 J		*200*	20 BJ	31	*-43*
2-Butanone				15 J		*200*	13 J	6 J	*74*
Toluene							2 J		*200*
Ethylbenzene					350 J	*-200*	6 J		*200*
Xylenes (Total)	52,000 D	1,100,000	*-182*	120,000 D	98,000	*20*			
SEMI-VOLATILES									
2-Methylphenol				1,400 J	1,100 J	*24*			
4-Methylphenol				2,400 J	1,600 J	*40*			
2,4-Dimethylphenol				2,900 J	3,200 J	*-10*			
Naphthalene	1,200	1,100	*9*	590 J	800 J	*-30*			
2-Methylnaphthalene	120 J		*200*						
Fluorene				4,100 J		*200*			
Phenanthrene	32 J	140 J	*-126*		660 J	*-200*			
Di-n-Butylphthalate								61 BJ	*-200*
Fluoranthene	29 J	120 J	*-122*	600 J	780 J	*-26*			
Pyrene	26 J	100 J	*-117*		620 J	*-200*			
Benzo(a)Anthracene		44 J	*-200*						
bis(2-ethylhexyl)Phthalate	52 BJ	110 J	*-72*		970 J	*-200*			
Chrysene		61 J	*-200*						
Benzo(b)Fluoranthene		57 J	*-200*		550 J	*-200*			
Pentachlorophenol					2,900 DJ	*-200*			
o-Toluic Acid		560 J	*-200*		160,000 D	*-200*			
m-Toluic Acid		110 J	*-200*	46,000 J	64,000	*-33*			
PESTICIDES/PCBs									
44'-DDE	None	71 DP	*-200*		170 DP	*-200*		2 J	*-200*
44'-DDD	Detected	610 D	*-200*		440 DP	*-200*			
44'-DDT		370 D	*-200*						
Heptachlor epoxide					98 PD	*-200*			
Endosulfan I					3 P	*-200*			
Dieldrin					120 PD	*-200*			
Endosulfate sulfate					650 DP	*-200*			
alpha-Chlordane					81 Z	*-200*			
Endrin					320 D	*-200*			
Endosulfan II					240 DP	*-200*			
Methoxychlor					520 DP	*-200*			
Endrin ketone					230 DP	*-200*			
gamma-Chlodane					370 P	*-200*			
Aroclor 1254					2800 DP	*-200*			

TABLE E-4 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED RPDS FOR INORGANIC ANALYTES MEASURED IN NORTH AREA SOIL BORINGS (ROUND 2)

Analytes Units	MW5-SB04 (mg/kg)	SPLIT MW5-SB04 (mg/kg)	*RPD*	MW5-SB05 (mg/kg)	SPLIT MW5-SB05 (mg/kg)	*RPD*	MW5-SB16 (mg/kg)	SPLIT MW5-SB16 (mg/kg)	*RPD*
Aluminum	6,360	8,320	*-27*	16,500	10,500	*44*	4,820	Not	
Antimony		3.2	*-200*				1.3	Analyzed	
Arsenic	2.9 J	3.9 B	*-29*	8.3 J	4.3 S	*64*	6.7		
Barium	26.0 J	33.9 B	*-26*	269	288	*-7*	45.2		
Beryllium	0.33 B	0.38 B	*-14*	0.95	0.49 B	*64*	0.45		
Cadmium	1.1 J		*200*	5.8 J	0.8 J	*150*	1.4 J		
Calcium	161,000	108,000	*39*	6,940	18,200	*-90*	95,700		
Chromium	9.7 J	10.5 B	*-8*	77.3 J	93.8	*-19*	9.0		
Cobalt	5.7	6.2 B	*-8*	22.5 J	16.1	*33*	12.1		
Copper	15.2	14.9	*2*	165	207	*-23*	304.0 J		
Iron	12,500	12,700	*-2*	32,300	16,400	*65*	17,500		
Lead	5.6 S	7.7 S	*-32*	30.2 J	534.0 BS	*-179*	14.4 J		
Magnesium	18,800	17,300	*8*	6,890	7,100	*-3*	8,910 J		
Manganese	357	353	*1*	270	197	*31*	924		
Mercury				5.0 J	8.3	*-50*	0.12 J		
Nickel	16.0 J	13.7 B	*15*	43.3 J	20.0 B	*74*	30.7 J		
Potassium	1,350	1,770	*-27*	3,080	3,120	*-1*	958		
Selenium				0.17 J	0.67 BW	*-119*			
Silver					8.0 B	*-200*			
Sodium	135 B	148 B	*-9*	1,570 J	1,110 B	*34*	251		
Thallium					0.55	*-200*	0.21		
Vanadium	10.8 J	14.5	*-29*	26.3 J	19.6	*29*	11.2		
Zinc	22.5	23.6	*-5*	310.0	167.0	*60*	552.0		
Cyanide									

TABLE E-5 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION FOR ORGANIC ANALYTES IDENTIFIED IN SKANEATELES CREEK SEDIMENT

Analytes Depth Units	SD03 -01A (ug/kg)	SPLIT SD03 -01A (ug/kg)	RPD
VOLATILES			
Acetone		28 J	*-200*
Tetrachloroethene	16	6	*91*
Xylenes (Total)	2 J		*200*
SEMI-VOLATILES			
Naphthalene	1,100		*200*
2-Methylnaphthalene	700 J		*200*
Acenaphthene	1,900		*200*
Dibenzofurn	2,500		*200*
Fluorene	2,400		*200*
Phenanthrene	11,000	170 J	*194*
Anthracene	3,600		*200*
Fluoranthene	10,000	420 J	*184*
Pyrene	15,000	390 J	*190*
Benzo(a)Anthracene	4,700	260 J	*179*
Chrysene	4,500	280 J	*177*
Benzo(b)Fluoranthene	3,800	500 J	*153*
Benzo(k)Fluoranthene	3,500	190 J	*179*
Benzo(a)Pyrene	4,600	390 J	*169*
Indeno(1,2,3-cd)Pyrene	3,000		*200*
Dibenzo(a,h)anthracene	1,600		*200*
Benzo(g,h,i)Perylene	3,200		*200*
Pentachlorophenol			
o-Toluic Acid		1,000 J	*-200*
m-Toluic Acid		750 J	*-200*
p-Toluic Acid			

TABLE E-6 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED RPDS FOR ORGANIC ANALYTES MEASURED IN CREEK SEEPS AND SEEP SEDIMENT

Analytes Depth Units	CS01 -01A (ug/L)	SPLIT CS01 -01A (ug/L)	RPD	CS03 -01A (ug/L)	SPLIT CS01 -01A (ug/L)	RPD	SS03 -01A (ug/kg)	SPLIT SS03 -01A (ug/kg)	RPD
VOLATILES									
Methylene Chloride		28 J	*-200*	9	78 J	*-159*	3 J		*200*
Acetone					9	*-200*			
1,2-Dichloroethene				670	880	*-27*	84	240	*-96*
Trichloroethene				260	380	*-38*	54	110	*-68*
Tetrachloroethene				100	140	*-33*	34	55	*-47*
Toluene				53	95	*-57*	13	32	*-84*
Xylenes (Total)				570	790	*-32*	200	370	*-60*
SEMI-VOLATILES									
Phenol				81		*200*			
2-Methylphenol				16 J		*200*			
4-Methylphenol				11 J		*200*			
2,4-Dimethylphenol							190 J	110 J	*53*
Diethylphthalate								510 J	*-200*
Anthracene				1 J		*200*			
Dibenzo(a,h)anthracene									
Di-n-Butylphthalate								740	*-200*
Fluoranthene								70 J	*-200*
Pyrene								57 J	*-200*
bis(2-ethylhexyl)Phthalate	1 J	1 J	*0*	2 J		*200*		120 J	*-200*
Pentachlorophenol		2 J	*-200*						
Butylbenzyl phthalate		1 J	*-200*						
o-Toluic Acid				79,000	510,000	*-146*	7,200	1,800	*120*
m-Toluic Acid				40,000	250,000	*-145*	4,800	7,200	*-40*
p-Toluic Acid				8,800	71,000	*-156*	710	1,100 J	*-43*

TABLE E-7 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION
FOR INORGANIC ANALYTES MEASURED IN CREEK SEEPS AND SEEP SEDIMENT

Analytes Depths Units	CS01 -01A (ug/L)	SPLIT CS01 -01A (ug/L)	RSD	CS03 -01A (ug/L)	SPLIT CS03 -01A (ug/L)	RSD	SS03 -01A (ug/kg)	SPLIT SS03 -01A (ug/kg)	RSD
Aluminum	1,710	2,140 J	*-22*	29,300	23,500 J	*22*	8,610	7,690	*11*
Antimony	114 J		*200*	269		*200*			
Arsenic	5.7 B	5.2 J	*9*	170	1,443 J	*-158*	2	4	*-46*
Barium	164 B	148 J	*10*	491	402 J	*20*	119 J	105	*13*
Beryllium				1.8 B	1.4 B	*25*	0.49 B	0.40 B	*20*
Cadmium				8.7 J		*200*	2		*200*
Calcium	72,200	86,200 J	*-18*	51,500	19,600 J	*90*	11,660	11,000	*6*
Chromium	8.0 B	6.4 B	*22*	92.4	61.0	*41*	18	15	*19*
Cobalt		6 B	*-200*	28.3 B	27.0 B	*5*	8 B	9 B	*-6*
Copper	29.1	95.8	*-107*	158 J	66	*82*	30 J	24	*20*
Iron	8,840	8,890 J	*-1*	34,600	32,100 J	*7*	16,000	13,900	*14*
Lead	87.6	250.0 J	*-96*	194	76 J	*88*	24	31	*-25*
Magnesium	12,500	18,600 J	*-39*	16,300	9,460 J	*53*	7,680	7,370	*4*
Manganese	785	629 J	*22*	778	450 J	*53*	185	168	*10*
Mercury	1.1 J	1.9	*-53*	1.3 J	0.5	*87*	0.14	0.20	*-35*
Nickel		40.0	*-200*	238	199	*18*	19 J	22	*-14*
Potassium	2,450 B	2,360 B	*4*	13,000	8,950	*37*	926	879 B	*5*
Selenium							0.25 J	0.33 B	*-28*
Silver									
Sodium	31,300	30,000 J	*4*	2,670,000	2,460,000 J	*8*	4,810	4,040	*17*
Thallium				1.3 B		*200*	0.23 B		*200*
Vanadium				172 J	142 J	*19*	13	19 B	*-38*
Zinc	51.4 J	178.0	*-110*	244 J	171	*35*	52 J	56 J	*-7*
Cyanide					25.5	*-200*	2.2 J		*200*

TABLE E-8 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION FOR ORGANIC ANALYTES
MEASURED IN GROUNDWATER (ROUND 1)

Analytes	OVERBURDEN WELLS						UPPER BEDROCK WELL			DEEP BEDROCK WELLS					
Depth Units	GW01S 01A (ug/L)	SPLIT MW01S 01A (ug/L)	RPD	GW04S 01A (ug/L)	SPLIT GW04S 01A (ug/L)	RPD	GW03I 01A (ug/L)	SPLIT MW03I 01A (ug/L)	RPD	GW02D -01A (ug/L)	SPLIT MW02D -01A (ug/L)	RPD	GW09D -01A (ug/L)	SPLIT MW09D -01A (ug/L)	RPD
VOLATILES															
Methylene Chloride											1 J	*-200*	None	None	
Acetone										20	21	*-5*	Detected	Detected	
2-Butanone										2 J	2 J	*0*			
Benzene										2 J		*200*			
Chloroform											1 J	*-200*			
Trichloroethane										4 J	3 J	*29*			
Tetrachloroethene				2 J		*200*	2,300	2,900	*-23*	9	6 J	*40*			
Toluene							68	83 J	*-20*	6	1 J	*143*			
Ethylbenzene										2 J		*200*			
Xylenes (Total)				4 J	5	*-22*	2,100	1,800	*15*	150	120	*22*			
1,2-Dichloroethene							160	130	*21*	2 J		*200*			
Trichloroethene							190	150	*24*						
SEMI-VOLATILES															
Phenol				None	None		34 J		*200*						
Benzyl alcohal				Detected	Detected		14 J		*200*						
Pentachlorophenol										5 J		*200*			
Nitrobenzene							11 J		*200*						
2-Methylnaphthalene										29		*200*			
Di-n-Butylphthalate														2 J	*-200*
bis(2-ethylhexyl)Phthalate		3 J	*-200*												
o-Toluic Acid							78,000	750,000	*-162*	5,460	47,000	*-158*		4 J	*-200*
m-Toluic Acid							50,000	480,000	*-162*	3,600	3,700	*-3*			
p-Toluic Acid							5,400 J	27,000 J	*-133*	400	3,900 J	*-163*			
PESTICIDES/PCBs															
4,4'-DDE	None	None		None	None		None	0.29	*-200*						
BHC	Detected	Detected		Detected	Detected		Detected	0.12	*-200*						

TABLE E-9 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION FOR ORGANIC ANALYTES MEASURED IN GROUNDWATER (ROUND 2)

Analytes / Depth / Units	OVERBURDEN WELL GW05S 01B (ug/L)	SPLIT GW05S 01B (ug/L)	RPD	LEACHATE WELL LFP-1 (ug/L)	SPLIT LFP-1 (ug/L)	RPD	UPPER BEDROCK GW18I 01B (ug/L)	SPLIT GW18I 01B (ug/L)	RPD
VOLATILES									
Methylene Chloride									
Acetone									
2-Butanone									
Tetrachloroethene									
Toluene	270 J		*200*	140 J		*200*		1 J	*-200*
Xylenes (Total)	28,000	27,000 EX	*4*	7,900	4,000 X	*66*	490 D	600 EX	*-20*
1,2-Dichloroethene									
Trichloroethene								5 J	*-200*
Chloroethane							3 J	4 J	*-29*
1,1-Dichloroethane									
Carbon Disulfide									
SEMI-VOLATILES									
Phenol	12		*200*		1,700 J	*-200*			
2-Methylphenol	13		*200*						
4-Methylphenol	150 J		*200*						
2,4-Dimethylphenol		170 J	*-200*		640 J	*-200*	7 J	6 J	*15*
Naphthalene	11		*200*				3 J	2 J	*40*
Phenanthrene	5 J		*200*						
Anthracene	0.8 J		*200*						
Di-n-butyl phthalate									
Fluoranthene	2 J		*200*						
Pyrene	1 J		*200*						
bis(2-ethylhexyl)Phthalate				0.7 J		*200*	1 J		*200*
Carbazole	3 J		*200*						
Pentachlorophenol	2 J		*200*						
o-Toluic Acid	6,300 DJ	9,000	*-35*	30,000 DJ	100,000	*-108*		67	*-200*
m-Toluic Acid	4,800 DJ	6,800	*-34*	78,000 DJ	170,000	*-74*		7 J	*-200*
p-Toluic Acid	270 J	380 J	*-34*	23,000 J	23,000 J	*0*		4 J	*-200*
PESTICIDES/PCBs									
Dieldrin	None Detected	None Detected			0.052 P	*-200*		0.0051 JP	*-200*
Lindane					0.098 P	*-200*			
Heptachlor epoxide					0.11	*-70*			
4,4'-DDE				0.053	3.7 p	*-200*			
Aroclor 1248									
Methoxychlor									

TABLE E-9 (Continued)

Analytes / Depth / Units	DEEP BEDROCK									SLUDGE BASIN WELLS		
	GW07D 01B (ug/L)	SPLIT GW07D 01B (ug/L)	RPD	GW15D 01B (ug/L)	SPLIT GW15D 01B (ug/L)	RPD	GW16D 01B (ug/L)	SPLIT GW16D 01B (ug/L)	RPD	SPW-1 (ug/L)	SPLIT SPW-1 (ug/L)	RPD
VOLATILES												
Methylene Chloride				None	None		None	3 J	-200			
Acetone	47 J	31	41	Detected	Detected		Detected					
2-Butanone		7 J	-200									
Tetrachloroethene	11	11	0									
Toluene	4 J	3 J	29									
Xylenes (Total)	330	240 X	32								1 JX	-200
1,2-Dichloroethene	4 J	5 JX	-22									
Trichloroethene	4 J	4 J	0									
Chloroethane												
1,1-Dichloroethane	5 J	4 J	22									
Carbon Disulfide								1 J	-200			
SEMI-VOLATILES												
Phenol	35 J		200	None	None		None					
2-Methylphenol	10 J		200	Detected	Detected		Detected					
4-Methylphenol	9 J		200									
2,4-Dimethylphenol												
Naphthalene	1 J		200									
Phenanthrene												
Anthracene												
Di-n-butyl phthalate								3 J	-200			
Fluoranthene												
Pyrene												
bis(2-ethylhexyl)Phthalate												
Carbazole	60 J		200									
Pentachlorophenol		4 J	-200									
o-Toluic Acid	17,000 DJ	16,000 E	6									
m-Toluic Acid	1,300 DJ		200									
p-Toluic Acid	17,000 DJ	16,000 E	6									
PESTICIDES/PCBs												
				None	None		None	None				
Dieldrin		0.011 J	-200	Detected	Detected		Detected	Detected			0.0071 J	-200
Lindane		0.0072 JP	-200									
Heptachlor epoxide		0.021 J	-200									
4,4'-DDE	0.14 J	0.067 J	71									
Aroclor 1248												
Methoxychlor											0.071 JP	-200

TABLE E-10 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION FOR INORGANIC ANALYTES MEASURED IN GROUNDWATER (ROUND 1)

	OVERBURDEN WELLS						UPPER BEDROCK WELLS			DEEP BEDROCK WELLS					
Analytes Depths Units	GW01S -01A (ug/L)	SPLIT GW01S -01A (ug/L)	RPD	GW04S -01A (ug/L)	SPLIT GW04S -01A (ug/L)	RPD	GW03I -01A (ug/L)	SPLIT GW03I -01A (ug/L)	RPD	GW02D -01A (ug/L)	SPLIT GW02D -01A (ug/L)	RPD	GW09D -01A (ug/L)	SPLIT GW09D -01A (ug/L)	RPD
Aluminum	19,300	21,500	-11	885 J	654 J	30	156 J	173 J	-10	281	289	-3	220	160 B	32
Antimony								38 B	-200						
Arsenic		1.7 B	-200	3.0 J	3.1 B	-4	47 J	44	6	73.3	74.2	-1			
Barium	385 J	304	24	64 J	47 B	31	41 J	34 B	19	46.2 B	46.8 B	-1	37 B	76 B	-70
Beryllium	1 R	1 B	-200												
Cadmium															
Calcium	504,000	408,000	21	43,400	39,000	11	6,270	6,700	-7	27,600	28,800	-4	63,200	62,900	0
Chromium	43.2 J	45.7	-6	6 J	3 B	49	41 J	38	9		4.5 B	-200			
Cobalt	27 B	30 B	-8		3 B	-200	17 B	10 B	51						
Copper	80.2 J	63.8	23	15 J	8 B	63	63 J	62	2	36 R	13.1 B	-200	10 B	4 B	84
Iron	69,800 J	86,100	-21	1,970 J	1,530	25	1,900 J	4,300	-77	960	1,380	-36	678	1120	-49
Lead	26.7	18.7	35	7 R	4	-200	63 R	67	-200	2.1 J	2.4 B	-13			
Magnesium	119,000	124000	-4	10,200	9,860	3	904 B	943 B	-4	10,300 J	10,100	2	14,300	14,000	2
Manganese	1,460 J	1,240	16	578 J	495	15	122 J	118	3	31 J	30	4	8 B	10 B	-18
Mercury										1.2	0.21	140	1 J		200
Nickel	50.7 J	66.7	-27	203 J	19 B	166	65 J	84	-24	27 B	26 B	4			
Potassium	4,890 B	7,480	-42	4,270 B	4,320 B	-1	48,100	51,700	-7	2,740 R	1,640 B	-200	2,360 B	2,460 B	-4
Selenium															
Silver															
Sodium	71,400 R	48,700	-200	246,000 R	202,000	-200	2,130,000 R	2,240,000	-200	1,070,000	1,030,000	4	31,100	30,600	2
Thallium										1 B		200			
Vanadium	32.3 R	41.0 B	-200		5 B	-200	79 J	88	-11	21 B	25 B	-14			
Zinc	163	130 J	23	26.1	20.3	25	23	34	-40		16 B	-200	20	13 B	41
Cyanide							12	9 B	29		14	-200			

TABLE E-11 ANALYTICAL QUALITY ASSURANCE SPLITS AND CALCULATED PRECISION
FOR INORGANIC ANALYTES MEASURED IN GROUNDWATER (ROUND 2)

	OVERBURDEN WELL			LEACHATE WELL			UPPER BEDROCK		
Analytes Depths Units	GW05S -01B (ug/L)	SPLIT GW05S -01B (ug/L)	*RPD*	LFP-1 (ug/L)	SPLIT LFP-1 (ug/L)	*RPD*	GW18I -01B (ug/L)	SPLIT GW18I -01B (ug/L)	*RPD*
Aluminum	14,000	16,700	*-18*	5,500	15,000	*-93*	410	353	*15*
Antimony	34.9 D	46.6	*-29*						
Arsenic	45.2	66.6 SN	*-38*	33.2	29.7 SN	*11*	3.9 B	6.3 BN	*-47*
Barium	490.0	499	*-2*		120 B	*-200*	190 B	208	*-9*
Beryllium	1.1 B	1.2 B	*-9*		1.2 B	*-200*			
Cadmium				4.5 B		*200*	5.0		*200*
Calcium	35,800	37,200	*-4*	13,200	34,600	*-90*	86,300	93,100	*-8*
Chromium	172	195	*-13*	77	134	*-54*	13.1	9.9 B	*28*
Cobalt	28.8 B	28.7 B	*0*	50.6	62.7	*-21*		3.1 B	*-200*
Copper	1,320	1,390	*-5*	611	111	*139*	10.1 B	7.0 B	*36*
Iron	31,100	35,900	*-14*	7,000	22,200	*-104*	35,300	39,000 E	*-10*
Lead	1370	1990	*-37*		149	*-200*	12.2	14.5	*-17*
Magnesium	11,100	12200	*-9*	2,650 B	10,400	*-119*	20,100	21,600	*-7*
Manganese	651	700.0	*-7*	299	920	*-102*	792	846	*-7*
Mercury	5.0	4.6	*8*	1.6	0.88	*58*			
Nickel	93.1	104.0	*-11*	72.4	82.0	*-12*		24.6 B	*-200*
Potassium	20,200	22,600 E	*-11*	466,000 B	426,000 E	*9*	4,490 B	4,420 B	*2*
Selenium	1.5 B		*200*						
Silver		3.6 B	*-200*						
Sodium	577,000	596,000	*-3*	3,290,000	2,930,000	*12*	101,000	108,000	*-7*
Thallium		1.3 BW	*-200*		1.4 BWN	*-200*			
Vanadium	75.6	90.6	*-18*	51.2	61.0	*-17*			
Zinc	1,080	1,010	*7*	747	690	*8*	33.8 J	35.4	*-5*
Cyanide									

TABLE E-11 (Continued)

Analytes / Depths / Units	DEEP BEDROCK WELL									SLUDGE BASIN WELL		
	GW07D -01B (ug/L)	SPLIT GW07D -01B (ug/L)	*RPD*	GW15D -01B (ug/L)	SPLIT GW15D -01B (ug/L)	*RPD*	GW16D -01B (ug/L)	SPLIT GW16D -01B (ug/L)	*RPD*	SPW-1 (ug/L)	SPLIT SPW-1 (ug/L)	*RPD*
Aluminum	789	374	*71*	1,870	1,680	*11*	993	1,030	*-4*	100 B		*200*
Antimony	3.9 BJ	55.2 B	*-174*					19.7 B	*-200*			
Arsenic	149 J	151 N	*-1*	2.0 BJ	1.2 BN	*50*		2.0 BN	*-200*			
Barium		69.6 B	*-200*		70.1 B	*-200*	188 B	167 B	*12*	91.0 B	106 B	*-15*
Beryllium												
Cadmium		3.0 J	*-200*				9.1 J		*200*			
Calcium	16,100	13,600	*17*	69,300	69,600	*-0*	122,000	117,000	*4*	70,500	80,600	*-13*
Chromium	332.5	27.2	*170*		6.7 B	*-200*	19.2	20.2	*-5*			
Cobalt								7.0 B	*-200*		4.2 B	*-200*
Copper	35.8	27.0	*28*	10.5 B	7.5 B	*33*		11.2 B	*-200*	16.8 B	27.8	*-49*
Iron	15,600	8,020 E	*64*	7,750	9,740 E	*-23*	55,200	45,000	*20*	470	272 E	*53*
Lead	11.0 B	1.1 BW	*164*	2.9 B	2.7 B	*7*	1.8 BJ	2.8 B	*-43*	2.8 B	4.4	*-44*
Magnesium	999 B	793 B	*23*	19,900	19,400	*3*	46,000	43,400	*6*	19,900	22,600	*-13*
Manganese	144 J	96	*41*	158 J	182	*-14*	589	516	*13*	206	128	*47*
Mercury	0.36	0.34	*6*									
Nickel	68.0	49.1	*32*		13.9 B	*-200*		13.5 B	*-200*	37.3 B	39.5 B	*-6*
Potassium	9,290	1,440	*146*	2,360 B	2,630 B	*-11*	8,610	8,220	*5*	1,440 B	1,640 B	*-13*
Selenium												
Silver												
Sodium	4,220,000	4,230,000	*-0*	10,800	11,500	*-6*	68,500	63,600	*7*	26,400	29,300	*-10*
Thallium												
Vanadium	141.0	115.0	*20*	5.0 B	5.9 B	*-17*		3.2 B	*-200*		3.3 B	*-200*
Zinc	92 J	46	*66*	49 J	37	*29*	99.3	96.5	*3*	54.6 J	40.7	*29*
Cyanide	12		*200*									

INORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	Stauffers Management Company,Skaneateles Falls, NY.
Sample Type:	Aqueous(8)
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931235

A. INTRODUCTION:

Eight aqueous samples were analyzed for TAL metals. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (1991)/USEPA Region 2 Standard Operating Procedure NO. HW-2 (Revision XI January 30, 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument calibration
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- CRDL standards for AA (CRA), and ICP (CRI)
- Initial calibration blank (ICB), continuing calibration blank (CCB), and preparation blank (PB)
- ICP interference check sample (ICS) analysis
- Spike sample analysis (S)
- Duplicate sample analysis (D)
- Laboratory control sample (LCS)
- ICP serial dilution analysis (L)
- Instrument detection limit (IDL) determination
- Interelement correction for ICP
- Linear Range analysis
- Furnace QC analysis

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site:	Stauffers Management Company,Skaneateles Falls, NY.
Analysis Type:	TAL Metals.
Laboratory:	EA Laboratories
Report No.:	931235

Sample Identification:

Field ID	Lab ID
GW14I01B	T10183
GW1I01B	T10184
GW2I01B	T10185
GW7I01B	T10187
GW12S01B	T10214
GW5S01B	T10215
GWLFP101B	T10216
GWLFP201B	T10217

1. Sample Holding Time Before Analysis: All metal analyses were performed within ASP and USEPA prescribed holding times.

2. Instrument Calibration: All instruments were calibrated daily and dates and times clearly shown on the raw data.The proper sequence of the instrument blanks and standards were used. A three-point calibration for ICP and at least four-point calibration for furnace AA were used as required by the NYSDEC ASP.

3. Initial and Continuing Calibrations Verifications: The percent recovery for all analytes were within the prescribed window (90-110%). The ICV and the CCV standards were analyzed at the correct frequency in the injection sequence.

4. CRDL Standards for AA (CRA) and ICP (CRI): The CRDL standards were run at the frequency and appropriate concentration for each analyte. The percent recovery for silver (147.1 and 149.2%) were outside the control limit(80-120%). No action was required since the samples concentrations were non-detects.

5. Laboratory Blanks: All laboratory blanks were analyzed at the correct frequency during the injection sequence. The aqueous calibration and preparation blanks contained traces of copper, potassium,calcium, thallium, magnesium,iron, and silver. All the concentrations were below the CRDL. No action was required.

6. ICP Interference Check Sample (ICS) Analysis: The interference check sample percent recoveries were all within the acceptable window (80-120%).

7. Spiked Sample Analysis: The spike recoveries were outside acceptable range(75-125%) for arsenic(29.3),iron(210.4%),selenium(50.6%),lead(73.8%), and thallium(57.5%). The laboratory correctly qualified the results with an "N". Iron was not qualified since sample concentration >4x spike added.

Action:

Arsenic was rejected "R" in samples GW14I01B,GW1I01B,GW2I01B, GW7I01B, GW12S01B,GW5S01B,GWLFP101B, and GWLFP201B.

Lead was qualified with a "J" in samples GW14I01B,GW12S01B, GWLFP201B,GW05S01B, and GW7I01B.

Selenium was qualified with a "UJ" in samples GW14I01B,GW2I01B, GW7I01B,GW12S01B, and GWLFP101B.

Selenium was qualified with a "J" in samples GW5S01B.

Thallium was qualified with a "J" in samples GW14I01B,GW1I01B, GW2I01B,GW7I01B,GW12S01B,GW5S01B, GWLFP101B, and GWLFP201B.

8. Post-digestion Spike Analysis: The post-digestion spike analyses was not performed for any of the analytes tha exceeded the acceptable range. No action was required.

9. Duplicate Sample Analysis: The duplicate analyses were performed on aqueous samples. Cobalt,lead, and sodium were non-compliant due to duplicate analysis. The lab incorrectly qualified sodium with asterick(*). No action was required for cobalt,lead, and sodium since the diferrence between sample and duplicate was less than one times the CRDL for all the analytes.

10. Laboratory Control Sample Analysis: The laboratory control sample analysis was analyzed at the correct frequency. All percent recoveries were within acceptable range (80-120%).

11. ICP Serial Dilution Analysis: The ICP serial dilution were performed on both soil and aqueous samples. The percent difference for chromium(100%),nickel(100%), copper(46.4%), and vanadium(100%) were outside the control limit(10%). No action was required for chromium,nickel, and vanadium since the initial sample concentration was less than 10X IDL.

Action:

Copper was qualified with a "J" in samples GW1I01B,GW2101B, GW7I01B,GW5S01B,GWLFP01B, and GWLFP201B for serial dilution.

12. Instrument Detection Limit Analysis: The IDLs were generated in 12/30/92 by the laboratory. All the IDLs were lower than the CRDLs.

13. Interelement Correction for ICP: Interelement correction factor applied to aqueous data.

14. Linear Range Analysis: The linear range for the ICP was supplied by the laboratory. A comparison of the Form 1 results to Form XII showed that the observed concentrations of the analytes were within the linear range. The linear range was not determined quaterly. No action was required.

15. Furnace QC Analysis: The analytical spike recovery for lead(10.7,0.0,and 9.0%) selenium(1.9%) were out of control limits (85-115%), while sample absorbencies were less than 50% of spike absorbencies. The laboratory correctly qualified the results with a "W". The thallium and arsenic results were previously qualified for spike recovery.

Action:

Selenium was rejected "R" in sample GW1I01B.

Lead was rejected "R" in samples GW1I01B,GW2I01B, and GWLFP101B.

16. Calculations: All checked calculations were within rounding errors.

17. Other Q.C.: None.

C. DATA LIMITATION OVERVIEW:

The inorganic analyses of water and soil samples from the SMC Skaneateles Falls,NY referenced as Report No. 931235,showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

Arsenic was rejected "R" in GW14I01B,GW1I01B,GW2I01B,GW7I01B, GW12S01B,GW5S01B,GWLFP101B, and GWLFP201B for spike recovery.

Lead was qualified with a "J" in GW14I01B,GW12S01B,GWLFP201B, GW5S01B, and GW7I01B for spike recovery.

Selenium was qualified with a "UJ" in samples GW14I01B,GW2I01B, GW7I01B,GW12S01B, and GWLFP101B for spike recovery.

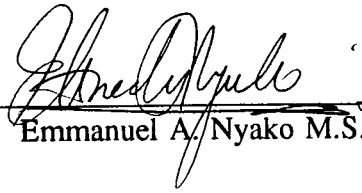
Selenium was qualified with a "J" in samples GW5S01B for spike recovery.

Thallium was qualified with a "J" in samples GW14I01B,GW1I01B, GW2I01B,GW7I01B,GW12S01B,GW5S01B, GWLFP101B, and GWLFP201B for spike recovery.

Copper was qualified with a "J" in samples GW1I01B,GW2101B, GW7I01B,GW5S01B,GWLFP01B, and GWLFP201B for serial dilution.

Selenium was rejected "R" in sample GW1I01B for furnace analysis.

Lead was rejected "R" in samples GW1I01B,GW2I01B, and GWLFP101B for furnace analysis.

Prepared by:  Date: 10 Nov. 1993

Emmanuel A. Nyako M.S.

INORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	Stauffers Management Company, Skaneateles Falls, NY.
Sample Type:	Aqueous (12)
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931235

A. INTRODUCTION:

Twelve aqueous samples were for TAL metals and cyanide. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (1991)/USEPA Region 2 Standard Operating Procedure NO. HW-2 (Revision XI January 30, 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument calibration
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- CRDL standards for AA (CRA), and ICP (CRI)
- Initial calibration blank (ICB), continuing calibration blank (CCB), and preparation blank (PB)
- ICP interference check sample (ICS) analysis
- Spike sample analysis (S)
- Duplicate sample analysis (D)
- Laboratory control sample (LCS)
- ICP serial dilution analysis (L)
- Instrument detection limit (IDL) determination
- Interelement correction for ICP
- Linear Range analysis
- Furnace QC analysis

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site:	Stauffers Management Company,Skaneateles Falls, NY.
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931235

Sample Identification:

Field ID	Lab ID
GW10I01B	ET9821
FB01B	ET9822
GW13I01B	ET9892
GW11I01B	ET9893
GW12I01B	T10112
GW8I01B	T10113
GWU01B	T10114
GW06I01B	T10115
GW3I01B	T10116
GW4I01B	T10117
GW9I01B	T10118
GW5I01B	T10119

1. Sample Holding Time Before Analysis: All metal analyses were performed within ASP and USEPA prescribed holding times.

2. Instrument Calibration: All instruments were calibrated daily and dates and times clearly shown on the raw data.The proper sequence of the instrument blanks and standards were used. A three-point calibration for ICP and at least four-point calibration for furnace AA were used as required by the NYSDEC ASP.

3. Initial and Continuing Calibrations Verifications: The percent recovery for all analytes were within the prescribed window (90-110%). The ICV and the CCV standards were analyzed at the correct frequency in the injection sequence.

4. CRDL Standards for AA (CRA) and ICP (CRI): The CRDL standards were run at the frequency and appropriate concentration for each analyte. The percent recoveries for the analytes were within the control limit(80-120%).

5. Laboratory Blanks: All laboratory blanks were analyzed at the correct frequency during the injection sequence. The aqueous and soil calibration and preparation blanks contained traces of aluminum,sodium,calcium,magnesium,lead,iron, and silver. All the concentrations were below the CRDL. No action was required.

6. ICP Interference Check Sample (ICS) Analysis: The interference check sample percent recoveries were all within the acceptable window (80-120%).

7. Spiked Sample Analysis: The spike recoveries were outside acceptable range(75-125%) for arsenic(68.8%) and thallium(69.2%). The laboratory correctly qualified arsenic and thallium results with an "N".

Action:

Arsenic was qualified with a "J" in samples GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B for spike recovery.

Arsenic was qualified with a "UJ" in samples GW10I01B, FB01B,GW13I01B,GW1101B,GW8I01B, and GW4I01B for spike recovery.

Thallium was qualified with a "UJ" in samples GW10I01B, FB01B,GW13I01B,GW1101B,GW8I01B,GW4I01B,GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B.

8. Post-digestion Spike Analysis: The post-digestion spike analyses were not performed on the analytes out of control limit. No action was required.

9. Duplicate Sample Analysis: The duplicate analyses were performed aqueous samples. All the analytes were within the control limit as per SOP.

10. Laboratory Control Sample Analysis: The laboratory control sample analysis was analyzed at the correct frequency. All percent recoveries were within acceptable range (80-120%).

11. ICP Serial Dilution Analysis: The ICP serial dilution were performed on aqueous samples. The percent difference for zinc(70.5%),aluminum(64,6%), manganese(10.4%) were outside the control limit(10%). No action was required for zinc since the initial sample concentration was less than 10X IDL.

Action:

Aluminum was qualified with a "J" in samples GW10I01B, GW13I01B,GW1101B,GW6I01B,GW4I01B,GW9I01B, and GW5I01B for serial dilution.

Manganese was qualified with a "J" in samples GW10I01B,GW13I01B,GW1101B,GW8I01B,GW4I01B,GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B for serial dilution.

12. Instrument Detection Limit Analysis: The IDLs were generated in 1992 by the laboratory. All the IDLs were lower than the CRDLs.

13. Interelement Correction for ICP: Interelement correction factor applied to aqueous data had were acceptable. No action was required.

14. Linear Range Analysis: The linear range for the ICP was supplied by the laboratory. A comparison of the Form 1 results to Form XII showed that the observed concentrations of the analytes were within the linear range. The linear range was not determined quaterly. No action was required.

15. Furnace QC Analysis: The analytical spike recovery for arsenic,selenium, and thallium in most of the samples were out of control limits (85-115%), while sample absorbencies were less than 50% of spike absorbencies. The laboratory correctly qualified the results with a "W". The thallium and arsenic results in the samples were were previously qualified for spike recovery.

Action:

Selenium was qualified with a "UJ" in samples GW10I01B, GW13I01B,GW8I01B,GW1201B,GWU01B,GW6I01B for furnace analysis.

16. Calculations: All checked calculations were within rounding errors.

17. Other Q.C.: None.

C. DATA LIMITATION OVERVIEW:

The inorganic analyses of water and soil samples from the SMC Skaneateles Falls,NY referenced as Report No. 931235, showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

Arsenic was qualified with a "J" in samples GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B for spike recovery.

Arsenic was qualified with a "UJ" in samples GW10I01B, FB01B,GW13I01B,GW1101B,GW8I01B, and GW4I01B for spike recovery.

Thallium was qualified with a "UJ" in samples GW10I01B, FB01B,GW13I01B,GW1101B,GW8I01B,GW4I01B,GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B for spike recovery.

Aluminum was qualified with a "J" in samples GW10I01B, GW13I01B,GW1101B,GW6I01B,GW4I01B,GW9I01B, and GW5I01B for serial dilution.

Manganese was qualified with a "J" in samples GW10I01B,GW13I01B,GW1101B,GW8I01B,GW4I01B,GW1201B, GWU01B,GW6I01B,GW3I01B,GW9I01B, and GW5I01B for serial dilution.

Selenium was qualified with a "UJ" in samples GW10I01B, GW13I01B,GW8I01B,GW1201B,GWU01B,GW6I01B for furnace analysis.

Prepared by: Emmanuel A. Nyako M.S. Date: 10 Nov. 1993

ORGANIC DATA VALIDATION AND LIMITATION REPORT

Project Site:	Stauffers Management Company, Skaneateles Falls,NY
Sample Type:	Aqueous
Analysis Type:	Pesticides/PCB,s
Laboratory:	EA Laboratorties
Report No.:	931235

A. INTRODUCTION

Twenty aqueous samples were analyzed for Pesticide/PCBs. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 standard Operating Procedure No. HW-6 (Revision #8, 1/92). The following information was used to validate the analytical results:

- Sample hold time before analysis
- Surrogate Recoveries
- MS/MSD analyses
- Method blank contamination
- Field blank contamination
- Calibration and GC performance
- Analysis sequence
- Cleanup efficiency verification
- Compound identification
- Chromatogram quality
- Calculations
- Other QC

The holding time summary table and summary of qualified data are attached.

B. CONTRACT AND TECHNICAL REVIEW

Project Site:	Stauffers Management Company, Skaneateles Falls,NY
Sample Type:	Aqueous
Analysis Type:	Pesticides/PCB,s
Laboratory:	EA Laboratorties
Report No.:	931235

Sample Identification:

Field ID	Lab ID
GW10I01B	9821
FB01B	9822
GW13I01B	9892
GW11I01B	9894
GW12I01B	10112
GW8I01B	10113
GWU01B	10114
GW06I01B	10115
GW3I01B	10116
GW4I01B	10117
GW9I01B	10118
GW5I01B	10119
GW14I01B	10183
GW1I01B	10184
GW2I01B	10185
GW7I01B	10187
GW12S01B	10214
GW5S01B	10215
GWCFP101B	10216
GWCFP102B	10217

Contract and Technical Review (CTR) Comments

1. Sample Hold Before Analysis: All Pesticide/PCB,s analyses were performed within the NYSDEC ASP and EPA technical holding times.

2. Surrogate Recovery: Surrogates measure the ability of the laboratory to extract the targeted analytes by evaluating the recovery of 2 indicator compounds (tetrachloro-m-xylene and decachlorobiphenyl), which are structurally similar to some of the targeted analytes, as indicators for all of the analytes. Most surrogate recoveries were outside ASP contractual and EPA technical QC limits.

Action:

The analytical results for all tha compounds were qualified as estimates("J" positives, "UJ" non-detects) in samples GW10I01B,FB01B,GW13I01B, GW11I01B,GW12I01B,GW8I01B,GWU01B,GW06I01B,GW3I01B,GW4I01B, GW9I01BGW5I01B,GW14I01B,GW1I01B,GW2I01B, GW7I01B,GW12S01B, and GW5S01B.

3. MS/MSD Analyses: The MS/MSD recoveries and RPDs were determined for five of the targeted analytes. All RPDs and spike recoveries complied with ASP contractual and EPA technical requirements.

4. LCS Analysis: Percent recovery for five of the targeted analytes was also determined for an LCS sample. All spike recoveries were compliant.

5. Method Blank Contamination: A method blank measures the potential for false-positive results introduced by internal laboratory contamination. The single method blank contained no targeted analytes.

6. Rinsate Blank Contamination: The rinsate blank (RB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The rinsate blank was provided in this data contained no targeted analytes.

7. Initial Calibration: A three-point calibration for single component pesticides and one-point calibration for multicomponent pesticides/PCBs is required. The RSD of the calibration factors was reviewed. Delta BHC(20.1%) was outside the QC requirements(i.e.RSD<20%).

Action:

Delta-BHC was qualified with a "UJ" in sample GW13I01B for RSD>20%.

8. Analyte Resolution: To ensure proper analyte separation on the GC column, the resolution of closely eluting compound peaks is evaluated. Peak resolution was compliant for all compounds and both GC columns.

9. Performance Evaluation Mixtures: The PEM is used to verify that the initial calibration is stable throughout the GC analyses. The calculated relative percent difference %D (labeled as "RPD") for each alpha-BHC was outside the QC requirements.

Action:

Alpha-BHC was qualified with a "UJ" in sample GW13I01B for %D>25.

10. Pesticide Calibration Verification: The relative percent difference %D (labeled as "RPD") of calculated amount and the true amount of each of the single component pesticides in mid point concentration of the Individual Standard Mixtures used to demonstrate continuing calibration must be less or equal to 25%. Alpha-BHC(30%) wwas outside the QC limit. No action was taken since it was previously qualified.(see CTR # 9)

11. Analysis Sequence: Pesticide/PCB analyses are required to follow a specific initial and continuing calibration sequence. The analyses complied with the ASP and EPA required sequence.

12. Cleanup Efficiency Verification: All pesticide/PCB analyses must undergo florisil cleanup and may also undergo sulfur and GPC cleanup (the latter is required for soil samples). The samples did not undergo florisil cleanup.

13. Compound Identification and Ion Spectra Match: Verification of identification of an analyte is based upon the retention time of the analyte falling within the retention time windows on 2 columns. In addition, the percent difference between the concentrations of the compounds in the two colums should not exceed 25%. The following non-compliances were noted and appropriate qualifiers applied as per SOP.

Action:

4,4'DDE was qualified with a "JN" in sample GWCFP101B for %D between two columns greater than 25%.

14. Chromatogram Quality: The quality of the chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms exhibited some baseline rise (typically less than 30% of full scale).The quality of the data was not affected.

15. Calculations: The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors except for Form 7D, 7E, and 10A. The quality of the data was not affected.

16. Other QC: The laborsatory should label MS/MSD on both Form 1 and PEST Form 2E.

C. DATA LIMITATION OVERVIEW

Summary of Qualified Data

The pesticide/PCB analyses of water samples, referenced as Report No: 931235 showed compliance with the QC requirements of the NYSDEC ASP pesticide/PCBs and required no technical qualifiers from the EPA validation procedure except the following:

The analytical results for all tha compounds were qualified as estimates("J" positives, "UJ" non-detects) in samples GW10I01B,FB01B,GW13I01B,GW11I01B,GW12I01B, GW8I01B,GWU01B,GW06I01B,GW3I01B,GW4I01B,GW9I01BGW5I01B,GW14I01B, GW1I01B,GW2I01B,GW7I01B,GW12S-01B, and GW5S-01B.

Delta-BHC was qualified with a "UJ" in sample GW13I01B for RSD>20%.

Alpha-BHC was qualified with a "UJ" in sample GW13I01B for %D>25.

4,4'DDE was qualified with a "JN" in sample GWCFP101B for %D between two columns greater than 25%.

No data qualifiers were applied to internal laboratory QC samples (e.g., MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:_____Date:10 November 1993

Emmanuel A. Nyako. M.S.

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(9)
Analysis Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No. 931235

A. INTRODUCTION

Nine aqueous samples were analyzed for Volatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235
Sample Identification:

Field ID	Lab ID
GW12I01B	10112
GW08I01B	10113
GWU01B	10114
GW04I01B	10117
GW09I01B	10118
TRIP BLK 2	10120
GW06I01B	10115
GW03I01B	10116
GW05I01B	10119

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations: In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	acetone (31.289)
%D>25%	acetone (40.70), 2-hexanone (52.45), 2-butanone (32.45),and 4-methyl-2-pentanone (27.30).

Action(s):

Acetone was qualified with a "UJ" in samples GW06I01B, GW03I01B, GW05I01B for RSD>30%.

Acetone was qualified with a "UJ" in samples GW12I01B, GW08I01B, GWU01B, GW04I01B, GW09I01B, Trip Blk 2 for %D>25

2-butanone was qualified with a "UJ" in samples GW12I01B, GW08I01B, GWU01B, GW04I01B, GW09I01B, Trip Blk 2 for %D>25

4-methyl-2-pentanone was qualified with a "UJ" in samples GW12I01B, GW08I01B, GWU01B, GW04I01B, GW09I01B, Trip Blk 2 for %D>25

2-hexanone was qualified with a "UJ" in samples GW12I01B, GW08I01B, GWU01B, GW04I01B, GW09I01B, Trip Blk 2 for %D>25

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One VOA method blank was analyzed. The method blank contained methylene chloride, but the associated sample was a trip blank, hence, no qualifications was required.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. One trip blank and one field blank were analyzed. The blanks did not contain any target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: Xylene exceeded calibration range in sample GW05I01B. The laboratory correctly qualified the values with a "E". The reviewer transfered xylene values from diluted sample to undiluted sample. The Form 1 of the original sample should be used.

C. DATA LIMITATION OVERVIEW:

The VOA analyses of three water samples from Report # 931235 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region SOP, and all data are considered valid and acceptable except for the following:

In sample GW06I01B, acetone was qualified with a "UJ" for RSD>30%

In sample GW03I01B, acetone was qualified with a "UJ" for RSD>30%

In sample GW05I01B, acetone was qualified with a "UJ" for RSD>30%

In sample GW12I01B, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

In sample GW08I01B, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

In sample GWU01B, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

In sample GWU0401B, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

In sample GWU0901B, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

In sample Trip Blk 2, 2-butanone, acetone, 2-hexanone, and 4-methyl-2-pentanone were qualified with a "UJ" for %D>25.

No data qualifiers were applied to internal laboraatory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by:  Date:20 December 1993

Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(5)
Analysis Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No. 931235

A. INTRODUCTION

Five aqueous samples were analyzed for Volatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. **CONTRACT AND TECHNICAL REVIEW**

Site: SMC Skaneateles Falls, NY
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235
Sample Identification:

Field ID	Lab ID
GW14I01B	10183
GW01I01B	10184
GW02I01B	10185
GW07I01B	10187
TRIP BLK	10188

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations: In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

   RSD>30% acetone (31.289)

   %D>25% 2-hexanone (23.34)

   Action(s):

   Acetone was qualified with a "UJ" in samples GW14I01B, GW01I01B, GW02I01B, GW07I01B, and TRIP BLK for RSD>30%.

   Hexanone was qualified with a "UJ" in samples GW14I01B, GW01I01B, GW02I01B, GW07I01B, and TRIP BLK for RSD>30%.

4. Surrogate Recovery: Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA

analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One VOA method blank was analyzed. The method blank contained methylene chloride, but the associated sample was a trip blank, hence, no qualifications was required.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. One trip blank and one field blank were analyzed. The blanks did not contain any target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering

unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: None.

C. DATA LIMITATION OVERVIEW:

The VOA analyses of three water samples from Report # 931235 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In samples GW14I01B, GW01I01B, GW02I01B, GW07I01B, and TRIP BLK, acetone was qualified with a "UJ" for RSD>30%

In samples GW14I01B, GW01I01B, GW02I01B, GW07I01B, and TRIP BLK, 2-hexanone was qualified with a "UJ" for %D>25

No data qualifiers were applied to internal laboratory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by:  Date:20 December 1993
Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(3)
Analysis Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No. 931235

A. INTRODUCTION

Three aqueous samples were analyzed for Volatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235
Sample Identification:

Field ID	Lab ID
GW10I01B	9821
FB01B	9822
TB01B	9823

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

%D>25%	chloromethane (30.50), bromethane (36.46), acetone (52.13), 2-hexanone (36.39), 4-methyl-2-pentanone (35.98),and 2-butanone (51.15).

Action(s):

Chloromethane was qualified with a "UJ" in three water samples GW10I01B, TB01B, FB01B for %D>25.

Bromethane was qualified with a "UJ" in three water samples GW10I01B, TB01B, FB01B for %D>25.

2-butanone was qualified with a "UJ" in three water samples GW10I01B, TB01B, FB01B for %D>25.

Acetone was qualified with a "UJ" in three water samples GW10I01B, TB01B, FB01B for %D>25.

4-methyl-2-pentanone was qualified with a "UJ" in three water samples GW10I01B, TB01B, FB01B for %D>25.

2-hexanone was qualified with a "UJ" in three water samples GW10I1B, TB01B, CFB01B for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One VOA method blank was analyzed. The method blank was not contaminated with any target analyte.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. One trip blank and one field blank were analyzed. The blanks did not contain any target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: None

C. DATA LIMITATION OVERVIEW:

The VOA analyses of three water samples from Report # 931235 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In sample GW10I01B, chloromethane, bromethane, 2-butanone, acetone, 4-methyl-2-pentanone, 2-hexanone were qualified with a "UJ" for %D>25.

In sample TB01B, chloromethane, bromethane, 2-butanone, acetone, 4-methyl-2-pentanone, 2-hexanone were qualified with a "UJ" for %D>25.

In sample FB01B, chloromethane, bromethane, 2-butanone, acetone, 4-methyl-2-pentanone, 2-hexanone were qualified with a "UJ" for %D>25.

No data qualifiers were applied to internal laboraatory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by: _____ Date:20 December 1993
Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(3)
Analysis Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No. 931235

A. INTRODUCTION

Three aqueous samples were analyzed for Volatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. **CONTRACT AND TECHNICAL REVIEW**

Site: SMC Skaneateles Falls, NY
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235
Sample Identification:

Field ID	Lab ID
GW13I01B	9892
GW11I01B	9893
TB02B	9895

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations: In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

%D>25%	chloromethane (91.81), acetone (35.89), 2-hexanone (26.60), (35.98),and 2-butanone (37.86).

Action(s):

Chloromethane was qualified with a "UJ" in three water samples GW13I01B, GW11I01B, TB02B for %D>25.

Acetone was qualified with a "UJ" in three water samples GW13I01B, GW11I01B, TB02B for %D>25.

2-butanone was qualified with a "UJ" in three water samples GW13I01B, GW11I01B, TB02B for %D>25.

2-hexananone was qualified with a "UJ" in three water samples GW13I01B, GW11I01B, TB02B for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One VOA method blank was analyzed. The method blank contained methylene chloride, but the associated sample was a trip blank, hence, no qualifications was required.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. One trip blank and one field blank were analyzed. The blanks did not contain any target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: None

C. DATA LIMITATION OVERVIEW:

The VOA analyses of three water samples from Report # 931235 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In sample GW13I01B, chloromethane, 2-butanone, acetone, 2-hexanone were qualified with a "UJ" for %D>25.

In sample GW11I01B, chloromethane, 2-butanone, acetone, 2-hexanone were qualified with a "UJ" for %D>25.

In sample TB02B, chloromethane, 2-butanone, acetone, 2-hexanone were qualified with a "UJ" for %D>25.

No data qualifiers were applied to internal laboraatory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by: _____ Date:20 December 1993
Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(5)
Analysis Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No. 931235

A. INTRODUCTION

Five aqueous samples were analyzed for Volatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235
Sample Identification:

Field ID	Lab ID
GW12SI01B	10214
GW05S01B	10215
CFP101B	10216
CFP201B	10217
TRIP BLK5A&B	10218

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations: In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

   RSD>30% acetone (31.289)

   Action(s):

   Acetone was qualified with a "UJ" in samples GW12SI01B, GW05S01B,CFP101B,CFP201B,TRIP BLK5A&B for RSD>30%.

4. Surrogate Recovery: Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One VOA method blank was analyzed. The method blank contained methylene chloride, but the associated sample was a trip blank, hence, no qualifications was required.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. One trip blank and one field blank were analyzed. The blanks did not contain any target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: Xylene exceeded calibration range in sample CFP201B. The laboratory correctly qualified the values with a "E". The reviewer transfered xylene values from diluted sample to undiluted sample. The Form 1 of the original sample should be used.

C. DATA LIMITATION OVERVIEW:

The VOA analyses of three water samples from Report # 931235 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In sample GW12SI01B, acetone was qualified with a "UJ" for RSD>30%

In sample GW05S01B, acetone was qualified with a "UJ" for RSD>30%

In sample CFP201B, acetone was qualified with a "UJ" for RSD>30%.

In sample CFP201B, acetone was qualified with a "UJ" for RSD>30%.

In sample TRIP BLK5A&B, acetone was qualified with a "UJ" for RSD>30%.

No data qualifiers were applied to internal laboratory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by: _____ Date:20 December 1993
Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(8)
Analysis Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

A. INTRODUCTION

Eight water samples were analyzed for semivolatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. **CONTRACT AND TECHNICAL REVIEW**

Site: SMC Skaneateles Falls, NY
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

Sample Identification:

Field ID	Lab ID
GW12I01B	10112
GW8I01B	10113
GWU01B	10114
GW06I01B	10115
GW3I01B	10116
GW4I01B	10117
GW9I01B	10118
GW5I01B	10119

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	2-4-dinitrophenol (32.260)
%D>25%	m-toluic acid (42.647),o-toluic acid(32.738), and p-toluic acid(25.010).

Action(s):

2-4-dinitrophenol (32.260) was qualified with a "UJ" in samples GW12I01B,GW08I01B,GWU01B,GW06I01B,GW03I01B,GW04I01B GW05I01B,GW09I01B,GW03I01BDL,and GW04I01BDL for to RSD>30%.

m-toluic acid was qualified with a "J" in samples GW06I01B,GW09I01B,GW05I01B,GW03I01BDL,and "UJ" GW04I01BDL for %D>25.

o-toluic acid was qualified with a "J" in samples GW06I01B,GW09I01B,GW05I01B,GW03I01BDL,and "UJ" GW04I01BDL for %D>25.

p-toluic acid was qualified with a "J" in samples GW03I01BDL and GW04I01BDL for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for 2-fluorobiphenyl and terphenyl-d14 were outside the acceptable limits.

   Action:
   The compounds associated with the two surrogates in sample GW0601B were qualified as estimates("J"positives,"UJ"non-detects).

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. All internal standards areas were outside the control limit for acenaphthene-d10,perylene-d12,phenanthrene-d10,and chrysene-d12 in sample GW0401B and perylene-d12, and phenanthrene-d10 in sample GW0301B. No action was taken since the internal standards recoveries were within acceptable limits in the diluted samples.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Eight MS/MSD recoveries and five RPDs in the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits. No action was taken as per SOP.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. A total of two BNA method blanks were analyzed. Two blanks contained no target compounds.

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. The field blanks contained no target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: The following compounds,o-m, and p-toluic acid exceeded the calibration range. the results of the diluted compounds were transferred to the Form 1 of the original sample;use GW06I01B,GW12I01B,and GW09I01B. The diluted samples GW03I01BDL and GW04I01BDL should be used since the internal standard areas were better than the original samples.

C. **DATA LIMITATION OVERVIEW**: The BNA analyses of eight water samples from Report No:931235 showed compliance with the QC requirements of the NYSDE ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

In sample GW12I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%.

In sample GW08I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%.

In sample GWU01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%.

In sample GW06I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. The compounds associated with the two surrogates 2-fluorobiphenyl and terphenyl-d14 were qualified as estimates("J"positives,"UJ"non-detects).

In sample GW03I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25.

In sample GW04I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%.

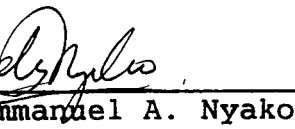
In sample GW05I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25.

In sample GW09I01B,2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25.

In sample GW03I01BDL,2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "J" for %D>25.

In samples GW04I01BDL,2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "J" for %D>25.

No data qualifiers were applied to internal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:  Date:10 January 1993

Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	SMC Skaneateles Falls, NY
Sample Type:	Water(4)
Analysis Type:	Semivolatiles Organics
Laboratory:	EA Laboratories Inc.
Report No.:	931235

A. INTRODUCTION

Four water samples were analyzed for semivolatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

Sample Identification:

Field ID	Lab ID
GW14I01B	10183
GW01I01B	10184
GW02I01B	10185
GW07I01B	10187

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	2-4-dinitrophenol (32.260)
%D>25%	m-toluic acid (42.647),o-toluic acid(32.738), and p-toluic acid(27.425).

Action(s):

2-4-dinitrophenol (32.260) was qualified with a "UJ" in samples GW14I01B,GW01I01B,GW02I01B, and GW07I01B for RSD>30%.

m-toluic acid was qualified with a "J" in samples,GW14I01B, GW01I01B,GW02I01B, and GW07I01B for %D>25.

p-toluic acid was qualified with a "J" in samples,GW14I01B, and GW07I01B and "UJ" in samples GW01I01B,GW02I01B for %D>25.

o-toluic acid was qualified with a "J" in samples GW14I01B, GW01I01B,GW02I01B, and GW07I01B for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for 2-fluorobiphenyl and terphenyl-d14 were outside the acceptable limits.

   Action:

   The compounds associated with the two surrogates in sample GW07I01B were qualified as estimates("J"positives,"UJ"non-detects).

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. The internal standards areas within the control limit for all samples.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Eight MS/MSD recoveries and seven RPDs in the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits. No action was taken as per SOP.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One BNA method blank was analyzed. The blank contained no target compounds.

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. The field blanks contained no target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: The following compounds,o-m-p- toluic acid and phenol exceeded the calibration range. the results of the diluted compounds were transferred to the Form 1 of the original sample;use GW01I01B,GW02I01B,and GW07I01B.

C. **DATA LIMITATION OVERVIEW**: The BNA analyses of four water samples from Report No:931235 showed compliance with the QC requirements of the NYSDE ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

In sample GW14I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "J" for %D>25.

In sample GW01I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "UJ" for %D>25.

In sample GW02I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "UJ" for %D>25.

In sample GW07I01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for to RSD>30%. M-toluic acid and o-toluic acid were qualified with a "J" for %D>25. P-toluic acid was qualified with a "J" for %D>25. The compounds associated with the two surrogates 2-fluorobiphenyl and terphenyl-d14 were qualified as estimates("J"positives,"UJ"non-detects).

No data qualifiers were applied to internal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:  Date:20 Deceber 1993

Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(4)
Analysis Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

A. INTRODUCTION

Four water samples were analyzed for semivolatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

Sample Identification:

Field ID	Lab ID
GW12S01B	10214
GW05S01B	10215
CFP101B	10216
CFP201B	10217

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	2-4-dinitrophenol (32.260)
%D>25%	m-toluic acid (42.647),o-toluic acid(32.738,47.908),p-toluic acid(25.010),and 2,4-dinitrophenol(32.312).

Action(s):

2-4-dinitrophenol (32.260) was qualified with a "UJ" in samples GW12S01B,GW05S01B,CFP101B, and CFP201B for RSD>30%

2-4-dinitrophenol (32.260) was qualified with a "J" in sample GW12S01BDL for %D>25%

2-4-dinitrophenol (32.260) was qualified with a "UJ" in samples CFP101B and CFP201B for %D>25%

m-toluic acid was qualified with a "J" in samples GW12S01B and GW05S01B for %D>25.

o-toluic acid was qualified with a "UJ" in samples GW12S01B and GW05S01B for %D>25.

o-toluic acid was qualified with a "J" in sample GW12S01BDL for %D>25.

p-toluic acid was qualified with a "J" in samples GW12S01B and GW05S01B for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recovery was outside the control limit for GW05S01B. No action was required as per SOP.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. All internal standards areas were outside the control limit for perylene-d12 and phenanthrene-d10 in sample CFP101B and CFP201B. No action was required since the internal standards recoveries were within acceptable limits in the diluted samples.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Eight MS/MSD recoveries and five RPDs in the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits. No action was taken as per SOP.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. A total of two BNA method blanks were analyzed. Two blanks contained no target compounds.

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. The field blanks contained no target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: The following compounds,o-m, and p-toluic acid and 4-methyphenol exceeded the calibration range. the results of the diluted compounds were transferred to the Form 1 of the original sample;use GW12S01B, and GW05S01B. The diluted samples CFP101BDL and CFP201BDL should be used since the internal standard areas were better than the original samples.

C. **DATA LIMITATION OVERVIEW**: The BNA analyses of four water samples from Report No:931235 showed compliance with the QC requirements of the NYSDE ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

In sample GW12S01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for RSD>30%. O-toluic acid was qualified with a "UJ" for %D>25. P-toluic acid was qualified with a "J" in sample GW12S01B for %D>25. M-toluic acid was qualified with a "J" in sample GW12S01B for %D>25.

In sample GW05S01B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for RSD>30% O-toluic acid was qualified with a "UJ" for %D>25. P-toluic acid was qualified with a "J" in sample GW05S01B for %D>25. M-toluic acid was qualified with a "J" in sample GW05S01B for %D>25.

In sample CFP101B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for RSD>30%

In sample CFP201B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for RSD>30%

In sample GW12S01BDL, 2-4-dinitrophenol (32.260) was qualified with a "J" for %D>25%. O-toluic acid was qualified with a "J" in sample for %D>25.

In sample CFP101B, 2-4-dinitrophenol (32.260) was qualified with a "UJ" for %D>25%

In sample CFP201B,2-4-dinitrophenol (32.260) was qualified with a "UJ" for %D>25%

No data qualifiers were applied to internal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:_____ Date:20 December 1993
Emmanuel A. Nyako

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC Skaneateles Falls, NY
Sample Type: Water(4)
Analysis Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

A. INTRODUCTION

Four water samples were analyzed for semivolatile Organics. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC Skaneateles Falls, NY
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931235

Sample Identification:

Field ID	Lab ID
GW10I01B	9821
FB01B	9822
GW13I01B	9892
GW1101B	9894

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	2-4-dinitrophenol (32.260)
%D>25%	haxachlorocyclopentadiene(33.745),4-nitrophenol(30.20).

Action(s):

2-4-dinitrophenol was qualified with a "UJ" in samples GW10I01B,FB01B,GW13I01B,and GW11I01B for RSD>30%

4-nitrophenol was qualified with a "UJ" in samples GW10I01B,FB01B,GW13I01B,and GW11I01B for %D>25%

Hexachlorocyclopentadiene, was qualified with a "UJ" in samples GW10I01B,FB01B,GW13I01B,and GW11I01B for %D>25%

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries were within the control limit for all samples.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. All internal standards areas were within the control limits.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Eight MS/MSD recoveries the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits. No action was taken as per SOP.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One BNA method blanks was analyzed. The blank contained no target compounds.

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. The field blanks contained no target compounds.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC: None.

C. **DATA LIMITATION OVERVIEW**: The BNA analyses of four water samples from Report No:931235 showed compliance with the QC requirements of the NYSDE ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

In sample GW10I01B, 2-4-dinitrophenol was qualified with a "UJ" for RSD>30%. 4-nitrophenol and hexachlorcyclopentadiene were qualified with a "UJ" for %D>25%.

In sample FB01B, 2-4-dinitrophenol was qualified with a "UJ" for RSD>30%. 4-nitrophenol and hexachlorcyclopentadiene were qualified with a "UJ" for %D>25%

In sample GW13I01B, 2-4-dinitrophenol was qualified with a "UJ" for RSD>30%. 4-nitrophenol and hexachlorcyclopentadiene were qualified with a "UJ" for %D>25%

In sample GW11I01B ,2-4-dinitrophenol was qualified with a "UJ" for RSD>30%. 4-nitrophenol and hexachlorcyclopentadiene were qualified with a "UJ" for %D>25%

No data qualifiers were applied to intenal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:  Date:20 December 1993

Emmanuel A. Nyako

ORGANIC DATA VALIDATION AND LIMITATION REPORT

Project Site:	Stauffers Management Company,Skaneateles Falls,NY
Sample Type:	Aqueous(24) and Soil(5)
Analysis Type:	Pesticides
Laboratory:	EA Laboratories
Report No.:	931455

A. INTRODUCTION

Twenty-four aqueous and five soil samples were analyzed for Pesticide/PCBs. The analytical results were validated following EPA Region 2 Standard Operating Procedure No. HW-6 (Revision #8, 1/92). In addition, a compliance check with the NYSDEC ASP was performed. The following information was used to validate the analytical results:

- Sample hold time before analysis
- Surrogate Recoveries
- MS/MSD analyses
- Method blank contamination
- Field blank contamination
- Calibration and GC performance
- Analysis sequence
- Cleanup efficiency verification
- Compound identification
- Chromatogram quality
- Calculations
- Other QC

The holding time summary table and summary of qualified data are attached.

B. CONTRACT AND TECHNICAL REVIEW

Project Site: ICI Skaneateles Falls,NY
Sample Type: Aqueous and Soil
Analysis Type: CLP Pesticides
Laboratory: EA Laboratories
SDG No.: N/A

Sample Identification:

Field ID	Lab ID
GW09D01B	11585
GW07S501B	11856
GW07D01B	11587
GW13D01B	11589
GW06S01B	11590
GW15D01B	11592
GW16I01B	11691
GW16D01B	11692
GW17D01B	11693
GW04S01B	11733
GWFB01B	11734
GW02S01B	11735
SW0101B	11737
SWDU01B	11738
SW0201B	11739
SW0301B	11744
SW0401B	11748
TB03B	11467
SPW0301B	11468
SPW0201B	11469
SPW0101B	11470
GW18S01B	11471
GW18I01B	11472
GW08S01B	11473
SD0101B	11740
SDDU01B	11741
SD0201B	11742
SD0301B	11745
SD0401B	11749

Contract and Technical Review (CTR) Comments

1. Sample Hold Before Analysis: All Pesticide/PCB analyses were performed within the NYSDEC ASP and EPA technical holding times.

2. Surrogate Recovery: Surrogates measure the ability of the laboratory to extract the targeted analytes by evaluating the recovery of 2 indicator compounds (tetrachloro-m-xylene and decachlorobiphenyl), which are structurally similar to some of the targeted analytes, as indicators for all of the analytes. The two surrogate recoveries(%R) were outside ASP contractual and EPA technical QC limits in the associated samples are listed below.

Sample#	TCX	DCB
GW02S01B	50/52	30/33
GW04S01B	53/52	45/51
GW06S01B	50/56	44/49
GW07D01B	44/45	34/37
GW07S01B	58/60	39/41
GW09D01B	43/44	35/37
GW16I01B	33/35	14/14
GW08S01B	34/35	37/33
GW18I01B	51/41	54/52
GW18S01B	52/44	40/40

Action:

The surrogate recoveries were between 10 and 60%. The "UJ" qualifier was applied to all non-detect compounds in the above samples except a positive 4,4' DDT in sample GW09D01B which was rejected for %D between two columns.

3. MS/MSD Analyses: The MS/MSD recoveries and RPDs were determined for six of the targeted analytes. All RPDs complied with ASP contractual and EPA technical requirements. Eight spike recoveries were outside the required QC criteria. No action was required as per SOP.

4. LCS Analysis: Percent recovery for six of the targeted analytes was also determined for an LCS sample. Four out of the six spike recoveries were non-compliant. No action was required as per SOP.

5. Method Blank Contamination: A method blank measures the potential for false-positive results introduced by internal laboratory contamination. The method blanks contained no targeted analytes.

6. Rinsate Blank Contamination: The rinsate blank (RB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The rinsate blank was provided with the samples contained no targeted analytes.

7. Initial Calibration: A three-point calibration for single component pesticides and one-point calibration for multicomponent pesticides/PCBs is required. The relative standard deviations (RSDs) of the calibration factors must be less than 20%. Endrin ketone(26.7%) exceeded the QC requirements.

   Action:

   The "UJ" qualifier was applied to endrin ketone in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B,SW0101B, SWDU01B,SW0201B,SW0301B,SW0401B,SDDU01B,and SD0401B.

8. Analyte Resolution: To ensure proper analyte separation on the GC column, the resolution of closely eluting compound peaks is evaluated. Peak resolution was compliant for all compounds and both GC columns.

9. Performance Evaluation Mixtures: The PEM is used to verify that the initial calibration is stable throughout the GC analyses. The calculated relative percent difference %D (labeled as "RPD") for each PEM analyte complied with QC requirements.

10. Pesticide Calibration Verification: The relative percent difference %D (labeled as "RPD") of calculated amount and the true amount of each of the single component pesticides in mid point concentration of the Individual Standard Mixtures used to demonstrate continuing calibration must be less or equal to 25%. Alpha-BHC(27.5%),gamma-BHC(30.5%),heptachlor(40.5%), endosulfan I(43.0%),heptachlor epoxide(37.5%),endosulfan II(37.0%), endrin ketone(39.0%), and endrin aldehyde(54.5%) exceeded the QC limit.

    Action:

    The "UJ" qualifier was applied to non-detect alpha-BHC in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B,SW0101B, SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B,SD0201B, SD0301B,and SD0401B.

    The "UJ" qualifier was applied to non-detect gamma-BHC in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B,SW0101B,SWD U01B,SW01201B,SW0101B,SW0101B,SD0101B,SDDU01B,SD0201B, SD0301B,and SD0401B.

    The "UJ" qualifier was applied to non-detect heptachlor in samples

GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B,SW0101B, SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B,SD0201B, SD0301B,and SD0401B.

The "UJ" qualifier was applied to non-detect endosulfan I in samples GW13D01B,GW15D01B,GW16D01B, GW17D01B,GWFB01B,SW0101B, SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B,SD0201B, SD0301B,and SD0401B .

The "UJ" qualifier was applied to non-detect heptachlor epoxide in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SDDU01B,and SD0401B.

The "UJ" qualifier was applied to non-detect endosulfan II in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B,SW0101B,SWD U01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B,SD0201B, SD0301B,and SD0401B.

The "UJ" qualifier was applied to non-detect endrin aldehyde in samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B, SD0201B,SD0301B,and SD0401B.

Endrin ketone was already qualified for RSD.

10. Analysis Sequence: Pesticide/PCB analyses are required to follow a specific initial and continuing calibration sequence. The analyses complied with the ASP and EPA required sequence.

11. Cleanup Efficiency Verification: All pesticide/PCB analyses must undergo florisil cleanup and may also undergo sulfur and GPC cleanup (the latter is required for soil samples). The samples were treated for sulfur and underwent florisil cleanup.

12. Compound Identification : Verification of identification of an analyte is based upon the retention time of the analyte falling within the retention time windows on two columns. In addition, the percent difference between the concentrations of the compounds in the two columns should not exceed 25%. The following non-compliances were noted and appropriate qualifiers applied as per SOP.

Action:

4,4' DDT was rejected "R" in samples GW09D01B,SD0201B, and SD0301B.

Heptachlor epoxide was rejected "R" in samples SD0101B,SD0201B and SD0301B .

Methoxychlor was rejected "R" in sample SD0101B and "JN" in SD0201B.

Endrin ketone was rejected "R" in samples SD0101B,SD0301B, and "JN" in SD0201B.

Gamma-chlordane was rejected "R" in samples SD0101B and SD0201B.

Beta-BHC was rejected "R" in sample SD0201B.

Aldrin was rejected "R" in sample SD0201B.

4,4'DDE was rejected "R" in sample SD0201B and "JN" in sample SD0301B.

Endosulfan Sulfate was rejected "R" in sample SD0201B and "JN" in sample SD0301B.

13. Chromatogram Quality: The quality of the chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. Most of the chromatograms exhibited some baseline rise (typically less than 30% of full scale) and some negative peaks. These anomalies had no effect on the data quality.

14. Calculations: The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors except for Form 7D, 7E, and 10A. It is the reviewer opinion that the laboratory should check their software and recalculate the values.

15. Other QC: The laboratory should complete filling the Form 1, for example Lab. Sample ID and Case No. The following changes were made on Form 1 to reflect correct client sample number on the traffic report.

Old sample#	Correct sample#
SMC-GW07501B	SMC-GW07S01B
SMC-GW13001B	SMC-GW13D01B
SMC-GW06501B	SMC-GW06S01B
SMC-GW15001B	SMC-GW15D01B
SMC-GWI6I01B	SMC-GW16I01B
SMC-GW16001B	SMC-GW16D01B
SMC-GW04501B	SMC-GW04S01B
SMC-GW02501B	SMC-GW02S01B

C. DATA LIMITATION OVERVIEW

Summary of Qualified Data

The pesticide/PCB analyses of soil and water samples, referenced as Case#00012 showed compliance with the QC requirements of the NYSDEC ASP pesticide/PCBs and required no technical qualifiers from the EPA validation procedure except the following:

In the samples GW02S01B,GW04S01B,GW06S01B,GW07D01B, GW07S01B,GW09D01B,GW16I01B,GW08S01B,GW18I01B,GW18S01B, the "UJ" qualifier was applied to all non-detect compounds for surrogate recoveries except for 4,4' DDT in sample GW09D01B which was rejected "R" for %D between two columns

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SDDU01B,and SD0401B, the "UJ" qualifier was applied to endrin ketone for RSD.20%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B, SD0201B,SD0301B,and SD0401B, the "UJ" qualifier was applied to non-detect alpha-BHC for RPD>25%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B, SD0201B,SD0301B, and SD0401B, the "UJ" qualifier was applied to non-detect gamma-BHC for RPD>25%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B, SD0201B,SD0301B,and SD0401B, the "UJ" qualifier was applied to non-detect heptachlor for RPD>25%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B, SDDU01B,SD0201B,SD0301B,and SD0401B, the "UJ" qualifier was applied to non-detect endosulfan I for RPD>25%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SDDU01B, and SD0401B, the "UJ" qualifier was applied to non-detect heptachlor epoxide for RPD>25%.

In samples,GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B,

SD0201B,SD0301B,and SD0401B, the "UJ" qualifier was applied to non-detect endosulfan II for RPD>25%.

In samples GW13D01B,GW15D01B,GW16D01B,GW17D01B,GWFB01B, SW0101B,SWDU01B,SW0201B,SW0301B,SW0401B,SD0101B,SDDU01B, SD0201B,SD0301B,and SD0401B the "UJ" qualifier was applied to non-detect endrin aldehyde for RPD>25%.

In samples GW09D01B,SD0201B, and SD0301B, 4,4' DDT was rejected "R" for %D between two columns exceeding QC criteria.

In samples SD0101B,SDDU01B and SD0301B, heptachlor epoxide was rejected "R" for %D between two columns exceeding QC criteria.

Methoxychlor was rejected "R" in sample SD0101B and "JN" in SD0201B for %D between two columns exceeding QC criteria.

Endrin ketone was rejected "R" in samples SD0101B,SD0301B, and "JN" in SD0201B for %D between two columns exceeding QC criteria.

In samples SD0101B and SD0201B, gamma-chlordane was rejected "R" for %D between two columns exceeding QC criteria.

In sample SD0201B beta-BHC was rejected "R" for %D between two columns exceeding QC criteria.

In sample SD0201B aldrin was rejected "R" for %D between two columns exceeding QC criteria.

4,4'DDE was rejected "R" in sample SD0201B and "JN" in sample SD0301B for %D between two columns exceeding QC criteria.

Endosulfan Sulfate was rejected "R" in sample SD0201B and "JN" in sample SD0301B for %D between two columns exceeding QC criteria.

Endrin ketone was already qualified for RSD

No data qualifiers were applied to internal laboratory QC samples (e.g., MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:_____ Date:10 November 1993
Emmanuel A. Nyako.

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: Stauffer Managemnt Company,Skaneateles Falls,N.Y.
Sample Type: Aqueous(29) and Soil(6)
Analysis Type: CLP volatiles Organics
Laboratory: EA Laboratories Inc.
Report No: 931455

A. INTRODUCTION

Twenty-nine (25 water, 4 field blanks) and six soils, analyzed for Volatile Organics.The analytical results were validated following the procedures outlined in the EPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: Stauffer Managemnt Company,Skaneateles Falls,N.Y.
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931455
Sample Identification:

Field ID	Lab ID
GW09D01B	11585
GW07S01B	11856
GW07D01B	11587
GWTB01B	11588
GW13D01B	11589
GW06S01B	11590
GW15D01B	11592
GWTB01B	11599
GW16I01B	11691
GW16D01B	11692
GW17D01B	11693
GWTB01B	11694
GW04S01B	11733
GWFB01B	11734
GW02S01B	11735
SW0101B	11737
SWDU01B	11738
SW0201B	11739
SW0301B	11744
SW0401B	11748
TB03B	11467
SPW0301B	11468
SPW0201B	11469
SPW0101B	11470
GW18S01B	11471
GW18I01B	11472
GW08S01B	11473
GWTB01B	11474
SD0101B	11740
SDDU01B	11741
SD0201B	11742
SD0301B	11745
CS0301B	11746

SS0301B	11747
SD0401B	11749

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times except field blank(9688) and trip blank(9689).

   Action(s):

   a. Aromatic analytes in field blank(9688) and trip blank(9689) were estimated "J" due to holding time.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	acetone(35.410)
%D>25%	acetone (128.31, 62.25), 2-butanone(69.23), 2-hexanone(56.67, 69.08), o-xylene(25.98), chloromethane(27.01, 40.58), methylene chloride(59.76), 1,1-dichloromenthane(58.43), 1,2-dichloropropane(34.95), bromoform(29.20), 4-methyl-2-pentanone(65.90)

   Action(s):

   Acetone was "UJ" in samples GWFB0101B, GWTB01B(11736), GW04S01B, GW02S01B, SW0101B, SWDU01B, SW0201B, SW0301B, SW0401B, CS0301B for RSD>30

   Acetone was "UJ" in samples in GWTB01B(11694), GW16I01B, GW16D01B, GW17D01B for RSD>30

   Acetone was "UJ" in samples in GWTB01B(11588), GWTB01B(11591), GW09D01, GW07S01B, GW13D01B, GW06S01B, GW15D01B, GW07D01B, for %RSD>30

   Acetone was "J" in sample GW07D01B for %RSD>30

Acetone was rejected "R" in samples GWTB01B(11474), TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>90.

2-Butone was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>25.

2-Hexanone was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>25.

O-xylene was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW08S01B, for %D>25.

O-xylene was "J" in samples GW18S01B, and GW18I01B for %D>25.

Methylene Chloride was "UJ" in samples GWFB0101B, GWTB01B(11736), GW04S01B, GW02S01B, SW0101B, SWDU01B, SW0201B, SW0301B, SW0401B, CS0301B for %D>25

Chloromethane was "UJ" in samples GWTB01B(11588), GW07D01B, GWTB01B(11591), GW09D01, GW07S01B, GW13D01B, GW06S01B, GW15D01B, GW07D01B, for %D>25.

Chloromethane was "UJ" in samples GWTB01B(11694), GW16I01B, GW16D01B, GW17D01B, SD0101B, SDDU01B, SD0201B, SD0301B, SD0401B for %D>25.

Acetone was "UJ" in sample SD0101B, and SDDU01B for %D>25.

Acetone was "J" in sample SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

1,1-dichloromethane was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

1,2-dichloropropane was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

Bromoform was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

4-Methyl-2-pentanone was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

2-Hexanone was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. A total of 3 VOA method blanks were analyzed. The three blanks were contaminated with acetone and chloroform.

   Action:
   Acetone was qualified with a "U" in samples SD0101B for blank contamination.

   Chloroform was qualified with a "U" in sasmples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, SD0401B for blank contamonation.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. A total of 4 trip blanks were analyzed. The trip blanks were not contaminated.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC:Xylene and 1,2-dichloroethene exceeded calibration range in samples SD0301B. The laboratory correctly qualified the values with a "E". The reviewer transfered xylene values from diluted samples to undiluted samples. The Form 1 of the original samples should be used.

C. DATA LIMITATION OVERVIEW:

The VOA analyses of twenty-four and six soils samples from the Lab report # 931455 showed compliance with the QC requirements of EPA Region 2 SOP with the following EPA usability actions:

Acetone was "UJ" in samples GWFB0101B, GWTB01B(11736), GW04S01B, GW02S01B, SW0101B, SWDU01B, SW0201B, SW0301B, SW0401B, CS0301B for RSD>30

Acetone was "UJ" in samples in GWTB01B(11694), GW16I01B, GW16D01B, GW17D01B for RSD>30

Acetone was "UJ" in samples in GWTB01B(11588), GWTB01B(11591), GW09D01, GW07S01B, GW13D01B, GW06S01B, GW15D01B, GW07D01B, for %RSD>30

Acetone was "J" in sample GW07D01B for %RSD>30

Acetone was rejected "R" in samples GWTB01B(11474), TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>90.

2-Butone was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>25.

2-Hexanone was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %D>25.

O-xylene was "UJ" in samples trip blank 11474 TB03B, SPW0301B, SPW0201B, SPW0101B, GW08S01B, for %D>25.

O-xylene was "J" in samples GW18S01B, and GW18I01B for %D>25.

Methylene Chloride was "UJ" in samples GWFB0101B, GWTB01B(11736), GW04S01B, GW02S01B, SW0101B, SWDU01B, SW0201B, SW0301B, SW0401B, CS0301B for %D>25

Chloromethane was "UJ" in samples GWTB01B(11588), GW07D01B, GWTB01B(11591), GW09D01, GW07S01B, GW13D01B, GW06S01B, GW15D01B, GW07D01B, for %D>25.

Chloromethane was "UJ" in samples GWTB01B(11694), GW16I01B, GW16D01B, GW17D01B, SD0101B, SDDU01B, SD0201B, SD0301B, SD0401B for %D>25.

Acetone was "UJ" in sample SD0101B, and SDDU01B for %D>25.

Acetone was "J" in sample SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

1,1-dichloromethane was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

1,2-dichloropropane was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

Bromoform was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

4-Methyl-2-pentanone was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

2-Hexanone was "UJ" in samples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, and SD0401B for %D>25.

Acetone was qualified with a "U" in samples SD0101B for blank contamination.

Chloroform was qualified with a "U" in sasmples SD0101B, SDDU01B, SD0201B, SD0301B, SS0301B, SD0401B for blank contamination.

No data qualifiers were applied to internal laboraatory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by:_____ Date:11 November 1993
Emmanuel A. Myako M.S.

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC
Sample Type: Water(24), Soil(6)
Analysis Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931455

A. INTRODUCTION

Twenty four aqueous and six soil samples analyzed by CLP semivolatile Organics were validated following the procedures outlined in the EPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931455
Sample Identification:

Field ID	Lab ID
GW09D01B	11585
GW07S01B	11856
GW07D01B	11587
GW13D01B	11589
GW06S01B	11590
GW15D01B	11592
GW16I01B	11691
GWI6D01B	11692
GW17D01B	11693
GW04S01B	11733
GWFB01B	11734
GW02S01B	11735
SW0101B	11737
SWDU01B	11738
SW0201B	11739
SW0301B	11744
SW0401B	11748
TB03B	11467
SPW0301B	11468
SPW0201B	11469
SPW0101B	11470
GW18S01B	11471
GW18I01B	11472
GW08S01B	11473
SD0101B	11740
SDDU01B	11741
SD0201B	11742
SD0301B	11745
CS0301B	11746
SS0301B	11747
SD0401B	11749

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	4-Chlorophenyl-phenylether	31.379
	3,3'-Dichlorobenzidine	36.529
	bis (2,Ethylhexyl) phthalate	36.529
	P-toluic Acid	30.362
	Di-n-butylphthalate	34.478
	Di-n-octylphthalate	34.545
%D>25%	Di-n-octylphthalate	27,87, 26.71, 65.70, 28.85
	Hexchlorocyclopentadiene	28.37
	bis(2-Ethylhexyl)phthalate	25.40
	bis(2-chloroethylether)	25.90, 31.06
	N-nitroso-di-n-propylamine	26.03
	2-nitroaniline	27.479
	2,2'-oxybis(1-chloropropane)	26.34, 74.79
	phenol	29.61
	N-nitroso-di-n-propylamine	44.78
	Isophere	27.12
	Hexachlorocyclobutadiene	30.07
	O-toluic acid	32.46
	M-toluic acid	26.06
	Hexachlorocyclopentadiene	42.78
	2-Nitroaniline	67.07, 32.09
	3-Nitroaniline	26.11
	2,4-Dinitroaniline	49.06
	4-Nitroaniline	46.95, 49.42
	Hexachlorobenzene	32.15
	Pentachlorophenol	78.69
	Di-n-Butylphthalate	28.46

Butylbenzylphthalate	70.80
2,4-Dinitrophenol	40.60
4-Nitrophenol	28.67
Pentachlorophenol	63.12
Indeno(1,2,3-cd)pyrene	36.53
Dibenz(a,h)anthracene	38.19
Benzo(g,h,i)perylene	38.77

Action(s):

4-Chlorophenyl-pheryethene was "UJ" in samples TB03B, SPW0301B,SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B for RSD>30%

3,3' Dichlorobenzidine was "UJ" in sample TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B

bis(2-Ethylhexyl)phthalate was "UJ" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B

P-toulic acid was "UJ" in samples GWSD0101B, GWSDU01B, SS0301B, SD0401B, SW0201B, SWDU01B, GWFB01B, SW0401B

P-toulic acid was "J" in samples CS0301B

Di-n-butylphthalate was "J" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW15D01B, GW16I01B, GW16D01B, GW17D01B, GW02S01B

Di-n-butylphthalate was "UJ" in samples GW04S01B, SW0101B, SW0301B

Di-n-octylphthalate was "UJ" in GW09D01B, GW13D01B, GW06S01B, GW15D01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, SW0101B, SW0301B, for RSD>30%.

4-chlorophenyl-phenylether and 3,3'-dichlorobenzidine were "UJ" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B.

bis(2-Ethylhexyl)phthalate was "J" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B.

Di-n-octylphthalate was "UJ" in samples TB03B, SPW0301B, SPW0201B for %D>25.

Hexachlorocyclopentadiene was "UJ" in samples GW18S01B, GW18I01B, GW08S01B

2-Nitroaniline was "UJ" in samples SD0201B, SW0201B, FB01B, SW0401B

N-Nitroso-di-n-propylamine was "UJ" in samples SD0201B, SW0201B, FB01B, SW0401B

bis(2-Chloroethy)ether was "UJ" in samples SD0201B, SW0201, FB01B, SW0401B, CS301B

2,2'-oxybis(1-chloropropane) was "UJ" in samples CS301B, GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

2,2'-oxybis(1-chloropropane) was "R" in samples GW07S01B, GW07D01B

Phenol was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Phenol was "J" in samples GS07D01B

N-Nitroso-di-n-propylamine was "UJ" in samples GW09D01B, GW13D01B, GW16I01B, GW16D01B

N-Nitroso-di-n-propylamine was "R" in samples GW07S01B, GW07D01B

N-Nitroso-di-n-propylamine was "J" in samples GW06S01B

Isophorone was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Isophorone was "R" in samples GW07S01B, GW07D01B

Hexachloroethane was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachloroethane was "R" in samples GW07S01B, GW07D01B

O-Toulic Acid was "UJ" in samples GW09D01B, GW13D01B, GW06S01B

O-Toulic Acid was "J" in samples GW07S01B, GW07D01B, GW16I01B, GW16D01B

M-Toulic Acid was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B

M-Toulic Acid was "J" in samples GW07D01B, GW16I01B, GW16D01B

P-Toulic Acid was "UJ" in samples GW09D01B, GW13D01B, GW06S01B

P-Toulic Acid was "J" in samples GW07S01B, GW07D01B, GW16I01B, GW16D01B, GW07S01B

Hexachlorocyclopentadiene was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorocyclopentadiene was "R" in samples GW07S01B, GW07D01B

2-Nitroanaline was "UJ" in samples GW09D01B, GW07S01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

2-Nitroanaline was "R" in samples GW07D01B

3-Nitroanaline was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

3-Nitroanaline was "R" in samples GW07S01B

2,4-Dinetrophenol was "UJ" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitrophenol was "UJ" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitroanaline was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16S01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitroanaline was "R" in samples GW07S01B, GW07D01B

4-6-Dinitro-2-Methylphenol was "UJ" in samples GW09D01B, Gw07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorobenzene was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorobenzene was "R" in samples GW07D01B

Pentachlorophenol was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW15D01B, GW04S01B,

GW02S01B, SW0101B, SW0301B

Pentachlorophenol was "J" in samples GW07D01B

Di-n-butylphthalate was "R" in samples GW07S01B, GW07D01B

Butylphthalate was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Butylphthalate was "R" in samples GW07S01B, GW07D01B

Di-n-octylphthalate was "R" in samples GW07S01B

Indeno(1,2,3-CD) Pyrene was "UJ" in samples GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

Dibenzo(A,H) Anthracene was "UJ" in samples GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

Benzo(G,H,I)Perylene was "UJ" in samples GW17D01B, GW04S01B,GW02S01B, SW0101B, SW0301B.

Di-n-octylphthalate was "UJ" in samples TB03, SPW0301B, SPW0201B.

Hexachlorocyclopentadiene and Di-n-octylphthalate were "UJ" in samples SPW0101B, GW18S01B, GW18I01B,GW08S01B, for %D>25.

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the BNA analyses were outside the acceptable limits for 2-Fluourobiphenyl, and Terphenyl-d14.

Action(s):

All base/neutral in sample GW07S01B were rejected "R", except Di-n-butylphthalate and bis(2-Ethylhexyl)phthalate

All base/neutral in sample GW07D01B were rejected "R", except Naphthalene, bis(2-Ethylhexyl)phthalate, and Di-n-phthalate.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. All internal standards areas were compliant, except chrysene and perylene.

   Action(s):

   Pyrene, Benzo(a)anthracene, and Chrysene were "J" in sample GWSD0101B

   Butylbenzylphthalate, 3,3'-Dichlorobenzidine, and bis(2-Ethylhexyl)phthalate were "UJ" in sample GWSD0101B

   Di-n-octylphthalate, Indeno(1,2,3-CD)-pyrene, Dibenzo(A,H)-anthracene, and Benzo(G,H,I)-perylene were "UJ" in sample GWSD0101B

   Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Benzo(a)pyrene were "J" in sample GWSD0101B

   Pyrene, Butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, and Chrysene were "UJ" in sample GW02S01B

   Bis(2-Ethylhexyl)phthalate was "J" in sample GW02S01B

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Six MS/MSD recoveries in the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits except 4-Nitorphenol(87% and 84%). No action was taken as per SOP.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. A total of 3 BNA method blanks were analyzed. Two blanks contained bis(2-ethylhexyl)phthalate, and di-n-butylphthalate.

Action(s):

Bis(2-ethylhexyl)phthalate was qualified with "U" in nine samples: GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW15D01B, GW02S01B; since the sample concentration was less than 10X the observed concentration in the blank.

Di-n-Butylphthalate was qualified with "U" in eight samples: GW09D01B, GW07S01B, GW07D01B, GW06S01B, GW16I01B, GW16D01B, GW15D01B, GW02S01B; since the sample concentration was less than 10X the observed concentration in the blank

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. There was no contamination in the field blank.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC:Moisture > 50%, positive values were estimated "J" and non-detects "UJ" in sample SD0301B

C. DATA LIMITATION OVERVIEW:

The BNA analyses of twenty-four aqueous and six soils samples from SMC referenced as Report# 931455 showed compliance with QC requirements of NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

4-Chlorophenyl-pheryethene was "UJ" in samples TB03B, SPW0301B,SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B

3,3' Dichlorobenzidine was "UJ" in sample TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B

bis(2-Ethylhexyl)phthalate was "UJ" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B

P-toulic acid was "UJ" in samples GWSD0101B, GWSDU01B, SS0301B, SD0401B, SW0201B, SWDU01B, GWFB01B, SW0401B

P-toulic acid was "J" in samples CS0301B

Di-n-butylphthalate was "J" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW15D01B, GW16I01B, GW16D01B, GW17D01B, GW02S01B

Di-n-butylphthalate was "UJ" in samples GW04S01B, SW0101B, SW0301B

Di-n-octylphthalate was "UJ" in GW09D01B, GW13D01B, GW06S01B, GW15D01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, SW0101B, SW0301B.

4-chlorophenyl-phenylether and 3,3'-dichlorobenzidine were "UJ" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B.

bis(2-Ethylhexyl)phthalate was "J" in samples TB03B, SPW0301B, SPW0201B, SPW0101B, GW18S01B, GW18I01B, GW08S01B, for %RSD>30.

Di-n-octylphthalate was "UJ" in samples TB03B, SPW0301B, SPW0201B

Hexachlorocyclopentadiene was "UJ" in samples GW18S01B, GW18I01B, GW08S01B

2-Nitroaniline was "UJ" in samples SD0201B, SW0201B, FB01B, SW0401B

N-Nitroso-di-n-propylamine was "UJ" in samples SD0201B, SW0201B, FB01B, SW0401B

bis(2-Chloroethy)ether was "UJ" in samples SD0201B, SW0201, FB01B, SW0401B, CS301B

2,2'-oxybis(1-chloropropane) was "UJ" in samples CS301B, GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

2,2'-oxybis(1-chloropropane) was "R" in samples GW07S01B, GW07D01B

Phenol was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B,

GW16I01B, GW16D01B

Phenol was "J" in samples GS07D01B

N-Nitroso-di-n-propylamine was "UJ" in samples GW09D01B, GW13D01B, GW16I01B, GW16D01B

N-Nitroso-di-n-propylamine was "R" in samples GW07S01B, GW07D01B

N-Nitroso-di-n-propylamine was "J" in samples GW06S01B

Isophorone was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Isophorone was "R" in samples GW07S01B, GW07D01B

Hexachloroethane was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachloroethane was "R" in samples GW07S01B, GW07D01B

O-Toulic Acid was "UJ" in samples GW09D01B, GW13D01B, GW06S01B

O-Toulic Acid was "J" in samples GW07S01B, GW07D01B, GW16I01B, GW16D01B

M-Toulic Acid was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B

M-Toulic Acid was "J" in samples GW07D01B, GW16I01B, GW16D01B

P-Toulic Acid was "UJ" in samples GW09D01B, GW13D01B, GW06S01B

P-Toulic Acid was "J" in samples GW07S01B, GW07D01B, GW16I01B, GW16D01B, GW07S01B

Hexachlorocyclopentadiene was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorocyclopentadiene was "R" in samples GW07S01B, GW07D01B

2-Nitroanaline was "UJ" in samples GW09D01B, GW07S01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

2-Nitroanaline was "R" in samples GW07D01B

3-Nitroanaline was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

3-Nitroanaline was "R" in samples GW07S01B

2,4-Dinetrophenol was "UJ" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitrophenol was "UJ" in samples GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitroanaline was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16S01B, GW16D01B, GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

4-Nitroanaline was "R" in samples GW07S01B, GW07D01B

4-6-Dinitro-2-Methylphenol was "UJ" in samples GW09D01B, Gw07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorobenzene was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Hexachlorobenzene was "R" in samples GW07D01B

Pentachlorophenol was "UJ" in samples GW09D01B, GW07S01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW17D01B, GW15D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

Pentachlorophenol was "J" in samples GW07D01B

Di-n-butylphthalate was "R" in samples GW07S01B, GW07D01B

Butylphthalate was "UJ" in samples GW09D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B

Butylphthalate was "R" in samples GW07S01B, GW07D01B

Di-n-octylphthalate was "R" in samples GW07S01B

Indeno(1,2,3-CD) Pyrene was "UJ" in samples GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

Dibenzo(A,H) Anthracene was "UJ" in samples GW17D01B, GW04S01B, GW02S01B, SW0101B, SW0301B

Benzo(G,H,I)Perylene was "UJ" in samples GW17D01B, GW04S01B,GW02S01B, SW0101B, SW0301B.

Di-n-octylphthalate was "UJ" in samples TB03, SPW0301B, SPW0201B.

Hexachlorocyclopentadiene and Di-n-octylphthalate were "UJ" in samples SPW0101B, GW18S01B, GW18I01B,GW08S01B, for %D>25.
All base/neutral in sample GW07S01B were rejected "R", except Di-n-butylphthalate and bis(2-Ethylhexyl)phthalate

All base/neutral in sample GW07D01B were rejected "R", except Naphthalene, bis(2-Ethylhexyl)phthalate, and Di-n-phthalate for surrogates recoveries.

Pyrene, Benzoanthracene, and Chrysene were "J" in sample GWSD0101B

Butylbenzylphthalate, 3,3'-Dichlorobenzidine, and bis(2-Ethylhexyl)phthalate were "UJ" in sample GWSD0101B

Di-n-octylphthalate, Indeno(1,2,3-CD)-pyrene, Dibenzo(A,H)-anthracene, and Benzo(G,H,I)-perylene were "UJ" in sample GWSD0101B

Benzo(b)fluoranthene, Benzo(k)fluoranthene, and Benzo(a)pyrene were "J" in sample GWSD0101B

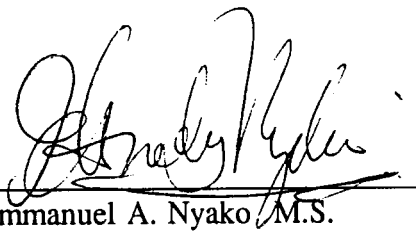
Pyrene, Butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, and Chrysene were "UJ" in sample GW02S01B

Bis(2-Ethylhexyl)phthalate was "J" in sample GW02S01B for internal standards.

Bis(2-ethylhexyl)phthalate was qualified with "U" in nine samples: GW09D01B, GW07S01B, GW07D01B, GW13D01B, GW06S01B, GW16I01B, GW16D01B, GW15D01B, GW02S01B; since the sample concentration was less than 10X the observed concentration in the blank.

Di-n-Butylphthalate was qualified with "U" in eight samples: GW09D01B, GW07S01B, GW07D01B, GW06S01B, GW16I01B, GW16D01B, GW15D01B, GW02S01B; since the sample concentration was less than 10X the observed concentration in the blank

No data qualifiers were applied to intenal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by:  Date:11 November 1993

Emmanuel A. Nyako M.S.

INORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	Stauffers Management Company, Skaneateles Falls, N.Y.
Sample Type:	Aqueous and soil
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931455

A. INTRODUCTION:

Twenty-four aqueous and five soil samples were analyzed for TAL metals and cyanide. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (1991)/USEPA Region 2 Standard Operating Procedure NO. HW-2 (Revision XI January 30, 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument calibration
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- CRDL standards for AA (CRA), and ICP (CRI)
- Initial calibration blank (ICB), continuing calibration blank (CCB), and preparation blank (PB)
- ICP interference check sample (ICS) analysis
- Spike sample analysis (S)
- Duplicate sample analysis (D)
- Laboratory control sample (LCS)
- ICP serial dilution analysis (L)
- Instrument detection limit (IDL) determination
- Interelement correction for ICP
- Linear Range analysis
- Furnace QC analysis

The holding time tables for mercury are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site:	Stauffers Management Company, Skaneateles Falls, N.Y.
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931455

Sample Identification:

Field ID	Lab ID
GW09D01B	11585
GW07S01B	11856
GW07D01B	11587
GW13001B	11589
GW06S01B	11590
GW15D01B	11592
GW16I01B	11691
GWI6D01B	11692
GW17D01B	11693
GW04S01B	11733
GWFB01B	11734
GW02S01B	11735
SW0101B	11737
SWDU01B	11738
SW0201B	11739
SW0301B	11744
SW0401B	11748
TB03B	11467
SPW0301B	11468
SPW0201B	11469
SPW0101B	11470
GW18S01B	11471
GW18I01B	11472
GW08S01B	11473
SD0101B	11740
SDDU01B	11741
SD0201B	11742
SD0301B	11745
SD0401B	11749

1. Sample Holding Time Before Analysis: All metal analyses were performed within ASP and USEPA prescribed holding times.

2. Instrument Calibration: All instruments were calibrated daily and dates and times clearly shown on the raw data.The proper sequence of the instrument blanks and standards were used. A three-point calibration for ICP and at least four-point calibration for furnace AA were used as required by the NYSDEC ASP.

3. Initial and Continuing Calibrations Verifications: The percent recovery for all analytes were within the prescribed window (90-110%). The ICV and the CCV standards were analyzed at the correct frequency in the injection sequence.

4. CRDL Standards for AA (CRA) and ICP (CRI): The CRDL standards were run at the frequency and appropriate concentration for each analyte. The percent recovery for silver(161.3%) and zinc(131.1%,127.4%,139%,136.7%) were outside the control limit(80-120%).

Action:

Silver was rejected "R" in sample SD0201B, and GW13D01B.

Zinc was qualified with a "J" in samples SPW0301B,SPW0201B, SPW0101B,GW18I01B,GW08S01B, GW09D01B,GW13D01B, GW15D01B,GW17D01B, and GW04S01B.

Zinc was qualified with a "UJ" in samples GWFB01B,SW0101B,SWDU01B, and SW0201B.

5. Laboratory Blanks: All laboratory blanks were analyzed at the correct frequency during the injection sequence. The aqueous and soil calibration and preparation blanks were below the CRDL except selenium(45.6 ug/l) which was abobe the CRDL in the calibration blank. No action was taken since selenium was qualified for poor spike recovery.

6. ICP Interference Check Sample (ICS) Analysis: The interference check sample percent recoveries were all within the acceptable window (80-120%).

7. Spiked Sample Analysis: The spike recoveries were outside acceptable range(75-125%) for antimony(47.0%,53.1%),arsenic(74.3%,58%,0.0%), cadmium(72.8%, 69.4%),lead(53.1%,73.9%,5.2%),selenium(56.3%,35.7%, 12.4%),thallium(73.1%0.0%), and cyanide(20%). The laboratory correctly qualified results with an "N".

Action:

Antimony was qualified with a "UJ" in samples SD0101B, SD0201B,SD0301B,SD0401B,SDDU01B,SW0301B, and SW0401B.

Cadmium was qualified with a "J" in samples SD0101B,SD0201B, SD0301B,SD0401B,SDDU01B,GW16I01B,GW16D01B,and GW02S01B.

Cadmium was qualified with a "UJ"in samples GW17D01B,GW04S01B,GWFB01B, SW0101B,SWDU01B, and SW0201B.

Lead was qualified with a "J" in samples SD0101B,SD0201B, SD0301B,SD0401B,SDDU01B,GW16I01B, GW16D01B,GW17D01B, GW04S01B,GW02S01B, and SW0201B. Lead was qualified with a "UJ" in samples GWFB01B,SW0101B, and SWDU01B. Lead was rejected "R" in samples SW0301B and SW0401B.

Selenium was qualified with a "UJ" in samples SD0101B, SDDU01B,GW16D01B,GW17D01B,GW04S01B,GWFB01B, GW02S01B,SW0101B,SWDU01B, and SW0201B. Selenium was qualified with a "J" in samples SD0201B, SD0301B,SD0401B, and GW16I01B. Selenium was rejected "R" in samples SW0301B and SW0401B.

Arsenic was qualified with a "UJ" in samples GW09D01B,GW13D01B,GW16D01B,GWFB01B,SW0101B,SWDU01B, and SW0201B. Arsenic was qualified with a "J" in samples GW07S01B,GW07D01B,GW06S01B,GW15D01B,GW16I01B, GW17D01B,GW04S01B,and GW02S01B. Arsenic was rejected "R" in samples SW0301B and SW0401B.

Thallium was qualified with a "UJ" in samples GW16I01B,GW16D01B,GW17D01B,GW04S01B,GWFB01B, GW02S01B,SW0101B,SWDU01B, and SW0201B. Thallium was rejected "R" in samples SW0301B and SW0401B.

Cyanide was "R" rejected in samples SD0101B,SDDU01B, SD0201B,SD0301B, and SD0401B.

8. Post-digestion Spike Analysis: The post-digestion spike analyses performed for antimony, cadmium, and lead were within the acceptable range. No action was required.

9. Duplicate Sample Analysis: The duplicate analyses were performed on both aqueous and soil samples. Calcium,cadmium,copper,manganese,magnesium, zinc, and cyanide were non-compliant due to duplicate analysis. The lab correctly qualified the affected analytes with asterisk(*). No action was required for calcium,cadmium,magnesium, and manganese as per SOP. Cadmium was already qualified for matrix spike, hence no further qualification was required.

Action:

Copper was qualified with a "J" in samples SD0101B, SD0201B,SD0301B,and SDDU01B for duplicate analysis.

Cyanide was qualified with a "J" in samples GW16I01B and GW02S01B. Cyanide was qualified with a "UJ" in samples GW16D01B,GW17D01B,GW04S01B,GWFB01B,SW0101B, SWDU01B,SW0201B,SW0301B, and SW0401B.

Zinc was qualified with a "J" in samples GW07S01B,GW07D01B,and GW06S01B.

10. Laboratory Control Sample Analysis: The laboratory control sample analysis was analyzed at the correct frequency. All percent recoveries were within acceptable range (80-120%) except selenium which had a recovery of 78.6%.

Action:

Selenium was qualified with a "J" in samples TB03B,SPW0201B, GW08S01B. Selenium was qualified with a "UJ" in samples SPW0301B,SPW0101B,GW18S01B, and GW18I01B.

11. ICP Serial Dilution Analysis: The ICP serial dilution were performed on both soil and aqueous samples. The percent difference for barium(18.3%),beryllium(100%), cadmium(100%),chromium(13.8%),cobalt(100%),copper(37.5%,55%),lead(23.8%), nicke(16.1%),sodium(11.5%),manganese(10.5%), and iron(166.8%) were greater than 10%. No action was required for barium,beryllium,cadmium,cobalt,lead,and nickel since the initial sample concentration was less than 10X IDL.

Action:

Sodium was qualified with a "J" in samples SD0301B for serial dilution.

Chromium was qualified with a "J" in samples SD0101B,SD0201B, SD0301B,SD0401B,and SDDU01B.

Copper was qualified with a "J" in samples GW18S01B and GW08S01B.

Manganese was qualified with a "J" in samples GW09D01B,GW7S01B, GW07D01B,GW13D01B,GW06S01B, and GW15D01B.

Iron was rejected "R" in samples GW16I01B,GW16D01B, GW17D01B,GW04S01B, and GW02S01B.

12. Instrument Detection Limit Analysis: The IDLs were generated in 12/30/92 by the laboratory. All the IDLs were lower than the CRDLs.

13. Interelement Correction for ICP: Interelement correction factor applied to soil and aqueous data had neither dates nor values on Form 11A-ICP. No action was required.

14. Linear Range Analysis: The linear range for the ICP was supplied by the laboratory. A comparison of the Form 1 results to Form XII showed that the observed concentrations of the analytes were within the linear range. The linear range was determined quarterly. No action was required.

15. Furnace QC Analysis: The analytical spike recovery for selenium,arsenic, antimony,lead, and thallium in most of the samples were out of control limits (85-115%), while sample absorbencies were less than 50% of spike absorbencies. The laboratory correctly qualified the results with a "W".

Action:

Thallium was qualified with a "UJ" in samples GW18S01B,GW18I01B,GW08S01B,GW07S01B,GW07D01B, and GW06S01B.

Arsenic was qualified with a "J" in sample SPW0301B.

Lead was qualified with a "J" in sample GW07S01B.

Selenium was qualified with a "J" in sample GW06S01B.

Antimony was qualified with a "J" in sample GW07D01B.

16. Calculations: All checked calculations were within rounding errors.

17. Other Q.C.: The percent solids for sample SD0301B was less than 50%. Positive values for analytes(Al,As,Ba,Be,Ca,Co,Fe,Mg,Mn,Hg,Ni,K,Na, V, and Zn) not previously qualified were estimated "J" ; nondetects (Ag, and Tl) were qualified with "UJ" as per SOP.
The following changes were made on Form 1 to reflect correct client sample number on the chain of custody form.

Old sample#	Correct sample#
SMC-GW07501B	SMC-GW07S01B
SMC-GW13001B	SMC-GW13D01B
SMC-GW06501B	SMC-GW06S01B
SMC-GW15001B	SMC-GW15D01B
SMC-GWI6I01B	SMC-GW16I01B
SMC-GWI6001B	SMC-GW16D01B
SMC-GW04501B	SMC-GW04S01B
SMC-GW02501B	SMC-GW02S01B
SMC-FB03B	SMC-TB03B

C. DATA LIMITATION OVERVIEW:

The inorganic analyses of water and soil samples from the SMC referenced as Lab.Report #931455, showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In sample GW07D01B,Arsenic was "J" for spike recovery. Zinc was "J" for duplicate analysis. Manganese was "J" for serial dilution. Thallium was "UJ" for furnace analysis. Antimony was "J" for furnace analysis.

In sample GW09D01B,zinc was estimated "J" for CRDL standards.Arsenic was rejected "UJ" for spike recovery. Manganese was "J" for serial dilution.

In sample GW13D01B,silver was rejected "R" for CRDL standards. Zinc was estimated "J" for CRDL standards. Arsenic was "UJ" for spike recovery. Manganese was "J" for serial dilution.

In sample GW16D01B,cadmium was estimated "J" for spike recovery. Lead was "J" for spike recovery. Selenium was "UJ" for spike recovery. Arsenic was "UJ" for spike recovery.Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis. Iron was rejected for serial dilution.

In sample GW17D01B,zinc was estimated "J" for CRDL standards. Cadmium was "UJ" for spike recovery. Lead was "J" for spike recovery .Selenium was "UJ" for spike recovery.Thallium was "UJ" for spike recovery. Arsenic was "J" for spike recovery. Cyanide was "UJ" for duplicate analysis. Iron was rejected "R" for serial dilution.

In sample GW02S01B,cadmium was estimated "J" for spike recovery. Lead was "J" for spike recovery. Selenium was "UJ" for spike recovery. Arsenic was "J" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "J" for duplicate analysis. Iron was rejected for serial dilution

In sample GW04S01B,zinc was estimated "J" for CRDL standards. Cadmium was "UJ" for spike recovery. Lead was "J" for spike recovery. Selenium was "UJ" for spike recovery. Arsenic was "J" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis. Iron was rejected "R" for serial dilution.

In sample GW06S01B,arsenic was "J" for spike recovery. Zinc was "J" for duplicate analysis. Manganese was "J" for serial dilution. Thallium was "UJ" for furnace analysis. Selenium was "J" for furnace analysis.

In sample GW07S01B,arsenic was rejected "J" for spike recovery. Zinc was "J" for duplicate analysis. Manganese was "J" for serial dilution. Thallium was "UJ" for furnace analysis. Lead was "J" for furnace analysis.

In sample GW08S01B,zinc was estimated "J" for CRDL standards. Selenium was "J" for LCS recovery. Copper was "J" for serial dilution. Thallium was "UJ" for furnace analysis.

In sample GW18S01B,was estimated "J" for duplicate analyses. Selenium was estimated "UJ" for laboratory control sample analysis. Copper was "J" for serial dilution. Thallium was "UJ" for furnace analysis.

In sample GW15D01B,zinc was estimated "J" for CRDL standards. Arsenic was "J" for spike recovery. Manganese was "J" for serial dilution.

In sample SW0101B,zinc was "UJ" for CRDL standards. Cadmium was "UJ" for spike recovery .Lead was "UJ" for spike recovery . Selenium was "UJ" for spike recovery. Arsenic was rejected "UJ" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis.

In sample SWDU01B,zinc was "UJ" for CRDL standards. Cadmium was "UJ" for spike recovery. Lead was "UJ" for spike recovery .Selenium was "UJ" for spike recovery. Arsenic was rejected "UJ" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis.

In sample SW0201B,zinc was "UJ" for CRDL standards. Cadmium was "UJ" for spike recovery. Lead was "J" for spike recovery. Selenium was "UJ" for spike recovery. Arsenic was rejected "UJ" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis.

In sample SW0301B,antimony was "UJ" for spike recovery. Lead was rejected "R" for spike recovery. Selenium was rejected "R" for spike recovery. Arsenic was rejected "R" for spike recovery. Thallium was rejected "R" for spike recovery. Cyanide was "UJ" for duplicate analysis. Silver and thallium were "UJ" for %solids less than 50%. The remaining analytes(Al,As,Ba,Be,Ca,Co,Fe,Mg,Mn,Hg,Ni,K,Na,V. and Tl.) were qualified with "J" for %solids less than 50%.

In sample SW0401B,antimony was "UJ" for spike recovery. Lead was rejected "R" for spike recovery. Selenium was rejected "R" for spike recovery.Arsenic was rejected "R" for spike recovery. Thallium was rejected "R" for spike recovery. Cyanide was "UJ" for duplicate analysis.

In sample TB03B,selenium was "J" for LCS recovery.

In sample GWFB01B,zinc was "UJ" for CRDL standards. Cadmium was "UJ" for spike recovery. Lead was "UJ" for spike recovery. Selenium was "UJ" for spike recovery. Arsenic was rejected "UJ" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "UJ" for duplicate analysis.

In sample SPW0301B, zinc was estimated "J" for CRDL standards. Selenium was "UJ" for LCS recovery. Arsenic was "J" for furnace analysis.

In sample SPW0201B, zinc was estimated "J" for CRDL standards. Cyanide was "J" for duplicate analyses.Selenium was "J" for LCS recovery.

In sample SPW0101B. zinc was estimated "J" for CRDL standards. cyanide was qualified with "UJ" for duplicate analysis.

In sample GW16I01B.cadmium was estimated "J" for spike recovery. Selenium was "J" for spike recovery. Arsenic was "J" for spike recovery. Thallium was "UJ" for spike recovery. Cyanide was "J" for duplicate analysis. Iron was rejected for serial dilution.

In sample GW18I01B.zinc was estimated "J" for CRDL standards. Selenium was estimated "UJ" for laboratory control sample analysis. Thallium was "UJ" for furnace analysis.

In sample SD0101B,antimony was "UJ" for spike recovery. Cadmium was estimated "J" for spike recovery. Selenium was "UJ" for spike recovery. Cyanide was rejected for spike recovery. Copper was "J" for duplicate analysis. Chromium was "J" for ICP serial dilution.

In sample SDDU01B,antimony was "UJ" for spike recovery. Cadmium was estimated "J" for spike recovery. Lead was "J" for spike recovery. Selenium was "UJ" for spike recovery. Cyanide was rejected for spike recovery. chromium was estimated "J" for serial dilution. Copper was "J" for duplicate analysis.

In sample SD0201B,silver was rejected "R" for CRDL standards. Antimony was "UJ" for spike recovery. Cadmium was estimated "J" for spike recovery. Lead was "J" for spike recovery. Selenium was "J" for spike recovery. Cyanide was rejected for spike recovery. Copper was "J" for duplicate analysis. Chromium was "J" for ICP serial dilution.

In sample SD0301B,antimony was "UJ" for spike recovery.Cadmium was estimated "J" for spike recovery. Lead was "J" for spike recovery.Selenium was "J" for spike recovery. Cyanide was rejected for spike recovery. Copper was "J" for duplicate analysis. Sodium was "J" for ICP serial dilution. Chromium was "J" for ICP serial dilution. Manganese was qualified with a "J" for serial dilution .

In sample SD0401B,antimony was "UJ" for spike recovery. Cadmium was estimated "J" for spike recovery.Lead was "J" for spike recovery. Selenium was "J" for spike recovery. Cyanide was rejected for spike recovery. Chromium was "J" for ICP serial dilution. iron was rejected "R" for serial dilution.

Prepared by: Emmanuel A. Nyako (Mon) Date: 7 Nov. 1993

Emmanuel A. Nyako ,M.S.

SUMMARY OF VALIDATED INORGANIC DATA

Site: SMC
LAB.REPORT#.931455
EA Laboratory Inc.

Sample	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
GW09D01B			UJ											J
GW07S01B			J									J		J
GW07D01B		J	J											J
GW13D01B			UJ											J
GW06S01B			J											J
GW15D01B			J											J
GW16I01B			J			J					R	J		
GW16D01B			UJ			J					R	J		
GW17D01B			J			UJ					R	J		
GW04S01B			J			UJ					R	J		
GWFB01B			UJ			UJ						UJ		
GW02S01B			J			UJ					R	J		
SW0101B			UJ			UJ						UJ		
SWDU01B			UJ			UJ						UJ		
SW0201B			UJ			UJ						J		
SW0301B		UJ	R									R		
SW0401B		UJ	R									R		
TB03B														
SPW0301B			J											
SPW0201B														
SPW0101B														
GW18S01B														
GW18I01B														
GW08S01B														
SD0101B		UJ				J		J		J		J		
SDDU01B		UJ				J		J		J		J		
SD0201B		UJ				J		J		J		J		
SD0301B	J	UJ	J	J	J	J	J	J	J	J	J	J	J	J
SD0401B		UJ				J		J		J		J		

U- The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
J- The analyte was positively identified, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be considered for decision making and usable for many purposes.
R- The data are unusable (may or may not be present). Resampling and reanalysis is necessary for verification.
NJ- Presumptive evidence of the presence of the material at an estimated quantity.
UJ- The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Sample	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	CN	TOC
GW09D01B									J		N/A
GW07S01B							UJ		J		N/A
GW07D01B							UJ		J		N/A
GW13D01B					R				J		N/A
GW06S01B				J			UJ		J		N/A
GW15D01B									J		N/A
GW16I01B				J			UJ			J	N/A
GW16D01B				UJ			UJ			UJ	N/A
GW17D01B				UJ			UJ		J	UJ	N/A
GW04S01B				UJ			UJ		J	UJ	N/A
GWFB01B				UJ			UJ		UJ	UJ	N/A
GW02S01B				UJ			UJ		UJ	J	N/A
SW0101B				UJ			UJ		UJ	UJ	N/A
SWDU01B				UJ			UJ		UJ	UJ	N/A
SW0201B				UJ			UJ			UJ	N/A
SW0301B				R			R			UJ	N/A
SW0401B				R			R			UJ	N/A
TB03B				J							N/A
SPW0301B				UJ					J		N/A
SPW0201B				J					J		N/A
SPW0101B				UJ					J		N/A
GW18S01B				UJ			UJ				N/A
GW18I01B				UJ			UJ		J		N/A
GW08S01B				J			UJ		J		N/A
SD0101B				UJ						R	N/A
SDDU01B				UJ						R	N/A
SD0201B				J	R					R	N/A
SD0301B	J	J	J	J	UJ	J	UJ	J	J	R	N/A
SD0401B				J						R	N/A

INORGANICS : TABLE OF HOLDING TIMES

Site:SMC.
LAB.REPORT#:931455
EA Laboratory Inc.

	EA Sample ID	Lab ID	Matrix	Fraction	Sampled	Received	Holding Date Prepared	NYSDEC Date Analyzed	Holding Time S->P;P->A	Exceedance? Criteria	Exceedance?
1	GW09D01B	11585	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
2	GW07S01B	11586	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
3	GW07D01B	11587	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
4	GW13D01B	11589	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
5	GW06S01B	11590	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
6	GW15D01B	11592	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-27-93	21;1	28	No
7	GW16I01B	11691	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-28-93	19;2	28	No
8	GW16D01B	11692	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-28-93	19;2	28	No
9	GW17D01B	11693	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-28-93	19;2	28	No
10	GW04S01B	11733	aqueous	Hg	10-07-93	10-07-93	10-26-93	10-28-93	19;2	28	
11	GWFB01B	11734	aqueous	Hg	10-07-93	10-09-93	10-26-93	10-28-93	19;2	28	No
12	GW02S01B	11735	aqueous	Hg	10-08-93	10-09-93	10-26-93	10-28-93	18;2	28	No
13	SW0101B	11737	aqueous	Hg	10-08-93	10-09-93	10-26-93	10-28-93	18;2	28	No
14	SWDU01B	11738	aqueous	Hg	10-08-93	10-09-93	10-26-93	10-28-93	18;2	28	No
15	SW0201B	11739	aqueous	Hg	10-08-93	10-09-93	10-26-93	10-28-93	18;2	28	No
16	SW0301B	11744	aqueous	Hg	10-08-93	10-09-93	N/A	N/A	N/A	N/A	N/A
17	SW0401B	11748	aqueous	Hg	10-08-93	10-09-93	N/A	N/A	N/A	N/A	N/A
18	TB03B	11467	aqueous	Hg	9-30-93	10-02-93	10-18-93	10-20-93	19;2	28	No
19	SPW0301B	11468	aqueous	Hg	9-30-93	10-02-93	10-18-93	10-20-93	19;2	28	No
20	SPW0201B	11469	aqueous	Hg	9-30-93	10-02-93	10-18-93	10-20-93	19;2	28	No
21	SPW0101B	11470	aqueous	Hg	9-30-93	10-02-93	10-18-93	10-20-93	19;2	28	No
22	GW18S01B	11471	aqueous	Hg	10-01-93	10-02-93	10-18-93	10-20-93	19;2	28	No
23	GW18I01B	11472	aqueous	Hg	10-01-93	10-02-93	10-18-93	10-20-93	19;2	28	No
24	GW08S01B	11473	aqueous	Hg	10-01-93	10-02-93	10-18-93	10-20-93	19;2	28	No
25	SD0101B	11740	soil	Hg	10-08-93	10-09-93	10-29-93	11-01-93	21;2	28	No
26	SDDU01B	11741	soil	Hg	10-08-93	10-09-93	10-29-93	11-01-93	21;2	28	No
27	SD0201B	11742	soil	Hg	10-08-93	10-09-93	10-29-93	11-01-93	21;2	28	No
28	SD0301B	11745	soil	Hg	10-08-93	10-09-93	10-29-93	11-01-93	21;2	28	No
29	SD0401B	11749	soil	Hg	10-08-93	10-09-93	10-29-93	11-01-93	21;2	28	No

All ICP metal and cyanide analyses were performed within holding times
Samples were analyzed following SOW 3/90

Signature._____

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ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site: SMC
Sample Type: Water(5)
Analysis Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931339

A. INTRODUCTION

Five aqueous samples were analyzed for semivolatile Organics. The analytical results were validated to confirm compliance with the (NYSDEC) Analytical Services Protocol(19191)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: SMC
Type: Semivolatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931339
Sample Identification:

Field ID	Lab ID
GWBS01B	10446
GWAQUO1B	10448
GWBR01B	10449
GWSF01B	10450
GWFB201B	10451

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All semivolatile analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with DFTPP. All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of BNAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

RSD>30%	hexachlorocyclopentadiene	32.562
	m-toluic acid	32.525

Action(s):

Hexachlorocyclopentadiene was qualified with a "UJ" in samples GWBS01B,GWAQU01B,GWBR01B,GWSF01B, and GWFB201B for RSD>30%

M-toluic acid was qualified with a "UJ" in samples GWSF01B, and GWFB201B for RSD>30%

M-toluic acid was qualified with a "J" in samples GWBS01B,GWAQU01B, and GWBR01B for RSD>30%

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of eight indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the BNA analyses were outside the acceptable limits for 2-fluourobiphenyl(in sample GWSF01B), 2-flourobiphyenyl and 1,2-dichlorobenzene-d14(in sample GWBR01B),and terphenyl-d14(in samples GWBS01B,GWAQU01B, and GWBR01B). No action was required as per SOP.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon six internal standards. All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. Three MS/MSD recoveries in the BNA analyses were outside the acceptable limits. No action was required as per SOP.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the BNA analyses were within acceptable limits.

8. Analysis Sequence:BNA sample analyses are required to be run within 12 hours of GC/MS tune. The BNA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. One BNA method blank was analyzed. One method blank was not contaminated with any target compound.

10. Field Blank Contamination:The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. One field blank was analyzed. There was no contamination in the field blank.

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All BNA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the BNA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC:M-toluic acid exceeded calibration range in sample GWBS01B. .The laboratory correctly qualified the result with a"E". The reviewer transferred the m-toluic result from diluted sample to undiluted sample. The Form 1 of the undiluted sample should be used. Similarly ,o-toluic acid in sample GWAQU01B and 4-methylphenol in sample GWSF01B exceeded calibration range. The Form 1 of the undiluted sample should be used.

C. DATA LIMITATION OVERVIEW:

The BNA analyses of five aqueous samples from SMC referenced as Report# 931339 showed compliance with QC requirements of NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except the following:

In sample GWBS01B,hexachlorocyclopentadiene was qualified with a "UJ" for RSD>30%. M-toluic acid was qualified with a "J" for RSD>30%.

In sample GWAQU01B,hexachlorocyclopentadiene was qualified with a "UJ" for RSD>30%. M-toluic acid was qualified with a "J" for RSD>30%.

In sample GWBR01B,hexachlorocyclopentadiene was qualified with a "UJ" for RSD>30%. M-toluic acid was qualified with a "J" for RSD>30%.

In sample GWSF01B, hexachlorocyclopentadiene was qualified with a "UJ" for RSD>30%. M-toluic acid was qualified with a "UJ" for RSD>30%.

In sample GWFB201B,hexachlorocyclopentadiene was qualified with a "UJ" for RSD>30%. M-toluic acid was qualified with a "UJ" for RSD>30%.

No data qualifiers were applied to internal laboratory QC samples (e.g.MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by: _____ Date:20 December 1993
Emmanuel A. Nyako M.S.

SUMMARY OF ORGANIC QUALIFIERS

Site: SMC Skaneateles Falls, NY
Report No:931339
EA Laboratory Inc.

Sample	PHL	BceE	2CP	13DCB	14DCB	ByA	12DCB	2MP	BcipE	4MP	NnpA	HcE	NB	ISO	2NP	24DmP	BzA
GWBS01B																	
GAQU01B																	
GWBR01B																	
GWSF01B																	
GWFB201B																	

U- The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

J- The analyte was positively identified, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be considered for decision making and usable for many purposes.

R- The data are unusable (may or may not be present). Resampling and reanalysis is necessary for verification.

NJ- Presumptive evidence of the presence of the material at an estimated quantity.

UJ- The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

931339/TABBNA11.WQ1

Summary of Semi-volatile Organic Qualifiers (Cont)

Sample	BceM	24DcP	124TCB	NAP	4CA	HCBu	4CmP	2MeN	HCcpD	246TcP	245TcP	2CN	2NA	DMP
GWBS01B									UJ					
GAQU01B									UJ					
GWBR01B									UJ					
GWSF01B									UJ					
GWFB201B									UJ					

Summary of Semi-volatile Organic Qualifiers (Cont)

Sample	4BppE	HCB	PCP	PHEN	ANT	FLUOR	PYR	BBP	33DCB	BaA	Chry	BEHP	DOP	M-TA	P-TA	O-TA
GWBS01B														J		
GAQU01B														J		
GWBR01B														J		
GWSF01B														UJ		
GWFB201B														UJ		

ORGANICS : TABLE OF HOLDING TIMES

Site: SMC
Report #931339
EA Laboratory Inc.

	EA Sample ID	Lab ID	Matrix	Fraction	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed	Holding Times S->E;R->E; E->A	NYSDEC Criteria R->E; E->A	USEPA Criteria S->E; E->A	Exceedance? NYSDEC	Exceedance? USEPA
1	GWBS01BB	10446	aqueous	BNA	09-14-93	09-15-93	09-16-93	09-24-93	2;1;8	5;40	7;40	No	No
2	GWAQU01B	10448	aqueous	BNA	09-14-93	09-15-93	09-16-93	09-24-93	2;1;8	5;40	7;40	No	No
3	GWBR01B	10449	aqueous	BNA	09-14-93	09-15-93	09-16-93	09-24-93	2;1;8	5;40	7;40	No	No
4	GWSF01B	10450	aqueous	BNA	09-14-93	09-15-93	09-16-93	09-24-93	2;1;8	5;40	7;40	No	No
5	GWFB201B	10451	aqueous	BNA	09-14-93	09-15-93	09-16-93	09-24-93	2;1;8	5;40	7;40	No	No

Samples were analyzed following SOW 3/90

Signature. CW

931339\HTBNA11.wq1

ORGANIC DATA VALIDATION AND LIMITATION REPORT

Project Site:	Stauffers Management Company,Skaneateles Falls,NY
Sample Type:	Aqueous(5)
Analysis Type:	Pesticides/PCBs
Laboratory:	EA Laboratories
Report No.:	931339

A. INTRODUCTION

Five aqueous samples were analyzed for Pesticide/PCBs. The analytical results were validated following EPA Region 2 Standard Operating Procedure No. HW-6 (Revision #8, 1/92). In addition, a compliance check with the NYSDEC ASP was performed. The following information was used to validate the analytical results:

- Sample hold time before analysis
- Surrogate Recoveries
- MS/MSD analyses
- Method blank contamination
- Field blank contamination
- Calibration and GC performance
- Analysis sequence
- Cleanup efficiency verification
- Compound identification
- Chromatogram quality
- Calculations
- Other QC

The holding time summary table and summary of qualified data are attached.

B. CONTRACT AND TECHNICAL REVIEW

Project Site: Stauffers Management Company,Skaneateles Falls,NY
Sample Type: Aqueous
Analysis Type: Pesticide/PCBs
Laboratory: EA Laboratories
SDG No.: N/A

Sample Identification:

Field ID	Lab ID
GWBS01B	10446
GWAQU01B	10448
GWBR01B	10449
GWSF01B	10450
GWFB201B	10451

Contract and Technical Review (CTR) Comments

1. Sample Hold Before Analysis: All Pesticide/PCB analyses were performed within the NYSDEC ASP and EPA technical holding times.

2. Surrogate Recovery: Surrogates measure the ability of the laboratory to extract the targeted analytes by evaluating the recovery of 2 indicator compounds (tetrachloro-m-xylene and decachlorobiphenyl), which are structurally similar to some of the targeted analytes, as indicators for all of the analytes. The two surrogate recoveries(%R) were outside ASP contractual and EPA technical QC limits.The associated samples are listed below.

Sample#	TCX	DCB
GWAQU01B	46	0/0
GWBR01B	52/50	23/22
GWBS01B		0/0
GWFB201B		20/20
GWSF01B	0/0	0/0

Action:

The surrogate recoveries were between 10 and 60%. The "UJ" qualifier was applied to all non-detect compounds in sample GWBR01B. The surrogates were completely diluted out in samples GWBS01B,GWAQU01B, and GWSF01B. No action was required as per SOP.

3. MS/MSD Analyses: The MS/MSD recoveries and RPDs were determined for six of the targeted analytes. All RPDs complied with ASP contractual and EPA technical requirements. Six spike recoveries were outside the required QC criteria. No action was required as per SOP.

4. LCS Analysis: Percent recovery for six of the targeted analytes was also determined for an LCS sample. The six spike recoveries were compliant.

5. Method Blank Contamination: A method blank measures the potential for false-positive results introduced by internal laboratory contamination. The method blanks contained no targeted analytes.

6. Rinsate Blank Contamination: The rinsate blank (RB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The rinsate blank provided with the samples contained no target analytes.

7. Initial Calibration: A three-point calibration for single component pesticides and one-point calibration for multicomponent pesticides/PCBs is required. The relative standard deviations (RSDs) of the calibration factors must be less than 20%. The RSDs were compliant with the QC requirements.

8. Analyte Resolution: To ensure proper analyte separation on the GC column, the resolution of closely eluting compound peaks is evaluated. Peak resolution was compliant for all compounds and both GC columns.

9. Performance Evaluation Mixtures: The PEM is used to verify that the initial calibration is stable throughout the GC analyses. The calculated relative percent difference %D (labeled as "RPD") for each PEM analyte complied with QC requirements.

10. Pesticide Calibration Verification: The relative percent difference %D (labeled as "RPD") of calculated amount and the true amount of each of the single component pesticides in mid point concentration of the Individual Standard Mixtures used to demonstrate continuing calibration must be less or equal to 25%. All the compounds complied with the QC requirement..

10. Analysis Sequence: Pesticide/PCB analyses are required to follow a specific initial and continuing calibration sequence. The analyses complied with the ASP and EPA required sequence.

11. Cleanup Efficiency Verification: All pesticide/PCB analyses must undergo florisil cleanup and may also undergo sulfur and GPC cleanup (the latter is required for soil samples). The samples did not undergo GPC cleanup. No action was required.

12. Compound Identification : Verification of identification of an analyte is based upon the retention time of the analyte falling within the retention time windows on two columns. In addition, the percent difference between the concentrations of the compounds in the two columns should not exceed 25%. No compound was detected.

13 Other QC: None.

C. DATA LIMITATION OVERVIEW :

The pesticides/pcbs analyses of five water samples from the Report #931339 showed compliance with the requirement of the NYSDEC ASP/USEPA Region 2 SOP, and all the data are considered valid and acceptable except the following:

In sample GWBR01B, all compounds were qualified with a "UJ" for the surrogate recoveries were between 10 and 60%.

No data qualifiers were applied to internal laboratory QC samples (e.g., MS/MSDs, method blanks). No qualifiers were applied since these analyses are normally not provided to the data user.

Prepared by: _____ Date:20 December 1993

Emmanuel A. Nyako.

Summary of Pesticide/PCB Qualifiers

Site: SMC Skaneateles Falls, NY
REPORT No:931339
EA Laboratory Inc.

Sample	aBHC	bBHC	dBHC	gBHC	HpCL	ALD	HpEp	EndS1	DIELD	DDE	END	EndSII	DDD	EndSS
GWBS01B														
GWAQO01b														
GWBR01B	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
GWSF01B														
GWFB201B														

U- The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
J- The analyte was positively identified, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be considered for decision making and usable for many purposes.
R- The data are unusable (may or may not be present). Resampling and reanalysis is necessary for verification.
NJ- Presumptive evidence of the presence of the material at an estimated quantity.
UJ- The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

931339/TBPEST11.WQ1

Summary of Pesticide/PCB Qualifiers (Cont)
REPORT No:931339

Sample	DDT	MeCH	EnK	EnA	aCHL	gCHL	TOX	A1016	A1221	A1232	A1242	A1248	A1254	A1260
GWBS01B														
GWAQO01b														
GWBR01B	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
GWSF01B														
GWFB201B														

ORGANICS : TABLE OF HOLDING TIMES

Site: SMC
Report #931339
EA Laboratory Inc.

	EA Sample ID	Lab ID	Matrix	Fraction	Date Sampled	Date Lab Received	Date Extracted	Date Analyzed	Holding Times S->E;R->E; E->A	NYSDEC Criteria R->E; E->A	USEPA Criteria S->E; E->A	Exceedance? NYSDEC	Exceedance? USEPA
1	GWBS01BB	10446	aqueous	Pest/pcbs	09-14-93	09-15-93	09-16-93	10-19-93	2;1;33	5;40	7;40	No	No
2	GWAQU01B	10448	aqueous	Pest/pcbs	09-14-93	09-15-93	09-16-93	10-19-93	2;1;33	5;40	7;40	No	No
3	GWBR01B	10449	aqueous	Pest/pcbs	09-14-93	09-15-93	09-16-93	10-19-93	2;1;33	5;40	7;40	No	No
4	GWSF01B	10450	aqueous	Pest/pcbs	09-14-93	09-15-93	09-16-93	10-18-93	2;1;32	5;40	7;40	No	No
5	GWFB201B	10451	aqueous	Pest/pcbs	09-14-93	09-15-93	09-16-93	10-19-93	2;1;33	5;40	7;40	No	No

Samples were analyzed following SOW 3/90

Signature.

931339\HTBNA11.wq1

INORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	Stauffers Management Company, Skaneateles Falls, NY.
Sample Type:	Aqueous (5)
Analysis Type:	TAL Metals and Cyanide
Laboratory:	EA Laboratories
Report No.:	931339

A. INTRODUCTION:

Five aqueous samples were ananlyzed for TAL metals and cyanide. The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (1991)/USEAP A Region 2 Standard Operating Procedure NO. HW-2 (Revision XI January 30, 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument calibration
- Initial calibration verification (ICV) and continuing calibration verification (CCV)
- CRDL standards for AA (CRA), and ICP (CRI)
- Initial calibration blank (ICB), continuing calibration blank (CCB), and preparation blank (PB)
- ICP interference check sample (ICS) analysis
- Spike sample analysis (S)
- Duplicate sample analysis (D)
- Laboratory control sample (LCS)
- ICP serial dilution analysis (L)
- Instrument detection limit (IDL) determination
- Interelement correction for ICP
- Linear Range analysis
- Furnace QC analysis

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: Stauffers Management Company,Skaneateles Falls, NY.
Analysis Type: TAL Metals and Cyanide
Laboratory: EA Laboratories
Report No.: 931339

Sample Identification:

Field ID	Lab ID
GWBS01B	10446
GWAQU01B	10448
GWBR01B	10449
GWSF01B	10450
GWFB201B	10451

1. Sample Holding Time Before Analysis: All metal analyses were performed within ASP and USEPA prescribed holding times.

2. Instrument Calibration: All instruments were calibrated daily and dates and times clearly shown on the raw data.The proper sequence of the instrument blanks and standards were used. A three-point calibration for ICP and at least four-point calibration for furnace AA were used as required by the NYSDEC ASP.

3. Initial and Continuing Calibrations Verifications: The percent recovery for all analytes were within the prescribed window (90-110%). The ICV and the CCV standards were analyzed at the correct frequency in the injection sequence.

4. CRDL Standards for AA (CRA) and ICP (CRI): The CRDL standards were run at the frequency and appropriate concentration for each analyte. The percent recoveries for silver(151.8,149.9) was outside the control limit(80-120%). No action was required for silver since it was not detected in associated sample.

5. Laboratory Blanks: All laboratory blanks were analyzed at the correct frequency during the injection sequence. The aqueous calibration and preparation blanks contained traces of calcium,magnesium,lead,iron, and sodium. All the concentrations were below the CRDL,hence no action was required.

6. ICP Interference Check Sample (ICS) Analysis: The interference check sample percent recoveries were all within the acceptable window (80-120%).

7. Spiked Sample Analysis: The spike recoveries were outside acceptable range(75-125%) for selenium(20.3%) and thallium(72.5%). The laboratory correctly qualified selenium and thallium results with an "N".

Action:

Selenium was rejected in all the five samples for spike recovery less than 30%.

Thallium was qualified with a "UJ" in all samples for spike recovery between 30 and 75%.

8. Post-digestion Spike Analysis: The post-digestion spike analyses were not performed on the analytes out of control limit. No action was required.

9. Duplicate Sample Analysis: The duplicate analyses were performed aqueous samples. All the analytes were within the control limit as per SOP.

10. Laboratory Control Sample Analysis: The laboratory control sample analysis was analyzed at the correct frequency. All percent recoveries were within acceptable range (80-120%).

11. ICP Serial Dilution Analysis: The ICP serial dilution was performed on aqueous samples. The percent difference for sodium(64.2%) was outside the control limit(10%).

Action:

Sodium was qualified with a "J" in samples GW1BS01B, GWAQU01B,GWBR01B, and GWSFB01B for serial dilution.

12. Instrument Detection Limit Analysis: The IDLs were generated in 1992 by the laboratory. All the IDLs were lower than the CRDLs.

13. Interelement Correction for ICP: Interelement correction factor applied to aqueous data were acceptable. No action was required.

14. Linear Range Analysis: The linear range for the ICP was supplied by the laboratory. A comparison of the Form 1 results to Form XII showed that the observed concentrations of the analytes were within the linear range. The linear range was not determined quarterly. No action was required.

15. Furnace QC Analysis: The analytical spike recovery for selenium and thallium in most of the samples were out of control limits (85-115%), while sample absorbencies were less than 50% of spike absorbencies. The laboratory correctly qualified the results with a "W". The thallium and selenium results in the samples were previously qualified for spike recovery.

16. Calculations: All checked calculations were within rounding errors.

17. Other Q.C.: None.

C. **DATA LIMITATION OVERVIEW**:

The inorganic analyses of water samples from the SMC Skaneateles Falls,NY referenced as Report No. 931339,showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP, and all data are considered valid and acceptable except for the following:

In sample GWBS01B,selenium was rejected "R' for spike recovery less than 30%. Thallium was qualified with a "UJ" for spike recovery between 30 and 75%. Sodium was qualified with a "J" for serial dilution.

In sample GWAQU01B,selenium was rejected "R' for spike recovery less than 30%. Thallium was qualified with a "UJ" for spike recovery between 30 and 75%. Sodium was qualified with a "J" for serial dilution.

In sample GWBR01B,selenium was rejected "R' for spike recovery less than 30%. Thallium was qualified with a "UJ" for spike recovery between 30 and 75%. Sodium was qualified with a "J" for serial dilution.

In sample GWSF01B,selenium was rejected "R' for spike recovery less than 30%. Thallium was qualified with a "UJ" for spike recovery between 30 and 75%. Sodium was qualified with a "J" for serial dilution.

In sample GWFB201B,selenium was rejected "R' for spike recovery less than 30%. Thallium was qualified with a "UJ" for spike recovery between 30 and 75%.

Prepared by:  Date: 20 Dec. 1993

Emmanuel A. Nyako M.S.

SUMMARY OF VALIDATED INORGANIC DATA

Site: SMC
LAB.REPORT#.931339
EA Laboratory Inc.

Sample	Al	Sb	As	Ba	Be	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn
GWBS01B														
GWAQU01B														
GWBR01B														
GWSF01B														
GWFB201B														

U- The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

J- The analyte was positively identified, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be considered for decision making and usable for many purposes.

R- The data are unusable (may or may not be present). Resampling and reanalysis is necessary for verification.

NJ- Presumptive evidence of the presence of the material at an estimated quantity.

UJ- The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Sample	Hg	Ni	K	Se	Ag	Na	Tl	V	Zn	CN	TOC
GWBS01B				R		J	UJ				N/A
GWAQU01B				R		J	UJ				N/A
GWBR01B				R		J	UJ				N/A
GWSF01B				R		J	UJ				N/A
GWFB201B				R			UJ				N/A

INORGANICS : TABLE OF HOLDING TIMES

Site:SMC.
REPORT#:931339
EA Laboratory Inc.

	EA Sample ID	Lab ID	Matrix	Fraction	Sampled	Received	Holding Date Prepared	NYSDEC Date Analyzed	Holding Time S->P;P->A	Exceedance? Criteria	Exceedance?
1	GWBS01BB	10446	aqueous	Hg	9-14-93	9-15-93	9-27-93	9-27-93	13;0	28	No
2	GWAQU01B	10448	aqueous	Hg	9-14-93	9-15-93	9-27-93	9-27-93	13;0	28	No
3	GWBR01BB	10449	aqueous	Hg	9-14-93	9-15-93	9-27-93	9-27-93	13;0	28	No
4	GWSF01B	10450	aqueous	Hg	9-14-93	9-15-93	9-27-93	9-27-93	13;0	28	No
5	GWFB201B	10451	aqueous	Hg	9-14-93	9-15-93	9-27-93	9-27-93	13;0	28	No

All ICP metal and cyanide analyses were performed within holding times
Samples were analyzed following SOW 3/90

Signature. EW

931339\HTINOR11.wq1

ORGANIC DATA LIMITATION AND VALIDATION REPORT

Project Site:	Stauffer Managemnt Company,Skaneateles Falls,N.Y.
Sample Type:	Aqueous(6)
Analysis Type:	Volatiles Organics
Laboratory:	EA Laboratories Inc.
Report No:	931339

A. INTRODUCTION

Six water samples were analyzed for Volatile Organics.The analytical results were validated to confirm compliance with the New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol(1991)/USEPA Region 2 Standard Operating Procedure No. HW-6 (Revision No. 8 January 1992). The following information was used to validate the analytical results:

- Sample holding time before analysis
- Instrument tune
- Initial and continuing calibration
- Surrogate recoveries
- Internal standard areas
- MS/MSD analyses
- Laboratory control samples
- Analysis Sequence
- Method blank contamination
- Compound identification and Ion spectra match
- Chromatogram quality
- Calculations
- Other QC

The holding time tables are attached to this report.

B. CONTRACT AND TECHNICAL REVIEW

Site: Stauffer Managemnt Company,Skaneateles Falls,N.Y.
Type: Volatiles Organics
Laboratory: EA Laboratories Inc.
Report No.: 931339
Sample Identification:

Field ID	Lab ID
GWBS01B	10446
GWAQU01B	10448
GWBR01B	10449
GWSF01B	10450
GWFB201B	10451
TRIP BLK 06	10452

Contract and Technical Review (CTR) Comments

1. Sample Hold Time Before Analysis: All VOA analyses were performed within NYSDEC ASP contractual and EPA technical holding times.

2. Instrument Tune: The GC/MS was tuned with BFB (VOA). All QC criteria were compliant and all samples were analyzed within 12 hours of the tune.

3. Initial and Continuing Calibrations:In the initial calibration of VOAs, the relative response factors (RRFs) and relative standard deviations (RSDs) of each analyte in the multi-concentration calibration is assessed. In the continuing calibration, the RRF and percent difference of the RRFs (%D) of each analyte is assessed. The following non-compliance were noted in one or more calibrations.

   RSD>30% acetone(31.289)

   Action(s):

   Acetone was qualified with a "UJ" in samples GWBS01B,GWAQU01B, GWBR01B,GWFB201B, and TRIP BLK 06 for RSD>30%

   Acetone was qualified with a "J" in sample GWSF01B for RSD>30

4. Surrogate Recovery:Surrogates measures the ability of the laboratory to extract the targeted analytes by evaluating the recovery of three indicator compounds which are structurally similar to some targeted analytes as indicators for all the analytes. The surrogate recoveries for the VOA analyses were within acceptable limits.

5. Internal Standards:GC/MS analytes concentrations are calculated based on the analytes detector response normalized to a standard(s) injected with the sample. Quantification was based upon three internal standards (bromochloromethane, 1,4-difluorobenzene, and chlorobenzene). All internal standards areas were compliant.

6. Matrix Spike/Matrix Spike Duplicate:The MS/MSD recovery measures the potential for matrix interferences in the recovery of selected spiking compounds. The MS/MSD recoveries in the VOA analyses were within acceptable limits.

7. LCS Recoveries:The LCS (or matrix spike blank) measures the ability to recover selected analytes in water sample and is used to confirm that the laboratory can comply with the sample extraction analysis requirements. The LCS recoveries in the VOA analyses were within acceptable limits.

8. Analysis Sequence:VOA sample analyses are required to be run within 12 hours of GC/MS tune. The VOA analyses complied with the analysis sequences.

9. Method Blank Contamination:A method blank measures the potential for false-positive results introduced by internal laboratory contamination. A total of two VOA method blanks were analyzed. The two blanks were not contaminated with target compounds.

10. Field and Trip Blank Contamination:Field and Trip Blank Contamination :The field blank (FB) measures the potential for false-positive results introduced by improper field decontamination procedures of sampling equipment. The trip blank (TB) measures the potential for false-positive results introduced during sample holding in the shipping containers. The trip blank(10452) was not contaminated with target compounds..

11. Compound Identification and Spectra Match:Verification of identification of an analyte is based upon the match between the relative ratios of the molecular fragments to the corresponding standard fragments in the GC/MS analysis of VOA compounds. All VOA ion spectra for the targeted analytes correctly matched the standard spectra.

12. Chromatogram Quality:The quality of the VOA chromatograms are evaluated to determine whether there are any interfering unknowns present which prevent the identification of the targeted analytes. All chromatograms were of acceptable quality.

13. Calculations:The reported analyte concentrations and any internal QC calculations are verified for their accuracy. All checked calculations were correct within rounding errors.

14. Other QC:Xylene exceeded calibration range in samples GWBS01B and GWAQU01B. The laboratory correctly qualified the values with a "E". The reviewer transfered xylene values from diluted samples to undiluted samples. The Form 1 of the original samples should be used.

C. DATA LIMITATION OVERVIEW:

The VOA analyses of six water samples from the Report # 931339 showed compliance with the QC requirements of the NYSDEC ASP/USEPA Region 2 SOP,and all data are considered valid and acceptable except for the following:

In sample GWBS01B,acetone was qualified with a"UJ" for RSD>30%

In sample GWAQU01B,acetone was qualified with a"UJ" for RSD>30%

In sample GWFB201B,acetone was qualified with a"UJ" for RSD>30%

In sample GWBR01B,acetone was qualified with a"UJ" for RSD>30%

In TRIP BLK 06(10452),acetone was qualified with a"UJ" for RSD>30%

In sample GWSF01B,acetone was qualified with a"J" for RSD>30

No data qualifiers were applied to internal laboraatory QC samples (e.g. MS/MSD, method blanks). No qualifiers were applied since these analyses are not provided to the data user.

Prepared by:_____ Date:20 December 1993
Emmanuel A. Nyako M.S.

Summary of Volatile Organic Qualifiers
REPORT No:931339

sample	ClMe	BrMe	VCl	ClEt	MeCl	Ace	CS2	11DCE	11DC	12DCE	CHCL3	12DC	MEK	111TCA	CCl4	VAcet	BDCM	TCE
GWBS01B						UJ												
GWAQU01B						UJ												
GWBR01BB						UJ												
GWSF01B						UJ												
GWFB201B						J												
TRP.BLK.06						UJ												

U- The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.

J- The analyte was positively identified, but the associated numerical value may not be an accurate representation of the amount actually present in the environmental sample. The data should be considered for decision making and usable for many purposes.

R- The data are unusable (may or may not be present). Resampling and reanalysis is necessary for verification.

NJ- Presumptive evidence of the presence of the material at an estimated quantity.

UJ- The material was analyzed for but was not detected. The sample quantitation limit is an estimated quantity.

Summary of Volatile Organic Qualifiers (Cont)
REPORT No:931339

Sample	12DCl	c13DCPe	t13DCPe	DBCM	112TCA	Benz	CHBr3	MIBK	2Hex	TCE	1122TeCA	Tol	ClBZ	EtBZ	Str	Xyl
GWBS01B																
GWAQU01B																
GWBR01BB																
GWSF01B																
GWFB201B																
TRP.BLK.06																

ORGANICS : TABLE OF HOLDING TIMES

Site: SMC
Report #931339
EA Laboratory Inc.

	EA Sample ID	Lab ID	Matrix	Fraction	Date Sampled	Date Lab Received	Date Analyzed	Holding Times S->A;R->A Analyzed	NYSDEC Criteria R->A	USEPA Criteria S->A	Exceedance? 10;14 NYSDEC;USEPA
1	GWBS01B	10446	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No
2	GWAQU01B	10448	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No
3	GWBR01B	10449	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No
4	GWSF01B	10450	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No
5	GWFB201B	10451	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No
6	TRP.BLK.06	10452	aqueous	VOAs	09-14-93	09-15-93	09-17-93	3;2	2	3	No;No

Samples were analyzed following SOW 3/90

931339\HTVOA11.wq1

Signature. EW

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	OTHER
920508	SMC-GW09D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW06D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW03D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW04D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW01D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW02D-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GWFB03-01A	WATER	OK	OK	OK	OK	OK	OK
	Trip Blank	WATER	OK					
	Trip Blank	WATER	OK					

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	OTHER
920398	SMC-GW02I-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW02S-01A	WATER	OK	OK	OK	OK	OK	OK
	SMC-GW03I-01A	WATER	OK	OK	OK	OK	OK	OK
	Trip Blank	WATER	OK					

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS
920461	SMC-CS01-01A	WATER	OK	OK	OK	OK	OK
	SMC-CS02-01A	WATER	OK	OK	OK	OK	OK
	SMC-CS03-01A	WATER	OK	OK	OK	OK	OK
	SMC-CS04-01A	WATER	OK	OK	OK	OK	OK
	SMC-SS03-01A	SOIL	OK	OK	OK	NO	OK
	TRIP BLANK	WATER	OK	NA	NA	NA	NA

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	TOC	OTHER
911652	SMC-SB02-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB03-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB04-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB05-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SBU-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB06-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB07-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB08-01A	SOIL	OK	OK	OK	NO	OK	OK	NA
	SMC-SB09-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB10-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB11-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB12-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB13-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB14-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB15-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB16-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-FB-01A	WATER	OK	NO	OK	OK	OK	OK	NA
	SMC-FB-02A	WATER	OK	NO	OK	OK	OK	OK	NA
	SMC-FB-03A	WATER	OK	OK	OK	OK	OK	OK	NA

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	TOC	OTHER
911691	SMC-SBU-02A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB23-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB23-02A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB24-01A	SOIL	NO	OK	OK	OK	OK	OK	NA
	SMC-SB25-01A	SOIL	NO	NO	OK	OK	OK	OK	NA
	SMC-SB26-01A	SOIL	NO	OK	OK	OK	OK	OK	NA
	SMC-SB27-01A	SOIL	NO	NA	NA	NA	NA	NA	NA
	SMC-SB27-02A	SOIL	NO	NA	NA	NA	NA	NA	NA
	SMC-SB27-03A	SOIL	NA	OK	OK	OK	OK	OK	OK
	SMC-SB27-04A	SOIL	NA	NO	OK	OK	OK	OK	OK

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	TOC	OTHER
911664	SMC-FB-04A	water	OK	OK	NO	OK	OK	OK	NA
	SMC-SB16-02A	SOIL	OK	NO	OK	OK	OK	OK	NA
	SMC-SB17-01A	SOIL	OK	NO	OK	OK	OK	OK	NA
	SMC-SB18-01A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB18-02A	SOIL	OK	OK	OK	OK	OK	OK	NA
	SMC-SB18-03A	SOIL	NO	NO	OK	OK	OK	OK	NA
	SMC-SB20-01A	SOIL	NO	N0	OK	OK	OK	OK	NA
	SMC-SB21-01A	SOIL	OK	OK	OK	OK	OK	OK	NA

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	TOC
911697	SMC-FB-05A	water	OK	OK	OK	OK	OK	NA
	SMC-SB22-01A	SOIL	OK	OK	OK	OK	OK	OK
	SMC-SB19-01A	SOIL	OK	OK	OK	OK	OK	OK

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	OTHER
920398	SMC-GW02I-01A	WATER	OK	NO	NO	OK	NO	NO
	SMC-GW02S-01A	WATER	OK	NO	NO	OK	NO	NO
	SMC-GW03I-01A	WATER	OK	NO	NO	OK	NO	NO
	SMC-GW04S-01A	WATER	OK	OK	NO	OK	NO	NO
	SMC-GW04I-01A	WATER	OK	OK	NO	OK	NO	NO
	SMC-GWU-02A	WATER	OK	OK	NO	OK	NO	NO
	SMC-GWFB02-01A	WATER	OK	OK	NO	OK	NO	NO
	SMC-GW01S-01A	WATER	OK	OK	NO	OK	NO	NO
	SMC-GW01I-01A	WATER	OK	OK	NO	OK	NO	NO
	SMC-BS01-01A	WATER	OK	OK	NO	NO	OK	NO
	SMC-BSU-01A	WATER	OK	OK	NO	NO	OK	NO
	SMC-BSFB01-01A	WATER	OK	OK	NO	NO	OK	NO
	Trip Blank	WATER	OK					
	Trip Blank	WATER	OK					

STAUFFER MANAGEMENT COMPANY RI/FS

GROUP #	SAMPLE #	MATRIX	VOA	BNA	PEST/PCB	CN	METALS	OTHER
920396	SMC-GW11I-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW10I-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW09I-01A	WATER	OK	NO	OK	NO	OK	OK
	SMC-GW08I-01A	WATER	OK	NO	OK	NO	OK	OK
	SMC-GW08S-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW07I-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW07S-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW06I-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW06S-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GW05I-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GWU-01A	WATER	OK	OK	OK	NO	OK	OK
	SMC-GWFB01-01A	WATER	OK	OK	OK	NO	OK	OK
	Trip Blank	WATER	OK					
	Trip Blank	WATER	OK					

COMPLIANCY SUMMARY TABLE - ROUND 2 ANALYTICAL DATA
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

Report #	Date received	Sample #	Matrix	VOA	BNA	Pest/PCBs	Metals/CN	EPA Region 2 Qualifications
931104	8-5-93	MW5SB15	soil	OK	OK	NO	OK	yes
	8-5-93	MW5SB16	soil	OK	OK	OK	OK	yes
	8-5-93	FB16	aqueous	OK	OK	OK	OK	yes
	8-5-93	TB15/16	aqueous	OK	NA	NA	NA	yes
930779	6-4-93	MW5SBFB	aqueous	OK	OK	NO	OK	yes
	6-4-93	MW5SB12	soil	OK	OK	OK	OK	yes
	6-4-93	MW5SB10	soil	OK	OK	OK	OK	yes
	6-4-93	MW5SB11	soil	OK	OK	OK	OK	yes
	6-4-93	MW5SB13	soil	OK	NO	OK	OK	yes
	6-4-93	MW5SB14	soil	OK	NO	OK	OK	yes
931455	10-07-93	GW09D01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GW07S01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GWTB01B	aqueous	OK	NA	NA	NA	yes
	10-07-93	GW07D01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GWTB01B	aqueous	OK	NA	NA	NA	yes
	10-07-93	GW13D01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GW06S01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GW15D01B	aqueous	OK	OK	OK	OK	yes
	10-07-93	GWTB01B	aqueous	OK	NA	NA	NA	yes
	10-08-93	GW16I01B	aqueous	OK	OK	OK	OK	yes
	10-08-93	GW16D01B	aqueous	OK	OK	OK	OK	yes
	10-08-93	GW17D01B	aqueous	OK	OK	OK	OK	yes
	10-08-93	GWTB01B	aqueous	OK	NA	NA	NA	yes
	10-09-93	GW04S01B	aqueous	OK	OK	OK	OK	yes
	10-09-93	GW0FB01B	aqueous	OK	OK	OK	OK	yes
	10-09-93	GW02S01B	aqueous	OK	OK	OK	OK	yes
	10-09-93	SW0101B	aqueous	OK	OK	OK	OK	yes
	10-09-93	SWDU01B	aqueous	OK	OK	OK	OK	yes
	10-09-93	SW0201B	aqueous	OK	OK	OK	OK	yes
	10-09-93	SW0301B	aqueous	OK	OK	OK	OK	yes
	10-09-93	SW0401B	aqueous	OK	OK	OK	OK	yes
	10-02-93	TB03B	aqueous	OK	OK	OK	OK	yes
	10-02-93	SPW301B	aqueous	OK	OK	OK	OK	yes
	10-02-93	SPW201B	aqueous	OK	OK	OK	OK	yes
	10-02-93	SPW101B	aqueous	OK	OK	OK	OK	yes
	10-02-93	GW18S01B	aqueous	OK	OK	OK	OK	yes
	10-02-93	GW18I01B	aqueous	OK	OK	OK	OK	yes
	10-02-93	GW08S01B	aqueous	OK	OK	OK	OK	yes
	10-02-93	GWTB01B	aqueous	OK	NA	NA	NA	yes
	10-09-93	SD0101B	soil	OK	OK	OK	OK	yes
	10-09-93	SDDU01B	soil	OK	OK	OK	OK	yes
	10-09-93	S0D201B	soil	OK	OK	OK	OK	yes
	10-09-93	S0D301B	soil	OK	OK	OK	OK	yes
	10-09-93	S0D401B	soil	OK	OK	OK	OK	yes

COMPLIANCY SUMMARY TABLE - ROUND 2 ANALYTICAL DATA (Continued)

Report #	Date received	Sample #	Matrix	VOA	BNA	Pest/PCBs	Metals/CN	EPA Region 2 Qualifications
931339	09-15-93	GWBS01B	aqueous	OK	OK	OK	OK	yes
	09-15-93	GWAQU01B	aqueous	OK	OK	OK	OK	yes
	09-15-93	GWBR01B	aqueous	OK	OK	OK	OK	yes
	09-15-93	GWSF01B	aqueous	OK	OK	OK	OK	yes
	09-15-93	GWFB201B	aqueous	OK	OK	OK	OK	yes
	09-15-93	TRP.BLK.06	aqueous	OK	NA	NA	NA	yes
921822	11-21-92	MW5-SB06	soil	OK	OK	OK	OK	yes
	11-21-92	MW5-SB01	soil	OK	OK	OK	OK	yes
	11-21-92	MW5-SB2B	soil	OK	OK	OK	OK	yes
	11-21-92	MW5-SB03	soil	OK	OK	OK	OK	yes
	11-21-92	FB (11/20/92)	aqueous	OK	OK	OK	OK	yes
	11-23-92	TB (11/20/92)	aqueous	OK	NA	NA	NA	yes
	11-23-92	MW5-SB07	soil	OK	OK	OK	OK	yes
	11-23-92	MW5-SB04	soil	OK	OK	OK	OK	yes
	11-23-92	MW5-SB09	soil	OK	OK	OK	OK	yes
	11-23-92	MW5-SB08	soil	OK	OK	OK	OK	yes
	11-23-92	MW5-SB05	soil	OK	OK	OK	OK	yes
	11-23-92	TB (11/22/92)	aqueous	OK	NA	NA	NA	yes
	11-24-92	OPEN PIT	aqueous	OK	OK	OK	OK	yes
931104	8-05-93	MW5SB15	aqueous	OK	OK	OK	OK	yes
	8-05-93	MW5SB16	soil	OK	OK	OK	OK	yes
	8-05-93	FB16	soil	OK	OK	OK	OK	yes
	8-05-93	TB15/16	soil	OK	NA	NA	NA	yes
911697	10-26-91	SMC-FB-05A	aqueous	OK	NA	NA	NA	yes
	10-26-91	SMC-SB22-01A	soil	OK	OK	OK	OK	yes
	10-29-91	SMC-SB19-01A	soil	OK	OK	OK	OK	yes
931235	08-27-93	GW10I01B	aqueous	OK	OK	OK	OK	yes
	08-27-93	CFB01B1B	aqueous	OK	OK	OK	OK	yes
	08-27-93	TB01B	aqueous	OK	NA	NA	NA	yes
	08-30-93	GW13I01B	aqueous	OK	NA	NA	NA	yes
	08-30-93	GW11I01B	aqueous	OK	OK	OK	OK	yes
	08-30-93	TB02B	aqueous	OK	NA	NA	NA	yes
	09-02-93	GW12I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW08I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GWU01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW06I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW03I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW04I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW09I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW05I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	TRIP BLK	aqueous	OK	NA	NA	NA	yes
	09-02-93	GW01I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW02I01B	aqueous	OK	OK	OK	OK	yes
	09-02-93	GW07I01B	aqueous	OK	OK	OK	OK	yes

COMPLIANCY SUMMARY TABLE - ROUND 2 ANALYTICAL DATA (Continued)

Report #	Date received	Sample #	Matrix	VOA	BNA	Pest/PCBs	Metals/CN	EPA Region 2 Qualifications
931235 (Cont)	09-04-93	GW12S01B	aqueous	OK	OK	OK	OK	yes
	09-04-93	GW05S01B	aqueous	OK	OK	OK	OK	yes
	09-04-93	TRIP BLK	aqueous	OK	NA	NA	NA	yes
	09-04-93	GWCFP101B	aqueous	OK	OK	OK	OK	yes
	09-04-93	GWCFP201B	aqueous	OK	OK	OK	OK	yes
	09-04-93	TRIP BLK5A&B	aqueous	OK	OK	OK	OK	yes
	09-04-93	GW14I01B	aqueous	OK	OK	OK	OK	yes

Appendix F

Soil Vapor Contaminant Assessment Report (EA 1992)

Draft

Stauffer Management Company
Remedial Investigation/Feasibility Study
Skaneateles Falls, New York
Monitoring Well 5 Area Investigation
Soil Vapor Contaminant Assessment®

Prepared for

ICI Americas Inc.
Wilmington, Delaware

Prepared by

EA Engineering, P.C.
Newburgh, New York 12550

And Its Affiliate of EA Engineering, Science, and Technology

October 1992

11932.03

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1. INTRODUCTION

EA Engineering, P.C., and its affiliate EA Engineering, Science, and Technology, was retained by ICI Americas Inc. to perform a Remedial Investigation/Feasibility Study (RI/FS) at the Stauffer Management Company (SMC) site located in Skaneateles Falls, New York. The site area under investigation includes the onsite landfill and immediate vicinity of the former chemical plant. As part of the initial phase of the field investigation, a bedrock well cluster (MW-5I and MW-5D) was installed east of the main plant facility in the general area of the former organic processing plant.

During the installation of these bedrock wells, vapor readings above background levels were recorded from the drill cuttings with an HNu. A sheen was also observed on the drill cuttings and drilling fluid during installation of the monitoring well boring for MW-5I. A soil boring was added near MW-5I, and EA obtained a soil sample which confirmed the presence of xylenes. This area of the site, which is approximately 400 ft north of the onsite landfill, is referred to as "Area MW-5."

The data generated during the initial phase of the RI/FS gave a preliminary indication of the presence of organic compounds associated with the former manufacturing process in Area MW-5. However, the data was not adequate to assess the potential source(s), extent, and concentration of chemical constituents present nor to characterize localized groundwater flow in Area MW-5.

In support of the ongoing RI/FS at the SMC site, and to close existing data gaps in Area MW-5, an additional environmental sampling program was developed for this portion of the site. The Area MW-5 sampling program consists of a soil vapor contaminant assessment (SVCA®), installation of soil borings, and installation of monitoring wells. This report documents the results of the completed SVCA performed in Area MW-5 by EA and provides recommendations for soil boring and monitoring well locations.

1.1 SITE LOCATION AND HISTORY

The SMC site is located in central New York State in Skaneateles Falls, Onondaga County. The site, situated along Jordan Road, is approximately 3 mi north of Skaneateles Lake and 15 mi west of the City of Syracuse (Figure 1). The SMC facility encompasses an area of approximately 140 acres, of which 10 acres were used for production operations throughout the life of the site. Skaneateles Creek flows to the north through the western portion of the site.

The site was formerly used to manufacture potassium and sodium silicates, detergents, and organic intermediates for other industries. The principal organic compound manufactured at the site was toluic acid, which used xylene as a raw material. Currently, there are no manufacturing activities conducted at the site. The early site operation was owned by Draycott Mills, which manufactured felt roofing materials. Cowles Chemical Company

initiated the manufacturing of potassium and sodium silicates and industrial detergents in the mid-1940s. Organic compounds were manufactured at the facility from the late 1950s to 1981. Stauffer Chemical Company purchased the facility from Cowles Chemical Company in the late 1960s and continued operations until 1984.

1.2 SITE DESCRIPTION

Area MW-5 includes a portion of the apparent operations area for the former plant and is located northeast of the main plant building (Figure 2). As part of this investigation, the SVCA was expanded to include sampling in the vicinity of the septic leachfield which is located north of the main plant building and northwest of Area MW-5. The area under investigation is relatively flat and consists of concrete pads which are remnants of plant ancillary buildings, paved areas, and open grassy areas. Area MW-5 is bounded by Skaneateles Creek to the east and a wooded, low lying swampy area to the north.

The unconsolidated soils in Area MW-5 are approximately 15-ft thick and overlay limestone bedrock. Groundwater is present in the unconsolidated soils, with the water table approximately 4-5 ft below ground surface. Preliminary assessment of the rock cores from MW-5D exhibits a shallow fracture zone in the upper bedrock directly below the overburden. This fracture zone overlays a more competent rock zone; fractures are also present at depths below the competent rock layer. Figure 2 shows the locations of monitoring wells, soil borings, and surface features in the vicinity of Area MW-5.

2. SCOPE OF WORK

An SVCA in Area MW-5 was performed as a screening method to identify candidate areas for soil sampling and monitoring well installation. A grid of sampling points was developed with a total of 63 points that were placed at 50- and 100-ft spacings (Figure 3). Soil vapor samples were not analyzed from 10 sampling point locations because groundwater was aspirated into the soil vapor probes.

3. METHODOLOGY

3.1 SAMPLING

Sample probes were driven to a depth of 3 ft at all sampling locations. The probes were firmly seated at each location to prevent entrance of overlying air, and were purged using a vacuum pump attached to the sampling probe. Following purging, a 500-1,000 μL soil vapor sample was withdrawn and injected into a field gas chromatograph (Varian) equipped with a flame ionization detector (FID) and an electron captive detector (ECD). The FID was used to quantify the concentrations of the non-chlorinated aromatic compounds and the ECD was used for quantifying the chlorinated compounds.

Soil vapor concentrations were calculated using the external standard method. The instrument was calibrated at the start of the day and after every fifth sample run. The following equation was used to calculate the soil vapor concentrations:

$$C_i = CF_i * A_i * V_s / V_{std}$$

where

C_i = Vapor concentration of compound of concern (ppm_v)
CF_i = Calibration factor for compound of concern
A_i = Observed area of targeted analyte
V_s = Injection volume of vapor sample (μl)
V_{std} = Injection volume of vapor standard (μl).

CF_i is calculated by dividing the concentration of the target analyte in the calibration standard (ppm_v) by its observed peak area on the gas chromatogram.

The following analytes were targeted for the SVCA:

- Benzene
- Toluene
- Xylene
- Trichloroethene
- Tetrachloroethene.

In addition, EA included ethylbenzene, methylene chloride, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and trichloroethane in the "standard" mixture to provide qualitative determination of the presence/absence of these compounds.

3.2 GEOSTATISTICAL ANALYSIS

The results of the SVCA consist of a two-dimensional grid of compound concentrations at the sampling points. A separate map of the concentrations can be plotted for each compound. Since the vapors are drawn from the unconsolidated sedimentary environment which may vary in porosity and physical characteristics, the resulting concentrations exhibit variability and are not easily contoured manually.

Kriging was selected as a mathematical method to contour the vapor concentration results. "Kriging is the process of estimating the value of a spatially distributed variable from adjacent values while considering the interdependence expressed in the variogram" (Davis 1973, Page 385). Variogram construction and kriging parameters are defined here by summarizing a description by Isaaks and Srivastava (1989, Pages 301 and 313).

The variogram plot or graph is the primary interpretive tool used in selection of kriging parameters for contouring spatial data arranged on a grid. The vertical axis is half the average quadratic deviation (also known as the semi-variance of the difference) of the variable measured at successive points along the data grid. The horizontal axis is the "lag" or distance between successive points used for each of several calculations of the semi-variance. The variogram or semi-variogram normally consists of a sloped line that rises to the right and reaches a plateau at a fairly high lag value. The rising slope of the semi-variance represents the zone of influence within which successive values of the variable or concentration of chemical constituents are highly correlated. The range is the maximum lag where the influence becomes negligible and the concentrations at successive points are uncorrelated (i.e., become independent). The "sill" is the value of the semi-variance plateau and is related to the magnitude of the arithmetic range of concentrations of chemical constituents.

The variogram can be calculated for separate directions such as east-west or north-south along a grid, or at angles such as northeast-southwest. If the shape of the variogram is the same in all directions, the variable is considered isotropic. If the variogram has a different range in different directions, the variable is anisotropic. In the case of chemical constituents under the influence of groundwater flow, an anisotropic distribution related to flow direction would be observed.

The direction of a directional variogram is specified by degrees of azimuth such as measured clockwise in a circle with north at 0, east at 90, south at 180, and west at 270. Directional tolerance is an angular measurement also in degrees. The smaller the angular tolerance, the more distinctive the anisotropy is shown on the variograms. However, the smaller the angle, the fewer the number of pairs of data points available to compute the semi-variance and greater erraticism of the resulting variogram. The smallest tolerance that displays the anisotropy is usually selected by trail and error.

The "nugget effect" is a term that is defined by a positive y-intercept on the variogram at zero lag. The "nugget effect" indicates a condition of a complete lack of spatial correlation indicating that the data value at a particular location bears no similarity even to very nearby data values. If the nugget parameter is zero, the effect is not present.

In using the kriging method of contouring for isotropic variables, the semi-variogram parameters are selected that optimize the display of anisotropy, then the parameters are used to estimate contour values throughout the map area. In this study, the kriging routine in "GEO-EAS" Version 1.2.1 (England and Sparks 1988; Yates and Yates 1990) was used.

4. DATA EVALUATION

Table 1 summarizes the mean, range, and frequency of detection for the volatile aromatic and chlorinated compounds. The concentration data are presented in detail in Appendix Table A-1 (volatile non-chlorinated aromatic compounds) and Table A-2 (chlorinated compounds).

Four volatile aromatic compounds were targeted for analysis. Of those, benzene was not detected in any of the soil vapor samples. Xylenes were present in greatest relative abundance (43 percent), with the maximum observed concentrations for o-xylene and m/p-xylene at 417.2 and 91.4 ppm_v, respectively. The maximum observed trichloroethene and tetrachloroethene concentrations (1.0 and 1.8 ppm_v, respectively) were lower relative to the aromatic compounds. Tetrachloroethene was detected at a greater frequency (53 percent) than m/p-xylenes (43 percent); trichloroethene was detected at a greater frequency (21 percent) compared to toluene (17 percent).

Figures 4 through 8 show the quartile distributions for the volatile aromatic compounds and chlorinated compounds. These are presented as the four quartiles of the cumulative concentration distributions of each of these analytes.

Table 2 summarizes the direction and tolerance parameters used to calculate the variogram, and the nugget, sill, and range used in kriging the observed data for each analyte. The search directions and tolerances selected yielded the best fit to the variogram spherical model. Figure 9 shows the variogram for m/p-xylenes.

Figures 10 through 14 show the contours of grid values estimated by kriging for the volatile aromatic compounds and chlorinated compounds. The contours are interpolated from grid values estimated by kriging based on the raw data (Tables A-1 and A-2; contour map Figures A-1 through A-5) and the selected variogram parameters (Table 2).

The distribution of the compounds that were detected indicate the presence of three areas of elevated SVCA readings (Figure 15). Area 1, located northwest of the main plant building, exhibited the maximum contoured values for toluene (Figure 10), m/p xylene (Figure 11), and o-xylenes (Figure 12) of 1.2 ppm_v, 30 ppm_v, and 140 ppm_v, respectively. The contours for each of these analytes coincide with an oval distribution with north-south elongation that encompasses the former process building. The contoured maximum for all three analytes is located in the area directly north of the former process building and northwest of MW-5I.

The second area of elevated SVCA readings (Area 2) is located betweem the north end of the main plant building and the aboveground storage tank south of the septic system leachfields. This area exhibited maximum contoured values for toluene (Figure 10), trichloroethene

(Figure 11), and tetrachloroethene (Figure 12) of 0.9 ppm_v, 0.5 ppm_v, and 0.5 ppm_v, respectively. The contours for all three analytes show an oval distribution with north-south elongation and were present at levels significantly lower than the xylene concentrations detected in the area of the former process building.

A third smaller area (Area 3) is located northwest of the main plant building between the septic system leachfields and Jordan Road. This area exhibited lower concentrations of m/p xylenes (Figure 11), o-xylene (Figure 12), trichloroethene (Figure 13), and tetrachloroethene (Figure 14). The m/p xylene and o-xylene levels were lower in this area of the site compared to levels detected in Area 1 northeast of the main plant building, and apparently unrelated to that area. The trichloroethene contours encompass a small area which had a maximum contour value of 0.3 ppm_v. The tetrachloroethene contours encompassed a more diffuse distribution with a contour maximum of 0.6 ppm_v. The tetrachloroethene contours appear to overlap with Area 2 north of the main plant building.

The single non-targeted aromatic compound ethylbenzene was identified in association with toluene in Area 2.

The four non-targeted chlorinated organic compounds (trichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, and methylene chloride) were identified in association with trichloroethene and tetrachloroethene in Area 2. All of these analytes, with the exception of trichloroethane, are degradation products of trichloroethene and tetrachloroethene. Trichloroethane may be present as a trace component of the trichloroethene identified at the site.

Based upon the analysis of the SVCA results, the following conclusions can be made:

- Xylenes were found in an area of close proximity to MW-5I. This is in the vicinity of the former organic processing building. Additionally, lower concentrations of xylenes were found in a smaller area, apparently unrelated, northwest of the main plant building.

- Toluene was found in association with xylenes in the vicinity of MW-5I and was also identified in the area of an aboveground storage tank just south of the sanitary leachfield. Toluene concentrations were 1-2 orders of magnitude lower than that of the xylenes.

- Trichloroethene and tetrachloroethene were identified in areas north and northwest of the main plant building. Trichloroethene and tetrachloroethene were present at levels comparable to toluene and significantly lower than xylenes. They do not appear to be related to the former organics processing area.

5. RECOMMENDED SOIL BORING AND MONITORING WELL LOCATIONS

5.1 SOIL BORINGS

The soil boring program consists of the installation of three soil borings within the areas showing elevated SVCA readings and five confirmatory soil borings in areas identified as "clean" by the SVCA. The original program was modified in response to the SVCA results. The resulting data will be used to delineate the extent of contamination in this area, as well as to confirm "clean" soil along the perimeter of the area.

As part of the initial field investigation, EA obtained a soil sample in the proximity of MW-5 which confirmed the presence of xylenes. Toluene was not identified in this sample due to the high dilution factor required for the analysis.

As part of the Area MW-5 investigation, one soil boring is proposed for Area 1 near the former process building, approximately 120 ft north of the former process building and 75 ft west of MW-5D. This location approximates the 10 ppm_v m/p-xylene contour line, 40 ppm_v o-xylene contour line, and 0.4 ppm_v contour line for toluene.

A second soil boring is proposed for Area 2. The proposed soil boring is located at the approximate mid-point between the north end of the main plant area and the aboveground storage tank south of the septic system leachfields. This boring will be used to verify the toluene, trichloroethene, and tetrachloroethene contour maxima in this area.

A third soil boring is proposed for Area 3 northwest of the main plant building. The proposed soil boring is located approximately 150 ft northwest of the main plant building's northeast corner and 100 ft northeast of Well Cluster MW-8. This soil boring will verify the m/p xylene, o-xylene, trichloroethene, and tetrachloroethene contour maxima for this area of the site.

Five soil borings will be installed outside of the three areas showing elevated soil vapor contours at the following locations:

- Immediately west of the septic system leachfield
- 50 ft north of the northwest corner of the main plant building
- 220 ft north of the former process building and 125 ft northwest of MW-5D
- 125 ft south of MW-5I
- 50 ft east of the septic system leachfield.

These locations were selected based upon overlying the volatile aromatic and chlorinated compound contour drawings and identifying areas showing contours at or near 0.0 ppm for the two compound classes. Proposed soil boring locations for the Area MW-5 investigation are provided in Figure 16.

5.2 MONITORING WELLS

Installation of two overburden wells, two shallow bedrock wells, and one deep bedrock well is planned as part of the Area MW-5 investigation.

Preliminary assessment of groundwater flow from data obtained during the initial phase of the SMC RI/FS field investigation suggests that both the overburden and shallow bedrock groundwater flows towards the north in the northern portion of the site which includes Area MW-5. Deep bedrock groundwater, which is separate from the shallow groundwater, also appears to flow in a predominantly northern direction. However, it should be noted that there is a limited amount of groundwater elevation data in the immediate vicinity of Area MW-5.

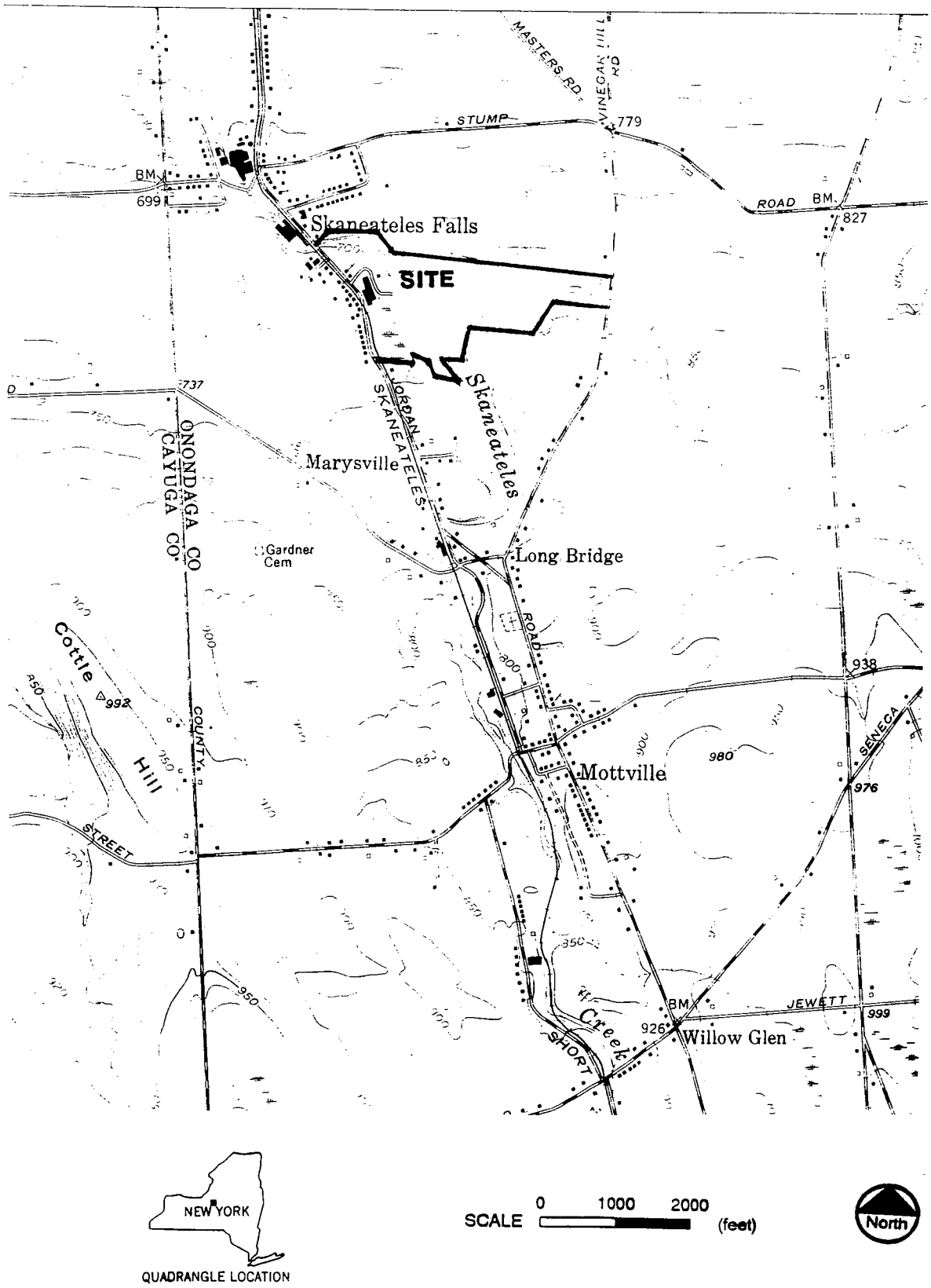
A new overburden monitoring well (MW-5S) will be installed proximate to the existing Well Cluster MW-5I, which is within Area 1. The purpose of this well is to evaluate potential chemical constituents with overburden groundwater originating from this portion of the site. During the initial phase of the investigation, the bedrock well cluster was installed to monitor the shallow and deep bedrock water quality downgradient of the onsite landfill, and no overburden monitoring well was originally judged as being necessary for this location.

Well Cluster MW-12S/MW-12I, consisting of an overburden and shallow bedrock monitoring well, will be installed hydrogeologically downgradient (north) and outside the area of elevated SVCA readings obtained in Area 1. This well cluster will be used to monitor the overburden and shallow bedrock groundwater to evaluate whether any compounds present have migrated from the former process building area.

Well Cluster MW-13I/MW-13D, consisting of a shallow and deep bedrock monitoring well, will be installed east of Skaneateles Creek and northeast (possibly downgradient) of the elevated SVCA readings obtained in Area 1. Due to the limited number of bedrock groundwater data points east of Area 1, the understanding of the shallow and deep groundwater flow patterns in Area MW-5 is not complete. Well cluster MW-13I/MW-13D will provide additional hydrogeological information and provide groundwater sampling points to evaluate whether any compounds present in Area MW-5 have migrated in a northeast direction. Existing monitoring Well Clusters MW-9, MW-10, and MW-11 provide groundwater sampling points for the remaining two areas of elevated SVCA readings.

Proposed monitoring well locations for the Area MW-5 investigation are provided in Figure 16. This monitoring well network will provide groundwater sampling points to determine more completely the chemical constituents present in the groundwater within Area MW-5 and whether any chemical compounds within groundwater originating from Area MW-5 have migrated away from the area. In addition, these monitoring wells will provide data points to further evaluate site-specific hydrogeology and flow patterns for the overburden, shallow bedrock, and deep bedrock groundwater.

The monitoring wells planned for Area MW-5 will also be used in conjunction with the existing onsite monitoring wells to provide groundwater data so that the principal objectives for the SMC RI/FS can be met.



USGS Quads (7.5-min series):
SKANEATELES (Photoinspected 1976)
JORDAN (Photorevised 1976)

Figure 1. Site location map, Stauffer Management Company Facility, Skaneateles Falls, New York.

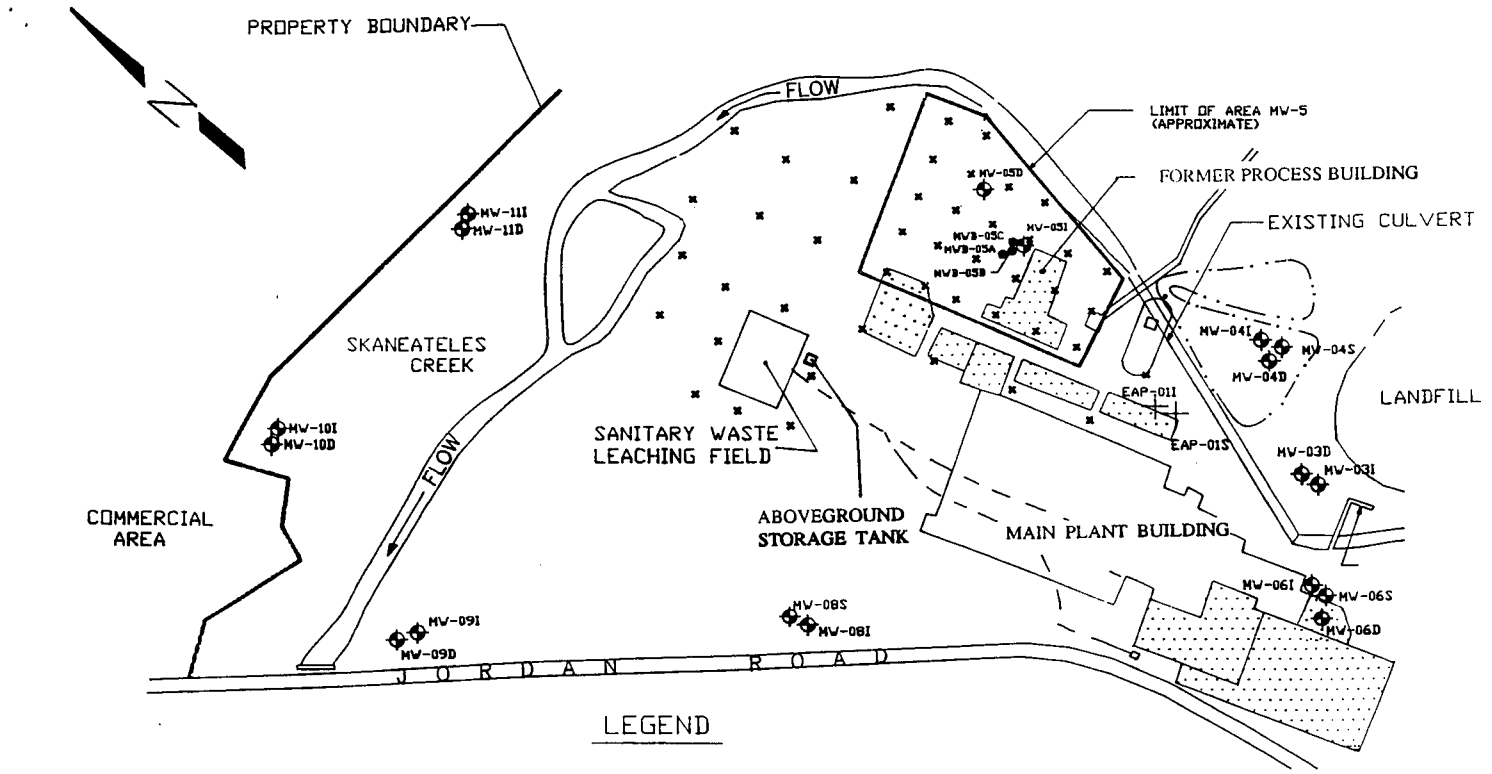


FIGURE 2
AREA MW-5 SITE PLAN
STAUFFER MANAGEMENT COMPANY FACILITY
SKANEATELES FALLS, NEW YORK

DESIGN BY TWP	EA ENGINEER P.C. AN AFF? EA ENGINEE AND TEC	PROJECT MGR. JHZ
DRAWN BY CEM		DATE 9/17/92
CHECKED BY TWP		PROJECT NO. 11932.01

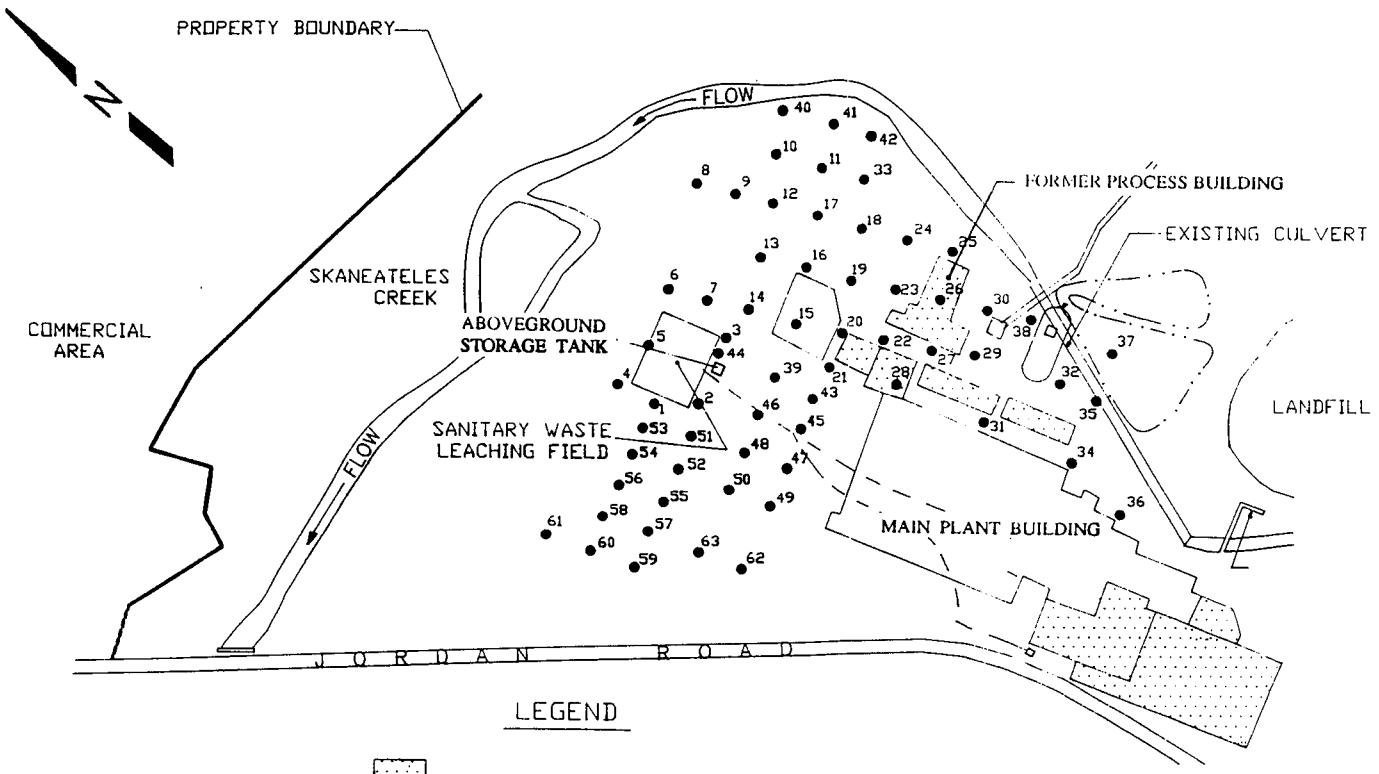


FIGURE 3
SVCA LOCATIONS
STAUFFER MANAGEMENT COMPANY FACILITY
SKANEATELES FALLS, NEW YORK

DESIGN BY	THP	EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY	PROJECT MGR. AHZ
DRAWN BY	CEH		DATE 9/17/92
CHECKED BY	THP		PROJECT NO. 11932.01

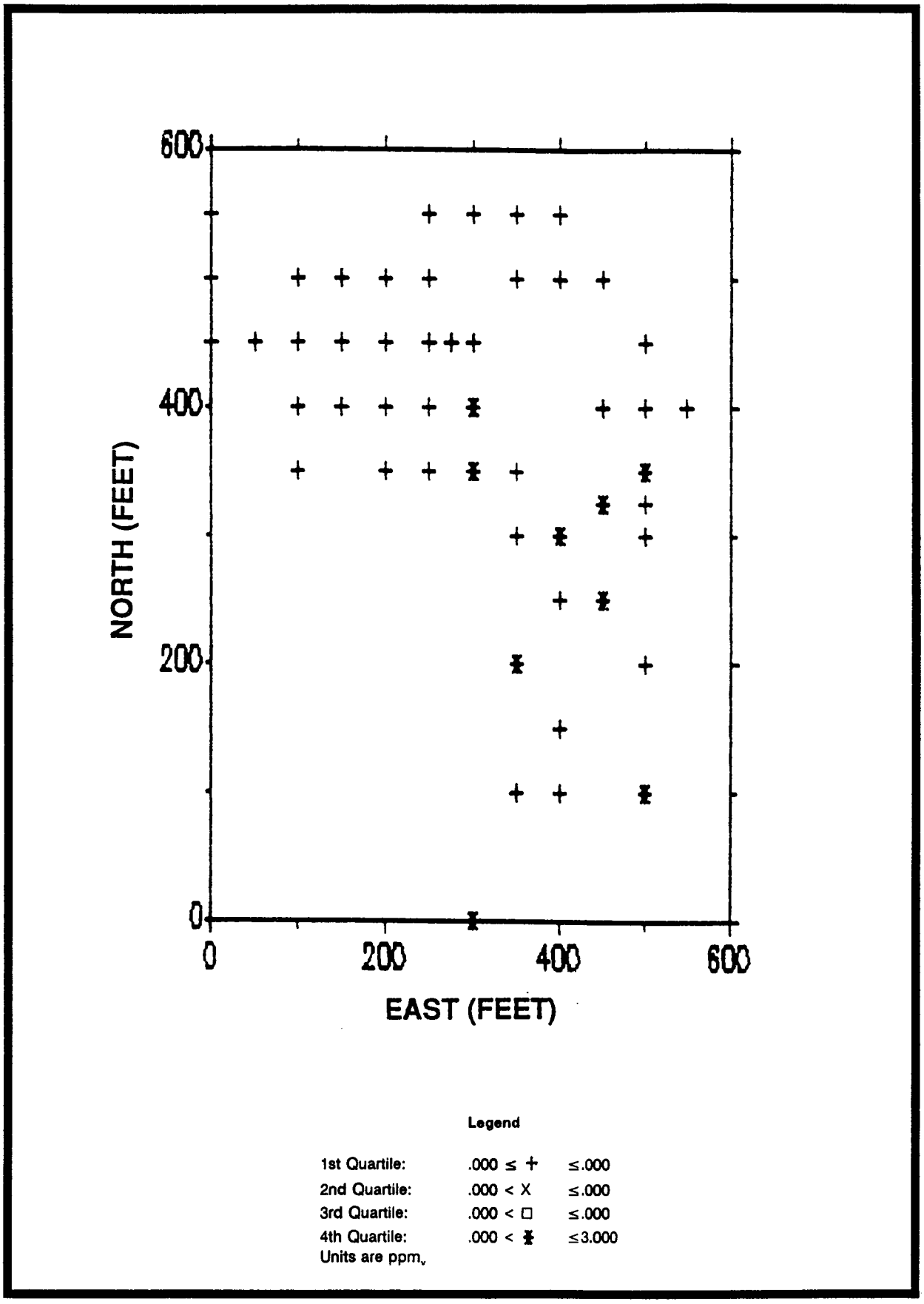


Figure 4. Plot of toluene concentrations.

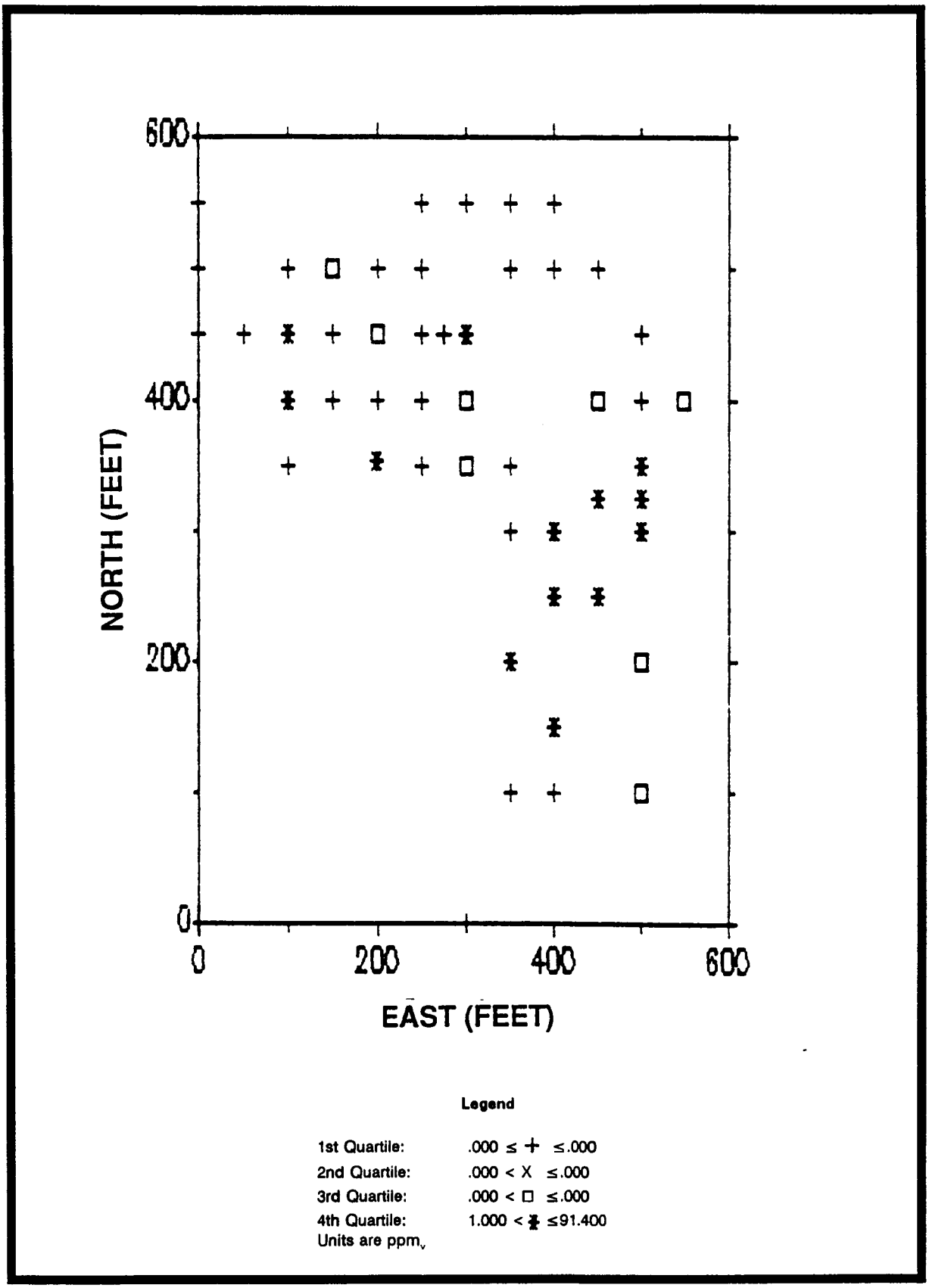


Figure 5. Plot of m/p-xylene concentrations.

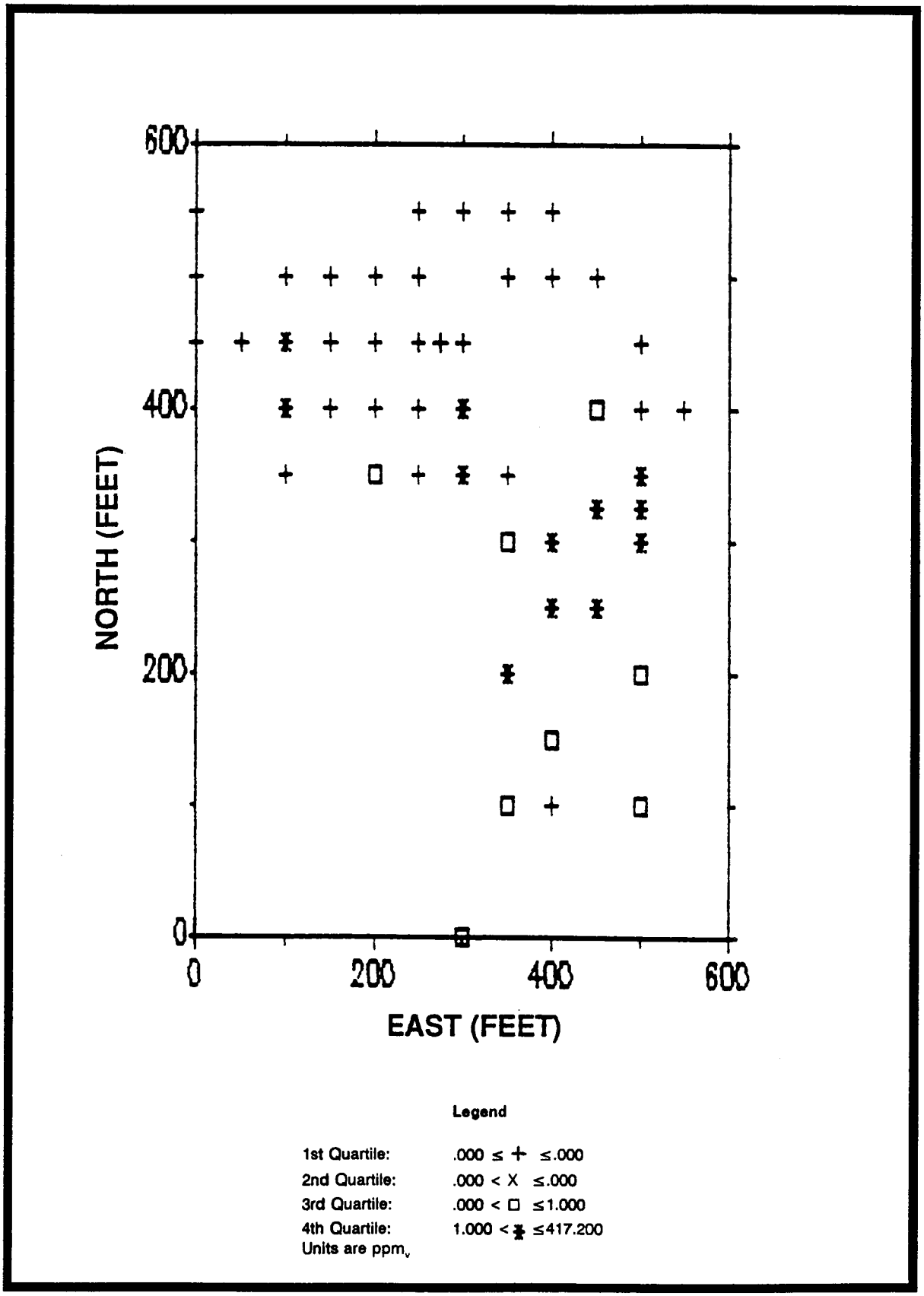


Figure 6. Plot of o-xylene concentrations.

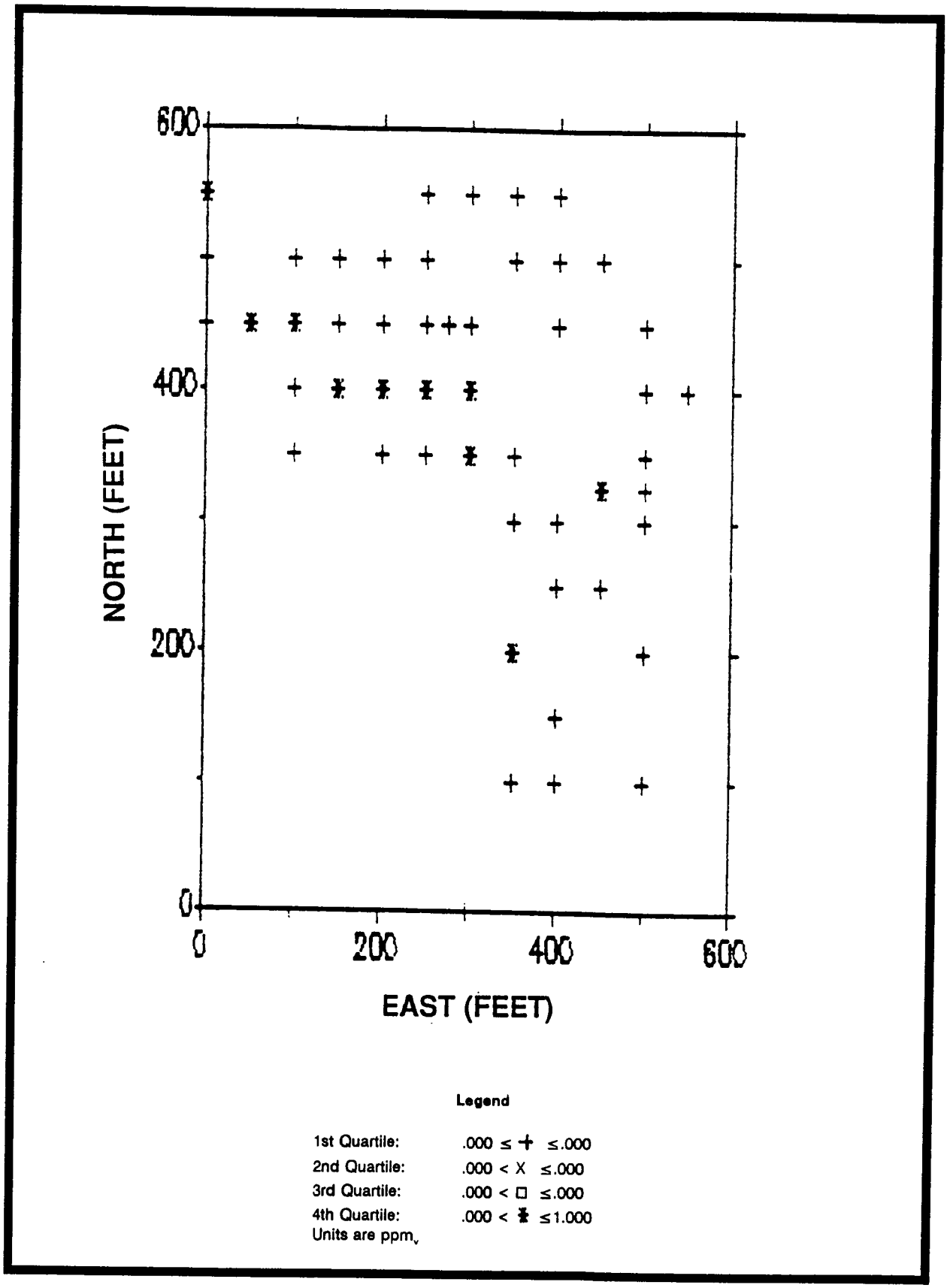


Figure 7. Plot of trichloroethene concentrations.

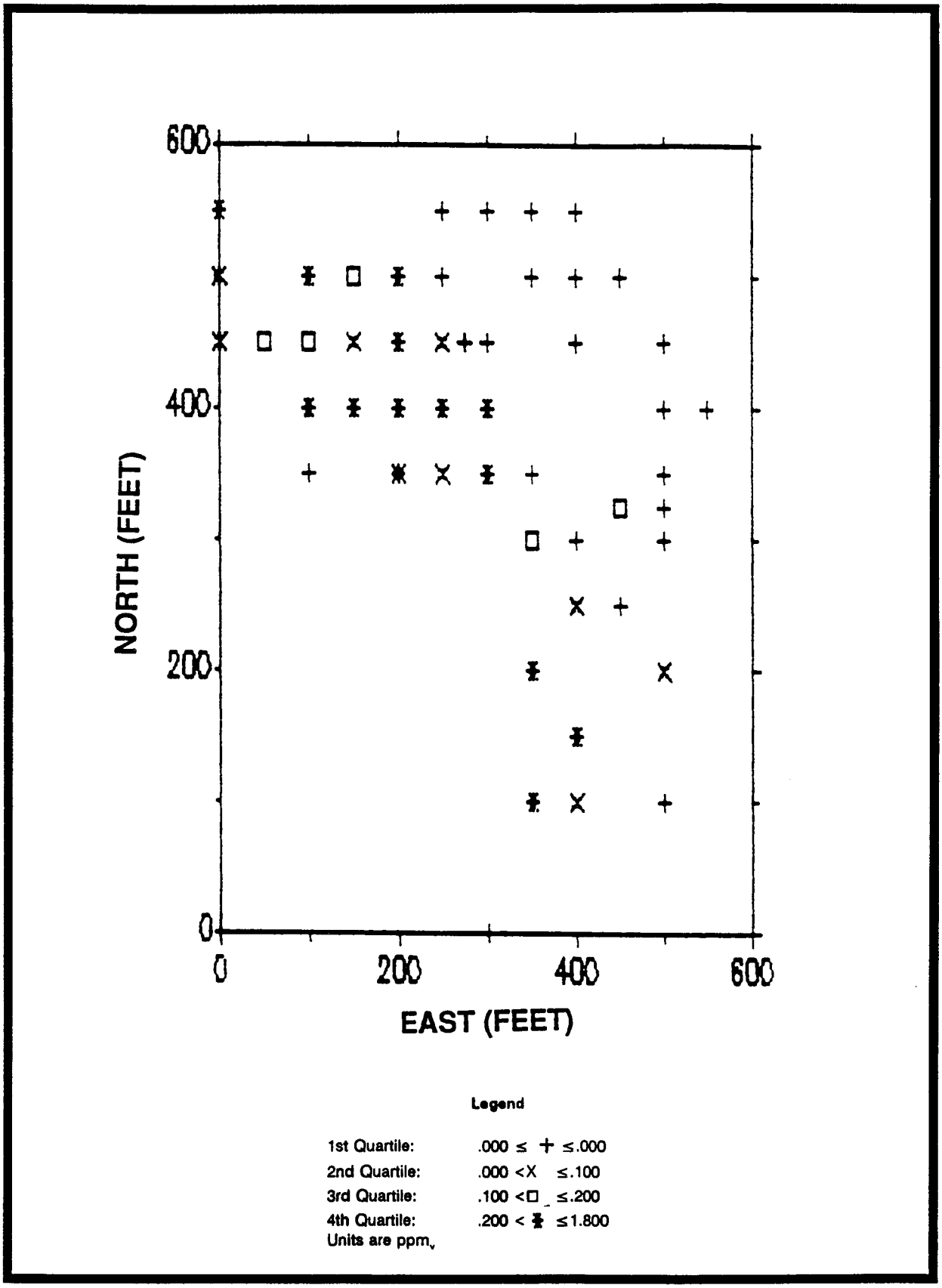


Figure 8. Plot of tetrachloroethene concentrations.

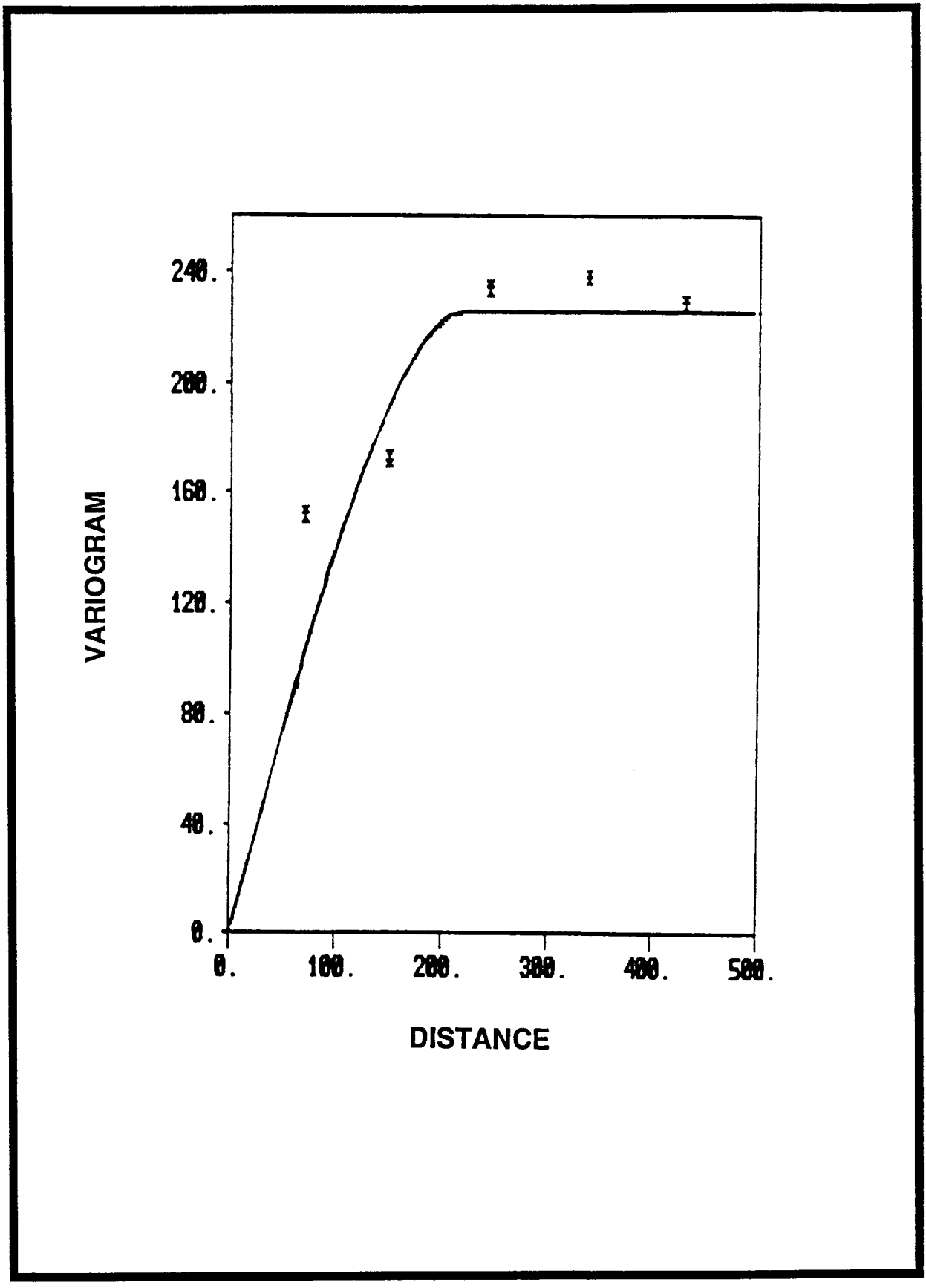
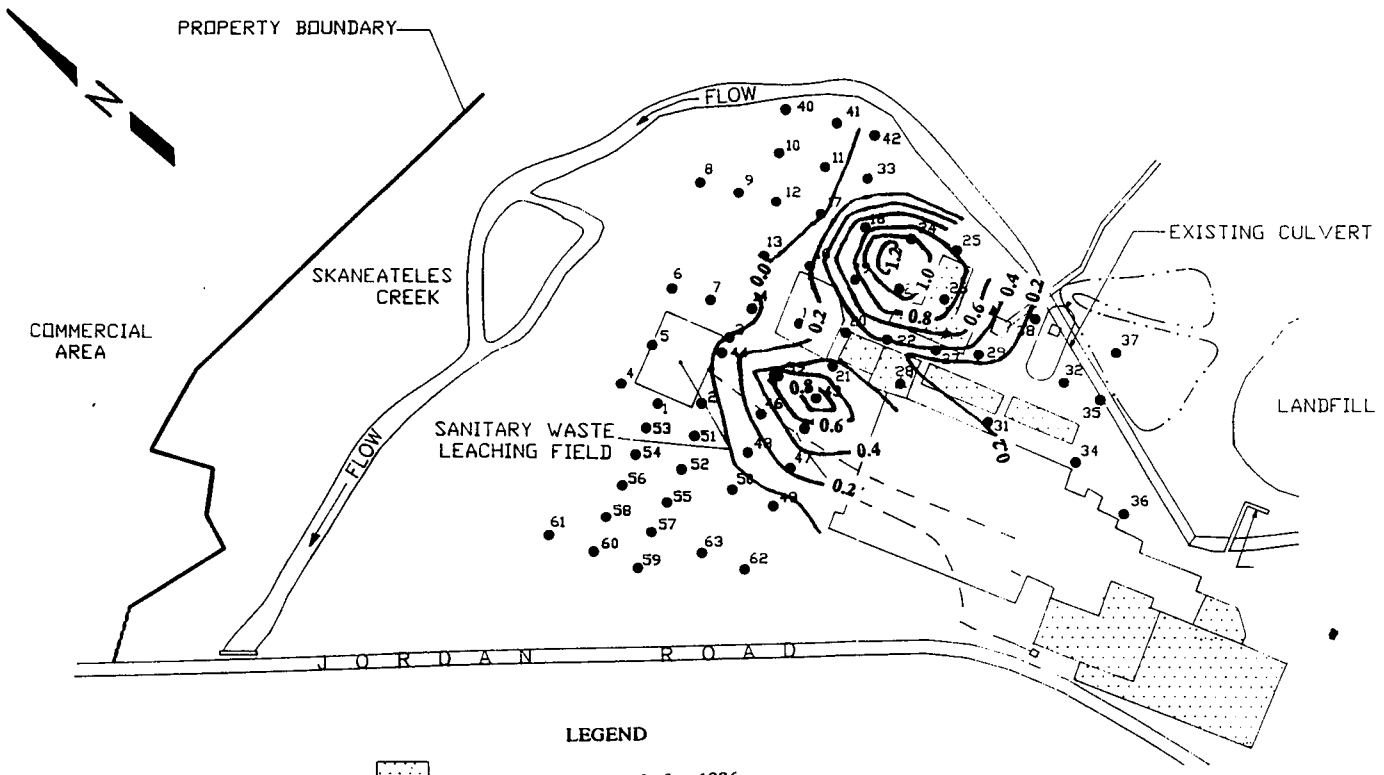


Figure 9. Variogram for m/p-xylene.



LEGEND

Buildings removed after 1986

Soil vapor point

Units are ppm.

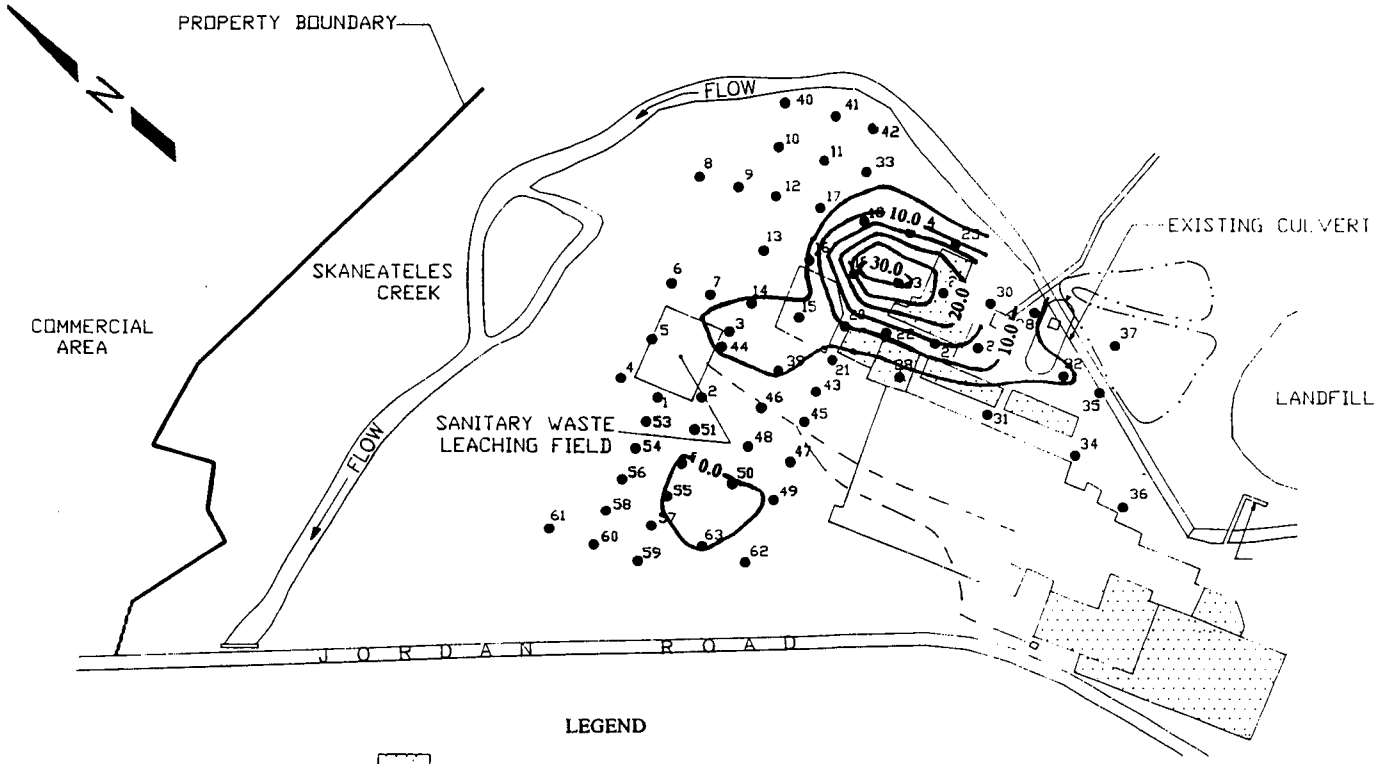
0 100

SCALE (ft.)

FIGURE 10
Contours for toluene.
STAUFFER MANAGEMENT COMPANY FACILITY
SKANEATELES FALLS, NEW YORK

DESIGN BY THP	PROJECT MGR. AJZ
DRAWN BY CEH	DATE 9/17/92
CHECKED BY THP	PROJECT NO. 11932.01

EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY



LEGEND

Buildings removed after 1986

Soil vapor point

Units are ppm,

0 100

SCALE (ft.)

FIGURE 11

Contours for m/p-xylene.

STAUFFER MANAGEMENT COMPANY FACILITY

SKANEATELES FALLS, NEW YORK

DESIGN BY TRP	EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY	PROJECT MGR. JHZ
DRAWN BY GEN		DATE 9/17/92
CHECKED BY TRP		PROJECT NO. 11932.01

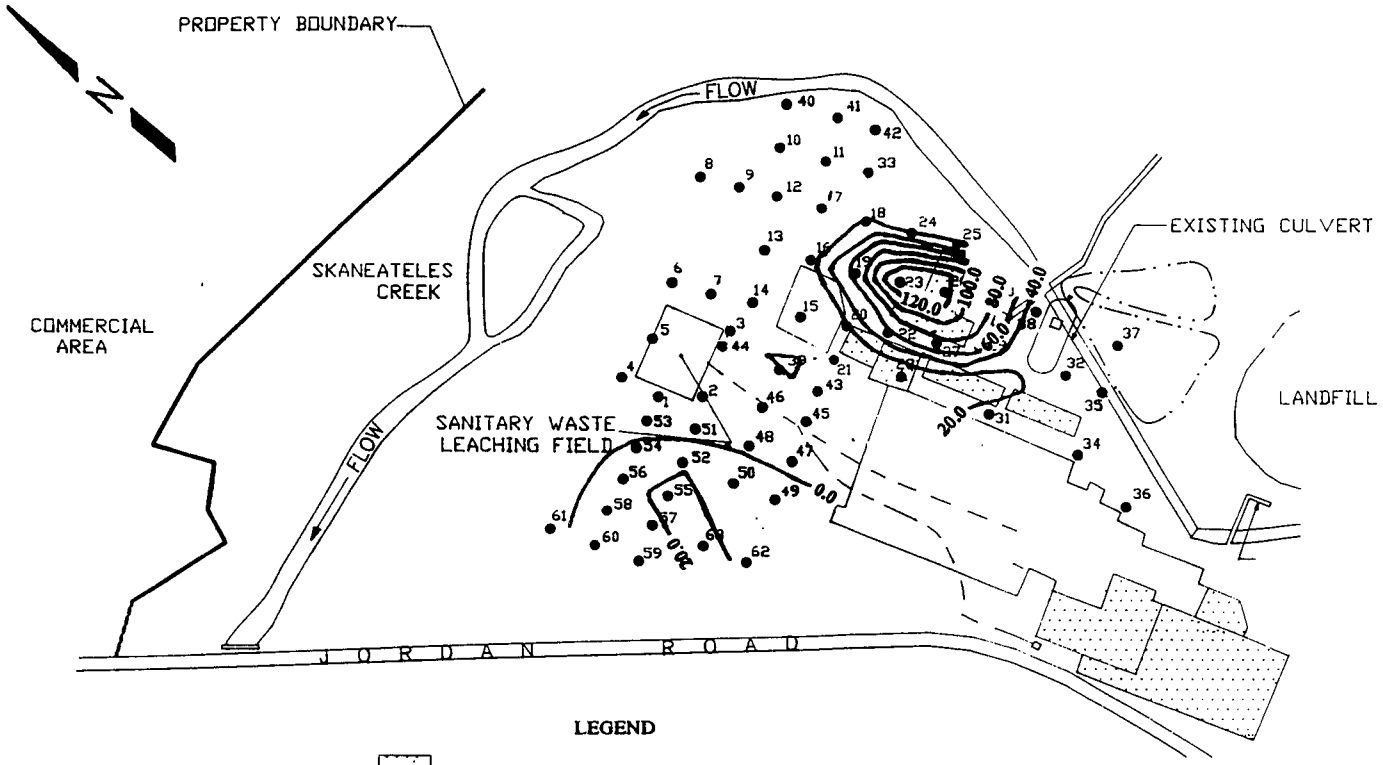
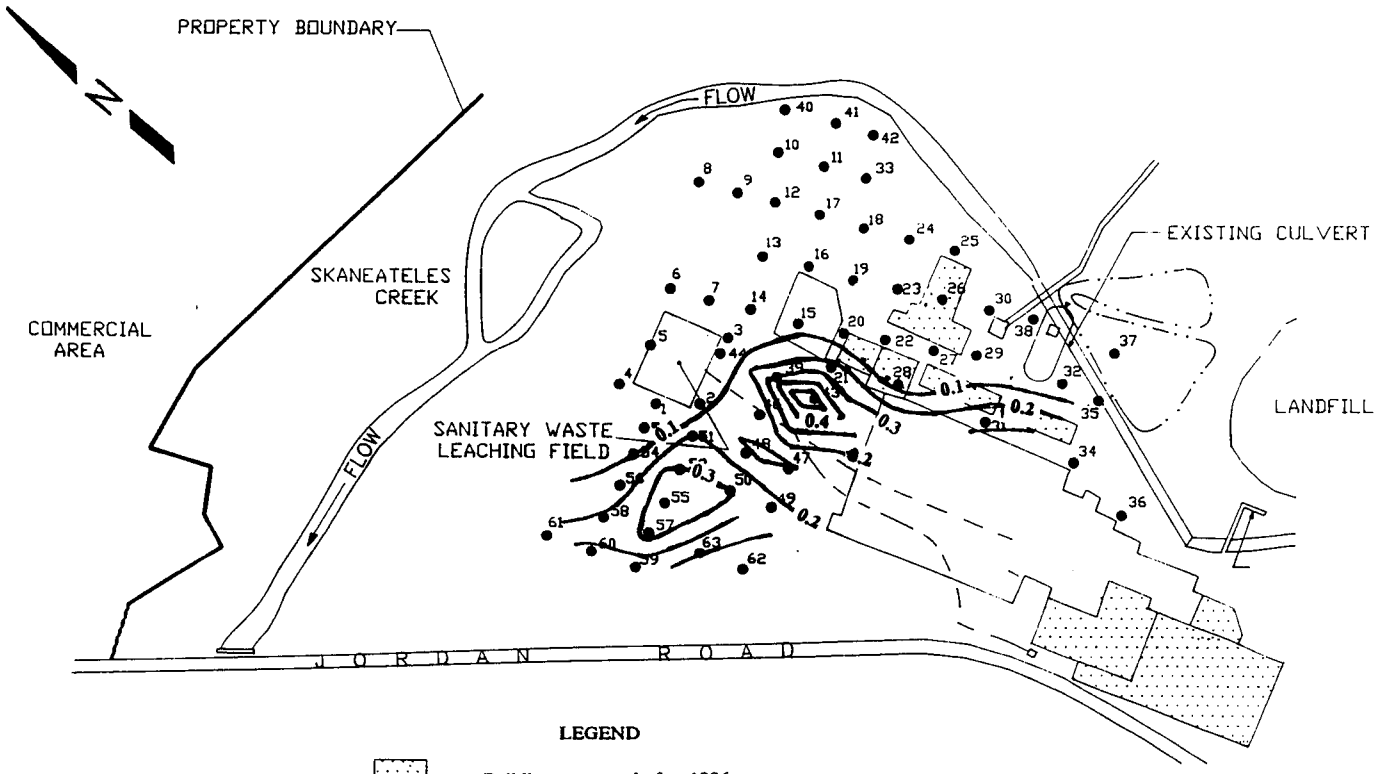


FIGURE 12
Contours for o-xylene.
STAUFFER MANAGEMENT COMPANY FACILITY
SKANEATELES FALLS, NEW YORK

DESIGN BY	TMP	EA ENGINEERING P... AN AFFILIATE EA ENGINEERING SC AND TECHNOLOG	PROJECT MGR. JHZ
DRAWN BY	CBM		DATE 9/17/92
CHECKED BY	TMP		PROJECT NO. 11932.01



LEGEND

Buildings removed after 1986

Soil vapor point

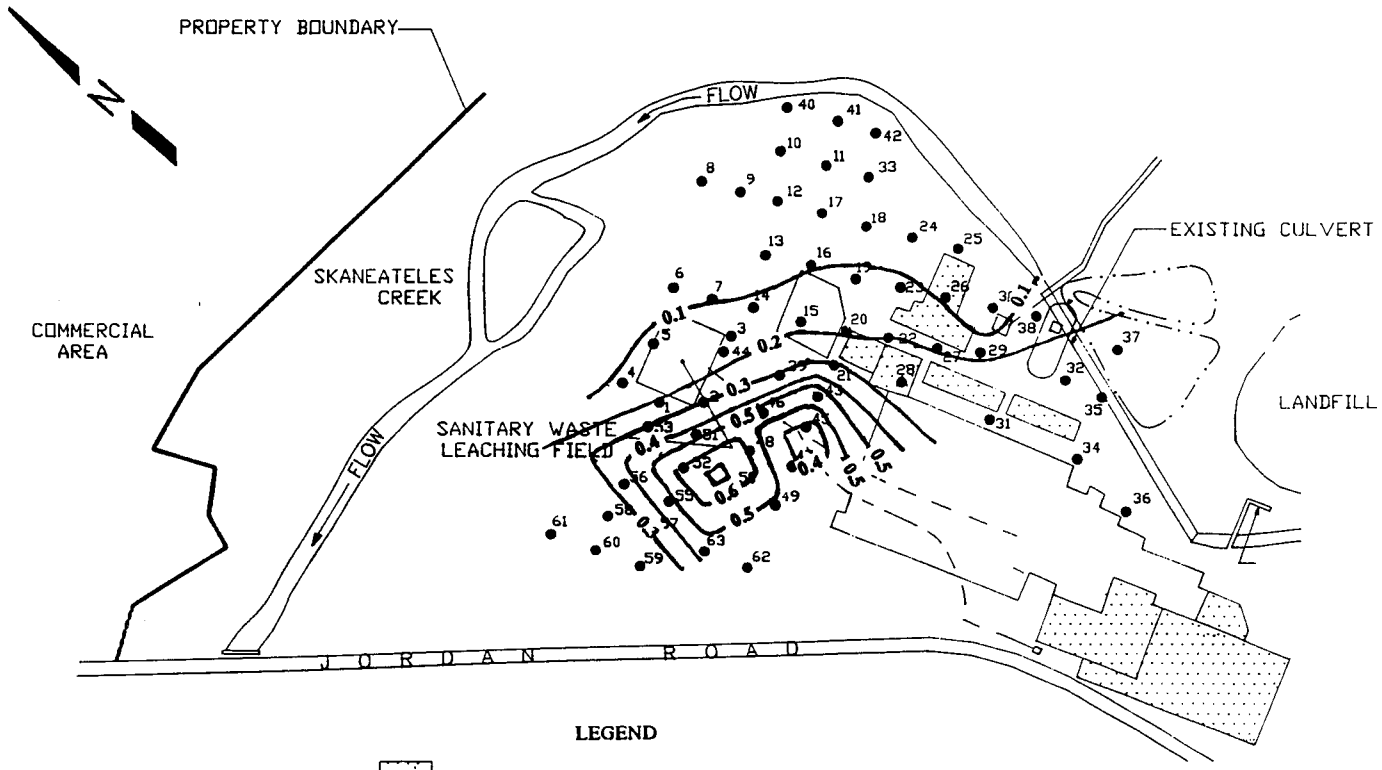
Units are ppm,

0 100

SCALE (ft.)

FIGURE 13
Contours for trichloroethene.
STAUFFER MANAGEMENT COMPANY FACILITY
SKANEATELES FALLS, NEW YORK

DESIGN BY TMP	EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY	PROJECT MGR. JHZ
DRAWN BY CEM		DATE 9/17/92
CHECKED BY TMP		PROJECT NO. 11932.01



LEGEND

Buildings removed after 1986

Soil vapor point

Units are ppm,

0 100

SCALE (ft.)

FIGURE 14
Contours for tetrachloroethene.

DESIGN BY TMP	EA ENGINEERING P.C. AN AFFILIATE OF EA ENGINEERING AND TECHNOLOGY	PROJECT MGR. JAZ
DRAWN BY GEN		DATE 9/17/92
CHECKED BY TMP		PROJECT NO. 11932.01

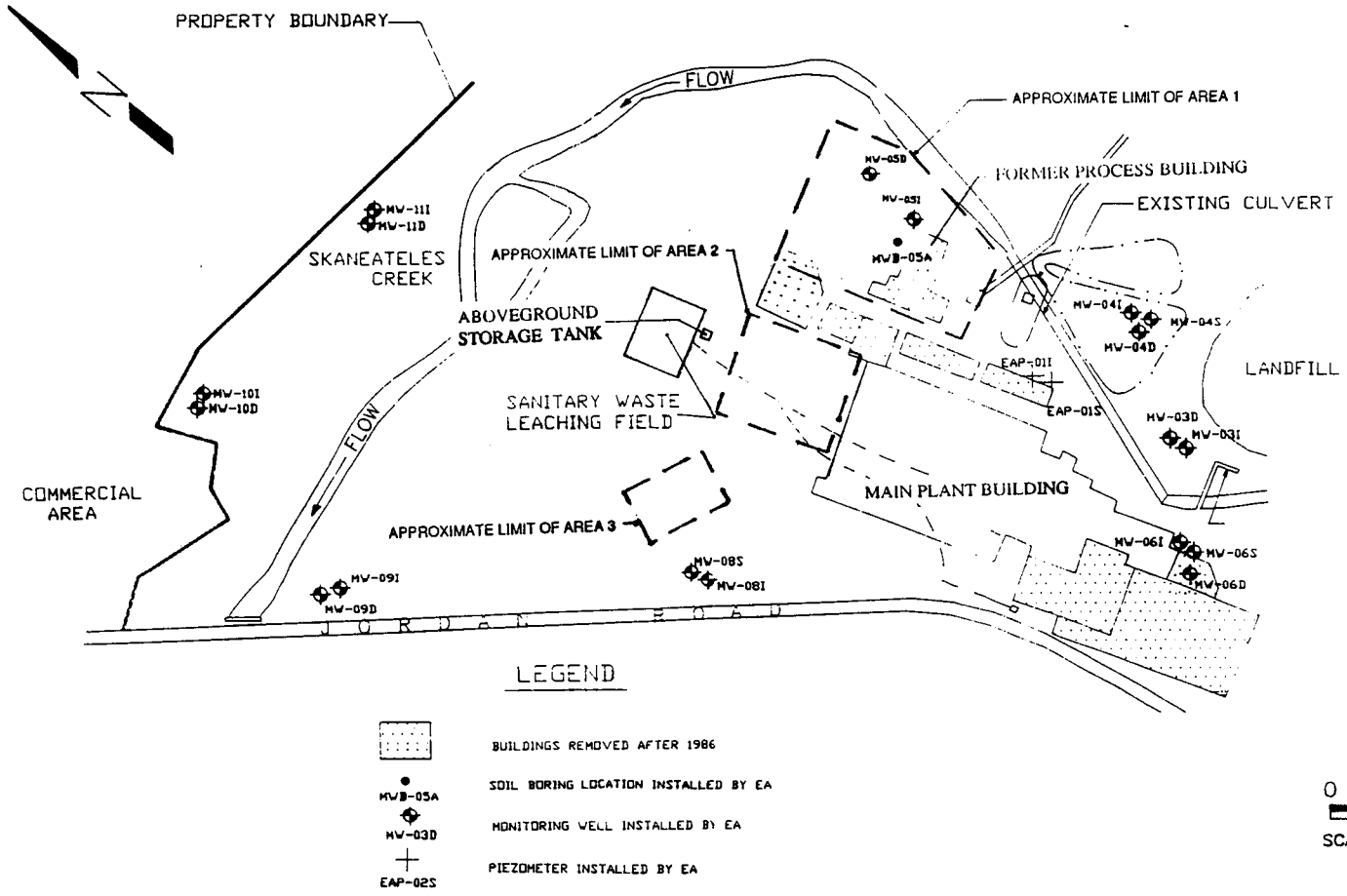


FIGURE 15
Approximate areas of elevated SVCA readings.

DESIGN BY THP	EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY	PROJECT MGR. AJZ
DRAWN BY CSH		DATE 9/17/92
CHECKED BY THP		PROJECT NO. 11932.01

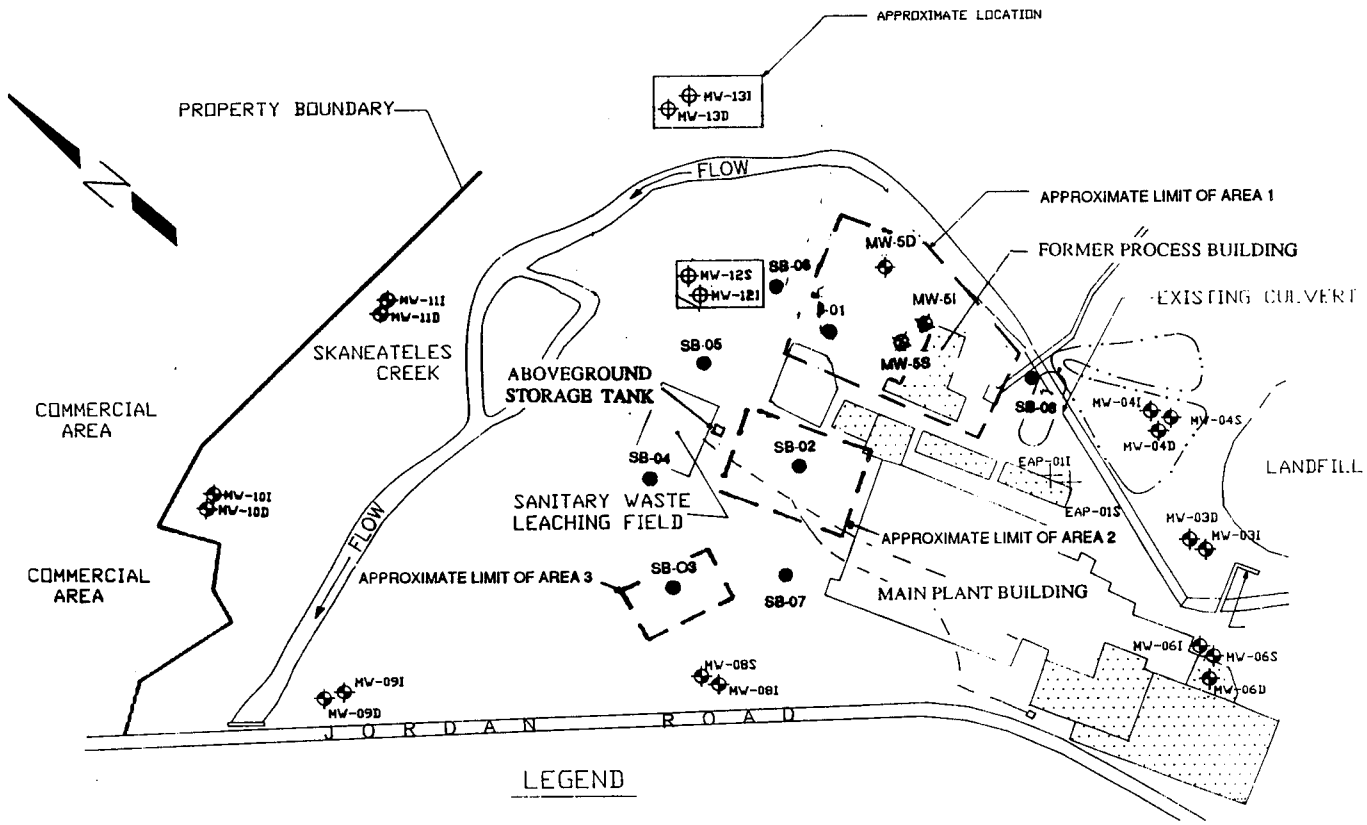


FIGURE 16

PROPOSED AREA MW-5 SOIL BORING AND MONITORING WELL LOCATIONS

DESIGN BY	TMP
DRAWN BY	CEM
CHECKED BY	TMP

EA ENGINEERING P.C. AN AFFILIATE of EA ENGINEERING SCIENCE AND TECHNOLOGY

PROJECT MGR.	JHZ
DATE	9/17/92
PROJECT NO.	11932.01

TABLE 1 SUMMARY OF VOLATILE ORGANIC CONCENTRATIONS FROM SVCA

Analyte	Mean*	Range*	Frequency of Detection
Benzene	0.0	NA	0/53
Toluene	0.1	ND-3.0	9/53
m/p-xylenes	3.2	ND-91.4	25/53
o-xylene	13.4	ND-417.2	22/53
Trichloroethene	0.1	ND-1.0	11/53
Tetrachloroethene	0.3	ND-1.8	28/53
Ethylbenzene			7/53
Methylene chloride			11/53
c-1,2-dichloroethene			10/53
t-1,2-dichloroethene			5/53
Trichloroethane			17/53

* Concentration units are ppm_v.

NOTE: NA = Not applicable.
ND = Not detected.

TABLE 2 KRIGING PARAMETERS USED FOR CONCENTRATION CONTOURS

Analyte	Direction	Tolerance	Nugget	Sill	Range
Benzene	---	---	---	---	---
Toluene	175	22	0	0.35	225
m/p xylenes	175	25	0	225	225
o-xylene	175	20	0	5,000	200
Trichloroethene	0	45	0	0.055	50
Tetrachloroethene	145	40	0	0.15	50

NOTE: All analytes were fit to a spherical model.
Dashes (---) indicate modeling not performed since analyte was not detected.

REFERENCES

Davis, J.C. 1973. Statistics and Data Analysis in Geology, John Wiley and Sons, Inc.

Englund, E. and A. Sparks. 1988. GEO-EAS (Geostatistical Environmental Assessment Software) Users Guide. EPA/600/4-88/033a.

Isaaks, E.H. and R.M. Srivastava. 1989. Applied Geostatistics, Oxford University Press.

Yates, S.R. and M.V. Yates. 1990. Geostatistics for Waste Management EPA/600/8-90/004.

Appendix A

Soil Vapor Concentrations and Contour Maps

APPENDIX A

LIST OF FIGURES

Number	Title
A-1	Contours for toluene.
A-2	Contours for m/p-xylene.
A-3	Contours for o-xylene.
A-4	Contours for trichloroethene (units are ppm_v).
A-5	Contours for tetrachloroethene (units are ppm_v).

LIST OF TABLES

Number	Title
A-1	Calculation of soil vapor concentrations of non-chlorinated aromatic compounds.
A-2	Calculation of soil vapor concentrations of chlorinated compounds.

FIGURE A-1

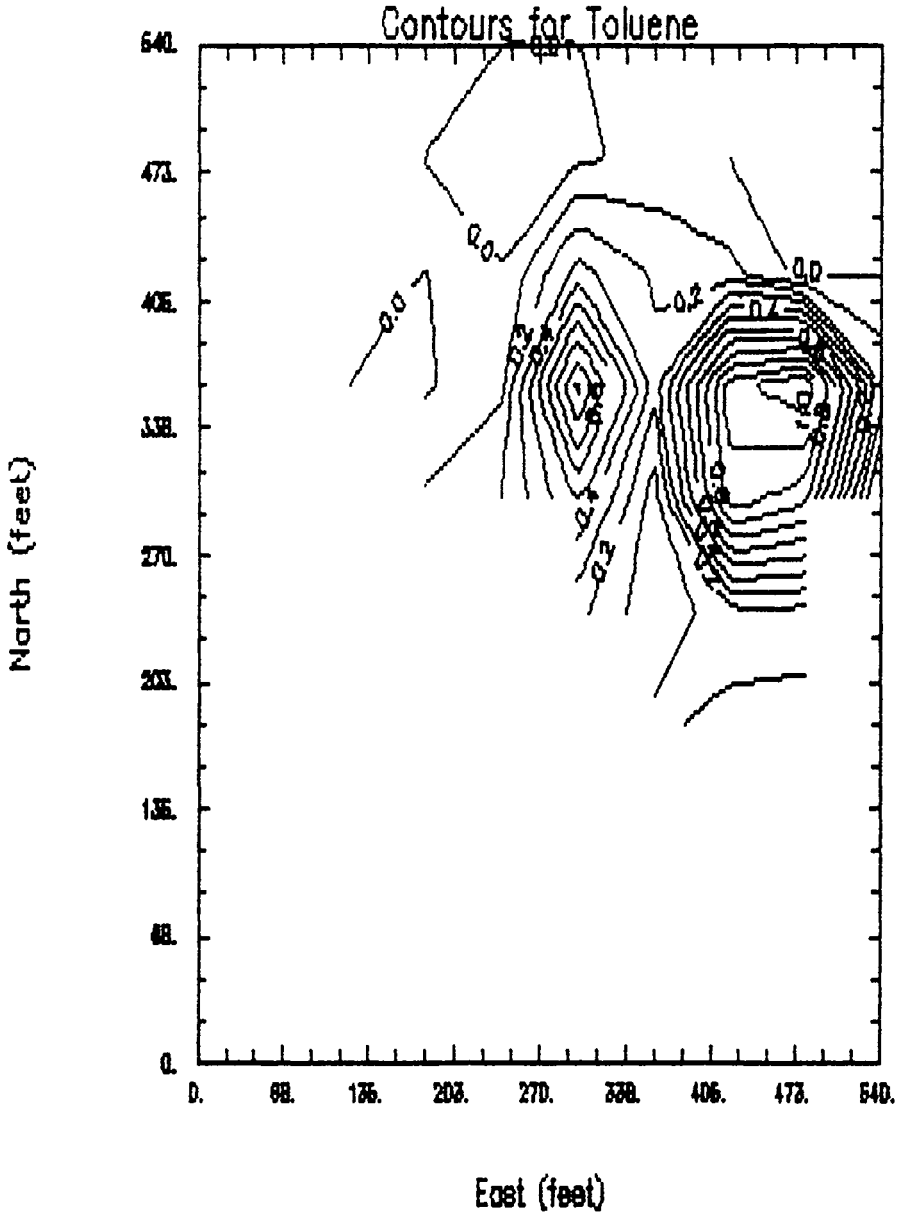

Contours for Toluene
North (feet)
East (feet)
0.
68.
135.
203.
270.
338.
406.
473.
540.
0.0
0.2
0.4
0.7

FIGURE A-2

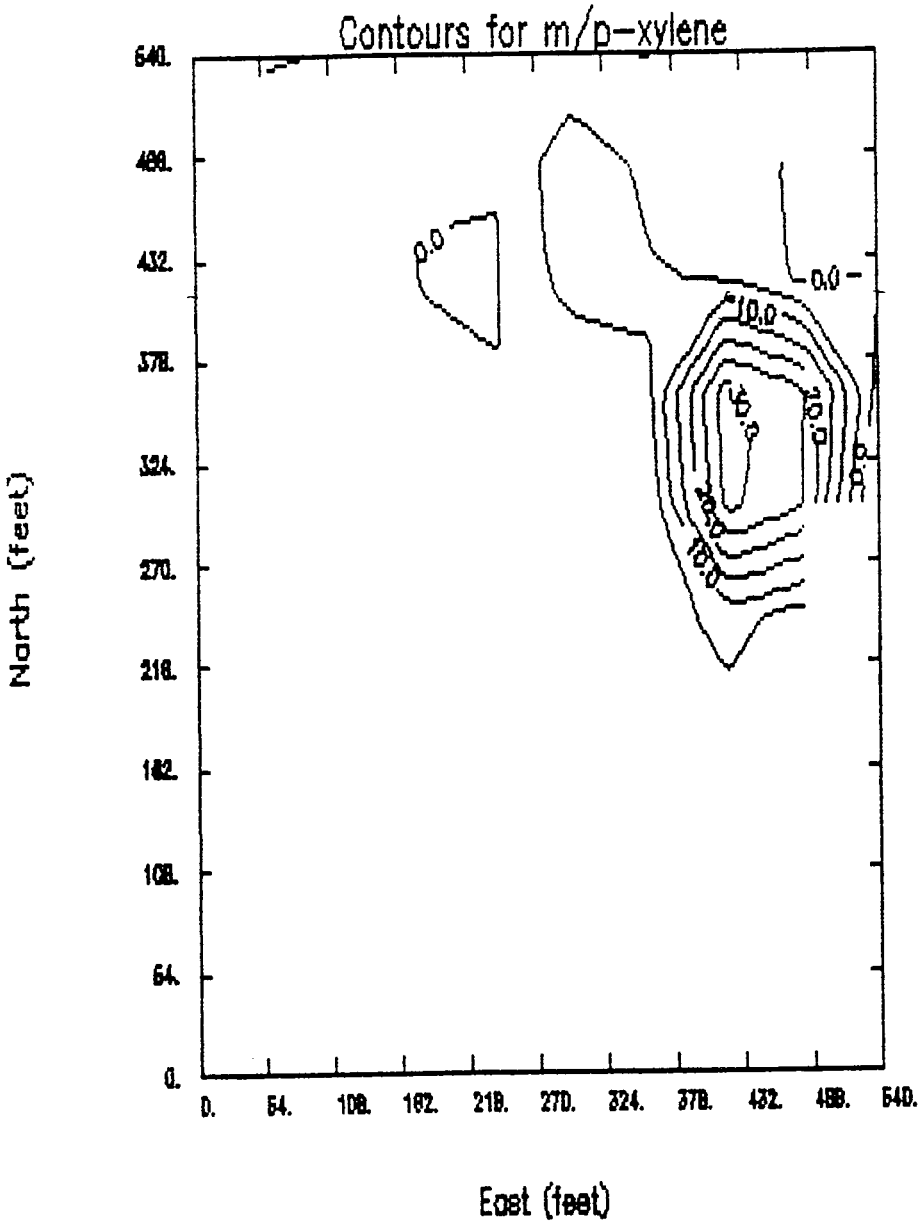

Contours for m/p-xylene
640.
486.
432.
378.
324.
270.
216.
162.
108.
54.
0.
0.0
0.0
10.0
10.0
10.0
10.0
0.0
0.
54.
108.
162.
216.
270.
324.
378.
432.
486.
540.
North (feet)
East (feet)

FIGURE A-3

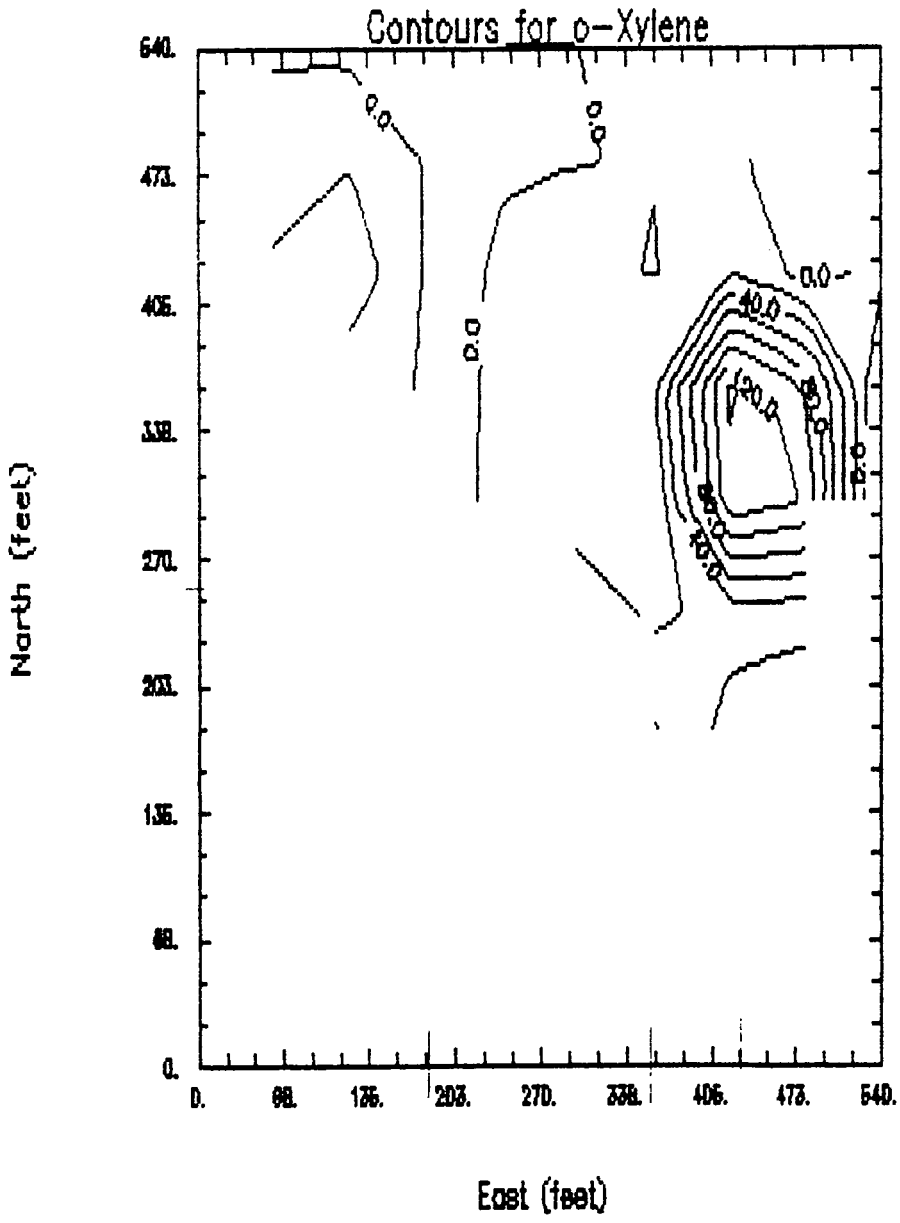

Contours for o-Xylene
640.
473.
405.
338.
270.
203.
135.
68.
0.
0.
68.
135.
203.
270.
338.
405.
473.
540.
North (feet)
East (feet)
0.0
0.0
0.0
0.0
40.0
120.0
80.0
40.0
0.0

FIGURE A-4

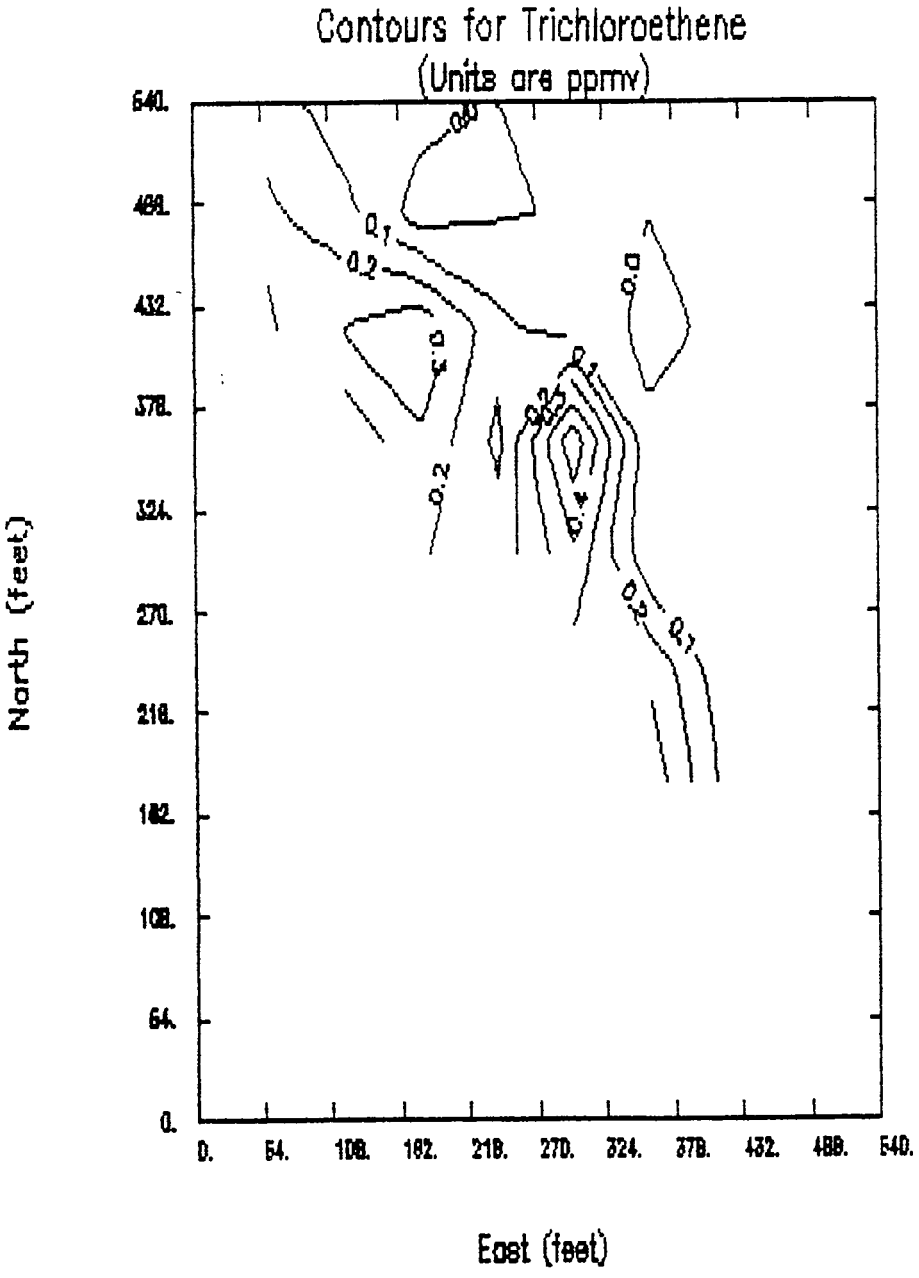

Contours for Trichloroethene
(Units are ppmv)
North (feet)
East (feet)
540.
486.
432.
378.
324.
270.
216.
162.
108.
54.
0.
0.
54.
108.
162.
216.
270.
324.
378.
432.
486.
540.
0.1
0.2
0.5
0.5
0.1
0.2
0.1
0.2
0.1

FIGURE A-5

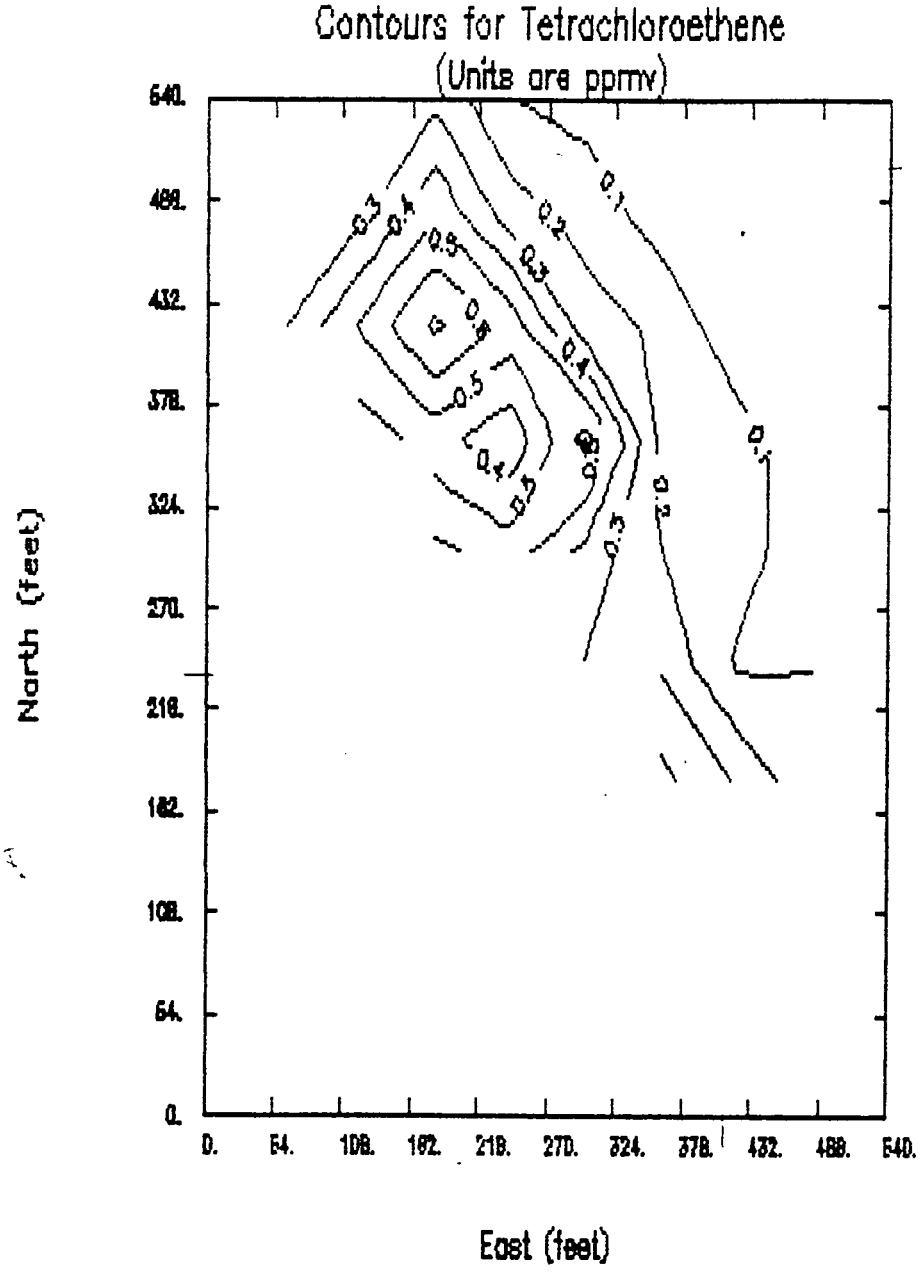

Contours for Tetrachloroethene
(Units are ppmv)
North (feet)
East (feet)
0.
54.
108.
162.
216.
270.
324.
378.
432.
486.
540.
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
2.0

TABLE A-1 CALCULATION OF SOIL VAPOR CONCENTRATIONS OF NON-CHLORINATED AROMATIC COMPOUNDS

				Benzene			Toluene			m/p-xylene			o-xylene		
Sample	Vol inj (ul)	North	East	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)
VP-1	1000	500	250	0.073	0	0.0	0.052	0	0.0	0.06	0	0.0	0.057	0	0.0
VP-2	1000	450	250	0.073	0	0.0	0.052	0	0.0	0.06	0	0.0	0.057	0	0.0
VP-3	1000	450	300	0.073	0	0.0	0.052	0	0.0	0.06	373772	22.4	0.057	0	0.0
VP-4	1000	550	250	0.073	0	0.0	0.052	0	0.0	0.06	0	0.0	0.057	0	0.0
VP-5	1000	550	300	0.079	0	0.0	0.061	0	0.0	0.071	0	0.0	0.07	0	0.0
VP-6	1000	550	350	0.079	0	0.0	0.061	0	0.0	0.071	0	0.0	0.07	0	0.0
VP-7	1000	500	350	0.079	0	0.0	0.061	0	0.0	0.071	0	0.0	0.07	0	0.0
VP-8	1000	550	400	0.079	0	0.0	0.061	0	0.0	0.071	0	0.0	0.07	0	0.0
VP-9	1000	500	400	0.071	0	0.0	0.052	0	0.0	0.053	0	0.0	0.051	0	0.0
VP-10	1000	500	450	0.079	0	0.0	0.061	0	0.0	0.071	0	0.0	0.07	0	0.0
VP-11	1000	450	500	0.071	0	0.0	0.052	0	0.0	0.053	0	0.0	0.051	0	0.0
VP-16	1000	400	450	0.071	0	0.0	0.052	0	0.0	0.053	13599	0.7	0.051	11508	0.6
VP-17	1000	400	500	0.071	0	0.0	0.052	0	0.0	0.053	0	0.0	0.051	0	0.0
VP-18	1000	350	500	0.071	0	0.0	0.052	25284	1.3	0.053	257893	13.8	0.051	391807	19.8
VP-21	1000	350	350	0.048	0	0.0	0.055	0	0.0	0.054	0	0.0	0.049	0	0.0
VP-24	1000	325	500	0.048	0	0.0	0.055	0	0.0	0.054	23661	1.3	0.049	24055	1.2
VP-23	1000	325	450	0.048	0	0.0	0.055	54210	3.0	0.054	2e+06	91.4	0.049	8592220	417.2
VP-25	1000	300	500	0.048	0	0.0	0.055	0	0.0	0.054	19836	1.1	0.049	192335	9.3
VP-27	1000	300	400	0.095	0	0.0	0.073	1834	0.1	0.081	71162	5.8	0.078	51888	4.1
VP-28	1000	300	350	0.095	0	0.0	0.073	0	0.0	0.081	0	0.0	0.078	13212	1.0
VP-29	1000	250	400	0.095	0	0.0	0.073	0	0.0	0.081	87065	7.1	0.078	50796	4.0
VP-31	1000	200	350	0.095	0	0.0	0.073	2333	0.2	0.081	67942	5.5	0.078	824741	64.5
VP-30	1000	250	450	0.095	0	0.0	0.073	4965	0.4	0.081	73289	6.0	0.078	683312	53.5
VP-32	1000	150	400	0.095	0	0.0	0.073	0	0.0	0.081	18878	1.5	0.078	7508	0.6
VP-32D	1000	150	400	0.095	0	0.0	0.073	0	0.0	0.081	18044	1.5	0.078	13338	1.0
VP-33	1000	400	550	0.102	0	0.0	0.076	0	0.0	0.083	1516	0.1	0.081	0	0.0
VP-	1000	100	350	0.102	0	0.0	0.076	0	0.0	0.083	0	0.0	0.081	3704	.3

TABLE A-1 (Continued)

				Benzene			Toluene			m/p-xylene			o-xylene		
Sample	Vol inj (ul)	North	East	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)
VP-35	1000	100	400	0.102	0	0.0	0.076	0	0.0	0.083	0	0.0	0.081	0	0.0
VP-36	1000	0	300	0.097	0	0.0	0.067	4139	0.3	0.068	0	0.0	0.063	2779	0.2
VP-37	1000	100	500	0.097	0	0.0	0.067	1382	0.1	0.068	6709	0.5	0.063	14983	0.9
VP-38	1000	200	500	0.097	0	0.0	0.067	0	0.0	0.068	2145	0.1	0.063	6072	0.4
VP-39	1000	400	300	0.105	0	0.0	0.071	10108	0.7	0.065	15109	1.0	0.059	215944	12.8
VP-43	500	350	300	0.105	0	0.0	0.071	10290	1.5	0.065	7091	0.9	0.059	9088	1.1
VP-44	1000	450	275	0.105	0	0.0	0.071	0	0.0	0.065	0	0.0	0.059	0	0.0
VP-45	1000	350	250	0.105	0	0.0	0.071	0	0.0	0.065	0	0.0	0.059	0	0.0
VP-46	1000	400	250	0.105	0	0.0	0.071	0	0.0	0.065	0	0.0	0.059	0	0.0
VP-47	1000	350	200	0.107	0	0.0	0.074	0	0.0	0.068	8055	0.5	0.063	7208	0.5
VP-48	1000	400	200	0.107	0	0.0	0.074	0	0.0	0.068	0	0.0	0.063	0	0.0
VP-48D	1000	400	200	0.107	0	0.0	0.074	0	0.0	0.068	0	0.0	0.063	0	0.0
VP-49	1000	350	200	0.107	0	0.0	0.074	0	0.0	0.068	30530	2.1	0.063	15340	1.0
VP-50	1000	400	150	0.107	0	0.0	0.074	0	0.0	0.068	0	0.0	0.063	0	0.0
VP-51	1000	450	200	0.107	0	0.0	0.074	0	0.0	0.068	2051	0.1	0.063	0	0.0
VP-52	1000	450	150	0.107	0	0.0	0.074	0	0.0	0.068	0	0.0	0.063	0	0.0
VP-53	1000	500	200	0.06	0	0.0	0.077	0	0.0	0.126	0	0.0	0.15	0	0.0
VP-54	1000	500	150	0.06	0	0.0	0.077	0	0.0	0.126	7444	0.9	0.15	0	0.0
VP-56	1000	500	100	0.06	0	0.0	0.077	0	0.0	0.126	0	0.0	0.15	0	0.0
VP-55	1000	450	100	0.06	0	0.0	0.077	0	0.0	0.126	36357	4.6	0.15	491110	73.5
VP-57	1000	450	50	0.06	0	0.0	0.077	0	0.0	0.126	0	0.0	0.15	0	0.0
VP-59	1000	450	0	0.081	0	0.0	0.104	0	0.0	0.146	0	0.0	0.165	0	0.0
VP-60	1000	500	0	0.081	0	0.0	0.104	0	0.0	0.146	0	0.0	0.165	0	0.0
VP-61	1000	550	0	0.081	0	0.0	0.104	0	0.0	0.146	0	0.0	0.165	0	0.0
VP-62	1000	350	100	0.081	0	0.0	0.104	0	0.0	0.146	0	0.0	0.165	0	0.0
VP-63	1000	400	100	0.081	0	0.0	0.104	0	0.0	0.146	17877	2.6	0.165	242079	40.0

TABLE A-2 CALCULATION OF SOIL VAPOR CONCENTRATIONS OF CHLORINATED COMPOUNDS

				TCE			PCE		
Sample	Vol inj (ul)	North	East	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)
VP-1	1000	500	250	0.001	0	0.0	0.0004	0	0.0
VP-2	1000	450	250	0.001	12321	0.0	0.0004	274343	0.1
VP-3	1000	450	300	0.001	13613	0.0	0.0004	7297	0.0
VP-4	1000	550	250	0.001	0	0.0	0.0004	0	0.0
VP-5	1000	550	300	7e-04	0	0.0	0.0002	15929	0.0
VP-6	1000	550	350	7e-04	0	0.0	0.0002	138866	0.0
VP-7	1000	500	350	7e-04	0	0.0	0.0002	0	0.0
VP-8	1000	550	400	7e-04	0	0.0	0.0002	154297	0.0
VP-9	1000	500	400	7e-04	0	0.0	0.0002	0	0.0
VP-10	1000	500	450	7e-04	0	0.0	0.0002	14245	0.0
VP-11	1000	450	500	7e-04	0	0.0	0.0002	0	0.0
VP-16	1000	450	400	7e-04	0	0.0	0.0002	0	0.0
VP-17	1000	400	500	7e-04	0	0.0	0.0002	2952	0.0
VP-18	1000	350	500	7e-04	3633	0.0	0.0002	5377	0.0
VP-21	1000	350	350	6e-04	0	0.0	0.0002	0	0.0
VP-24	1000	325	500	6e-04	0	0.0	0.0002	6607	0.0
VP-23	1000	325	450	6e-04	265526	0.2	0.0002	760173	0.2
VP-25	1000	300	500	6e-04	0	0.0	0.0002	16357	0.0
VP-27	1000	300	400	5e-04	63890	0.0	0.0002	121618	0.0
VP-28	1000	300	350	5e-04	14515	0.0	0.0002	807264	0.2
VP-29	1000	250	400	5e-04	17322	0.0	0.0002	373836	0.1
VP-31	1000	200	350	5e-04	1e+06	0.6	0.0002	3e+06	0.6
VP-30	1000	250	450	5e-04	0	0.0	0.0002	0	0.0
VP-32	1000	150	400	5e-04	3047	0.0	0.0002	40154	0.0
VP-32D	1000	150	400	5e-04	10775	0.0	0.0002	1e+06	0.3
VP-33	1000	400	550	6e-04	0	0.0	0.0002	19349	0.0
VP-34	1000	100	350	6e-04	66645	0.0	0.0002	8e+06	1.8
VP-35	1000	100	400	6e-04	43531	0.0	0.0002	484773	0.1
VP-36	1000	0	300	5e-04	0	0.0	0.0002	98631	0.0
VP-37	1000	100	500	5e-04	5853	0.0	0.0002	73648	0.0
VP-38	1000	200	500	5e-04	7321	0.0	0.0002	303510	0.1
VP-39	1000	400	300	6e-04	98940	0.1	0.0002	1e+06	0.3
VP-43	500	350	300	6e-04	846463	1.0	0.0002	3e+06	1.2
VP-44	1000	450	275	6e-04	13185	0.0	0.0002	73719	0.0
VP-45	1000	350	250	6e-04	31915	0.0	0.0002	454254	0.1

TABLE A-2 (Continued)

				TCE			PCE		
Sample	Vol inj (ul)	North	East	RF	Area (Usec)	Conc (ppmv)	RF	Area (Usec)	Conc (ppmv)
VP-46	500	400	250	6e-04	76699	0.1	0.0002	2e+06	0.8
VP-47	250	350	200	5e-04	10659	0.0	0.0002	87872	0.1
VP-48	500	400	200	5e-04	482869	0.5	0.0002	3e+06	1.0
VP-48D	250	400	200	5e-04	348343	0.7	0.0002	2e+06	1.6
VP-49	300	350	200	5e-04	4957	0.0	0.0002	71127	0.0
VP-50	500	400	150	5e-04	636806	0.6	0.0002	3e+06	1.2
VP-51	500	450	200	5e-04	12894	0.0	0.0002	721463	0.3
VP-52	250	450	150	5e-04	0	0.0	0.0002	74819	0.1
VP-53	500	500	200	0.004	0	0.0	0.0014	360235	1.0
VP-54	500	500	150	0.004	0	0.0	0.0014	76483	0.2
VP-56	500	500	100	0.004	0	0.0	0.0014	109223	0.3
VP-55	500	450	100	0.004	71024	0.6	0.0014	77358	0.2
VP-57	500	450	50	0.004	41598	0.3	0.0014	67089	0.2
VP-59	500	450	0	0.003	0	0.0	0.0011	47875	0.1
VP-60	500	500	0	0.003	6904	0.0	0.0011	61503	0.1
VP-61	500	550	0	0.003	80316	0.5	0.0011	309153	0.7
VP-62	500	350	100	0.003	0	0.0	0.0011	3663	0.0
VP-63	500	400	100	0.003	0	0.0	0.0011	219636	0.5

Appendix G

Fate and Transport Calculations

APPENDIX G - LIST OF TABLES

Number	Title
G-1	Calculated emission rates of volatile compounds measured in soil vapor, Stauffer Management Company Remedial Investigation, Skaneateles Falls, New York.
G-2	Volatilization from shallow saturated soils, Stauffer Management Company Remedial Investigation, Skaneateles Falls, New York.
G-3	Calculated ambient air concentrations at receptor point, Stauffer Management Company Remedial Investigation, Skaneateles Falls, New York.

TABLE G-1 CALCULATED EMISSION RATES OF VOLATILE COMPOUNDS MEASURED IN SOIL VAPOR
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

1. Mean concentrations

Compound	Mean SV Conc (ppm_v)	Mean SV Conc (g/cm^3)	MW (g/mol)	SV Conc (mol/cm^3)	Diff coeff (cm^2/sec)	Surface area (cm^2)	Soil porosity	Mole fraction (M)	Soil cover (cm)	Emission rate (g/sec)	Emission rate (g/m^2-sec)	% Total
Toluene	0.32	1.21E-09	92.14	1.31E-11	0.08301	8.09E+07	0.3	1.52E-02	91.44	2.71E-07	3.35E-11	0.05%
Ethyl benzene	0.45	1.95E-09	106.17	1.84E-11	0.07070	8.09E+07	0.3	2.13E-02	91.44	5.25E-07	6.50E-11	0.09%
m/p-Xylenes	3.46	1.50E-08	106.17	1.42E-10	0.07597	8.09E+07	0.3	1.64E-01	91.44	3.34E-05	4.13E-09	5.98%
o-Xylene	13.58	5.90E-08	106.17	5.55E-10	0.07597	8.09E+07	0.3	6.44E-01	91.44	5.14E-04	6.36E-08	92.07%
Methylene chloride	0.39	1.35E-09	84.93	1.60E-11	0.09600	8.09E+07	0.3	1.85E-02	91.44	4.29E-07	5.30E-11	0.08%
t-1,2-dichloroethene	0.66	2.60E-09	96.94	2.69E-11	0.08386	8.09E+07	0.3	3.11E-02	91.44	1.21E-06	1.50E-10	0.22%
c-1,2-dichloroethene	1.69	6.69E-09	96.94	6.90E-11	0.08386	8.09E+07	0.3	8.00E-02	91.44	8.00E-06	9.89E-10	1.43%
Trichloroethane	0.18	1.00E-09	133.40	7.53E-12	0.08447	8.09E+07	0.3	8.72E-03	91.44	1.32E-07	1.63E-11	0.02%
Trichloroethene	0.11	5.91E-10	131.39	4.50E-12	0.08606	8.09E+07	0.3	5.21E-03	91.44	4.73E-08	5.85E-12	0.01%
Tetrachloroethene	0.26	1.74E-09	165.83	1.05E-11	0.07852	8.09E+07	0.3	1.22E-02	91.44	2.97E-07	3.68E-11	0.05%
			(SUM)	8.63E-10								

2. 95% Upper Confidence Limit Concentrations

Compound	UCL SV Conc (ppm_v)	UCL SV Conc (g/cm^3)	MW (g/mol)	SV Conc (mol/cm^3)	Diff coeff (cm^2/sec)	Surface area (cm^2)	Soil porosity	Mole fraction (M)	Soil cover (cm)	Emission rate (g/sec)	Emission rate (g/m^2-sec)	% Total
Toluene	0.54	2.03E-09	92.14	2.21E-11	0.08301	8.09E+07	0.3	2.56E-02	91.44	7.71E-07	9.54E-11	0.01%
Ethyl benzene	0.91	3.95E-09	106.17	3.72E-11	0.07070	8.09E+07	0.3	4.31E-02	91.44	2.15E-06	2.66E-10	0.04%
m/p-Xylenes	9.92	4.31E-08	106.17	4.06E-10	0.07597	8.09E+07	0.3	4.70E-01	91.44	2.74E-04	3.39E-08	4.99%
o-Xylene	43.04	1.87E-07	106.17	1.76E-09	0.07597	8.09E+07	0.3	2.04E+00	91.44	5.17E-03	6.39E-07	94.01%
Methylene chloride	0.79	2.74E-09	84.93	3.23E-11	0.09600	8.09E+07	0.3	3.74E-02	91.44	1.76E-06	2.18E-10	0.03%
t-1,2-dichloroethene	1.15	4.55E-09	96.94	4.69E-11	0.08386	8.09E+07	0.3	5.44E-02	91.44	3.70E-06	4.57E-10	0.07%
c-1,2-dichloroethene	3.99	1.58E-08	96.94	1.63E-10	0.08386	8.09E+07	0.3	1.89E-01	91.44	4.47E-05	5.52E-09	0.81%
Trichloroethane	0.39	2.12E-09	133.40	1.59E-11	0.08447	8.09E+07	0.3	1.84E-02	91.44	5.89E-07	7.29E-11	0.01%
Trichloroethene	0.22	1.18E-09	131.39	9.00E-12	0.08606	8.09E+07	0.3	1.04E-02	91.44	1.89E-07	2.34E-11	0.00%
Tetrachloroethene	0.47	3.20E-09	165.83	1.93E-11	0.07852	8.09E+07	0.3	2.24E-02	91.44	1.00E-06	1.24E-10	0.02%
			(SUM)	2.51E-09								

Notes:
Diffusion coefficients from USEPA (1988)
Surface area was assumed to be 2 acres
Soil cover assumed to be 3 feet (91.44 cm)

TABLE G-2. VOLATILIZATION FROM SHALLOW SATURATED SOILS
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

Landfill Soil Borings - Mean Concentrations

Analyte	MW	Mean Conc (ug/kg)	Mean Conc (g/cm^3)	HLC (atm/m^3-mole)	R	Temp (°K)	Depth (L;cm)	Cg	(Do) Vapor Diff Coefficient (cm^2/sec)	(Ds) Soil Vapor Diffusion Coefficient (cm^2/sec)	FLUX RATE (g/m^2-sec)
Methylene choride	85	1.30E+03	2.60E-06	3.19E-03	8.19E-05	293	244	3.456E-07	0.09600	8.549E-04	1.21E-08
Acetone	58	5.50E+01	1.10E-07	2.06E-05	8.19E-05	293	244	9.443E-11	0.10930	9.733E-04	3.77E-12
2-Butanone	72	7.10E+03	1.42E-05	2.74E-05	8.19E-05	293	244	1.621E-08	0.09485	8.446E-04	5.62E-10
Benzene	78	2.82E+03	5.64E-06	5.59E-03	8.19E-05	293	244	1.313E-06	0.09234	8.223E-04	4.43E-08
Chloroform	119	1.00E+00	2.00E-09	2.87E-03	8.19E-05	293	244	2.392E-10	0.09404	8.374E-04	8.21E-12
Chlorobenzene	113	2.10E+02	4.20E-07	3.72E-03	8.19E-05	293	244	6.511E-08	0.07627	6.792E-04	1.81E-09
1,2-Dichloroethene	97	1.70E+01	3.40E-08	4.08E-03	8.19E-05	293	244	5.781E-09	0.08386	7.468E-04	1.77E-10
Trichloroethene	131	1.53E+04	3.05E-05	1.17E-02	8.19E-05	293	244	1.488E-05	0.08606	7.664E-04	4.68E-07
Tetrachloroethene	166	4.00E+00	8.00E-09	2.68E-02	8.19E-05	293	244	8.951E-09	0.07852	6.992E-04	2.57E-10
Toluene	92	1.01E+05	2.03E-04	5.92E-03	8.19E-05	293	244	4.997E-05	0.08301	7.392E-04	1.51E-06
Ethylbenzene	106	1.73E+04	3.46E-05	8.04E-03	8.19E-05	293	244	1.160E-05	0.07070	6.296E-04	3.00E-07
Xylenes	113	2.72E+06	5.44E-03	7.04E-03	8.19E-05	293	244	1.596E-03	0.07597	6.765E-04	4.43E-05

Landfill Soil Borings - UCL Concentrations

Analyte	MW	UCL Conc (ug/kg)	UCL Conc (g/cm^3)	HLC (atm/m^3-mole)	R	Temp (°K)	Depth (L;cm)	Cg	(Do) Vapor Diff Coefficient (cm^2/sec)	(Ds) Soil Vapor Diffusion Coefficient (cm^2/sec)	FLUX RATE (g/m^2-sec)
Methylene choride	85	1.30E+03	2.60E-06	3.19E-03	8.19E-05	293	244	3.456E-07	0.09600	8.549E-04	1.21E-08
Acetone	58	5.50E+01	1.10E-07	2.06E-05	8.19E-05	293	244	9.443E-11	0.10930	9.733E-04	3.77E-12
2-Butanone	72	7.10E+03	1.42E-05	2.74E-05	8.19E-05	293	244	1.621E-08	0.09485	8.446E-04	5.62E-10
Benzene	78	6.21E+03	1.24E-05	5.59E-03	8.19E-05	293	244	2.895E-06	0.09234	8.223E-04	9.76E-08
Chloroform	119	1.00E+00	2.00E-09	2.87E-03	8.19E-05	293	244	2.392E-10	0.09404	8.374E-04	8.21E-12
Chlorobenzene	113	2.10E+02	4.20E-07	3.72E-03	8.19E-05	293	244	6.511E-08	0.07627	6.792E-04	1.81E-09
1,2-Dichloroethene	97	1.70E+01	3.40E-08	4.08E-03	8.19E-05	293	244	5.781E-09	0.08386	7.468E-04	1.77E-10
Trichloroethene	131	3.53E+04	7.05E-05	1.17E-02	8.19E-05	293	244	3.439E-05	0.08606	7.664E-04	1.08E-06
Tetrachloroethene	166	4.00E+00	8.00E-09	2.68E-02	8.19E-05	293	244	8.951E-09	0.07852	6.992E-04	2.57E-10
Toluene	92	2.80E+05	5.60E-04	5.92E-03	8.19E-05	293	244	1.381E-04	0.08301	7.392E-04	4.19E-06
Ethylbenzene	106	3.74E+04	7.49E-05	8.04E-03	8.19E-05	293	244	2.510E-05	0.07070	6.296E-04	6.48E-07
Xylenes	113	7.16E+06	1.43E-02	7.04E-03	8.19E-05	293	244	4.202E-03	0.07597	6.765E-04	1.17E-04

Notes:
[1]Vapor diffusion coefficients from USEPA (1988)
[2]Average depth of 8 feet (244 cm) for landfill borings, and 5.3 ft (162 cm) for North Area Soils.

North Area Soil Borings - Mean Concentrations

Analyte	MW	Mean Conc (ug/kg)	Mean Conc (g/cm^3)	HLC (atm/m^3-mole)	R	Temp (°K)	Depth (L;cm)	Cg	(Do) Vapor Diff Coefficient (cm^2/sec)	(Ds) Soil Vapor Diffusion Coefficient (cm^2/sec)	FLUX RATE (g/m^2-sec)
Acetone	58	1.40E+02	2.80E-07	2.06E-05	8.19E-05	293	162	2.404E-10	0.10930	9.733E-04	1.45E-11
1,1-Dichloroethane	99	4.00E+00	8.00E-09	5.87E-03	8.19E-05	293	162	1.957E-09	0.09643	8.587E-04	1.04E-10
1,2-Dichloroethene	97	2.00E+00	4.00E-09	4.08E-03	8.19E-05	293	162	6.801E-10	0.08386	7.468E-04	3.14E-11
2-Butanone	72	5.90E+01	1.18E-07	4.66E-05	8.19E-05	293	162	2.291E-10	0.09485	8.446E-04	1.20E-11
Benzene	78	5.00E+00	1.00E-08	5.55E-03	8.19E-05	293	162	2.313E-09	0.09234	8.223E-04	1.18E-10
Tetrachloroethene	166	5.00E+00	1.00E-08	2.68E-02	8.19E-05	293	162	1.119E-08	0.07852	6.992E-04	4.84E-10
Toluene	92	3.70E+01	7.40E-08	5.92E-03	8.19E-05	293	162	1.826E-08	0.08301	7.392E-04	8.35E-10
Xylenes	113	1.58E+05	3.17E-04	7.04E-03	8.19E-05	293	162	9.299E-05	0.07597	6.765E-04	3.89E-06

North Area Soil Borings - UCL Concentrations

Analyte	MW	UCL Conc (ug/kg)	UCL Conc (g/cm^3)	HLC (atm/m^3-mole)	R	Temp (°K)	Depth (L;cm)	Cg	(Do) Vapor Diff Coefficient (cm^2/sec)	(Ds) Soil Vapor Diffusion Coefficient (cm^2/sec)	FLUX RATE (g/m^2-sec)
Acetone	58	1.40E+02	2.80E-07	2.06E-05	8.19E-05	293	162	2.404E-10	0.10930	9.733E-04	1.45E-11
1,1-Dichloroethane	99	4.00E+00	8.00E-09	5.87E-03	8.19E-05	293	162	1.957E-09	0.09643	8.587E-04	1.04E-10
1,2-Dichloroethene	97	2.00E+00	4.00E-09	4.08E-03	8.19E-05	293	162	6.801E-10	0.08386	7.468E-04	3.14E-11
2-Butanone	72	5.90E+01	1.18E-07	4.66E-05	8.19E-05	293	162	2.291E-10	0.09485	8.446E-04	1.20E-11
Benzene	78	5.00E+00	1.00E-08	5.55E-03	8.19E-05	293	162	2.313E-09	0.09234	8.223E-04	1.18E-10
Tetrachloroethene	166	5.00E+00	1.00E-08	2.68E-02	8.19E-05	293	162	1.119E-08	0.07852	6.992E-04	4.84E-10
Toluene	92	3.70E+01	7.40E-08	5.92E-03	8.19E-05	293	162	1.826E-08	0.08301	7.392E-04	8.35E-10
Xylenes	113	4.41E+05	8.81E-04	7.04E-03	8.19E-05	293	162	2.585E-04	0.07597	6.765E-04	1.08E-05

TABLE G-3. CALCULATED AMBIENT AIR CONCENTRATIONS AT RECEPTOR POINT
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

Mean emission rates - Soil Vapor Source

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Toluene	2.71E-07	88	152	4.4	9.21E-12	9.209E-06
Ethyl benzene	5.25E-07	88	152	4.4	1.78E-11	1.784E-05
m/p-Xylenes	3.34E-05	88	152	4.4	1.14E-09	1.135E-03
o-Xylenes	5.14E-04	88	152	4.4	1.75E-08	1.747E-02
Methylene chloride	4.29E-07	88	152	4.4	1.46E-11	1.458E-05
trans-Dichloroethene	1.21E-06	88	152	4.4	4.11E-11	4.112E-05
cis-Dichloroethene	8.00E-06	88	152	4.4	2.72E-10	2.719E-04
1,1,1-Trichloroethane	1.32E-07	88	152	4.4	4.49E-12	4.486E-06
Trichloroethene	4.33E-08	88	152	4.4	1.47E-12	1.471E-06
Tetrachloroethene	2.97E-07	88	152	4.4	1.01E-11	1.009E-05

UCL emission rates - Soil Vapor Source

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Toluene	7.71E-07	88	152	4.4	2.62E-11	2.620E-05
Ethyl benzene	2.15E-06	88	152	4.4	7.31E-11	7.306E-05
m/p-Xylenes	2.74E-04	88	152	4.4	9.31E-09	9.311E-03
o-Xylenes	5.17E-03	88	152	4.4	1.76E-07	1.757E-01
Methylene chloride	1.76E-06	88	152	4.4	5.98E-11	5.981E-05
trans-Dichloroethene	3.76E-06	88	152	4.4	1.28E-10	1.278E-04
cis-Dichloroethene	4.47E-05	88	152	4.4	1.52E-09	1.519E-03
1,1,1-Trichloroethane	5.89E-07	88	152	4.4	2.00E-11	2.002E-05
Trichloroethene	1.89E-07	88	152	4.4	6.42E-12	6.423E-06
Tetrachloroethene	1.00E-06	88	152	4.4	3.40E-11	3.398E-05

Mean emission rates - Landfill Soil Borings

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	1.21E-08	88	152	4.4	4.11E-13	4.112E-07
Acetone	3.77E-12	88	152	4.4	1.28E-16	1.281E-10
2-Butanone	5.62E-10	88	152	4.4	1.91E-14	1.910E-08
Benzene	4.43E-08	88	152	4.4	1.51E-12	1.505E-06
Chloroform	8.21E-12	88	152	4.4	2.79E-16	2.790E-10
Chlorobenzene	1.81E-09	88	152	4.4	6.15E-14	6.151E-08
1,2-Dichloroethene	1.77E-10	88	152	4.4	6.01E-15	6.015E-09
Trichloroethene	4.68E-07	88	152	4.4	1.59E-11	1.590E-05
Tetrachloroethene	2.57E-10	88	152	4.4	8.73E-15	8.733E-09
Toluene	1.51E-06	88	152	4.4	5.13E-11	5.131E-05
Ethylbenzene	3.00E-07	88	152	4.4	1.02E-11	1.019E-05
Xylenes	4.43E-05	88	152	4.4	1.51E-09	1.505E-03

UCL emission rates - Landfill Soil Borings

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	1.21E-08	88	152	4.4	4.11E-13	4.112E-07
Acetone	3.77E-12	88	152	4.4	1.28E-16	1.281E-10
2-Butanone	5.62E-10	88	152	4.4	1.91E-14	1.910E-08
Benzene	9.76E-08	88	152	4.4	3.32E-12	3.317E-06
Chloroform	8.21E-12	88	152	4.4	2.79E-16	2.790E-10
Chlorobenzene	1.81E-09	88	152	4.4	6.15E-14	6.151E-08
1,2-Dichloroethene	1.77E-10	88	152	4.4	6.01E-15	6.015E-09
Trichloroethene	1.08E-06	88	152	4.4	3.67E-11	3.670E-05
Tetrachloroethene	2.57E-10	88	152	4.4	8.73E-15	8.733E-09
Toluene	4.19E-06	88	152	4.4	1.42E-10	1.424E-04
Ethylbenzene	6.48E-07	88	152	4.4	2.20E-11	2.202E-05
Xylenes	1.74E-04	88	152	4.4	5.91E-09	5.913E-03

Mean emission rates - North Area Soils

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	1.45E-11	88	152	4.4	4.93E-16	4.927E-10
1,1-Dichloroethane	1.04E-10	88	152	4.4	3.53E-15	3.534E-09
1,2-Dichloroethene	3.14E-11	88	152	4.4	1.07E-15	1.067E-09
2-Butanone	1.20E-11	88	152	4.4	4.08E-16	4.078E-10
Benzene	1.18E-10	88	152	4.4	4.01E-15	4.010E-09
Tetrachloroethene	4.84E-10	88	152	4.4	1.64E-14	1.645E-08
Toluene	8.35E-10	88	152	4.4	2.84E-14	2.838E-08
Xylenes	3.89E-06	88	152	4.4	1.32E-10	1.322E-04

UCL emission rates - North Area Soils

Compound	Emission rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	1.45E-11	88	152	4.4	4.93E-16	4.927E-10
1,1-Dichloroethane	1.04E-10	88	152	4.4	3.53E-15	3.534E-09
1,2-Dichloroethene	3.14E-11	88	152	4.4	1.07E-15	1.067E-09
2-Butanone	1.20E-11	88	152	4.4	4.08E-16	4.078E-10
Benzene	1.18E-10	88	152	4.4	4.01E-15	4.010E-09
Tetrachloroethene	4.84E-10	88	152	4.4	1.64E-14	1.645E-08
Toluene	8.35E-10	88	152	4.4	2.84E-14	2.838E-08
Xylenes	1.08E-05	88	152	4.4	3.67E-10	3.670E-04

Appendix H

Risk Assessment Calculations

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TABLE H-1. SELECTION MATRIX FOR ORGANIC CHEMICALS OF CONCERN
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

MATRIX: North Area Soils

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
Benzene		X	X
1,1-Dichloroethane			
1,2-Dichlorothene			
Tetrachloroethene		X	X
Toluene			
Xylenes	X		X
Phenol			
2-methylphenol	X		X
4-methylphenol	X		X
2,4-Dimethylphenol	X		X
Carbazole			X
Napthalene	X		X
Fluorene	X		X
Di-n-butyl phthalate			
Fluoranthene	X		X
Pyrene	X		X
Total c-PAHs		X	X
o-Toluic acid			X
m-Toluic acid			X
p-Toluic acid			
4,4'-DDD		X	X
Aroclor 1248		X	X

MATRIX: Landfill Perimeter Soils

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
Tetrachloroethene		X	X
Toluene			
Ethyl benzene			
Xylenes			
2-methylphenol	X		X
4-methylphenol	X		
Napthalene	X		X
Fluorene	X		X
Di-n-butyl phthalate	X		X
Fluoranthene	X		X
Pyrene	X		X
Total c-PAHs		X	X
o-Toluic acid			X
m-Toluic acid			X
4,4'-DDD		X	X
4,4'-DDE		X	X

TABLE H-1. (Continued)

MATRIX: Creek Seeps - Round 1 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X		X
Toluene			
Xylenes			
Phenol			
2-methylphenol			
4-methylphenol			
Napthalene			
Anthracene			
Fluorene			
Fluoranthene			
Pyrene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X
Total c-PAHs		X	X

MATRIX: Stream Sediments - Round 1 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Tetrachloroethene		X	X
Xylenes			
Naphthalene	X		X
Fluorene	X		X
Anthracene	X		X
Fluoranthene			
Pyrene	X		X
Total c-PAHs		X	X

MATRIX: Stream Sediments - Round 2 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Vinyl chloride		X	X
Acetone	X		X
Carbon disulfide			
1,2-Dichlorothene	X		X
Toluene			
Ethylbenzene			
Xylenes			
2-methylphenol	X		X
Naphthalene	X		X
Fluorene	X		X
Fluoranthene	X		X
Pyrene	X		X
Carbazole		X	X
Total c-PAHs		X	X
o-Toluic acid			X
m-Toluic acid			X
p-Toluic acid			X
Dieldrin	X	X	X

MATRIX: Deep Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone	X		X
1,1-Dichloroethane	X		X
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X	X	X
Toluene			
Xylenes	X		X
Phenol			
2-methylphenol	X		X
Pentachlorophenol	X		X
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X
4,4'-DDE		X	X

MATRIX: Upper Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Toluene			
Xylenes	X		X
Phenol			
2-methylphenol			
4-methylphenol			
o-Toluic acid	X		
m-Toluic acid	X		X
p-Toluic acid	X		X

MATRIX: Mixed Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
1,1-Dichloroethane			
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X	X	X
Toluene			
Xylenes			
Phenol			
2-methylphenol			
4-methylphenol			
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X

MATRIX: Upper Bedrock Groundwater (On-Site Case) - Round 1 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Vinyl chloride		X	X
Benzene		X	X
Acetone			
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X		X
Toluene			
Xylenes			
Benzyl alcohol			
Phenol			
2-methylphenol			
4-methylphenol			
Benzoic acid			
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid			X

MATRIX: Upper Bedrock Groundwater (On-Site Case) - Round 2 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
1,2-Dichlorothene	X		X
Benzene		X	X
Vinyl chloride		X	X
Trichloroethene		X	X
Tetrachloroethene	X		X
Toluene			
Xylenes			
Phenol			
2-methylphenol			
4-methylphenol			
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X
4,4'-DDE		X	X

MATRIX: Deep Bedrock Groundwater (On-Site Case) - Round 1 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone	X		X
Benzene		X	X
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X	X	X
Toluene			
Ethyl benzene			
Xylenes	X		X
Phenol			
2-methylphenol	X		X
4-methylphenol	X		X
Benzoic acid			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X

MATRIX: Deep Bedrock Groundwater (On-Site Case) - Round 2 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone	X		X
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X	X	X
Toluene			
Xylenes	X		X
Phenol			
2-methylphenol	X		X
Pentachlorophenol	X		X
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X
4,4-DDE		X	X

MATRIX: Creek Seeps (Dermal contact) - Round 1 Data

Compound	Risk Factor >1%	Carcinogen	Chemical of Concern
Acetone			
1,2-Dichlorothene	X		X
Trichloroethene		X	X
Tetrachloroethene	X	X	X
Toluene			
Xylenes			
Phenol			
2-methylphenol			
4-methylphenol			
Naphthalene			
o-Toluic acid	X		X
m-Toluic acid	X		X
p-Toluic acid	X		X
Total c-PAHs		X	X

TABLE H-2. SELECTION MATRIX FOR INORGANIC CHEMICALS OF CONCERN
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATIOI
SKANEATELES FALLS, NEW YORK

MATRIX: North Area Soils

Analyte	Above Background	Risk Factor > 1%	Chemical of Concern
Arsenic	X	X	X
Barium	X	X	X
Beryllium			
Cadmium	X	X	X
Chromium	X		
Mercury	X	X	X
Nickel	X	X	X
Thallium		X	
Vanadium		X	
Zinc	X	X	X

MATRIX: Landfill Perimeter Soils

Analyte	Above Background	Risk Factor > 1%	Chemical of Concern
Arsenic		X	
Barium		X	
Beryllium			
Cadmium		X	
Chromium			
Mercury	X	X	X
Nickel	X	X	X
Thallium		X	
Vanadium			
Zinc			

MATRIX: Creek Seeps - Round 1 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	X
Beryllium	X	
Cadmium	X	X
Chromium	X	
Mercury	X	
Nickel	X	
Thallium	X	X
Vanadium	X	X
Zinc	X	

MATRIX: Stream Sediments - Round 1 Data

Analyte	Above Background	Risk Factor > 1%	Chemical of Concern
Arsenic	X	X	X
Barium		X	
Beryllium			
Cadmium	X	X	X
Chromium			
Nickel		X	
Vanadium		X	
Zinc		X	

MATRIX: Stream Sediments - Round 2 Data

Analyte	Above Background	Risk Factor > 1%	Chemical of Concern
Arsenic	X	X	X
Barium		X	
Beryllium			
Cadmium	X	X	X
Chromium			
Nickel		X	
Vanadium		X	
Zinc		X	

MATRIX: Surface Water - Round 1 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	X
Zinc	X	

MATRIX: Surface Water - Round 2 Data

No compounds detected with reference doses.

MATRIX: Inorganic Sludge Basin Wells

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	X
Nickel	X	X
Zinc	X	

MATRIX: Deep Bedrock Groundwater (Off-site case) - Round 2 Data,

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	
Cadmium	X	X
Chromium	X	
Mercury	X	
Nickel	X	
Zinc	X	
Cyanide	X	

MATRIX: Upper Bedrock Groundwater (Off-site case) - Round 2 Data,

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	X
Beryllium	X	
Cadmium	X	X
Chromium	X	
Nickel	X	
Vanadium	X	X
Zinc	X	
Cyanide	X	

TABLE H-2 (Continued)

MATRIX: Mixed Bedrock Groundwater (Off-site case) - Round 2 Data,

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	X
Beryllium	X	
Cadmium	X	X
Chromium	X	
Nickel	X	
Vanadium	X	X
Zinc	X	
Cyanide	X	

MATRIX: Upper Bedrock Groundwater (On-site case) - Round 1 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	
Chromium	X	
Mercury	X	
Nickel	X	
Vanadium	X	X
Zinc	X	
Cyanide	X	

MATRIX: Upper Bedrock Groundwater (On-site case) - Round 2 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Barium	X	
Beryllium	X	
Cadmium	X	X
Chromium	X	
Mercury	X	
Nickel	X	
Vanadium	X	X
Zinc	X	
Cyanide	X	

MATRIX: Deep Bedrock Groundwater (On-site case) - Round 1 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Antimony	X	X
Barium	X	X
Chromium	X	
Mercury	X	X
Nickel	X	
Thallium	X	X
Vanadium	X	X
Zinc	X	

MATRIX: Deep Bedrock Groundwater (On-site case) - Round 2 Data

Analyte	Freq > 10%	Chemical of Concern
Arsenic	X	X
Antimony	X	X
Barium	X	
Cadmium	X	X
Chromium	X	
Mercury	X	
Nickel	X	
Vanadium	X	
Zinc	X	
Cyanide	X	

TABLE H-3. RISK FACTOR CALCULATIONS FOR SELECTION OF ORGANIC CONTAMINANTS OF CONCERN
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

MATRIX: North Area Soils

Compound	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Acetone	1.40E-01	1.00E-01	1.40E+00	0.28%
1,1-Dichloroethane	4.00E-03	1.00E-02	4.00E-01	0.08%
1,2-Dichlorothene	2.00E-03	2.00E-02	1.00E-01	0.02%
Tetrachloroethene	5.00E-03	1.00E-02	5.00E-01	0.10%
Toluene	3.70E-02	2.00E-01	1.85E-01	0.04%
Xylenes	4.41E+02	2.00E+00	2.20E+02	43.49%
Phenol	2.70E-01	6.00E-01	4.50E-01	0.09%
2-methylphenol	1.40E+00	5.00E-02	2.80E+01	5.53%
4-methylphenol	1.77E+00	5.00E-02	3.53E+01	6.98%
2,4-Dimethylphenol	2.05E+00	2.00E-02	1.02E+02	20.20%
Napthalene	7.01E-01	4.00E-02	1.75E+01	3.46%
Fluorene	4.30E-01	4.00E-02	1.08E+01	2.12%
Di-n-butyl phthalate	9.00E-02	1.00E-01	9.00E-01	0.18%
Fluoranthene	1.86E+00	4.00E-02	4.65E+01	9.17%
Pyrene	9.10E-01	3.00E-02	3.03E+01	5.99%
o-Toluic acid	1.21E+01	3.00E+00	4.02E+00	0.79%
m-Toluic acid	1.10E+01	3.00E+00	3.67E+00	0.72%
p-Toluic acid	1.17E+01	3.00E+00	3.89E+00	0.77%
		Total	5.06E+02	

MATRIX: Landfill Perimeter Soils

Compound	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Acetone	2.39E-02	1.00E-01	2.39E-01	0.51%
Tetrachloroethene	2.00E-03	1.00E-02	2.00E-01	0.43%
Toluene	3.30E-03	2.00E-01	1.65E-02	0.04%
Ethyl benzene	2.00E-03	1.00E-01	2.00E-02	0.04%
Xylenes	1.44E-01	2.00E+00	7.22E-02	0.16%
2-methylphenol	4.00E-02	5.00E-02	8.00E-01	1.72%
4-methylphenol	2.90E-02	5.00E-02	5.80E-01	1.25%
Napthalene	1.80E-01	4.00E-02	4.50E+00	9.67%
Fluorene	2.22E-02	4.00E-02	5.55E-01	1.19%
Di-n-butyl phthalate	2.10E-01	1.00E-01	2.10E+00	4.51%
Fluoranthene	6.56E-01	4.00E-02	1.64E+01	35.23%
Pyrene	6.29E-01	3.00E-02	2.10E+01	45.05%
o-Toluic acid	1.70E-01	3.00E+00	5.67E-02	0.12%
m-Toluic acid	1.20E-01	3.00E+00	4.00E-02	0.09%
		Total	4.65E+01	

MATRIX: Creek Seeps - Round 1 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	4.03E-02	1.00E-01	4.03E-01	0.38%
1,2-Dichlorothene	4.49E-01	2.00E-02	2.24E+01	21.31%
Tetrachloroethene	3.78E-01	1.00E-02	3.78E+01	35.92%
Toluene	3.89E-02	2.00E-01	1.94E-01	0.18%
Xylenes	5.55E-01	2.00E+00	2.77E-01	0.26%
Phenol	4.70E-02	6.00E-01	7.83E-02	0.07%
2-methylphenol	1.41E-02	5.00E-02	2.82E-01	0.27%
4-methylphenol	2.00E-03	5.00E-02	4.00E-02	0.04%
Bis(2-ethylhexyl)phthalate	2.00E-03	2.00E-02	1.00E-01	0.09%
Napthalene	2.00E-03	4.00E-02	5.00E-02	0.05%
Anthracene	3.00E-03	3.00E-01	1.00E-02	0.01%
Fluorene	2.00E-03	4.00E-02	5.00E-02	0.05%
Fluoranthene	1.99E-02	4.00E-02	4.97E-01	0.47%
Pyrene	1.34E-02	3.00E-02	4.47E-01	0.42%
o-Toluic acid	1.18E+01	3.00E+00	3.94E+00	3.74%
m-Toluic acid	4.15E+01	3.00E+00	1.38E+01	13.14%
p-Toluic acid	7.46E+01	3.00E+00	2.49E+01	23.60%
		Total	1.05E+02	

MATRIX: Stream Sediments - Round 1 Data

Compound	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Tetrachloroethene	9.80E-03	1.00E-02	9.80E-01	0.27%
Xylenes	2.00E-03	2.00E+00	1.00E-03	0.00%
Naphthalene	1.10E+00	4.00E-02	2.75E+01	7.61%
Fluorene	2.19E+00	4.00E-02	5.47E+01	15.14%
Anthracene	2.39E+00	3.00E-01	7.97E+00	2.21%
Fluoranthene	1.99E-02	4.00E-02	4.97E-01	0.14%
Pyrene	8.09E+00	3.00E-02	2.70E+02	74.63%
		Total	3.61E+02	

TABLE H-3. (Continued)

MATRIX: Stream Sediments - Round 2 Data

Compound	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Acetone	1.94E-01	1.00E-01	1.94E+00	1.84%
Carbon disulfide	8.50E-03	1.00E-01	8.50E-02	0.08%
1,2-Dichlorothene	5.65E-01	2.00E-02	2.82E+01	26.82%
Toluene	2.81E-02	2.00E-01	1.40E-01	0.13%
Ethylbenzene	7.00E-03	1.00E-01	7.00E-02	0.07%
Xylenes	1.84E+00	2.00E+00	9.20E-01	0.87%
2-methylphenol	2.00E-01	5.00E-02	4.00E+00	3.80%
Naphthalene	8.60E-02	4.00E-02	2.15E+00	2.04%
Fluorene	1.40E-01	4.00E-02	3.50E+00	3.32%
Fluoranthene	1.04E+00	4.00E-02	2.60E+01	24.71%
Pyrene	8.26E-01	3.00E-02	2.75E+01	26.14%
o-Toluic acid	6.30E-01	3.00E+00	2.10E-01	0.20%
m-Toluic acid	2.40E-01	3.00E+00	8.00E-02	0.08%
p-Toluic acid	4.20E-02	3.00E+00	1.40E-02	0.01%
		Total	9.49E+01	

MATRIX: Deep Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	1.90E-02	1.00E-01	1.90E-01	1.22%
1,1-Dichloroethane	5.00E-03	1.00E-02	5.00E-01	3.21%
1,2-Dichlorothene	4.00E-03	2.00E-02	2.00E-01	1.28%
Tetrachloroethene	1.07E-02	1.00E-02	1.07E+00	6.87%
Toluene	4.00E-03	2.00E-01	2.00E-02	0.13%
Xylenes	3.15E-01	2.00E+00	1.58E-01	1.01%
Phenol	3.36E-02	6.00E-01	5.60E-02	0.36%
2-methylphenol	9.80E-03	5.00E-02	1.96E-01	1.26%
Pentachlorophenol	5.78E-02	3.00E-02	1.93E+00	12.37%
Naphthalene	1.00E-03	4.00E-02	2.50E-02	0.16%
o-Toluic acid	1.62E+01	3.00E+00	5.41E+00	34.73%
m-Toluic acid	1.62E+01	3.00E+00	5.41E+00	34.73%
p-Toluic acid	1.24E+00	3.00E+00	4.14E-01	2.66%
		Total	1.56E+01	

MATRIX: Upper Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
1,2-Dichlorothene	1.12E-01	2.00E-02	5.58E+00	20.31%
Toluene	1.20E-02	2.00E-01	6.00E-02	0.39%
Xylenes	3.95E-01	2.00E+00	1.98E-01	1.27%
Phenol	1.45E-02	6.00E-01	2.42E-02	0.16%
2-methylphenol	7.50E-03	5.00E-02	1.50E-01	0.96%
4-methylphenol	6.40E-03	5.00E-02	1.28E-01	0.82%
o-Toluic acid	3.43E+01	3.00E+00	1.14E+01	73.31%
m-Toluic acid	2.16E+01	3.00E+00	7.20E+00	46.24%
p-Toluic acid	8.10E+00	3.00E+00	2.70E+00	17.33%
		Total	2.74E+01	

MATRIX: Mixed Bedrock Groundwater (Off-Site Case) - Round 2 Data (Only)

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	4.70E-02	1.00E-01	4.70E-01	0.88%
1,1-Dichloroethane	5.00E-03	1.00E-02	5.00E-01	0.94%
1,2-Dichlorothene	1.98E-01	2.00E-02	9.92E+00	18.58%
Tetrachloroethene	1.10E-02	1.00E-02	1.10E+00	2.06%
Toluene	1.20E-02	2.00E-01	6.00E-02	0.11%
Xylenes	4.61E-01	2.00E+00	2.30E-01	0.43%
Phenol	2.45E-02	6.00E-01	4.08E-02	0.08%
2-methylphenol	1.02E-02	5.00E-02	2.04E-01	0.38%
4-methylphenol	9.00E-03	5.00E-02	1.80E-01	0.34%
Naphthalene	1.00E-03	4.00E-02	2.50E-02	0.05%
o-Toluic acid	6.40E+01	3.00E+00	2.13E+01	39.95%
m-Toluic acid	4.20E+01	3.00E+00	1.40E+01	26.22%
p-Toluic acid	1.60E+01	3.00E+00	5.33E+00	9.99%
		Total	5.34E+01	

MATRIX: Upper Bedrock Groundwater (On-Site Case) - Round 1 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	5.79E-02	1.00E-01	5.79E-01	0.52%
1,2-Dichlorothene	8.96E-02	2.00E-02	4.48E+00	4.05%
Tetrachloroethene	8.35E-01	1.00E-02	8.35E+01	75.47%
Toluene	3.44E-02	2.00E-01	1.72E-01	0.16%
Xylenes	1.06E+00	2.00E+00	5.31E-01	0.48%
Benzyl alcohol	2.60E-02	3.00E-01	8.67E-02	0.08%
Phenol	5.63E-02	6.00E-01	9.38E-02	0.08%
2-methylphenol	1.51E-02	5.00E-02	3.02E-01	0.27%
4-methylphenol	2.25E-02	5.00E-02	4.50E-01	0.41%
Benzoic acid	1.16E-01	4.00E+00	2.90E-02	0.03%
Naphthalene	9.00E-03	4.00E-02	2.25E-01	0.20%
o-Toluic acid	3.94E+01	3.00E+00	1.31E+01	11.88%
m-Toluic acid	1.89E+01	3.00E+00	6.31E+00	5.70%
p-Toluic acid	2.25E+00	3.00E+00	7.49E-01	0.68%
		Total	1.11E+02	

MATRIX: Upper Bedrock Groundwater (On-Site Case) - Round 2 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	2.43E-02	1.00E-01	2.43E-01	0.22%
1,2-Dichlorothene	3.42E-01	2.00E-02	1.71E+01	15.47%
Tetrachloroethene	5.53E-02	1.00E-02	5.53E+00	5.00%
Toluene	2.41E-02	2.00E-01	1.20E-01	0.11%
Xylenes	7.70E-01	2.00E+00	3.85E-01	0.35%
Phenol	5.00E-01	6.00E-01	8.34E-01	0.75%
2-methylphenol	1.25E-02	5.00E-02	2.50E-01	0.23%
4-methylphenol	2.33E-02	5.00E-02	4.66E-01	0.42%
Naphthalene	1.90E-02	4.00E-02	4.75E-01	0.43%
o-Toluic acid	7.15E+01	3.00E+00	2.38E+01	21.54%
m-Toluic acid	4.48E+01	3.00E+00	1.49E+01	13.49%
p-Toluic acid	5.60E+01	3.00E+00	1.87E+01	16.86%
		Total	8.29E+01	

MATRIX: Deep Bedrock Groundwater (On-Site Case) - Round 1 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	1.10E-02	1.00E-01	1.10E-01	1.83%
1,2-Dichlorothene	3.02E-02	2.00E-02	1.51E+00	25.18%
Tetrachloroethene	5.10E-03	1.00E-02	5.10E-01	8.50%
Toluene	9.10E-03	2.00E-01	4.55E-02	0.76%
Ethyl benzene	2.60E-03	1.00E-01	2.60E-02	0.43%
Xylenes	1.76E-01	2.00E+00	8.82E-02	1.47%
Phenol	1.02E-02	6.00E-01	1.70E-02	0.28%
2-methylphenol	5.60E-03	5.00E-02	1.12E-01	1.87%
4-methylphenol	6.20E-03	5.00E-02	1.24E-01	2.07%
Benzoic acid	4.05E-02	4.00E+00	1.01E-02	0.17%
o-Toluic acid	6.74E+00	3.00E+00	2.25E+00	37.46%
m-Toluic acid	3.20E+00	3.00E+00	1.07E+00	17.76%
p-Toluic acid	3.98E-01	3.00E+00	1.33E-01	2.21%
		Total	6.00E+00	

MATRIX: Deep Bedrock Groundwater (On-Site Case) - Round 2 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	2.30E-02	1.00E-01	2.30E-01	3.01%
1,2-Dichlorothene	4.00E-03	2.00E-02	2.00E-01	2.62%
Tetrachloroethene	7.60E-03	1.00E-02	7.60E-01	9.95%
Toluene	4.00E-03	2.00E-01	2.00E-02	0.26%
Xylenes	1.44E-01	2.00E+00	7.22E-02	0.95%
Phenol	1.79E-02	6.00E-01	2.98E-02	0.39%
2-methylphenol	7.10E-03	5.00E-02	1.42E-01	1.86%
Pentachlorophenol	3.29E-02	3.00E-02	1.10E+00	14.36%
Naphthalene	1.00E-03	4.00E-02	2.50E-02	0.33%
o-Toluic acid	7.31E+00	3.00E+00	2.44E+00	31.89%
m-Toluic acid	7.31E+00	3.00E+00	2.44E+00	31.89%
p-Toluic acid	5.72E-01	3.00E+00	1.91E-01	2.50%
		Total	7.64E+00	

MATRIX: Creek Seeps (Dermal contact) - Round 1 Data

Compound	UCL (mg/L)	RfD	Risk Factor	% Total RF
Acetone	4.03E-02	1.00E-01	4.03E-01	0.39%
1,2-Dichlorothene	4.49E-01	2.00E-02	2.24E+01	21.49%
Tetrachloroethene	3.78E-01	1.00E-02	3.78E+01	36.24%
Toluene	3.89E-02	2.00E-01	1.94E-01	0.19%
Xylenes	5.55E-01	2.00E+00	2.77E-01	0.27%
Phenol	6.38E-02	6.00E-01	1.06E-01	0.10%
2-methylphenol	1.41E-02	5.00E-02	2.82E-01	0.27%
4-methylphenol	9.50E-03	5.00E-02	1.90E-01	0.18%
Naphthalene	2.00E-03	4.00E-02	5.00E-02	0.05%
o-Toluic acid	7.46E+01	3.00E+00	2.49E+01	23.81%
m-Toluic acid	4.15E+01	3.00E+00	1.38E+01	13.25%
p-Toluic acid	1.18E+01	3.00E+00	3.94E+00	3.77%
		Total	1.04E+02	

TABLE H-4. RISK FACTOR CALCULATIONS FOR SELECTION OF INORGANIC CONTAMINANTS OF CONCERN
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

MATRIX: North Area Soils

Analyte	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Arsenic	1.49E+01	3.00E-04	4.97E+04	41.05%
Barium	5.01E+02	7.00E-02	7.16E+03	5.92%
Beryllium	5.90E-01	5.00E-03	1.18E+02	0.10%
Cadmium	1.12E+01	5.00E-04	2.24E+04	18.52%
Chromium	6.51E+01	1.00E+00	6.51E+01	0.05%
Mercury	6.80E+00	3.00E-04	2.27E+04	18.74%
Nickel	6.10E+01	5.00E-02	1.22E+03	1.01%
Thallium	2.20E-01	8.00E-05	2.75E+03	2.27%
Vanadium	1.87E+01	7.00E-03	2.67E+03	2.21%
Zinc	3.68E+03	3.00E-01	1.23E+04	10.14%
		Total	1.21E+05	

MATRIX: Landfill Perimeter Soils

Analyte	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Arsenic	5.40E+00	3.00E-04	1.80E+04	55.40%
Barium	8.86E+01	7.00E-02	1.27E+03	3.90%
Beryllium	7.20E-01	5.00E-03	1.44E+02	0.44%
Cadmium	5.00E+00	5.00E-04	1.00E+04	30.78%
Chromium	2.09E+01	1.00E+00	2.09E+01	0.06%
Mercury	1.20E-01	3.00E-04	4.00E+02	1.23%
Nickel	3.17E+01	5.00E-02	6.34E+02	1.95%
Thallium	1.60E-01	8.00E-05	2.00E+03	6.16%
Vanadium	1.99E-01	7.00E-03	2.84E+01	0.09%
Zinc	R			
		Total	3.25E+04	

MATRIX: Creek Seeps - Round 1 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.34E-01	3.00E-04	4.46E+02	88.25%
Barium	3.66E-01	7.00E-02	5.23E+00	1.03%
Beryllium	1.30E-03	5.00E-03	2.60E-01	0.05%
Cadmium	6.50E-03	5.00E-04	1.30E+01	2.57%
Chromium	7.13E-02	1.00E+00	7.13E-02	0.01%
Mercury	1.20E-03	3.00E-04	4.00E+00	0.79%
Nickel	1.85E-01	5.00E-02	3.70E+00	0.73%
Thallium	1.10E-03	8.00E-05	1.38E+01	2.72%
Vanadium	1.31E-01	7.00E-03	1.87E+01	3.70%
Zinc	1.95E-01	3.00E-01	6.51E-01	0.13%
		Total	5.05E+02	

MATRIX: Stream Sediments - Round 1 Data

Analyte	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Arsenic	3.10E+00	3.00E-04	1.03E+04	60.12%
Barium	8.20E+01	7.00E-02	1.17E+03	6.82%
Beryllium	3.10E-01	5.00E-03	6.20E+01	0.36%
Cadmium	1.80E+00	5.00E-04	3.60E+03	20.95%
Chromium	1.11E+01	1.00E+00	1.11E+01	0.06%
Nickel	1.99E+01	5.00E-02	3.98E+02	2.32%
Vanadium	8.40E+00	7.00E-03	1.20E+03	6.98%
Zinc	1.24E+02	3.00E-01	4.12E+02	2.40%
		Total	1.72E+04	

MATRIX: Stream Sediments - Round 2 Data

Analyte	UCL (mg/kg)	RfD	Risk Factor	% Total RF
Arsenic	5.10E+00	3.00E-04	1.70E+04	65.20%
Barium	1.41E+02	7.00E-02	2.01E+03	7.70%
Beryllium	3.10E-01	5.00E-03	6.20E+01	0.24%
Cadmium	2.20E+00	5.00E-04	4.40E+03	16.88%
Chromium	2.29E+01	1.00E+00	2.29E+01	0.09%
Nickel	3.32E+01	5.00E-02	6.64E+02	2.55%
Vanadium	9.00E+00	7.00E-03	1.29E+03	4.93%
Zinc	1.89E+02	3.00E-01	6.30E+02	2.42%
		Total	2.61E+04	

MATRIX: Surface Water - Round 1 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.00E-03	3.00E-04	3.33E+00	71.72%
Barium	9.00E-02	7.00E-02	1.29E+00	27.67%
Zinc	8.50E-03	3.00E-01	2.83E-02	0.61%
		Total	4.65E+00	

MATRIX: Surface Water - Round 1 Data

No compounds detected with reference doses.

MATRIX: Inorganic Sludge Basin Wells

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	6.00E-03	3.00E-04	2.00E+01	90.12%
Barium	8.89E-02	7.00E-02	1.27E+00	5.72%
Nickel	3.62E-02	5.00E-02	7.24E-01	3.26%
Zinc	5.94E-02	3.00E-01	1.98E-01	0.89%
		Total	2.22E+01	

MATRIX: Deep Bedrock Groundwater (Off-site case) - Round 2 Data, only

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.42E-01	3.00E-04	4.74E+02	95.33%
Barium	1.91E-01	7.00E-02	2.73E+00	0.55%
Cadmium	8.80E-03	5.00E-04	1.76E+01	3.54%
Chromium	3.25E-02	1.00E+00	3.25E-02	0.01%
Mercury	3.50E-04	3.00E-04	1.17E+00	0.23%
Nickel	6.55E-02	5.00E-02	1.31E+00	0.26%
Zinc	9.93E-02	3.00E-01	3.31E-01	0.07%
Cyanide	1.17E-02	3.00E-01	3.90E-02	0.01%
		Total	4.98E+02	

MATRIX: Upper Bedrock Groundwater (Off-site case) - Round 2 Data, only

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	7.78E-02	3.00E-04	2.59E+02	86.92%
Barium	3.80E-01	7.00E-02	5.43E+00	1.82%
Beryllium	1.50E-03	5.00E-03	3.00E-01	0.10%
Cadmium	6.80E-03	5.00E-04	1.36E+01	4.56%
Chromium	4.54E-02	1.00E+00	4.54E-02	0.02%
Nickel	1.22E-01	5.00E-02	2.45E+00	0.82%
Vanadium	1.06E-01	7.00E-03	1.52E+01	5.09%
Zinc	1.87E-01	3.00E-01	6.25E-01	0.21%
Cyanide	2.80E-02	2.00E-02	1.40E+00	0.47%
		Total	2.98E+02	

MATRIX: Mixed Bedrock Groundwater (Off-site case) - Round 2 Data, only

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.08E-01	3.00E-04	3.61E+02	89.58%
Barium	3.85E-01	7.00E-02	5.50E+00	1.36%
Beryllium	1.50E-03	5.00E-03	3.00E-01	0.07%
Cadmium	8.70E-03	5.00E-04	1.74E+01	4.32%
Chromium	4.37E-02	1.00E+00	4.37E-02	0.01%
Nickel	1.12E-01	5.00E-02	2.23E+00	0.55%
Vanadium	1.02E-01	7.00E-03	1.46E+01	3.63%
Zinc	1.94E-01	3.00E-01	6.47E-01	0.16%
Cyanide	2.46E-02	2.00E-02	1.23E+00	0.31%
		Total	4.03E+02	

MATRIX: Upper Bedrock Groundwater (On-site case) - Round 1 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.49E-01	3.00E-04	4.97E+02	95.01%
Barium	1.88E-01	7.00E-02	2.68E+00	0.51%
Chromium	3.45E-02	1.00E+00	3.45E-02	0.01%
Mercury	4.00E-04	3.00E-04	1.33E+00	0.25%
Nickel	1.20E-01	5.00E-02	2.40E+00	0.46%
Vanadium	1.26E-01	7.00E-03	1.79E+01	3.43%
Zinc	3.70E-02	3.00E-01	1.23E-01	0.02%
Cyanide	3.21E-02	2.00E-02	1.60E+00	0.31%
		Total	5.23E+02	

MATRIX: Upper Bedrock Groundwater (On-site case) - Round 2 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	1.85E-01	3.00E-04	6.18E+02	96.16%
Barium	1.70E-01	7.00E-02	2.42E+00	0.38%
Beryllium	9.00E-04	5.00E-03	1.80E-01	0.03%
Cadmium	2.60E-03	5.00E-04	5.20E+00	0.81%
Chromium	3.13E-02	1.00E+00	3.13E-02	0.00%
Mercury	2.40E-04	3.00E-04	8.00E-01	0.12%
Nickel	1.54E-01	5.00E-02	3.08E+00	0.48%
Vanadium	8.37E-02	7.00E-03	1.20E+01	1.86%
Zinc	1.14E-01	3.00E-01	3.78E-01	0.06%
Cyanide	1.22E-02	2.00E-02	6.10E-01	0.09%
		Total	6.43E+02	

MATRIX: Deep Bedrock Groundwater (On-site case) - Round 1 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	3.98E-02	3.00E-04	1.33E+02	54.69%
Antimony	3.60E-02	4.00E-04	9.00E+01	37.10%
Barium	1.82E-01	7.00E-02	2.61E+00	1.07%
Chromium	7.20E-03	1.00E+00	7.20E-03	0.00%
Mercury	9.30E-04	3.00E-04	3.10E+00	1.28%
Nickel	4.94E-02	5.00E-02	9.88E-01	0.41%
Thallium	8.00E-04	8.00E-05	1.00E+01	4.12%
Vanadium	2.20E-02	7.00E-03	3.14E+00	1.30%
Zinc	1.69E-02	3.00E-01	5.63E-02	0.02%
		Total	2.43E+02	

MATRIX: Deep Bedrock Groundwater (On-site case) - Round 2 Data

Analyte	UCL (mg/L)	RfD	Risk Factor	% Total RF
Arsenic	6.46E-02	3.00E-04	2.15E+02	91.29%
Antimony	2.20E-03	4.00E-04	5.50E+00	2.33%
Barium	1.34E-01	7.00E-02	1.91E+00	0.81%
Cadmium	5.10E-03	5.00E-04	1.02E+01	4.32%
Chromium	1.54E-02	1.00E+00	1.54E-02	0.01%
Mercury	2.10E-04	3.00E-04	7.00E-01	0.30%
Nickel	3.66E-02	5.00E-02	7.32E-01	0.31%
Vanadium	3.10E-03	7.00E-03	4.43E-01	0.19%
Zinc	8.16E-02	3.00E-01	2.72E-01	0.12%
Cyanide	1.55E-02	2.00E-02	7.75E-01	0.33%
		Total	2.36E+02	

TABLE H-5. INHALATION OF VOLATILE COMPOUNDS IN AMBIENT AIR (PS-1)
SOIL VAPOR SOURCE
PRESENT AND FUTURE USE SCENARIO - RESIDENTIAL EXPOSURE

CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \text{Inhalation rate} \times \frac{\text{Hrs exp}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Averaged Daily Dose (mg/kg-day)}$$

$$\text{mg/m}^3 \times 0.83\ \text{m}^3/\text{hr} \times 7\ \text{hrs/wk} \times \frac{1}{70} \times \frac{9}{70} \times \frac{19\ \text{weeks}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	hrs/wk exposed	Body weight (kg)	Yrs expd Yrs LT	Wks expd Year	ADD	SF	RISK (ADD*SF)	% TOTAL RISK
Trichloroethene	1.47E-09	0.83	7	70	0.129	19.0	2.98E-10	1.70E-02	5.07E-12	57.93%
Tetrachloroethene	1.01E-08	0.83	7	70	0.129	19.0	2.05E-09	1.80E-03	3.68E-12	42.07%
							TOTAL RISK		8.75E-12	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Wks expd}}{\text{Year}} = \text{Averaged Daily Dose (mg/kg-day)}$$

$$\text{mg/m}^3 \times 1.25\ \text{m}^3/\text{hr} \times 7\ \text{hrs/wk} \times \frac{1}{70} \times \frac{30}{70} \times \frac{19\ \text{weeks}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs exposed week	Body weight (kg)	Yrs expd Yrs LT	Wks expd Year	ADD	SF	RISK (ADD*SF)	% TOTAL RISK
Trichloroethene	6.42E-09	1.25	7	70	0.429	19.0	6.54E-09	1.70E-02	1.11E-10	64.10%
Tetrachloroethene	3.40E-08	1.25	7	70	0.429	19.0	3.46E-08	1.80E-03	6.23E-11	35.90%
							TOTAL RISK		1.74E-10	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

Air Conc x Inhalation rate x Hrs expd / week x 1 / Body weight x Yrs expd / Yrs LT x Weeks expd / Year = Averaged Daily Dose (mg/kg-day)

mg/m³ x 0.83 m³/hr x 7 hrs/wk x 1/70 x 9/70 x 19 weeks/Year = ADD

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Toluene	9.21E-09	0.83	7	70	0.129	19.0	1.87E-09	1.10E-01	1.70E-08	0.68%
Ethylbenzene	1.78E-08	0.83	7	70	0.129	19.0	3.63E-09	2.90E-01	1.25E-08	0.50%
Xylenes	1.86E-05	0.83	7	70	0.129	19.0	3.78E-06	2.00E+00	1.89E-06	75.98%
Dichoroethene	5.56E-08	0.83	7	70	0.129	19.0	1.13E-08	2.00E-02	5.66E-07	22.71%
1,1,1-trichloroethane	4.49E-09	0.83	7	70	0.129	19.0	9.13E-10	3.00E-01	3.04E-09	0.12%
							HAZARD INDEX		2.49E-06	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Child

Air Conc x Inhalation rate x Hrs expd / week x 1 / Body weight x Yrs expd / Yrs LT x Weeks expd / Year = Averaged Daily Dose (mg/kg-day)

mg/m³ x 0.9 m³/hr x 21 hrs/wk x 1/35 x 9/70 x 19 wks/Year = ADD

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Toluene	9.21E-09	0.9	21	35	0.129	19.0	1.22E-08	1.10E-01	1.11E-07	0.68%
Ethylbenzene	1.78E-08	0.9	21	35	0.129	19.0	2.36E-08	2.90E-01	8.14E-08	0.50%
Xylenes	1.86E-05	0.9	21	35	0.129	19.0	2.46E-05	2.00E+00	1.23E-05	75.98%
Dichoroethene	5.56E-08	0.9	21	35	0.129	19.0	7.36E-08	2.00E-02	3.68E-06	22.71%
1,1,1-trichloroethane	4.49E-09	0.9	21	35	0.129	19.0	5.94E-09	3.00E-01	1.98E-08	0.12%
							HAZARD INDEX		1.62E-05	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Averaged Daily Dose (mg/kg-day)}$$

$$\text{mg/m}^3 \times 1.25\ \text{m}^3/\text{hr} \times 7\ \text{hrs/wk} \times \frac{1}{70} \times \frac{30}{70} \times \frac{19\ \text{weeks}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Toluene	2.62E-08	1.25	7	70	0.429	19.0	2.67E-08	1.10E-01	2.43E-07	0.14%
Ethylbenzene	7.31E-08	1.25	7	70	0.429	19.0	7.44E-08	2.90E-01	2.57E-07	0.14%
Xylenes	1.85E-04	1.25	7	70	0.429	19.0	1.89E-04	2.00E+00	9.43E-05	52.99%
Dichoroethene	1.63E-06	1.25	7	70	0.429	19.0	1.66E-06	2.00E-02	8.30E-05	46.69%
1,1,1-trichloroethane	2.00E-08	1.25	7	70	0.429	19.0	2.04E-08	3.00E-01	6.80E-08	0.04%
							HAZARD INDEX		1.78E-04	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Averaged Daily Dose (mg/kg-day)}$$

$$\text{mg/m}^3 \times 1.25\ \text{m}^3/\text{hr} \times 21\ \text{hrs/wk} \times \frac{1}{35} \times \frac{9}{70} \times \frac{19\ \text{weeks}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Toluene	2.62E-08	1.25	21	35	0.129	19.0	4.82E-08	1.10E-01	4.38E-07	0.14%
Ethylbenzene	7.31E-08	1.25	21	35	0.129	19.0	1.34E-07	2.90E-01	4.63E-07	0.14%
Xylenes	1.85E-04	1.25	21	35	0.129	19.0	3.40E-04	2.00E+00	1.70E-04	52.99%
Dichoroethene	1.63E-06	1.25	21	35	0.129	19.0	3.00E-06	2.00E-02	1.50E-04	46.69%
1,1,1-trichloroethane	2.00E-08	1.25	21	35	0.129	19.0	3.68E-08	3.00E-01	1.23E-07	0.04%
							HAZARD INDEX		3.21E-04	

TABLE H-6. DERMAL CONTACT WITH STREAM SEDIMENTS (PS-2)
PRESENT AND FUTURE USE SCENARIOS
ROUND 1 RESULTS

CARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Adults

Sed Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	2,900 cm²	x	6e-3	x	0.5 mg/cm²	x	1/70	x	15 days/365 days	x	9/70	x	1 kg/1E6 mg	=ADD

Compound	Sed Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Tetrachloroethene	5.90E-03	2.90E+03	6.00E-03	0.5	70	0.041	0.129	3.89E-12	5.10E-02	1.98E-13	0.00%
Total c-PAHs	7.14E+00	2.90E+03	6.00E-03	0.5	70	0.041	0.129	4.70E-09	7.30E+00	3.43E-08	100.00%
									TOTAL RISK	3.43E-08	

CARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,500 cm²	x	1.2E-2	x	1.0 mg/cm²	x	1/70	x	30 days/365 days	x	30/70	x	1 kg/1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Tetrachloroethene	9.80E-03	3.50E+03	1.20E-02	1.0	70	0.082	0.429	2.07E-10	5.10E-02	1.06E-11	0.00%
Total c-PAHs	1.56E+01	3.50E+03	1.20E-02	1.0	70	0.082	0.429	3.31E-07	7.30E+00	2.41E-06	100.00%
									TOTAL RISK	2.41E-06	

TABLE H-6 (cont)

NONCARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	2,900 cm^2	x	6e-3	x	0.5 mg/cm^2	x	1/70	x	15 days/365 days	x	9/70	x	1 kg/1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	5.90E-03	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	3.87E-12	1.00E-02	3.87E-10	0.67%
Xylenes	5.90E-03	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	3.87E-12	2.00E+00	1.94E-12	0.00%
Fluoranthene	2.71E+00	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.78E-09	4.00E-02	4.44E-08	76.45%
Pyrene	3.60E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.36E-10	3.00E-02	7.88E-09	13.56%
Fluorene	3.30E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.17E-10	4.00E-02	5.42E-09	9.32%
								HAZARD INDEX			5.81E-08

NONCARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,500 cm^2	x	1.2e-2	x	1.0 mg/cm^2	x	1/70	x	30 days/365 days	x	9/70	x	1 kg/1E6 mg	=ADD

Compound	Conc (mg/kg)	Surface Area (cm^2)	Bio-availability Factor	Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Tetrachloroethene	2.80E+00	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.129	1.78E-08	1.00E-02	1.78E-06	92.58%
Xylenes	5.10E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.129	3.23E-09	2.00E+00	1.62E-09	0.08%
Fluoranthene	3.60E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.129	2.28E-09	4.00E-02	5.71E-08	2.98%
Pyrene	3.30E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.129	2.09E-09	3.00E-02	6.97E-08	3.64%
Fluorene	8.80E-02	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.129	5.58E-10	4.00E-02	1.39E-08	0.73%
								HAZARD INDEX			1.92E-06

NONCARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Child

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,300 cm^2	x	6e-3	x	0.5 mg/cm^2	x	1/70	x	15 days/365 days	x	9/70	x	1 kg 1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	5.90E-03	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	4.38E-12	1.00E-02	4.38E-10	0.75%
Xylenes	5.90E-03	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	4.38E-12	2.00E+00	2.19E-12	0.00%
Fluoranthene	2.71E+00	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.01E-09	4.00E-02	5.02E-08	86.46%
Pyrene	3.60E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.67E-10	3.00E-02	8.91E-09	15.34%
Fluorene	3.30E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.45E-10	4.00E-02	6.13E-09	10.54%
								HAZARD INDEX		6.57E-08	

NONCARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Child

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,920 cm^2	x	1.2e-2	x	1.0 mg/cm^2	x	1/35	x	60 days/365 days	x	9/70	x	1 kg 1E6 mg	=ADD

Compound	Conc (mg/kg)	Surface Area (cm^2)	Bio-availability Factor	Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	2.80E+00	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	7.95E-08	1.00E-01	7.95E-07	41.47%
Xylenes	5.10E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	1.45E-08	4.00E-02	3.62E-07	18.89%
Fluoranthene	3.60E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	1.02E-08	3.00E-02	3.41E-07	17.77%
Pyrene	3.30E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	9.37E-09	4.00E-02	2.34E-07	12.22%
Fluorene	8.80E-02	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	2.50E-09	2.00E-02	1.25E-07	6.52%
								HAZARD INDEX		1.86E-06	

TABLE H-7. DERMAL CONTACT WITH STREAM SEDIMENTS (PS-2)
PRESENT AND FUTURE USE SCENARIOS
ROUND 2 RESULTS

CARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Adults

Sed Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	2,900 cm^2	x	6e-3	x	0.5 mg/cm^2	x	1/70	x	15 days/365 days	x	9/70	x	1 kg/1E6 mg	=ADD

Compound	Sed Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Vinyl chloride	8.30E-03	2.90E+03	6.00E-03	0.5	70	0.041	0.129	5.47E-12	1.90E+00	1.04E-11	0.15%
Carbzole	1.60E-01	2.90E+03	6.00E-03	0.5	70	0.041	0.129	1.05E-10	2.00E-02	2.11E-12	0.03%
Total c-PAHs	1.47E+00	2.90E+03	6.00E-03	0.5	70	0.041	0.129	9.67E-10	7.30E+00	7.06E-09	99.82%
									TOTAL RISK	7.07E-09	

CARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,500 cm^2	x	1.2E-2	x	1.0 mg/cm^2	x	1/70	x	30 days/365 days	x	30/70	x	1 kg/1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Vinyl chloride	9.90E-03	3.50E+03	1.20E-02	1.0	70	0.082	0.429	2.09E-10	1.90E+00	3.98E-10	0.09%
Carbzole	1.60E-01	3.50E+03	1.20E-02	1.0	70	0.082	0.429	3.38E-09	2.00E-02	6.76E-11	0.02%
Total c-PAHs	2.72E+00	3.50E+03	1.20E-02	1.0	70	0.082	0.429	5.76E-08	7.30E+00	4.21E-07	99.89%
									TOTAL RISK	4.21E-07	

NONCARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	2,900 cm²	x	6e-3	x	0.5 mg/cm^2	x	1/70	x	15 days/365 days	x	9/70	x	1 kg/1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.00E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	6.59E-11	1.00E-01	6.59E-10	1.96%
1,2-Dichloroethene	2.26E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.48E-10	2.00E-02	7.42E-09	22.10%
2-Merthylphenol	2.00E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.31E-10	5.00E-02	2.63E-09	7.82%
Naphthalene	8.60E-02	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	5.65E-11	4.00E-02	1.41E-09	4.21%
Fluorene	1.40E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	9.19E-11	4.00E-02	2.30E-09	6.85%
Fluoranthene	5.52E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	3.62E-10	4.00E-02	9.06E-09	26.99%
Pyrene	4.52E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.97E-10	3.00E-02	9.89E-09	29.47%
o-Toluic acid	6.30E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	4.14E-10	3.00E+00	1.38E-10	0.41%
m-Toluic acid	2.40E-01	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.58E-10	3.00E+00	5.25E-11	0.16%
p-Toluic acid	4.20E-02	2.90E+03	6.00E-03	5.00E-01	70	0.041	0.129	2.76E-11	3.00E+00	9.19E-12	0.03%
								HAZARD INDEX		3.36E-08	

NONCARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 Body wt	x	Days expd Days/yr	x	Yrs Expd Yrs LT	x	1 kg 1e6 mg	=ADD
mg/kg	x	3,500 cm²	x	1.2e-2	x	1.0 mg/cm²	x	1/70	x	30 days/365 days	x	30/70	x	1 kg/1E6 mg	=ADD

Compound	Conc (mg/kg)	Surface Area (cm²)	Bio-availability Factor	Deposition (mg/cm²)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.94E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	4.10E-09	1.00E-01	4.10E-08	2.07%
1,2-Dichloroethene	5.65E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	1.19E-08	2.00E-02	5.97E-07	30.15%
2-Merthylphenol	2.00E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	4.23E-09	5.00E-02	8.45E-08	4.27%
Naphthalene	8.60E-02	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	1.82E-09	4.00E-02	4.54E-08	2.29%
Fluorene	1.40E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	2.96E-09	4.00E-02	7.40E-08	3.74%
Fluoranthene	1.04E+00	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	2.20E-08	4.00E-02	5.50E-07	27.77%
Pyrene	8.26E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	1.75E-08	3.00E-02	5.82E-07	29.38%
o-Toluic acid	6.30E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	1.33E-08	3.00E+00	4.44E-09	0.22%
m-Toluic acid	2.40E-01	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	5.07E-09	3.00E+00	1.69E-09	0.09%
p-Toluic acid	4.20E-02	3.50E+03	1.20E-02	1.00E+00	70	0.082	0.429	8.88E-10	3.00E+00	2.96E-10	0.01%
								HAZARD INDEX		1.98E-06	

NONCARCINOGENS - AVERAGE SEDIMENT CONTACT EXPOSURE : Child

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	=ADD
mg/kg	x	3,300 cm^2	x	6e-3	x	0.5 mg/cm^2	x	1 / 70	x	15 days / 365 days	x	9 / 70	x	1 kg / 1E6 mg	=ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.00E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	7.46E-11	1.00E-01	7.46E-10	2.22%
1,2-Dichloroethene	2.26E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.68E-10	2.00E-02	8.39E-09	25.00%
2-Merthylphenol	2.00E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.49E-10	5.00E-02	2.97E-09	8.85%
Naphthalene	8.60E-02	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	6.39E-11	4.00E-02	1.60E-09	4.76%
Fluorene	1.40E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.04E-10	4.00E-02	2.60E-09	7.74%
Fluoranthene	5.52E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	4.10E-10	4.00E-02	1.02E-08	30.53%
Pyrene	4.52E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	3.36E-10	3.00E-02	1.12E-08	33.33%
o-Toluic acid	6.30E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	4.68E-10	3.00E+00	1.56E-10	0.46%
m-Toluic acid	2.40E-01	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	1.78E-10	3.00E+00	5.94E-11	0.18%
p-Toluic acid	4.20E-02	3.28E+03	6.00E-03	5.00E-01	70	0.041	0.129	3.12E-11	3.00E+00	1.04E-11	0.03%
								HAZARD INDEX		3.80E-08	

NONCARCINOGENS - MAXIMUM SEDIMENT CONTACT EXPOSURE : Child

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	=ADD
mg/kg	x	3,920 cm^2	x	1.2e-2	x	1.0 mg/cm^2	x	1 / 35	x	60 days / 365 days	x	9 / 70	x	1 kg / 1E6 mg	=ADD

Compound	Conc (mg/kg)	Surface Area (cm^2)	Bio-availability Factor	Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.94E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	5.52E-09	1.00E-01	5.52E-08	2.79%
1,2-Dichloroethene	5.65E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	1.60E-08	2.00E-02	8.02E-07	40.52%
2-Merthylphenol	2.00E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	5.68E-09	5.00E-02	1.14E-07	5.74%
Naphthalene	8.60E-02	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	2.44E-09	4.00E-02	6.11E-08	3.08%
Fluorene	1.40E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	3.98E-09	4.00E-02	9.94E-08	5.02%
Fluoranthene	1.04E+00	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	2.96E-08	4.00E-02	7.39E-07	37.33%
Pyrene	8.26E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	2.35E-08	3.00E-02	7.82E-07	39.49%
o-Toluic acid	6.30E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	1.79E-08	3.00E+00	5.97E-09	0.30%
m-Toluic acid	2.40E-01	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	6.82E-09	3.00E+00	2.27E-09	0.11%
p-Toluic acid	4.20E-02	3.92E+03	1.20E-02	1.00E+00	35	0.164	0.129	1.19E-09	3.00E+00	3.98E-10	0.02%
								HAZARD INDEX		2.66E-06	

TABLE H-8. DERMAL CONTACT WITH CREEK SEEPS - Hunter/Fisherman Exposure
PRESENT-USE SCENARIO - Round 1 data

CARCINOGENIC COMPOUNDS IN CREEK SEEPS - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	15 days / year	x	9 yrs / 70 yrs	x	2,900 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.16E-01	8.00E-04	2	15	0.129	2,900	70	1.48E-05	1.10E-02	1.63E-07	0.81%
Tetrachloroethene	1.76E-01	8.00E-04	2	15	0.129	2,900	70	2.26E-05	5.10E-02	1.15E-06	5.68%
Total c-PAHs	2.03E-02	8.00E-04	2	15	0.129	2,900	70	2.60E-06	7.30E+00	1.89E-05	93.52%

TOTAL RISK 2.03E-05

CARCINOGENIC COMPOUNDS IN CREEK SEEPS - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	8 hrs / day	x	30 days / year	x	30 yrs / 70 yrs	x	3,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Seep Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	3.80E-01	8.00E-04	8	30	0.429	3,500	70	1.56E-03	1.10E-02	1.72E-05	0.81%
Tetrachloroethene	5.60E-01	8.00E-04	8	30	0.429	3,500	70	2.30E-03	5.10E-02	1.18E-04	5.55%
Total c-PAHs	6.60E-02	8.00E-04	8	30	0.429	3,500	70	2.72E-04	7.30E+00	1.98E-03	93.64%

TOTAL RISK 2.12E-03

TABLE H-8. (Continued)

NONCARCINOGENIC COMPOUNDS IN CREEK SEEPS - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	15 days / year	x	9 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.49E-01	8.00E-04	2	15	0.129	2,600	70	2.85E-05	2.00E-02	1.43E-03	11.05%
Tetrachloroethene	1.76E-01	8.00E-04	2	15	0.129	2,600	70	2.02E-05	1.00E-02	2.02E-03	15.66%
o-Toluic acid	1.51E+02	8.00E-04	2	15	0.129	2,600	70	1.73E-02	3.00E+00	5.76E-03	44.62%
m-Toluic acid	7.52E+01	8.00E-04	2	15	0.129	2,600	70	8.62E-03	3.00E+00	2.87E-03	22.25%
p-Toluic acid	2.17E+01	8.00E-04	2	15	0.129	2,600	70	2.49E-03	3.00E+00	8.28E-04	6.42%
									HAZ INDEX	1.29E-02	

NONCARCINOGENIC COMPOUNDS IN CREEK SEEPS - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	8 hrs / day	x	30 days / year	x	30 yrs / 70 yrs	x	3,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	8.80E-01	8.00E-04	8	30	0.429	3,500	70	3.62E-03	2.00E-02	1.81E-01	11.93%
Tetrachloroethene	5.60E-01	8.00E-04	8	30	0.429	3,500	70	2.30E-03	1.00E-02	2.30E-01	15.19%
o-Toluic acid	4.85E+02	8.00E-04	8	30	0.429	3,500	70	2.00E+00	3.00E+00	6.65E-01	43.86%
m-Toluic acid	2.50E+02	8.00E-04	8	30	0.429	3,500	70	1.03E+00	3.00E+00	3.43E-01	22.60%
p-Toluic acid	7.10E+01	8.00E-04	8	30	0.429	3,500	70	2.92E-01	3.00E+00	9.74E-02	6.42%
									HAZ INDEX	1.52E+00	

TABLE H-9. INCIDENTAL INGESTION OF CONTAMINATED STREAM SEDIMENTS (PS-4)
PRESENT- AND FUTURE-USE SCENARIO - ROUND 1 DATA

CARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE

Soil Conc	x	Intake rate (mg/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs lifetime	= Average Daily Dose (mg/kg-day)
mg/kg	x	100 mg / day	x	0.15	x	1 / 70 kg	x	15 days / year	x	9 yrs / 70 yrs	= ADD

Group	Compound	Conc (mg/kg)	Intake (mg/day)	Fraction absorbed	Body wt (kg)	Days expd / Year	Yrs expd / Yrs lifetime	ADD	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Total c-PAHs	7.14E+00	100	0.15	70	15	0.129	2.96E-06	7.30E+00	2.16E-05	100.00%
	Tetrachloroethene	5.90E-03	100	0.15	70	15	0.129	2.45E-09	5.10E-02	1.25E-10	0.00%
									TOTAL RISK	2.16E-05	

CARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT EXPOSURE: Adults

Soil Conc	x	Intake rate (mg/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs lifetime	= Average Daily Dose (mg/kg-day)
mg/kg	x	480 mg/day	x	0.15	x	1 / 70 kg	x	30 days / year	x	30 yrs / 70 yrs	= ADD

Group	Compound	Conc (mg/kg)	Intake (mg/day)	Fraction absorbed	Body wt (kg)	Days expd / Year	Yrs expd / Yrs lifetime	ADD	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Total c-PAHs	1.56E+01	480	0.15	70	30	0.429	2.07E-04	7.30E+00	1.51E-03	100.00%
	Tetrachloroethene	9.80E-03	480	0.15	70	30	0.429	1.30E-07	5.10E-02	6.61E-09	0.00%
									TOTAL RISK	1.51E-03	

NONCARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE; Adult

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1 / Body weight x Days expd / Year x Yrs expd / Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 100 mg / day x 0.15 x 1 / 70 kg x 15 days / year x 9 yrs / 70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Tetrachloroethene	5.90E-03	100	0.15	70	15	0.129	2.45E-09	1.00E-02	2.45E-07	0.08%
	Naphthalene	1.10E+00	100	0.15	70	15	0.129	4.56E-07	4.00E-02	1.14E-05	3.53%
	Fluorene	1.51E+00	100	0.15	70	15	0.129	6.28E-07	4.00E-02	1.57E-05	4.86%
	Anthracene	1.43E+00	100	0.15	70	15	0.129	5.92E-07	3.00E-01	1.97E-06	0.61%
	Pyrene	3.68E+00	100	0.15	70	15	0.129	1.52E-06	3.00E-02	5.08E-05	15.71%
	Arsenic	2.50E+00	100	0.0075	70	15	0.129	5.18E-08	3.00E-04	1.73E-04	53.42%
	Cadmium	1.70E+00	100	0.0075	70	15	0.129	3.52E-08	5.00E-04	7.05E-05	21.80%
								TOTAL HAZARD INDEX		3.23E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT INGESTION EXPOSURE; Adult

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1 / Body weight x Days expd / Year x Yrs expd / Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 480 mg / day x 0.15 x 1 / 70 kg x 30 days / year x 30 yrs / 70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Tetrachloroethene	9.80E-03	480	0.15	70	30	0.429	1.30E-07	1.00E-02	1.30E-05	0.09%
	Naphthalene	1.10E+00	480	0.15	70	30	0.429	1.45E-05	4.00E-02	3.64E-04	2.60%
	Fluorene	2.19E+00	480	0.15	70	30	0.429	2.89E-05	4.00E-02	7.23E-04	5.17%
	Anthracene	2.39E+00	480	0.15	70	30	0.429	3.16E-05	3.00E-01	1.05E-04	0.75%
	Pyrene	8.09E+00	480	0.15	70	30	0.429	1.07E-04	3.00E-02	3.56E-03	25.49%
	Arsenic	3.10E+00	480	0.0075	70	30	0.429	2.05E-06	3.00E-04	6.83E-03	48.86%
	Cadmium	1.80E+00	480	0.0075	70	30	0.429	1.19E-06	5.00E-04	2.38E-03	17.02%
								TOTAL HAZARD INDEX		1.40E-02	

NONCARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE; Child

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 200 mg/day x 0.15 x 1/35 kg x 30 days/year x 9 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Child	Tetrachloroethene	5.90E-03	200	0.15	35	30	0.129	1.96E-08	1.00E-02	1.96E-06	0.08%
	Naphthalene	1.10E+00	200	0.15	35	30	0.129	3.65E-06	4.00E-02	9.12E-05	3.53%
	Fluorene	1.51E+00	200	0.15	35	30	0.129	5.03E-06	4.00E-02	1.26E-04	4.86%
	Anthracene	1.43E+00	200	0.15	35	30	0.129	4.73E-06	3.00E-01	1.58E-05	0.61%
	Pyrene	3.68E+00	200	0.15	35	30	0.129	1.22E-05	3.00E-02	4.06E-04	15.71%
	Arsenic	2.50E+00	200	0.0075	35	30	0.129	4.15E-07	3.00E-04	1.38E-03	53.42%
	Cadmium	1.70E+00	200	0.0075	35	30	0.129	2.82E-07	5.00E-04	5.64E-04	21.80%
								TOTAL HAZARD INDEX		2.59E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT INGESTION EXPOSURE; Child

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 800 mg/day x 0.15 x 1/35 kg x 60 days/year x 9 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Tetrachloroethene	9.80E-03	800	0.15	35	60	0.129	2.59E-07	1.00E-02	2.59E-05	0.19%
	Naphthalene	1.10E+00	800	0.15	35	60	0.129	2.91E-05	4.00E-02	7.27E-04	5.20%
	Fluorene	2.19E+00	800	0.15	35	60	0.129	5.79E-05	4.00E-02	1.45E-03	10.35%
	Anthracene	2.39E+00	800	0.15	35	60	0.129	6.32E-05	3.00E-01	2.11E-04	1.51%
	Pyrene	8.09E+00	800	0.15	35	60	0.129	2.14E-04	3.00E-02	7.13E-03	50.98%
	Arsenic	3.10E+00	800	0.0075	35	60	0.129	4.10E-06	3.00E-04	1.37E-02	97.73%
	Cadmium	1.80E+00	800	0.0075	35	60	0.129	2.38E-06	5.00E-04	4.76E-03	34.05%
								TOTAL HAZARD INDEX		2.80E-02	

TABLE H-10. INCIDENTAL INGESTION OF CONTAMINATED STREAM SEDIMENTS (PS-4)
PRESENT- AND FUTURE-USE SCENARIO - ROUND 2 DATA

CARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE

Soil Conc	x	Intake rate (mg/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs lifetime	= Average Daily Dose (mg/kg-day)
mg/kg	x	100 mg / day	x	0.15	x	1 / 70 kg	x	15 days / year	x	9 yrs / 70 yrs	= ADD

Group	Compound	Conc (mg/kg)	Intake (mg/day)	Fraction absorbed	Body wt (kg)	Days expd / Year	Yrs expd / Yrs lifetime	ADD	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Vinyl chloride	8.30E-03	100	0.15	70	15	0.129	3.44E-09	1.90E+00	6.54E-09	0.15%
	Carbazole	1.60E-01	100	0.15	70	15	0.129	6.63E-08	2.00E-02	1.33E-09	0.03%
	Total c-PAHs	1.47E+00	100	0.15	70	15	0.129	6.08E-07	7.30E+00	4.44E-06	99.82%
									TOTAL RISK	4.45E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT EXPOSURE: Adults

Soil Conc	x	Intake rate (mg/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs lifetime	= Average Daily Dose (mg/kg-day)
mg/kg	x	480 mg/day	x	0.15	x	1 / 70 kg	x	30 days / year	x	30 yrs / 70 yrs	= ADD

Group	Compound	Conc (mg/kg)	Intake (mg/day)	Fraction absorbed	Body wt (kg)	Days expd / Year	Yrs expd / Yrs lifetime	ADD	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Vinyl chloride	9.90E-03	480	0.15	70	30	0.429	1.31E-07	1.90E+00	2.49E-07	0.09%
	Carbazole	1.60E-01	480	0.15	70	30	0.429	2.12E-06	2.00E-02	4.23E-08	0.02%
	Total c-PAHs	2.72E+00	480	0.15	70	30	0.429	3.60E-05	7.30E+00	2.63E-04	99.89%
									TOTAL RISK	2.63E-04	

NONCARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE; Adult

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 100 mg/day x 0.15 x 1/70 kg x 15 days/year x 9 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd/Year	Yrs expd/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Acetone	1.00E-01	100	0.15	70	15	0.129	4.16E-08	1.00E-01	4.16E-07	0.11%
	1,2-Dichloroethene	2.26E-01	100	0.15	70	15	0.129	9.37E-08	2.00E-02	4.69E-06	1.27%
	2-Methylphenol	2.54E-01	100	0.15	70	15	0.129	1.05E-07	5.00E-02	2.11E-06	0.57%
	Naphthalene	8.60E-03	100	0.15	70	15	0.129	3.57E-09	4.00E-02	8.91E-08	0.02%
	Flourene	1.40E-01	100	0.15	70	15	0.129	5.81E-08	4.00E-02	1.45E-06	0.39%
	Flouoranthene	5.52E-01	100	0.15	70	15	0.129	2.29E-07	4.00E-02	5.72E-06	1.55%
	Pyrene	4.52E-01	100	0.15	70	15	0.129	1.87E-07	3.00E-02	6.25E-06	1.69%
	o-Toluic acid	6.30E-01	100	0.15	70	15	0.129	2.61E-07	3.00E+00	8.71E-08	0.02%
	m-Toluic acid	2.40E-01	100	0.15	70	15	0.129	9.95E-08	3.00E+00	3.32E-08	0.01%
	p-Toluic acid	4.20E-02	100	0.15	70	15	0.129	1.74E-08	3.00E+00	5.81E-09	0.00%
	Arsenic	3.90E+00	100	0.0075	70	15	0.129	8.09E-08	3.00E-04	2.70E-04	73.01%
	Cadmium	1.90E+00	100	0.0075	70	15	0.129	3.94E-08	5.00E-04	7.88E-05	21.34%
								TOTAL HAZARD INDEX		3.69E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT INGESTION EXPOSURE; Adult

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 480 mg/day x 0.15 x 1/70 kg x 30 days/year x 30 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd/Year	Yrs expd/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Acetone	1.94E-01	480	0.15	70	30	0.429	2.57E-06	1.00E-01	2.57E-05	0.17%
	1,2-Dichloroethene	5.65E-01	480	0.15	70	30	0.429	7.47E-06	2.00E-02	3.74E-04	2.43%
	2-Methylphenol	2.00E-01	480	0.15	70	30	0.429	2.64E-06	5.00E-02	5.29E-05	0.34%
	Naphthalene	8.60E-02	480	0.15	70	30	0.429	1.14E-06	4.00E-02	2.84E-05	0.18%
	Flourene	1.40E-01	480	0.15	70	30	0.429	1.85E-06	4.00E-02	4.63E-05	0.30%
	Flouoranthene	1.04E+00	480	0.15	70	30	0.429	1.38E-05	4.00E-02	3.44E-04	2.24%
	Pyrene	8.26E-01	480	0.15	70	30	0.429	1.09E-05	3.00E-02	3.64E-04	2.37%
	o-Toluic acid	6.30E-01	480	0.15	70	30	0.429	8.33E-06	3.00E+00	2.78E-06	0.02%
	m-Toluic acid	2.40E-01	480	0.15	70	30	0.429	3.17E-06	3.00E+00	1.06E-06	0.01%
	p-Toluic acid	4.20E-02	480	0.15	70	30	0.429	5.55E-07	3.00E+00	1.85E-07	0.00%
	Arsenic	5.10E+00	480	0.0075	70	30	0.429	3.37E-06	3.00E-04	1.12E-02	73.04%
	Cadmium	2.20E+00	480	0.0075	70	30	0.429	1.45E-06	5.00E-04	2.91E-03	18.91%
								TOTAL HAZARD INDEX		1.54E-02	

NONCARCINOGENS - AVERAGE SEDIMENT INGESTION EXPOSURE; Child

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 200 mg/day x 0.15 x 1/35 kg x 30 days/year x 9 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Child	Acetone	1.00E-01	200	0.15	35	30	0.129	3.33E-07	1.00E-01	3.33E-06	0.11%
	1,2-Dichloroethene	2.26E-01	200	0.15	35	30	0.129	7.50E-07	2.00E-02	3.75E-05	1.27%
	2-Methylphenol	2.54E-01	200	0.15	35	30	0.129	8.43E-07	5.00E-02	1.69E-05	0.57%
	Naphthalene	8.60E-03	200	0.15	35	30	0.129	2.85E-08	4.00E-02	7.13E-07	0.02%
	Flourene	1.40E-01	200	0.15	35	30	0.129	4.64E-07	4.00E-02	1.16E-05	0.39%
	Flouoranthene	5.52E-01	200	0.15	35	30	0.129	1.83E-06	4.00E-02	4.58E-05	1.55%
	Pyrene	4.52E-01	200	0.15	35	30	0.129	1.50E-06	3.00E-02	5.00E-05	1.69%
	o-Toluic acid	6.30E-01	200	0.15	35	30	0.129	2.09E-06	3.00E+00	6.97E-07	0.02%
	m-Toluic acid	2.40E-01	200	0.15	35	30	0.129	7.96E-07	3.00E+00	2.65E-07	0.01%
	p-Toluic acid	4.20E-02	200	0.15	35	30	0.129	1.39E-07	3.00E+00	4.64E-08	0.00%
	Arsenic	3.90E+00	200	0.0075	35	30	0.129	6.47E-07	3.00E-04	2.16E-03	73.01%
	Cadmium	1.90E+00	200	0.0075	35	30	0.129	3.15E-07	5.00E-04	6.30E-04	21.34%
								TOTAL HAZARD INDEX		2.95E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SEDIMENT INGESTION EXPOSURE; Child

Soil Conc x Intake rate (mg/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs lifetime = Average Daily Dose (mg/kg-day)

mg/kg x 800 mg/day x 0.15 x 1/35 kg x 60 days/year x 9 yrs/70 yrs = ADD

Group	Compound	Conc (mg/kg)	(mg/day)	Fraction absorbed	Body wt (kg)	Days expd Year	Yrs expd Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL RISK
Adults	Acetone	1.94E-01	800	0.15	35	60	0.129	5.14E-06	1.00E-01	5.14E-05	0.33%
	1,2-Dichloroethene	5.65E-01	800	0.15	35	60	0.129	1.49E-05	2.00E-02	7.47E-04	4.86%
	2-Methylphenol	2.00E-01	800	0.15	35	60	0.129	5.29E-06	5.00E-02	1.06E-04	0.69%
	Naphthalene	8.60E-02	800	0.15	35	60	0.129	2.27E-06	4.00E-02	5.69E-05	0.37%
	Flourene	1.40E-01	800	0.15	35	60	0.129	3.70E-06	4.00E-02	9.26E-05	0.60%
	Flouoranthene	1.04E+00	800	0.15	35	60	0.129	2.75E-05	4.00E-02	6.88E-04	4.47%
	Pyrene	8.26E-01	800	0.15	35	60	0.129	2.18E-05	3.00E-02	7.28E-04	4.73%
	o-Toluic acid	6.30E-01	800	0.15	35	60	0.129	1.67E-05	3.00E+00	5.55E-06	0.04%
	m-Toluic acid	2.40E-01	800	0.15	35	60	0.129	6.35E-06	3.00E+00	2.12E-06	0.01%
	p-Toluic acid	4.20E-02	800	0.15	35	60	0.129	1.11E-06	3.00E+00	3.70E-07	0.00%
	Arsenic	5.10E+00	800	0.0075	35	60	0.129	6.74E-06	3.00E-04	2.25E-02	146.09%
	Cadmium	2.20E+00	800	0.0075	35	60	0.129	2.91E-06	5.00E-04	5.82E-03	37.81%
								TOTAL HAZARD INDEX		3.08E-02	

TABLE H-11. CALCULATED AMBIENT AIR CONCENTRATIONS AT RECEPTOR POINT
FUTURE-USE - NONREMEDIAL CONSTRUCTION SCENARIO
STAUFFER MANAGEMENT COMPANY REMEDIAL INVESTIGATION
SKANEATELES FALLS, NEW YORK

OFF-SITE RECEPTOR (Resident)

Mean emission rates - Landfill Perimeter Soil Borings

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	6.82E-09	1.90E-07	88	152	4.4	6.46E-12	6.46E-06
Acetone	2.57E-10	7.17E-09	88	152	4.4	2.44E-13	2.44E-07
2-Butanone	1.52E-10	4.25E-09	88	152	4.4	1.44E-13	1.44E-07
Tetrachloroethene	3.13E-08	8.72E-07	88	152	4.4	2.96E-11	2.96E-05
Toluene	1.13E-08	3.15E-07	88	152	4.4	1.07E-11	1.07E-05
Ethylbenzene	8.44E-09	2.35E-07	88	152	4.4	7.99E-12	7.99E-06
Xylenes	2.08E-07	5.81E-06	88	152	4.4	1.97E-10	1.97E-04

UCL emission rates - Landfill Perimeter Soil Borings

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	6.82E-09	1.90E-07	88	152	4.4	6.46E-12	6.46E-06
Acetone	3.99E-10	1.11E-08	88	152	4.4	3.78E-13	3.78E-07
2-Butanone	2.04E-10	5.70E-09	88	152	4.4	1.94E-13	1.94E-07
Tetrachloroethene	3.13E-08	8.72E-07	88	152	4.4	2.96E-11	2.96E-05
Toluene	1.20E-08	3.36E-07	88	152	4.4	1.14E-11	1.14E-05
Ethylbenzene	8.44E-09	2.35E-07	88	152	4.4	7.99E-12	7.99E-06
Xylenes	5.74E-07	1.60E-05	88	152	4.4	5.43E-10	5.43E-04

Mean emission rates - North Area Soils

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	2.34E-09	6.52E-08	88	152	4.4	2.22E-12	2.22E-06
1,1-Dichloroethane	1.68E-08	4.69E-07	88	152	4.4	1.59E-11	1.59E-05
1,2-Dichloroethene	5.08E-09	1.42E-07	88	152	4.4	4.81E-12	4.81E-06
2-Butanone	1.94E-09	5.39E-08	88	152	4.4	1.83E-12	1.83E-06
Benzene	1.90E-08	5.30E-07	88	152	4.4	1.80E-11	1.80E-05
Tetrachloroethene	7.82E-08	2.18E-06	88	152	4.4	7.41E-11	7.41E-05
Toluene	1.35E-07	3.76E-06	88	152	4.4	1.28E-10	1.28E-04
Xylenes	6.29E-04	1.75E-02	88	152	4.4	5.96E-07	5.96E-01

UCL emission rates - North Area Soils

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	2.34E-09	6.52E-08	88	152	4.4	2.22E-12	2.22E-06
1,1-Dichloroethane	1.68E-08	4.69E-07	88	152	4.4	1.59E-11	1.59E-05
1,2-Dichloroethene	5.08E-09	1.42E-07	88	152	4.4	4.81E-12	4.81E-06
2-Butanone	1.94E-09	5.39E-08	88	152	4.4	1.83E-12	1.83E-06
Benzene	1.90E-08	5.30E-07	88	152	4.4	1.80E-11	1.80E-05
Tetrachloroethene	7.82E-08	2.18E-06	88	152	4.4	7.41E-11	7.41E-05
Toluene	1.35E-07	3.76E-06	88	152	4.4	1.28E-10	1.28E-04
Xylenes	1.75E-03	4.87E-02	88	152	4.4	1.66E-06	1.66E+00

Notes:
Trench area assumed to be 2 ft by 150 ft (300 ft^2 or 28 m^2)

ON-SITE RECEPTOR (Worker)

Mean emission rates - Landfill Perimeter Soil Borings

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	6.82E-09	1.90E-07	22.5	152	4.4	2.53E-11	2.53E-05
Acetone	2.57E-10	7.17E-09	22.5	152	4.4	9.53E-13	9.53E-07
2-Butanone	1.52E-10	4.25E-09	22.5	152	4.4	5.65E-13	5.65E-07
Tetrachloroethene	3.13E-08	8.72E-07	22.5	152	4.4	1.16E-10	1.16E-04
Toluene	1.13E-08	3.15E-07	22.5	152	4.4	4.19E-11	4.19E-05
Ethylbenzene	8.44E-09	2.35E-07	22.5	152	4.4	3.13E-11	3.13E-05
Xylenes	2.08E-07	5.81E-06	22.5	152	4.4	7.72E-10	7.72E-04

UCL emission rates - Landfill Perimeter Soil Borings

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Methylene choride	6.82E-09	1.90E-07	22.5	152	4.4	2.53E-11	2.53E-05
Acetone	3.99E-10	1.11E-08	22.5	152	4.4	1.48E-12	1.48E-06
2-Butanone	2.04E-10	5.70E-09	22.5	152	4.4	7.58E-13	7.58E-07
Tetrachloroethene	3.13E-08	8.72E-07	22.5	152	4.4	1.16E-10	1.16E-04
Toluene	1.20E-08	3.36E-07	22.5	152	4.4	4.46E-11	4.46E-05
Ethylbenzene	8.44E-09	2.35E-07	22.5	152	4.4	3.13E-11	3.13E-05
Xylenes	5.74E-07	1.60E-05	22.5	152	4.4	2.12E-09	2.12E-03

Mean emission rates - North Area Soils

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	2.34E-09	6.52E-08	22.5	152	4.4	8.67E-12	8.67E-06
1,1-Dichloroethane	1.68E-08	4.69E-07	22.5	152	4.4	6.23E-11	6.23E-05
1,2-Dichloroethene	5.08E-09	1.42E-07	22.5	152	4.4	1.88E-11	1.88E-05
2-Butanone	1.94E-09	5.39E-08	22.5	152	4.4	7.17E-12	7.17E-06
Benzene	1.90E-08	5.30E-07	22.5	152	4.4	7.05E-11	7.05E-05
Tetrachloroethene	7.82E-08	2.18E-06	22.5	152	4.4	2.90E-10	2.90E-04
Toluene	1.35E-07	3.76E-06	22.5	152	4.4	5.00E-10	5.00E-04
Xylenes	6.29E-04	1.75E-02	22.5	152	4.4	2.33E-06	2.33E+00

UCL emission rates - North Area Soils

Compound	Emission Rate (g/m^2-sec)	Emission Rate (g/sec)	Mixing Ht (m)	Cross wind width (m)	Wind Velocity (m/sec)	Ambient Air Conc (g/m^3)	Ambient Air Conc (ug/m^3)
Acetone	2.34E-09	6.52E-08	22.5	152	4.4	8.67E-12	8.67E-06
1,1-Dichloroethane	1.68E-08	4.69E-07	22.5	152	4.4	6.23E-11	6.23E-05
1,2-Dichloroethene	5.08E-09	1.42E-07	22.5	152	4.4	1.88E-11	1.88E-05
2-Butanone	1.94E-09	5.39E-08	22.5	152	4.4	7.17E-12	7.17E-06
Benzene	1.90E-08	5.30E-07	22.5	152	4.4	7.05E-11	7.05E-05
Tetrachloroethene	7.82E-08	2.18E-06	22.5	152	4.4	2.90E-10	2.90E-04
Toluene	1.35E-07	3.76E-06	22.5	152	4.4	5.00E-10	5.00E-04
Xylenes	1.75E-03	4.87E-02	22.5	152	4.4	6.48E-06	6.48E+00

TABLE H-12. INHALATION OF VOLATILE COMPOUNDS IN AMBIENT AIR (FS-1)
NONREMEDIAL SITE CONSTRUCTION ACTIVITY - LANDFILL PERIMETER SOILS
FUTURE USE SCENARIO - RESIDENTIAL EXPOSURE

CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

Air Conc	x	Inhalation rate	x	Hrs exp / week	x	1 / Body weight	x	Yrs expd / Yrs LT	x	Weeks expd / Year	= ADD
mg/m³	x	0.83 m³/hr	x	50 hrs/wk	x	1/70	x	1/70	x	1 week/Year	= ADD

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	hrs/wk exposed	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	SF	RISK (ADD*SF)	% TOTAL RISK
Tetrachloroethene	2.96E-08	0.83	50	70	0.014	1.92E-02	4.83E-12	1.80E-03	8.69E-15	100.00%
								TOTAL RISK	8.69E-15	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

Air Conc	x	Inhalation rate	x	Hrs expd / week	x	1 / Body weight	x	Yrs expd / Yrs LT	x	Wks expd / Year	= ADD
mg/m³	x	1.35 m³/hr	x	50 hrs/wk	x	1/70	x	1/70	x	1 week/Year	= ADD

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Wks expd / Year	ADD	SF	RISK (ADD*SF)	% TOTAL RISK
Benzene	2.96E-08	1.25	50	70	1	1.92E-02	5.09E-10	1.80E-03	9.16E-13	100.00%
								TOTAL RISK	9.16E-13	

TABLE H-12 (Continued)

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\text{ADD} = \frac{\text{Air Conc}}{\text{mg/m}^3} \times \frac{\text{Inhalation rate}}{0.83\ \text{m}^3/\text{hr}} \times \frac{\text{Hrs expd}}{\text{week}}{50\ \text{hrs}} \times \frac{1}{\text{Body weight}}{70} \times \frac{\text{Yrs expd}}{\text{Yrs LT}}{1} \times \frac{\text{Weeks expd}}{\text{Year}}{1\ \text{week}}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	2.96E-08	0.83	50	70	0.014	1.92E-02	4.83E-12	1.00E-02	4.83E-10	92.99%
Toluene	1.07E-08	0.83	50	70	0.014	1.92E-02	1.74E-12	1.10E-01	1.58E-11	3.05%
Ethylbenzene	7.99E-09	0.83	50	70	0.014	1.92E-02	1.30E-12	2.90E-01	4.49E-12	0.86%
Xylene	1.97E-07	0.83	50	70	0.014	1.92E-02	3.22E-11	2.00E+00	1.61E-11	3.10%
							HAZARD INDEX		5.19E-10	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Child

$$\text{ADD} = \frac{\text{Air Conc}}{\text{mg/m}^3} \times \frac{\text{Inhalation rate}}{0.9\ \text{m}^3/\text{hr}} \times \frac{\text{Hrs expd}}{\text{week}}{50\ \text{hrs}} \times \frac{1}{\text{Body weight}}{35} \times \frac{\text{Yrs expd}}{\text{Yrs LT}}{1} \times \frac{\text{Wks expd}}{\text{Year}}{1\ \text{wk}}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Wks expd / Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	2.96E-08	0.9	50	35	0.014	1.92E-02	1.05E-11	1.00E-02	1.05E-09	92.99%
Toluene	1.07E-08	0.9	50	35	0.014	1.92E-02	3.78E-12	1.10E-01	3.44E-11	3.05%
Ethylbenzene	7.99E-09	0.9	50	35	0.014	1.92E-02	2.82E-12	2.90E-01	9.74E-12	0.86%
Xylene	1.97E-07	0.9	50	35	0.014	1.92E-02	6.97E-11	2.00E+00	3.49E-11	3.10%
							HAZARD INDEX		1.13E-09	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \frac{\text{Inhalation rate}}{} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{ADD}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	ADD	RfD	CDI/RfD	% TOTAL HAZARD
Tetrachloroethene	2.96E-08	1.25	50	70	0.014	1.92E-02	7.27E-12	1.00E-02	7.27E-10	88.10%
Toluene	1.11E-08	1.25	50	70	0.014	1.92E-02	2.73E-12	1.10E-01	2.48E-11	3.01%
Ethylbenzene	7.99E-09	1.25	50	70	0.014	1.92E-02	1.96E-12	2.90E-01	6.76E-12	0.82%
Xylene	5.43E-07	1.25	50	70	0.014	1.92E-02	1.33E-10	2.00E+00	6.66E-11	8.07%
							HAZARD INDEX		8.25E-10	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \frac{\text{Inhalation rate}}{} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{35} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Tetrachloroethene	2.96E-08	1.25	50	35	0.014	1.92E-02	1.45E-11	1.00E-02	1.45E-09	88.10%
Toluene	1.11E-08	1.25	50	35	0.014	1.92E-02	5.47E-12	1.10E-01	4.97E-11	3.01%
Ethylbenzene	7.99E-09	1.25	50	35	0.014	1.92E-02	3.92E-12	2.90E-01	1.35E-11	0.82%
Xylene	5.43E-07	1.25	50	35	0.014	1.92E-02	2.67E-10	2.00E+00	1.33E-10	8.07%
							HAZARD INDEX		1.65E-09	

TABLE H-13. INHALATION OF VOLATILE COMPOUNDS IN AMBIENT AIR (FS-1)
NONREMEDIAL SITE CONSTRUCTION ACTIVITY - NORTH AREA SOILS
FUTURE USE SCENARIO - RESIDENTIAL EXPOSURE

CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs exp}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times 0.8\ \text{m}^3/\text{hr} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	hrs/wk exposed	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	7.41E-08	0.8	50	70	0.014	1.92E-02	1.16E-11	1.80E-03	2.09E-14	20.34%
Benzene	1.80E-08	0.8	50	70	0.014	1.92E-02	2.83E-12	2.90E-02	8.20E-14	79.66%
								TOTAL RISK	1.03E-13	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Wks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times 1.25\ \text{m}^3/\text{hr} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Wks expd / Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	7.41E-08	1.25	50	70	1	1.92E-02	1.27E-09	1.80E-03	2.29E-12	20.34%
Benzene	1.80E-08	1.25	50	70	1	1.92E-02	3.09E-10	2.90E-02	8.97E-12	79.66%
								TOTAL RISK	1.13E-11	

TABLE H-13 (Continued)

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

Air Conc x Inhalation rate x Hrs expd / week x 1 / Body weight x Yrs expd / Yrs LT x Weeks expd / Year = Chronic Daily Intake (mg/kg-day)

mg/m³ x 0.8 m³/hr x 50 hrs / week x 1 / 70 x 1 / 70 x 1 week / Year = CDI

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,1-Dichloroethane	1.59E-08	0.8	50	70	0.014	1.92E-02	2.50E-12	2.90E-03	8.62E-10	1.76%
1,2-Dichloroethene	4.80E-09	0.8	50	70	0.014	1.92E-02	7.54E-13	2.00E-02	3.77E-11	0.08%
Tetrachloroethene	7.41E-08	0.8	50	70	0.014	1.92E-02	1.16E-11	1.00E-02	1.16E-09	2.37%
Toluene	1.28E-07	0.8	50	70	0.014	1.92E-02	2.01E-11	1.10E-01	1.82E-10	0.37%
Xylene	5.96E-04	0.8	50	70	0.014	1.92E-02	9.35E-08	2.00E+00	4.68E-08	95.42%
							HAZARD INDEX		4.90E-08	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Child

Air Conc x Inhalation rate x Hrs expd / week x 1 / Body weight x Yrs expd / Yrs LT x Wks expd / Year = Chronic Daily Intake (mg/kg-day)

mg/m³ x 0.9 m³/hr x 50 hrs / week x 1 / 35 x 1 / 70 x 1 wk / Year = CDI

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Wks expd / Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,1-Dichloroethane	1.59E-08	0.9	50	35	0.014	1.92E-02	5.62E-12	2.90E-03	1.94E-09	1.76%
1,2-Dichloroethene	4.80E-09	0.9	50	35	0.014	1.92E-02	1.70E-12	2.00E-02	8.48E-11	0.08%
Tetrachloroethene	7.41E-08	0.9	50	35	0.014	1.92E-02	2.62E-11	1.00E-02	2.62E-09	2.37%
Toluene	1.28E-07	0.9	50	35	0.014	1.92E-02	4.51E-11	1.10E-01	4.10E-10	0.37%
Xylene	5.96E-04	0.9	50	35	0.014	1.92E-02	2.10E-07	2.00E+00	1.05E-07	95.42%
							HAZARD INDEX		1.10E-07	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{ADD}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hr}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
1,1-Dichloroethane	1.59E-08	1.25	50	70	0.014	1.92E-02	3.91E-12	2.90E-03	1.35E-09	0.65%
1,2-Dichloroethene	4.81E-09	1.25	50	70	0.014	1.92E-02	1.18E-12	2.00E-02	5.90E-11	0.03%
Tetrachloroethene	7.41E-08	1.25	50	70	0.014	1.92E-02	1.82E-11	1.00E-02	1.82E-09	0.88%
Toluene	1.28E-07	1.25	50	70	0.014	1.92E-02	3.13E-11	1.10E-01	2.85E-10	0.14%
Xylene	1.66E-03	1.25	50	70	0.014	1.92E-02	4.06E-07	2.00E+00	2.03E-07	98.30%
							HAZARD INDEX		2.07E-07	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{ADD}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{35} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{ADD}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	ADD	RfD	ADD/RfD	% TOTAL HAZARD
1,1-Dichloroethane	1.59E-08	1.25	50	35	0.014	1.92E-02	7.81E-12	2.90E-03	2.69E-09	0.65%
1,2-Dichloroethene	4.81E-09	1.25	50	35	0.014	1.92E-02	2.36E-12	2.00E-02	1.18E-10	0.03%
Tetrachloroethene	7.41E-08	1.25	50	35	0.014	1.92E-02	3.64E-11	1.00E-02	3.64E-09	0.88%
Toluene	1.28E-07	1.25	50	35	0.014	1.92E-02	6.27E-11	1.10E-01	5.70E-10	0.14%
Xylene	1.66E-03	1.25	50	35	0.014	1.92E-02	8.13E-07	2.00E+00	4.06E-07	98.30%
							HAZARD INDEX		4.13E-07	

TABLE H-14. INHALATION OF VOLATILE COMPOUNDS IN AMBIENT AIR (FS-1)
NONREMEDIAL SITE CONSTRUCTION ACTIVITY - LANDFILL PERIMETER SOILS
FUTURE USE SCENARIO - INDUSTRIAL EXPOSURE (ON-SITE)

CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs exp}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times \frac{0.83\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	hrs/wk exposed	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	1.16E-07	0.83	50	70	0.014	1.92E-02	1.89E-11	1.80E-03	3.40E-14	100.00%
							TOTAL RISK		3.40E-14	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Wks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hrs}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Wks expd Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	1.16E-07	1.25	50	70	1	1.92E-02	1.99E-09	1.80E-03	3.58E-12	100.00%
							TOTAL RISK		3.58E-12	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

Air Conc	x	Inhalation rate	x	Hrs expd / week	x	1 / Body weight	x	Yrs expd / Yrs LT	x	Weeks expd / Year	= Chronic Daily Intake (mg/kg-day)
mg/m^3	x	0.8 m^3/hr	x	50 hrs / week	x	1 / 70	x	1 / 70	x	1 week / Year	= CDI

Compound	Air Conc (mg/m^3)	Inhalation Rate (m^3/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Tetrachloroethene	1.16E-07	0.8	50	70	0.014	1.92E-02	1.82E-11	1.00E-02	1.82E-09	92.98%
Toluene	4.19E-08	0.8	50	70	0.014	1.92E-02	6.58E-12	1.10E-01	5.98E-11	3.06%
Ethylbenzene	3.13E-08	0.8	50	70	0.014	1.92E-02	4.91E-12	2.90E-01	1.69E-11	0.87%
Xylene	7.72E-07	0.8	50	70	0.014	1.92E-02	1.21E-10	2.00E+00	6.06E-11	3.10%
							HAZARD INDEX		1.96E-09	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

Air Conc	x	Inhalation rate	x	Hrs expd / week	x	1 / Body weight	x	Yrs expd / Yrs LT	x	Weeks expd / Year	= Chronic Daily Intake (mg/kg-day)
mg/m^3	x	1.25 m^3 / hour	x	50 hrs/wk	x	1 / 70	x	1 / 70	x	1 week / Year	= CDI

Compound	Air Conc (mg/m^3)	Inhalation Rate (m^3/hr)	Hrs expd / week	Body weight (kg)	Yrs expd / Yrs LT	Weeks expd / Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Tetrachloroethene	1.16E-07	1.25	50	70	0.014	1.92E-02	2.84E-11	1.00E-02	2.84E-09	88.20%
Toluene	4.19E-08	1.25	50	70	0.014	1.92E-02	1.03E-11	1.10E-01	9.34E-11	2.90%
Ethylbenzene	3.13E-08	1.25	50	70	0.014	1.92E-02	7.67E-12	2.90E-01	2.64E-11	0.82%
Xylene	2.12E-06	1.25	50	70	0.014	1.92E-02	5.21E-10	2.00E+00	2.61E-10	8.09%
							HAZARD INDEX		3.22E-09	

TABLE H-15. INHALATION OF VOLATILE COMPOUNDS IN AMBIENT AIR (FS-1)
NONREMEDIAL SITE CONSTRUCTION ACTIVITY - NORTH AREA SOILS
FUTURE USE SCENARIO - INDUSTRIAL EXPOSURE (ON-SITE)

CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \text{Inhalation rate} \times \frac{\text{Hrs exp}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\frac{mg}{m^3} \times 0.83\ \frac{m^3}{hr} \times \frac{50\ \text{hours}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m^3)	Inhalation Rate (m^3/hr)	hrs/wk exposed	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	2.90E-07	0.83	50	70	0.014	1.92E-02	4.72E-11	1.80E-03	8.50E-14	20.34%
Benzene	7.05E-08	0.83	50	70	0.014	1.92E-02	1.15E-11	2.90E-02	3.33E-13	79.66%
								TOTAL RISK	4.18E-13	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \text{Inhalation rate} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Wks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\frac{mg}{m^3} \times \frac{1.25\ m^3}{\text{hour}} \times 50\ \text{hrs/wk} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m^3)	Inhalation Rate (m^3/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Wks expd Year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	2.90E-07	1.25	50	70	1	1.92E-02	4.98E-09	1.80E-03	8.96E-12	20.34%
Benzene	7.05E-08	1.25	50	70	1	1.92E-02	1.21E-09	2.90E-02	3.51E-11	79.66%
								TOTAL RISK	4.40E-11	

TABLE H-15 (Continued)

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \frac{\text{Inhalation rate}}{} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times \frac{0.83\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hours}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,1-Dichloroethane	6.23E-08	0.83	50	70	0.014	1.92E-02	1.01E-11	2.90E-03	3.50E-09	1.76%
1,2-Dichloroethene	1.88E-08	0.83	50	70	0.014	1.92E-02	3.06E-12	2.00E-02	1.53E-10	0.08%
Tetrachloroethene	2.90E-07	0.83	50	70	0.014	1.92E-02	4.72E-11	1.00E-02	4.72E-09	2.37%
Toluene	5.00E-07	0.83	50	70	0.014	1.92E-02	8.14E-11	1.10E-01	7.40E-10	0.37%
Xylene	2.33E-03	0.83	50	70	0.014	1.92E-02	3.79E-07	2.00E+00	1.90E-07	95.42%
							HAZARD INDEX		1.99E-07	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{} \times \frac{\text{Inhalation rate}}{} \times \frac{\text{Hrs expd}}{\text{week}} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs expd}}{\text{Yrs LT}} \times \frac{\text{Weeks expd}}{\text{Year}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/m}^3 \times \frac{1.25\ \text{m}^3}{\text{hour}} \times \frac{50\ \text{hours}}{\text{week}} \times \frac{1}{70} \times \frac{1}{70} \times \frac{1\ \text{week}}{\text{Year}} = \text{CDI}$$

Compound	Air Conc (mg/m³)	Inhalation Rate (m³/hr)	Hrs expd week	Body weight (kg)	Yrs expd Yrs LT	Weeks expd Year	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,1-Dichloroethane	6.23E-08	1.25	50	70	0.014	1.92E-02	1.53E-11	2.90E-03	5.27E-09	0.65%
1,2-Dichloroethene	1.88E-08	1.25	50	70	0.014	1.92E-02	4.61E-12	2.00E-02	2.31E-10	0.03%
Tetrachloroethene	2.90E-07	1.25	50	70	0.014	1.92E-02	7.11E-11	1.00E-02	7.11E-09	0.88%
Toluene	5.00E-07	1.25	50	70	0.014	1.92E-02	1.23E-10	1.10E-01	1.11E-09	0.14%
Xylene	6.48E-03	1.25	50	70	0.014	1.92E-02	1.59E-06	2.00E+00	7.95E-07	98.30%
							HAZARD INDEX		8.08E-07	

TABLE H-16. DERMAL CONTACT WITH EXPOSED SOILS FROM NONREMEDIAL EXCAVATION (FS-2)
FUTURE USE SCENARIO - Industrial Receptor
NORTH AREA SOILS

CARCINOGENS - AVERAGE SOIL CONTACT EXPOSURE : Adults

Sed Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	= ADD
mg/kg	x	2,900 cm^2	x	6e-3	x	0.5 mg/cm^2	x	1/70	x	5 days/365 days	x	1/70	x	1 kg/1E6 mg	= ADD

Compound	Sed Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Body Weight (kg)	Days expd / Days/yr	Yrs Expd / Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Benzene	5.00E-03	2,900	6.00E-03	0.5	70	0.014	0.014	1.22E-13	2.90E-02	3.53E-15	0.00%
Tetrachloroethene	5.00E-03	2,900	6.00E-03	0.5	70	0.014	0.014	1.22E-13	5.10E-02	6.20E-15	0.00%
Carbazole	1.30E-01	2,900	6.00E-03	0.5	70	0.014	0.014	3.16E-12	5.10E-02	1.61E-13	0.02%
Total c-PAHs	3.75E+00	2,900	6.00E-03	0.5	70	0.014	0.014	9.11E-11	7.30E+00	6.65E-10	99.19%
4,4'-DDD	2.10E-03	2,900	6.00E-03	0.5	70	0.014	0.014	5.11E-14	2.40E-01	1.23E-14	0.00%
Aroclor 1248	2.80E-02	2,900	6.00E-03	0.5	70	0.014	0.014	6.81E-13	7.70E+00	5.24E-12	0.78%
									TOTAL RISK	6.70E-10	

CARCINOGENS - PLAUSIBLE MAXIMUM SOIL CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	= ADD
mg/kg	x	3,500 cm^2	x	1.2E-2	x	1.0 mg/cm^2	x	1/70	x	5 days/365 days	x	1/70	x	1 kg/1E6 mg	= ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Body Weight (kg)	Days expd / Days/yr	Yrs Expd / Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Benzene	5.00E-03	3,500	1.20E-02	1.0	70	0.014	0.014	5.87E-13	2.90E-02	1.70E-14	0.00%
Tetrachloroethene	5.00E-03	3,500	1.20E-02	1.0	70	0.014	0.014	5.87E-13	5.10E-02	2.99E-14	0.00%
Carbazole	1.30E-01	3,500	1.20E-02	1.0	70	0.014	0.014	1.53E-11	5.10E-02	7.78E-13	0.01%
Total c-PAHs	8.91E+00	3,500	1.20E-02	1.0	70	0.014	0.014	1.05E-09	7.30E+00	7.64E-09	99.42%
4,4'-DDD	3.00E-03	3,500	1.20E-02	1.0	70	0.014	0.014	3.52E-13	2.40E-01	8.45E-14	0.00%
Aroclor 1248	4.80E-02	3,500	1.20E-02	1.0	70	0.014	0.014	5.64E-12	7.70E+00	4.34E-11	0.56%
									TOTAL RISK	7.68E-09	

NONCARCINOGENS - AVERAGE SOIL CONTACT EXPOSURE : Adults

$$\text{ADD} = \text{Soil Conc} \times \text{Skin Surf area} \times \text{Bioavail factor} \times \text{Skin Deposition} \times \frac{1}{\text{Body wt}} \times \frac{\text{Days expd}}{\text{Days/yr}} \times \frac{\text{Yrs Expd}}{\text{Yrs LT}} \times \frac{1\text{ kg}}{1\text{e6 mg}}$$

$$\text{ADD} = \text{mg/kg} \times 2{,}900\ \text{cm}^2 \times 6\text{e-}3 \times 0.5\ \text{mg/cm}^2 \times \frac{1}{70} \times \frac{5\text{ days}}{365\text{ days}} \times \frac{1}{70} \times \frac{1\text{ kg}}{1\text{E6 mg}}$$

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm^2)	Bio-availability Factor	Skin Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	5.00E-03	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.22E-13	1.00E-02	1.22E-11	0.20%
Xylenes	1.58E+02	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	3.85E-09	2.00E+00	1.93E-09	31.91%
2-Methylphenol	7.19E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.75E-11	5.00E-02	3.50E-10	5.79%
4-Methylphenol	8.07E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.96E-11	5.00E-02	3.93E-10	6.50%
2,4-Dimethylphenol	1.00E+00	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	2.44E-11	2.00E-02	1.22E-09	20.22%
Naphthalene	4.25E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.03E-11	4.00E-02	2.58E-10	4.28%
Fluorene	4.30E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.05E-11	4.00E-02	2.61E-10	4.33%
Fluoranthene	8.73E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	2.12E-11	4.00E-02	5.31E-10	8.79%
Pyrene	1.16E+00	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	2.82E-11	3.00E-02	9.39E-10	15.55%
o-Toluic acid	5.94E+00	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.45E-10	3.00E+00	4.82E-11	0.80%
m-Toluic acid	6.37E+00	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.55E-10	3.00E+00	5.16E-11	0.86%
p-Toluic acid	5.72E+00	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.39E-10	3.00E+00	4.64E-11	0.77%
								HAZARD INDEX		6.04E-09	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SOIL CONTACT EXPOSURE : Adults

$$\text{CDI} = \text{Soil Conc} \times \text{Skin Surf area} \times \text{Bioavail factor} \times \text{Skin Deposition} \times \frac{1}{\text{Body wt}} \times \frac{\text{Days expd}}{\text{Days/yr}} \times \frac{\text{Yrs Expd}}{\text{Yrs LT}} \times \frac{1\text{ kg}}{1\text{e6 mg}}$$

$$\text{CDI} = \text{mg/kg} \times 3{,}500\ \text{cm}^2 \times 1.2\text{e-}2 \times 1.0\ \text{mg/cm}^2 \times \frac{1}{70} \times \frac{5\text{ days}}{365\text{ days}} \times \frac{1}{70} \times \frac{1\text{ kg}}{1\text{E6 mg}}$$

Compound	Conc (mg/kg)	Surface Area (cm^2)	Bio-availability Factor	Deposition (mg/cm^2)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	5.00E-03	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	5.87E-13	1.00E-02	5.87E-11	0.08%
Xylenes	4.41E+02	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	5.17E-08	2.00E+00	2.59E-08	37.39%
2-Methylphenol	1.40E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.64E-10	5.00E-02	3.29E-09	4.75%
4-Methylphenol	1.77E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.07E-10	5.00E-02	4.15E-09	6.00%
2,4-Dimethylphenol	2.05E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.40E-10	2.00E-02	1.20E-08	17.36%
Naphthalene	7.01E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	8.23E-11	4.00E-02	2.06E-09	2.97%
Fluorene	1.93E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.26E-10	4.00E-02	5.65E-09	8.17%
Fluoranthene	1.86E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.18E-10	4.00E-02	5.45E-09	7.88%
Pyrene	2.35E+00	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.75E-10	3.00E-02	9.18E-09	13.27%
o-Toluic acid	1.21E+01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.42E-09	3.00E+00	4.72E-10	0.68%
m-Toluic acid	1.37E+01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.61E-09	3.00E+00	5.35E-10	0.77%
p-Toluic acid	1.17E+01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.37E-09	3.00E+00	4.56E-10	0.66%
								HAZARD INDEX		6.92E-08	

TABLE H-17. DERMAL CONTACT WITH EXPOSED SOILS FROM NONREMEDIAL EXCAVATION (FS-2)
FUTURE USE SCENARIO - Industrial Receptor
LANDFILL PERIMETER SOILS

CARCINOGENS - AVERAGE SOIL CONTACT EXPOSURE : Adults

Sed Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	= ADD
mg/kg	x	2,900 cm²	x	6e-3	x	0.5 mg/cm²	x	1/70	x	5 days/365 days	x	1/70	x	1 kg/1E6 mg	= ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Tetrachloroethene	2.00E-03	2,900	6.00E-03	0.5	70	0.014	0.014	4.86E-14	5.10E-02	2.48E-15	0.00%
Total c-PAHs	1.51E+00	2,900	6.00E-03	0.5	70	0.014	0.014	3.67E-11	7.30E+00	2.68E-10	99.97%
4,4'-DDD	5.00E-03	2,900	6.00E-03	0.5	70	0.014	0.014	1.22E-13	2.40E-01	2.92E-14	0.01%
4,4'-DDE	7.30E-03	2,900	6.00E-03	0.5	70	0.014	0.014	1.78E-13	2.40E-01	4.26E-14	0.02%
									TOTAL RISK	2.68E-10	

CARCINOGENS - PLAUSIBLE MAXIMUM SOIL CONTACT EXPOSURE : Adults

Soil Conc	x	Skin Surf area	x	Bioavail factor	x	Skin Deposition	x	1 / Body wt	x	Days expd / Days/yr	x	Yrs Expd / Yrs LT	x	1 kg / 1e6 mg	= ADD
mg/kg	x	3,500 cm²	x	1.2E-2	x	1.0 mg/cm²	x	1/70	x	5 days/365 days	x	1/70	x	1 kg/1E6 mg	= ADD

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Body Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	SF	RISK (SF*ADD)	% TOTAL RISK
Tetrachloroethene	2.00E-03	3,500	1.20E-02	1.0	70	0.014	0.014	2.35E-13	5.10E-02	1.20E-14	0.00%
Total c-PAHs	3.59E+00	3,500	1.20E-02	1.0	70	0.014	0.014	4.22E-10	7.30E+00	3.08E-09	99.98%
4,4'-DDD	1.16E-02	3,500	1.20E-02	1.0	70	0.014	0.014	1.36E-12	2.40E-01	3.27E-13	0.01%
4,4'-DDE	5.40E-03	3,500	1.20E-02	1.0	70	0.014	0.014	6.34E-13	2.40E-01	1.52E-13	0.00%
									TOTAL RISK	3.08E-09	

NONCARCINOGENS - AVERAGE SOIL CONTACT EXPOSURE : Adults

$$\frac{\text{Soil Conc}}{\text{mg/kg}} \times \frac{\text{Skin Surf area}}{2{,}900\ \text{cm}^2} \times \frac{\text{Bioavail factor}}{6\text{e-}3} \times \frac{\text{Skin Deposition}}{0.5\ \text{mg/cm}^2} \times \frac{1}{\text{Body wt}} \times \frac{\text{Days expd}}{\text{Days/yr}} \times \frac{\text{Yrs Expd}}{\text{Yrs LT}} \times \frac{1\ \text{kg}}{1\text{e}6\ \text{mg}} = \text{ADD}$$

$$\text{mg/kg} \times 2{,}900\ \text{cm}^2 \times 6\text{e-}3 \times 0.5\ \text{mg/cm}^2 \times \frac{1}{70} \times \frac{5\ \text{days}}{365\ \text{days}} \times \frac{1}{70} \times \frac{1\ \text{kg}}{1\text{E}6\ \text{mg}} = \text{ADD}$$

Compound	Soil Conc (mg/kg)	Skin Surface Area (cm²)	Bio-availability Factor	Skin Deposition (mg/cm²)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	2.00E-03	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	4.86E-14	1.00E-02	4.86E-12	0.66%
Xylenes	5.25E-02	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	1.28E-12	2.00E+00	6.38E-13	0.09%
2-Methylphenol	4.00E-02	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	9.73E-13	5.00E-02	1.95E-11	2.63%
Naphthalene	1.70E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	4.13E-12	4.00E-02	1.03E-10	13.97%
Fluorene	1.87E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	4.56E-12	4.00E-02	1.14E-10	15.39%
Fluoranthene	3.56E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	8.66E-12	4.00E-02	2.16E-10	29.26%
Pyrene	3.44E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	8.37E-12	3.00E-02	2.79E-10	37.69%
o-Toluic acid	1.70E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	4.13E-12	3.00E+00	1.38E-12	0.19%
m-Toluic acid	1.20E-01	2.90E+03	6.00E-03	5.00E-01	70	0.014	0.014	2.92E-12	3.00E+00	9.73E-13	0.13%
								HAZARD INDEX		7.40E-10	

NONCARCINOGENS - PLAUSIBLE MAXIMUM SOIL CONTACT EXPOSURE : Adults

$$\frac{\text{Soil Conc}}{\text{mg/kg}} \times \frac{\text{Skin Surf area}}{3{,}500\ \text{cm}^2} \times \frac{\text{Bioavail factor}}{1.2\text{e-}2} \times \frac{\text{Skin Deposition}}{1.0\ \text{mg/cm}^2} \times \frac{1}{\text{Body wt}} \times \frac{\text{Days expd}}{\text{Days/yr}} \times \frac{\text{Yrs Expd}}{\text{Yrs LT}} \times \frac{1\ \text{kg}}{1\text{e}6\ \text{mg}} = \text{ADD}$$

$$\text{mg/kg} \times 3{,}500\ \text{cm}^2 \times 1.2\text{e-}2 \times 1.0\ \text{mg/cm}^2 \times \frac{1}{70} \times \frac{5\ \text{days}}{365\ \text{days}} \times \frac{1}{70} \times \frac{1\ \text{kg}}{1\text{E}6\ \text{mg}} = \text{ADD}$$

Compound	Conc (mg/kg)	Surface Area (cm²)	Bio-availability Factor	Deposition (mg/cm²)	Weight (kg)	Days expd Days/yr	Yrs Expd Yrs LT	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Tetrachloroethene	2.00E-03	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.35E-13	1.00E-02	2.35E-11	0.41%
Xylenes	1.44E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.70E-11	2.00E+00	8.48E-12	0.15%
2-Methylphenol	4.00E-02	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	4.70E-12	5.00E-02	9.39E-11	1.63%
Naphthalene	2.00E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.35E-11	4.00E-02	5.87E-10	10.19%
Fluorene	2.22E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.61E-11	4.00E-02	6.51E-10	11.30%
Fluoranthene	6.56E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	7.70E-11	4.00E-02	1.93E-09	33.41%
Pyrene	6.29E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	7.39E-11	3.00E-02	2.46E-09	42.72%
o-Toluic acid	1.70E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	2.00E-11	3.00E+00	6.65E-12	0.12%
m-Toluic acid	1.20E-01	3.50E+03	1.20E-02	1.00E+00	70	0.014	0.014	1.41E-11	3.00E+00	4.70E-12	0.08%
								HAZARD INDEX		5.76E-09	

TABLE H-18. FUTURE-USE SCENARIO - INHALATION OF SUSPENDED SOILS FROM AN EXCAVATION AREA (FS-3)
NORTH AREA SOILS
RESIDENTIAL RECEPTOR (OFF-SITE)

This model calculates the risk associated with sediment suspended due to wind erosion, based upon Cowherd et al (1985) model.

Step 1 - Particle emission rate

Roughness height (Zo; cm):	1
Threshold friction velocity (U*; m/sec):	0.5
Threshold velocity at 7 m (Ut; m/sec):	8
Fraction of surface with vegetation (V):	0
Mean annual wind speed ([U]; m/sec):	4.4
Unitless velocity ratio (X):	1.61
Correction factor [F(x)]:	0.9
Respirable particulate emissions (E_{10}; g/m^2-hr):	0.005

Sources for variables:

Zo: Roughness height obtained from Cowherd document, Figure 3-6.
U*: Based upon surface particle size mode, from Cowherd document Figure 3-4.
Ut: Calculated from Cowherd Figure 4-1
V: Ranges from 0 (0%) to 1 (100%), based upon field observation
[U]: Mean annual wind speed, from local sources or Cowherd documet Table 4-1.
X: Calculated from Ut and U*
F(x): Based upon value of X, using Cowherd document, Figure 4-3.

Site data: Particle size mode (coarse to fine sand) was 0.5 mm based upon boring logs.
Ratio of windspeed at 7 m to friction velocity was 50.
Mean annual wind speed from Syracuse, NY area (Cowherd et al, 1985)

Ref: Cowherd, C., G.E. Muleski, P.J. Englehart and D.A. Gillette. 1985. Rapid assessment of exposure to particulate emissions from surface contamination sites. EPA-600/8-85/002

Step 2 - Contaminant Emission Rates

Compound	AVERAGE CONCENTRATIONS Conc (ug/kg)	Emiss Rate (g/m^2-hr)	Site area (m^2)	Emission Rate (ug/hr)	Short-range Air conc (ug/m^3)	UCL CONCENTRATIONS Conc (ug/kg)	Emiss Rate (g/m^2-hr)	Site area (m^2)	Emission Rate (ug/hr)	Short-range Air conc (ug/m^3)
Benzene	5	0.005	334	9.00E-03	1.00E-09	5	0.005	334	9.00E-03	1.00E-09
Tetrachloroethene	5	0.005	334	9.00E-03	1.00E-09	5	0.005	334	9.00E-03	1.00E-09
Xylenes	158,484	0.005	334	2.85E+02	3.17E-05	440,573	0.005	334	7.93E+02	8.81E-05
2-Methylphenol	719	0.005	334	1.29E+00	1.44E-07	1,400	0.005	334	2.52E+00	2.80E-07
4-Methylphenol	807	0.005	334	1.45E+00	1.61E-07	1,767	0.005	334	3.18E+00	3.53E-07
2,4-Dimethylphenol	1,004	0.005	334	1.81E+00	2.01E-07	2,046	0.005	334	3.68E+00	4.09E-07
Carbazole	130	0.005	334	2.34E-01	2.60E-08	130	0.005	334	2.34E-01	2.60E-08
Naphthalene	425	0.005	334	7.65E-01	8.50E-08	701	0.005	334	1.26E+00	1.40E-07
Fluorene	889	0.005	334	1.60E+00	1.78E-07	1,926	0.005	334	3.47E+00	3.85E-07
Fluoranthene	873	0.005	334	1.57E+00	1.75E-07	1,858	0.005	334	3.35E+00	3.72E-07
Pyrene	1,158	0.005	334	2.08E+00	2.32E-07	2,345	0.005	334	4.22E+00	4.69E-07
Total c-PAHs	3,745	0.005	334	6.74E+00	7.49E-07	8,913	0.005	334	1.60E+01	1.78E-06
o-Toluic acid	5,943	0.005	334	1.07E+01	1.19E-06	12,061	0.005	334	2.17E+01	2.41E-06
m-Toluic acid	6,368	0.005	334	1.15E+01	1.27E-06	13,672	0.005	334	2.46E+01	2.74E-06
p-Toluic acid	5,721	0.005	334	1.03E+01	1.14E-06	11,662	0.005	334	2.10E+01	2.33E-06
4,4'-DDD	2.1	0.005	334	3.78E-03	4.20E-10	3	0.005	334	5.40E-03	6.00E-10
Aroclor 1248	28	0.005	334	5.04E-02	5.60E-09	48	0.005	334	8.64E-02	9.60E-09

Short range air concentration: Assumed 0.1 km from source center, using a conversion factor of 400 usec/m^3 (Figure 4-12 from Cowherd et al., 1985).

CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{\text{mg}/\text{m}^3} \times \frac{\text{Inhalation Rate}}{0.8\ \text{m}^3/\text{hour}} \times \text{Fraction Absorbed } 1.0 \times \frac{\text{Hrs}}{50\ \text{hours}/\text{week}} \times \frac{\text{Wks exp}}{1\ \text{week}/\text{year}} \times \frac{\text{Years exp}}{1\ \text{year}/70\ \text{years}} \times \frac{1}{\text{Body weight } 70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m3)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	1.00E-09	1.00E-12	50	0.8	1.000	70	0.014	0.019	1.57E-16	2.90E-02	4.55E-18	0.00%
Tetrachloroethene	3.17E-05	3.17E-08	50	0.8	1.000	70	0.014	0.019	4.98E-12	1.80E-03	8.96E-15	1.22%
Carbazole	2.60E-08	2.60E-11	50	0.8	1.000	70	0.014	0.019	4.08E-15	2.00E-02	8.17E-17	0.01%
Total c-PAHs	7.49E-07	7.49E-10	50	0.8	1.000	70	0.014	0.019	1.18E-13	6.10E+00	7.17E-13	97.84%
4,4'-DDD	4.20E-10	4.20E-13	50	0.8	1.000	70	0.014	0.019	6.60E-17	2.40E-01	1.58E-17	0.00%
Aroclor 1248	5.60E-09	5.60E-12	50	0.8	1.000	70	0.014	0.019	8.79E-16	7.70E+00	6.77E-15	0.92%
										TOTAL RISK	7.33E-13	

CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{\text{mg}/\text{m}^3} \times \frac{\text{Inhalation Rate}}{1.25\ \text{m}^3/\text{hour}} \times \text{Fraction Absorbed } 1.0 \times \frac{\text{Hrs}}{50\ \text{hours}/\text{week}} \times \frac{\text{Wks exp}}{1\ \text{week}/\text{year}} \times \frac{\text{Yrs exp}}{1\ \text{year}/70\ \text{years}} \times \frac{1}{\text{Body weight } 70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / year	ADD	SF	RISK (ADD*SF)	% TOTAL RISK
Benzene	1.00E-09	1.00E-12	50	1.25	1.000	70	0.014	0.019	2.45E-16	2.90E-02	7.12E-18	0.00%
Tetrachloroethene	1.00E-09	1.00E-12	50	1.25	1.000	70	0.014	0.019	2.45E-16	1.80E-03	4.42E-19	0.00%
Carbazole	2.60E-08	2.60E-11	50	1.25	1.000	70	0.014	0.019	6.38E-15	2.00E-02	1.28E-16	0.00%
Total c-PAHs	1.78E-06	1.78E-09	50	1.25	1.000	70	0.014	0.019	4.37E-13	6.10E+00	2.67E-12	99.32%
4,4'-DDD	6.00E-10	6.00E-13	50	1.25	1.000	70	0.014	0.019	1.47E-16	2.40E-01	3.53E-17	0.00%
Aroclor 1248	9.60E-09	9.60E-12	50	1.25	1.000	70	0.014	0.019	2.36E-15	7.70E+00	1.81E-14	0.68%
										TOTAL RISK	2.69E-12	

NON-CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{\frac{mg}{m^3}} \times \frac{\text{Inhalation Rate}}{\frac{m^3}{hour}} \times \frac{\text{Fraction Absorbed}}{1.0} \times \frac{\text{Wks exp}}{\frac{1\ week}{year}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{mg}{m^3} \times \frac{m^3}{hour} \times 1.0 \times \frac{1\ week}{year} \times \frac{1\ year}{70\ years} \times \frac{1}{70\ kg} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	0.83	1.000	70	0.014	0.019	1.63E-16	1.00E-02	1.63E-18	0.00%
Xylenes	3.17E-05	3.17E-08	50	0.83	1.000	70	0.014	0.019	5.16E-12	2.00E+00	1.03E-11	85.38%
2-Methylphenol	1.44E-07	1.44E-10	50	0.83	1.000	70	0.014	0.019	2.34E-14	5.00E-02	1.17E-15	0.01%
4-Methylphenol	1.61E-07	1.61E-10	50	0.83	1.000	70	0.014	0.019	2.63E-14	5.00E-02	1.31E-15	0.01%
2,4-Dimethylphenol	2.01E-07	2.01E-10	50	0.83	1.000	70	0.014	0.019	3.27E-14	2.00E-02	6.54E-16	0.01%
Naphathalene	8.50E-08	8.50E-11	50	0.83	1.000	70	0.014	0.019	1.38E-14	4.00E-02	5.54E-16	0.00%
Fluorene	1.78E-07	1.78E-10	50	0.83	1.000	70	0.014	0.019	2.90E-14	4.00E-02	1.16E-15	0.01%
Pyrene	2.32E-07	2.32E-10	50	0.83	1.000	70	0.014	0.019	3.77E-14	3.00E-02	1.13E-15	0.01%
o-Toluic acid	1.19E-06	1.19E-09	50	0.83	1.000	70	0.014	0.019	1.94E-13	3.00E+00	5.81E-13	4.80%
m-Toluic acid	1.27E-06	1.27E-09	50	0.83	1.000	70	0.014	0.019	2.07E-13	3.00E+00	6.22E-13	5.15%
p-Toluic acid	1.14E-06	1.14E-09	50	0.83	1.000	70	0.014	0.019	1.86E-13	3.00E+00	5.59E-13	4.62%
									TOTAL HAZARD INDEX		1.21E-11	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Adults

$$\frac{\text{Air Conc}}{\frac{mg}{m^3}} \times \frac{\text{Inhalation Rate}}{\frac{m^3}{hour}} \times \frac{\text{Fraction Absorbed}}{1.0} \times \frac{\text{Wks exp}}{\frac{1\ week}{year}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{mg}{m^3} \times \frac{m^3}{hour} \times 1.0 \times \frac{1\ week}{year} \times \frac{1\ year}{70\ years} \times \frac{1}{70\ kg} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	1.2	1.000	70	0.014	0.019	2.36E-16	1.00E-02	2.36E-18	0.00%
Xylenes	8.81E-05	8.81E-08	50	1.2	1.000	70	0.014	0.019	2.08E-11	2.00E+00	4.15E-11	88.68%
2-Methylphenol	2.80E-07	2.80E-10	50	1.2	1.000	70	0.014	0.019	6.60E-14	5.00E-02	3.30E-15	0.01%
4-Methylphenol	1.40E-07	1.40E-10	50	1.2	1.000	70	0.014	0.019	3.30E-14	5.00E-02	1.65E-15	0.00%
2,4-Dimethylphenol	4.09E-07	4.09E-10	50	1.2	1.000	70	0.014	0.019	9.64E-14	2.00E-02	1.93E-15	0.00%
Naphathalene	1.40E-07	1.40E-10	50	1.2	1.000	70	0.014	0.019	3.30E-14	4.00E-02	1.32E-15	0.00%
Fluorene	3.85E-07	3.85E-10	50	1.2	1.000	70	0.014	0.019	9.07E-14	4.00E-02	3.63E-15	0.01%
Pyrene	4.69E-07	4.69E-10	50	1.2	1.000	70	0.014	0.019	1.10E-13	3.00E-02	3.31E-15	0.01%
o-Toluic acid	2.41E-06	2.41E-09	50	1.2	1.000	70	0.014	0.019	5.68E-13	3.00E+00	1.70E-12	3.64%
m-Toluic acid	2.74E-06	2.74E-09	50	1.2	1.000	70	0.014	0.019	6.44E-13	3.00E+00	1.93E-12	4.13%
p-Toluic acid	2.33E-06	2.33E-09	50	1.2	1.000	70	0.014	0.019	5.49E-13	3.00E+00	1.65E-12	3.52%
									TOTAL HAZARD INDEX		4.68E-11	

NON-CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \quad \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{0.9\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \quad \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{35\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	0.9	1.000	35	0.014	0.019	3.53E-16	1.00E-02	3.53E-18	0.00%
Xylenes	3.17E-05	3.17E-08	50	0.9	1.000	35	0.014	0.019	1.12E-11	2.00E+00	2.24E-11	85.38%
2-Methylphenol	1.44E-07	1.44E-10	50	0.9	1.000	35	0.014	0.019	5.08E-14	5.00E-02	2.54E-15	0.01%
4-Methylphenol	8.50E-08	8.50E-11	50	0.9	1.000	35	0.014	0.019	3.00E-14	5.00E-02	1.50E-15	0.01%
2,4-Dimethylphenol	2.01E-07	2.01E-10	50	0.9	1.000	35	0.014	0.019	7.09E-14	2.00E-02	1.42E-15	0.01%
Naphathalene	8.50E-08	8.50E-11	50	0.9	1.000	35	0.014	0.019	3.00E-14	4.00E-02	1.20E-15	0.00%
Fluorene	1.78E-07	1.78E-10	50	0.9	1.000	35	0.014	0.019	6.28E-14	4.00E-02	2.51E-15	0.01%
Pyrene	2.32E-07	2.32E-10	50	0.9	1.000	35	0.014	0.019	8.18E-14	3.00E-02	2.45E-15	0.01%
o-Toluic acid	1.19E-06	1.19E-09	50	0.9	1.000	35	0.014	0.019	4.20E-13	3.00E+00	1.26E-12	4.80%
m-Toluic acid	1.27E-06	1.27E-09	50	0.9	1.000	35	0.014	0.019	4.50E-13	3.00E+00	1.35E-12	5.15%
p-Toluic acid	1.14E-06	1.14E-09	50	0.9	1.000	35	0.014	0.019	4.04E-13	3.00E+00	1.21E-12	4.62%
									TOTAL HAZARD INDEX		2.62E-11	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{1.25\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \times \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{35\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	1.25	1.000	35	0.014	0.019	4.91E-16	1.00E-02	4.91E-18	0.00%
Xylenes	8.81E-05	8.81E-08	50	1.25	1.000	35	0.014	0.019	4.32E-11	2.00E+00	8.65E-11	88.67%
2-Methylphenol	2.80E-07	2.80E-10	50	1.25	1.000	35	0.014	0.019	1.37E-13	5.00E-02	6.87E-15	0.01%
4-Methylphenol	3.53E-07	3.53E-10	50	1.25	1.000	35	0.014	0.019	1.73E-13	5.00E-02	8.67E-15	0.01%
2,4-Dimethylphenol	4.09E-07	4.09E-10	50	1.25	1.000	35	0.014	0.019	2.01E-13	2.00E-02	4.02E-15	0.00%
Naphathalene	1.40E-07	1.40E-10	50	1.25	1.000	35	0.014	0.019	6.88E-14	4.00E-02	2.75E-15	0.00%
Fluorene	3.85E-07	3.85E-10	50	1.25	1.000	35	0.014	0.019	1.89E-13	4.00E-02	7.56E-15	0.01%
Pyrene	4.69E-07	4.69E-10	50	1.25	1.000	35	0.014	0.019	2.30E-13	3.00E-02	6.90E-15	0.01%
o-Toluic acid	2.41E-06	2.41E-09	50	1.25	1.000	35	0.014	0.019	1.18E-12	3.00E+00	3.55E-12	3.64%
m-Toluic acid	2.74E-06	2.74E-09	50	1.25	1.000	35	0.014	0.019	1.34E-12	3.00E+00	4.03E-12	4.13%
p-Toluic acid	2.33E-06	2.33E-09	50	1.25	1.000	35	0.014	0.019	1.14E-12	3.00E+00	3.43E-12	3.52%
									TOTAL HAZARD INDEX		9.75E-11	

TABLE H-19. FUTURE-USE SCENARIO - INHALATION OF SUSPENDED SOILS FROM AN EXCAVATION AREA
LANFDILL PERIMETER SOILS
RESIDENTIAL RECEPTOR (OFF-SITE)

This model calculates the risk associated with sediment suspended due to wind erosion, based upon Cowherd et al (1985) model.

Step 1 - Particle emission rate

Roughness height (Zo; cm):	1
Threshold friction velocity (U*; m/sec):	0.5
Threshold velocity at 7 m (Ut; m/sec):	8
Fraction of surface with vegetation (V):	0
Mean annual wind speed ([U]; m/sec):	4.4
Unitless velocity ratio (X):	1.61
Correction factor [F(x)]:	0.9
Respirable particulate emissions (E_{10}; g/m^2-hr):	0.005

Sources for variables:

Zo: Roughness height obtained from Cowherd document, Figure 3-6.
U*: Based upon surface particle size mode, from Cowherd document Figure 3-4.
Ut: Calculated from Cowherd Figure 4-1
V: Ranges from 0 (0%) to 1 (100%), based upon field observation
[U]: Mean annual wind speed, from local sources or Cowherd documet Table 4-1.
X: Calculated from Ut and U*
F(x): Based upon value of X, using Cowherd document, Figure 4-3.

Site data: Particle size mode (coarse to fine sand) was 0.5 mm based upon boring logs.
Ratio of windspeed at 7 m to friction velocity was 50.
Mean annual wind speed from Syracuse, NY area (Cowherd et al, 1985)

Ref: Cowherd, C., G.E. Muleski, P.J. Englehart and D.A. Gillette. 1985. Rapid assessment of exposure to particulate emissions from surface contamination sites. EPA-600/8-85/002

TABLE H-19 (Continued)

Step 2 - Contaminant Emission Rates

	AVERAGE CONCENTRATIONS					UCL CONCENTRATIONS				
Compound	Conc (ug/kg)	Emission Rate (g/m^2-hr)	Site area (m^2)	Emission Rate (ug/hr)	Short-range Air conc (ug/m^3)	Conc (ug/kg)	Emission Ra (g/m^2-hr)	Site area (m^2)	Emission Rate (ug/hr)	Short-range Air conc (ug/m^3)
Tetrachloroethene	2	0.005	334	3.60E-03	4.00E-10	5	0.005	334	9.00E-03	1.00E-09
Xylenes	53	0.005	334	9.45E-02	1.05E-08	145	0.005	334	2.60E-01	2.89E-08
2-Methylphenol	40	0.005	334	7.20E-02	8.00E-09	40	0.005	334	7.20E-02	8.00E-09
Naphthalene	170	0.005	334	3.06E-01	3.40E-08	200	0.005	334	3.60E-01	4.00E-08
Fluorene	187	0.005	334	3.37E-01	3.75E-08	222	0.005	334	4.00E-01	4.44E-08
Pyrene	344	0.005	334	6.19E-01	6.88E-08	629	0.005	334	1.13E+00	1.26E-07
Chysene	74	0.005	334	1.33E-01	1.48E-08	74	0.005	334	1.33E-01	1.48E-08
Total c-PAHs	245	0.005	334	4.41E-01	4.90E-08	254	0.005	334	4.57E-01	5.08E-08
o-Toluic acid	170	0.005	334	3.06E-01	3.40E-08	170	0.005	334	3.06E-01	3.40E-08
m-Toluic acid	120	0.005	334	2.16E-01	2.40E-08	120	0.005	334	2.16E-01	2.40E-08
4,4'-DDD	5.0	0.005	334	9.00E-03	1.00E-09	5.4	0.005	334	9.72E-03	1.08E-09
4,4'-DDE	7.3	0.005	334	1.31E-02	1.46E-09	11.6	0.005	334	2.09E-02	2.32E-09

Short range air concentration: Assumed 0.1 km from source center, using a conversion factor of 400 usec/m^3 (Figure 4-12 from Cowherd et al., 1985).

TABLE H-19 (Continued)

CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Hrs}}{\text{week}} \times \frac{\text{Wks exp}}{\text{Yr}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{0.8\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{50\ \text{hours}}{\text{week}} \times \frac{1\ \text{week}}{\text{year}} \times \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m3)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd Yrs lifetime	Wks expd Wks/year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	4.00E-10	4.00E-13	50	0.8	1.000	70	0.014	0.019	6.28E-17	1.80E-03	1.13E-19	0.00%
Total c-PAHs	4.90E-08	4.90E-11	50	0.8	1.000	70	0.014	0.019	7.69E-15	6.10E+00	4.69E-14	100.00%

TOTAL RISK 4.69E-14

CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Hrs}}{\text{week}} \times \frac{\text{Wks exp}}{\text{Yr}} \times \frac{\text{Yrs exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{1.25\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{50\ \text{hours}}{\text{week}} \times \frac{1\ \text{week}}{\text{year}} \times \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd Yrs lifetime	Wks expd year	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	1.25	1.000	70	0.014	0.019	2.45E-16	1.80E-03	4.42E-19	0.00%
Total c-PAHs	5.08E-08	5.08E-11	50	1.25	1.000	70	0.014	0.019	1.25E-14	6.10E+00	7.60E-14	100.00%

TOTAL RISK 7.60E-14

NON-CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \quad \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{\text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \quad \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	4.00E-10	4.00E-13	50	0.83	1.000	70	0.014	0.019	6.52E-17	1.00E-02	6.52E-19	0.00%
Xylenes	1.05E-08	1.05E-11	50	0.83	1.000	70	0.014	0.019	1.71E-15	2.00E+00	3.42E-15	10.48%
2-Methylphenol	8.00E-09	8.00E-12	50	0.83	1.000	70	0.014	0.019	1.30E-15	5.00E-02	6.52E-17	0.20%
Naphathalene	3.40E-08	3.40E-11	50	0.83	1.000	70	0.014	0.019	5.54E-15	4.00E-02	2.22E-16	0.68%
Fluorene	3.75E-08	3.75E-11	50	0.83	1.000	70	0.014	0.019	6.10E-15	4.00E-02	2.44E-16	0.75%
Pyrene	6.88E-08	6.88E-11	50	0.83	1.000	70	0.014	0.019	1.12E-14	3.00E-02	3.36E-16	1.03%
o-Toluic acid	3.40E-08	3.40E-11	50	0.83	1.000	70	0.014	0.019	5.54E-15	3.00E+00	1.66E-14	50.92%
m-Toluic acid	2.40E-08	2.40E-11	50	0.83	1.000	70	0.014	0.019	3.91E-15	3.00E+00	1.17E-14	35.94%
									TOTAL HAZARD INDEX		3.26E-14	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Adults

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{\text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \times \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{70\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	1.2	1.000	70	0.014	0.019	2.36E-16	1.00E-02	2.36E-18	0.00%
Xylenes	2.89E-08	2.89E-11	50	1.2	1.000	70	0.014	0.019	6.81E-15	2.00E+00	1.36E-14	24.15%
2-Methylphenol	8.00E-09	8.00E-12	50	1.2	1.000	70	0.014	0.019	1.88E-15	5.00E-02	9.42E-17	0.17%
Naphathalene	4.00E-08	4.00E-11	50	1.2	1.000	70	0.014	0.019	9.42E-15	4.00E-02	3.77E-16	0.67%
Fluorene	4.44E-08	4.44E-11	50	1.2	1.000	70	0.014	0.019	1.05E-14	4.00E-02	4.18E-16	0.74%
Pyrene	1.26E-07	1.26E-10	50	1.2	1.000	70	0.014	0.019	2.96E-14	3.00E-02	8.89E-16	1.58%
o-Toluic acid	3.40E-08	3.40E-11	50	1.2	1.000	70	0.014	0.019	8.01E-15	3.00E+00	2.40E-14	42.62%
m-Toluic acid	2.40E-08	2.40E-11	50	1.2	1.000	70	0.014	0.019	5.65E-15	3.00E+00	1.70E-14	30.08%
									TOTAL HAZARD INDEX		5.64E-14	

NON-CARCINOGENS - AVERAGE SOIL INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \quad \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{0.9\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \quad \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{35\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	4.00E-10	4.00E-13	50	0.9	1.000	35	0.014	0.019	1.41E-16	1.00E-02	1.41E-18	0.00%
Xylenes	1.05E-08	1.05E-11	50	0.9	1.000	35	0.014	0.019	3.71E-15	2.00E+00	7.42E-15	10.48%
2-Methylphenol	8.00E-09	8.00E-12	50	0.9	1.000	35	0.014	0.019	2.83E-15	5.00E-02	1.41E-16	0.20%
Naphathalene	3.40E-08	3.40E-11	50	0.9	1.000	35	0.014	0.019	1.20E-14	4.00E-02	4.80E-16	0.68%
Fluorene	3.75E-08	3.75E-11	50	0.9	1.000	35	0.014	0.019	1.32E-14	4.00E-02	5.29E-16	0.75%
Pyrene	6.88E-08	6.88E-11	50	0.9	1.000	35	0.014	0.019	2.43E-14	3.00E-02	7.29E-16	1.03%
o-Toluic acid	3.40E-08	3.40E-11	50	0.9	1.000	35	0.014	0.019	1.20E-14	3.00E+00	3.60E-14	50.92%
m-Toluic acid	2.40E-08	2.40E-11	50	0.9	1.000	35	0.014	0.019	8.48E-15	3.00E+00	2.54E-14	35.94%
									TOTAL HAZARD INDEX		7.08E-14	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM SOIL INHALATION EXPOSURE : Child

$$\text{Air Conc} \times \text{Inhalation Rate} \times \text{Fraction Absorbed} \times \frac{\text{Wks exp}}{\text{Yr}} \times \frac{\text{Years exp}}{\text{Lifetime}} \times \frac{1}{\text{Body weight}} = \text{ADD}$$

$$\frac{\text{mg}}{\text{m}^3} \times \frac{1.25\ \text{m}^3}{\text{hour}} \times 1.0 \times \frac{1\ \text{week}}{\text{year}} \times \frac{1\ \text{year}}{70\ \text{years}} \times \frac{1}{35\ \text{kg}} = \text{ADD}$$

Compound	Air conc (ug/m³)	Air conc (mg/m³)	Exp/week (hrs/wk)	Inhalation Rate (m³/hr)	Fraction absorbed	Body weight (kg)	Yrs expd / Yrs lifetime	Wks expd / Wks/year	ADD	RfD	RISK (ADD/RfD)	% TOTAL RISK
Tetrachloroethene	1.00E-09	1.00E-12	50	1.25	1.000	35	0.014	0.019	4.91E-16	1.00E-02	4.91E-18	0.00%
Xylenes	2.89E-08	2.89E-11	50	1.25	1.000	35	0.014	0.019	1.42E-14	2.00E+00	2.84E-14	24.15%
2-Methylphenol	8.00E-09	8.00E-12	50	1.25	1.000	35	0.014	0.019	3.93E-15	5.00E-02	1.96E-16	0.17%
Naphathalene	4.00E-08	4.00E-11	50	1.25	1.000	35	0.014	0.019	1.96E-14	4.00E-02	7.85E-16	0.67%
Fluorene	4.44E-08	4.44E-11	50	1.25	1.000	35	0.014	0.019	2.18E-14	4.00E-02	8.71E-16	0.74%
Pyrene	1.26E-07	1.26E-10	50	1.25	1.000	35	0.014	0.019	6.17E-14	3.00E-02	1.85E-15	1.58%
o-Toluic acid	3.40E-08	3.40E-11	50	1.25	1.000	35	0.014	0.019	1.67E-14	3.00E+00	5.01E-14	42.62%
m-Toluic acid	2.40E-08	2.40E-11	50	1.25	1.000	35	0.014	0.019	1.18E-14	3.00E+00	3.53E-14	30.08%
									TOTAL HAZARD INDEX		1.17E-13	

TABLE H-20. BASEMENT MODEL - INHALATION OF VOLATILE ORGANIC COMPOUNDS ENTERING BASEMENT FROM SOIL VAPOR (FS-4)
FUTURE-USE SCENARIO - Residential building

STEP 1 - Calculate average emission rate of vapors into basement

Analyte	SV Conc (ug/m^3)	SV Conc (g/cm^3)	MW (g/mol)	SV Conc (mol/cm^3)	Diff coeff[1] (cm^2/sec)	Contact Surface area (cm^2)	Soil porosity	Mole fraction (M)	Soil cover (cm)	Emission rate (g/sec)
1,1,1-Trichloroethane	1.00E+03	1.001E-09	133	7.526E-12	0.08447	1.20E+08	0.35	1.002E-02	15.2	1.646E-06
Trichloroethene	5.89E+02	5.894E-10	131	4.499E-12	0.08606	1.20E+08	0.35	5.991E-03	15.2	5.904E-07
Toluene	1.20E+03	1.204E-09	92	1.309E-11	0.08301	1.20E+08	0.35	1.743E-02	15.2	3.384E-06
Tetrachlorothene	1.74E+03	1.745E-09	166	1.051E-11	0.07852	1.20E+08	0.35	1.400E-02	15.2	3.726E-06
Ethyl benzene	1.95E+03	1.951E-09	106	1.840E-11	0.07070	1.20E+08	0.35	2.451E-02	15.2	6.568E-06
Xylenes	7.39E+04	7.387E-08	106	6.969E-10	0.07597	1.20E+08	0.35	9.281E-01	15.2	1.012E-02
			(SUM)	7.510E-10						

STEP 2 - Calculate average basement air concentration

Analyte	Soil Emission rate (g/sec)	Bldg Entry Rate (g/sec)	Ventilation rate (hr^{-1})	Bldg volume (m^3)	Bldg air conc (mg/m^3)
1,1,1-Trichloroethane	1.65E-06	1.65E-07	1	283	1.61E-09
Trichloroethene	5.90E-07	5.90E-08	1	283	5.79E-10
Toluene	3.38E-06	3.38E-07	1	283	3.32E-09
Tetrachlorothene	3.73E-06	3.73E-07	1	283	3.65E-09
Ethyl benzene	6.57E-06	6.57E-07	1	283	6.44E-09
Xylenes	1.01E-02	1.01E-03	1	283	9.93E-06

Building characteristics:

Soil total porosity:	0.35
Clean fill depth[2] (feet):	0.5
Building length (ft):	50
Building width (ft):	25
Soil contact depth (ft):	4
Length contact area (ft^2):	200
Width contact area (ft^2):	100
Total contact area (ft^2):	1,850
Soil contact depth (ft):	4
Basement depth (ft):	8
Total basement volume (ft^3):	10,000

Notes:
[1] Diffusion coefficients from USEPA (1988)
[2] Clean fill depth is the thickness of drainage layer fill separating foundation from existing (contaminated) soils.

STEP 1 - Calculate UCL emission rate of vapors into basement

Analyte	SV Conc (ug/m^3)	SV Conc (g/cm^3)	MW (g/mol)	SV Conc (mol/cm^3)	Diff coeff (cm^2/sec)	Surface area (cm^2)	Soil porosity	Mole fraction (M)	Soil cover (cm)	Emission rate (g/sec)
1,1,1-Trichloroethane	2.12E+03	2.116E-09	133	1.591E-11	0.08447	1.20E+08	0.35	2.119E-02	15.2	7.357E-06
Trichloroethene	1.18E+03	1.179E-09	131	8.998E-12	0.08606	1.20E+08	0.35	1.198E-02	15.2	2.361E-06
Toluene	2.03E+03	2.032E-09	92	2.209E-11	0.08301	1.20E+08	0.35	2.941E-02	15.2	9.637E-06
Tetrachlorothene	3.20E+03	3.205E-09	166	1.930E-11	0.07852	1.20E+08	0.35	2.571E-02	15.2	1.257E-05
Ethyl benzene	3.95E+03	3.945E-09	106	3.722E-11	0.07070	1.20E+08	0.35	4.956E-02	15.2	2.686E-05
Xylenes	2.30E+05	2.296E-07	106	2.166E-09	0.07597	1.20E+08	0.35	2.884E+00	15.2	9.775E-02
			(SUM)	2.270E-09						

STEP 2 - Calculate UCL basement air concentration

Analyte	Soil Emission rate (g/sec)	Bldg Entry Rate (g/sec)	Ventilation rate (hr^{-1})	Bldg volume (m^3)	Bldg air conc (mg/m^3)
1,1,1-Trichloroethane	7.36E-06	7.36E-07	1	283	7.22E-09
Trichloroethene	2.36E-06	2.36E-07	1	283	2.32E-09
Toluene	9.64E-06	9.64E-07	1	283	9.45E-09
Tetrachlorothene	1.26E-05	1.26E-06	1	283	1.23E-08
Ethyl benzene	2.69E-05	2.69E-06	1	283	2.63E-08
Xylenes	9.77E-02	9.77E-03	1	283	9.59E-05

STEP 3 - Risk Calculations

CARCINOGENS - AVERAGE INHALATION EXPOSUE: Adults

Compound	Air conc (mg/m^3)	Inhalation rate (m^3/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	ADD	SF	Risk (ADD*SF)	% total risk
Trichloroethene	5.79E-10	0.83	70	0.129	50	1.21E-13	1.70E-02	2.06E-15	59.94%
Tetrachloroethene	3.65E-09	0.83	70	0.129	50	7.63E-13	1.80E-03	1.37E-15	40.06%
							Total Risk	3.43E-15	

CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSUE

Compound	Air conc (mg/m^3)	Inhalation rate (m^3/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	CDI	SF	Risk (CDI*SF)	% total risk
Trichloroethene	2.32E-09	1.25	70	0.286	50	1.62E-12	1.70E-02	2.76E-14	63.96%
Tetrachloroethene	1.23E-08	1.25	70	0.286	50	8.62E-12	1.80E-03	1.55E-14	36.04%
							Total Risk	4.31E-14	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE; Adults

Analyte	Air conc (mg/m³)	Inhalation rate (m³/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	ADD	RfD	ADD/RfD	% Total Hazard
1,1,1-Trichloroethane	1.61E-09	0.83	70	0.129	50	3.37E-13	3.00E-01	1.12E-12	0.10%
Toluene	3.32E-09	0.83	70	0.129	50	6.93E-13	1.10E-01	6.30E-12	0.56%
Tetrachlorothene	3.65E-09	0.83	70	0.129	50	7.63E-13	1.00E-02	7.63E-11	6.79%
Ethyl benzene	6.44E-09	0.83	70	0.129	50	1.35E-12	2.90E-01	4.64E-12	0.41%
Xylenes	9.93E-06	0.83	70	0.129	50	2.07E-09	2.00E+00	1.04E-09	92.14%
						HAZARD INDEX		1.12E-09	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE

Analyte	Air conc (mg/m³)	Inhalation rate (m³/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	ADD	RfD	ADD/RfD	% Total Hazard
1,1,1-Trichloroethane	7.22E-09	1.25	70	0.429	50	7.57E-12	3.00E-01	2.52E-11	ERR
Toluene	9.45E-09	1.25	70	0.429	50	9.91E-12	1.10E-01	9.01E-11	ERR
Tetrachlorothene	1.23E-08	1.25	70	0.429	50	1.29E-11	1.00E-02	1.29E-09	ERR
Ethyl benzene	2.63E-08	1.25	70	0.429	50	2.76E-11	2.90E-01	9.52E-11	ERR
Xylenes	9.59E-05	1.25	70	0.429	50	1.01E-07	2.00E+00	5.03E-08	ERR
						HAZARD INDEX		5.18E-08	

NON-CARCINOGENS - AVERAGE INHALATION EXPOSURE; Child

Analyte	Air conc (mg/m³)	Inhalation rate (m³/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	CDI	RfD	CDI/RfD	% Total Hazard
1,1,1-Trichloroethane	1.61E-09	0.9	35	0.129	50	7.31E-13	3.00E-01	2.44E-12	0.10%
Toluene	3.32E-09	0.9	35	0.129	50	1.50E-12	1.10E-01	1.37E-11	0.56%
Tetrachlorothene	3.65E-09	0.9	35	0.129	50	1.66E-12	1.00E-02	1.66E-10	6.79%
Ethyl benzene	6.44E-09	0.9	35	0.129	50	2.92E-12	2.90E-01	1.01E-11	0.41%
Xylenes	9.93E-06	0.9	35	0.129	50	4.50E-09	2.00E+00	2.25E-09	92.14%
						HAZARD INDEX		2.44E-09	

NON-CARCINOGENS - PLAUSIBLE MAXIMUM INHALATION EXPOSURE; Child

Analyte	Air conc (mg/m³)	Inhalation rate (m³/hr)	Body weight (kg)	Yrs exp / Yrs lt	Wks exp / year	ADD	RfD	ADD/RfD	% Total Hazard
1,1,1-Trichloroethane	7.22E-09	1.25	35	0.129	50	4.54E-12	3.00E-01	1.51E-11	0.05%
Toluene	9.45E-09	1.25	35	0.129	50	5.95E-12	1.10E-01	5.41E-11	0.17%
Tetrachlorothene	1.23E-08	1.25	35	0.129	50	7.75E-12	1.00E-02	7.75E-10	2.50%
Ethyl benzene	2.63E-08	1.25	35	0.129	50	1.66E-11	2.90E-01	5.71E-11	0.18%
Xylenes	9.59E-05	1.25	35	0.129	50	6.03E-08	2.00E+00	3.02E-08	97.10%
						HAZARD INDEX		3.11E-08	

TABLE H-21. RESIDENTIAL USE OF GROUNDWATER - INGESTION PATHWAY (FS-5)
FUTURE-USE SCENARIO - Off-Site Upper Bedrock Well Use

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	1.4 L/day	x	1.0	x	1 / 70 kg	x	9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.50E-03	1.4	1.0	70	0.129	2.19E-05	1.10E-02	2.41E-07	100.00%
							TOTAL RISK	2.41E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 70 kg	x	30 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.20E-02	2	1.0	70	0.429	1.47E-04	1.10E-02	1.62E-06	100.00%
							TOTAL RISK	1.62E-06	

Note: Database from wells MW-7I and MW-16I (Round 2 only).

TABLE H-21 (Continued)

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.4\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Years exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	1.4	1.0	70	1.29E-01	2.23E-03	2.00E-02	1.11E-01	13.29%
Xylenes	3.95E-01	1.4	1.0	70	1.29E-01	7.90E-03	2.00E+00	3.95E-03	0.47%
o-Toluic acid	3.43E+01	1.4	1.0	70	1.29E-01	6.85E-01	3.00E+00	2.28E-01	27.21%
m-Toluic acid	2.16E+01	1.4	1.0	70	1.29E-01	4.32E-01	3.00E+00	1.44E-01	17.16%
p-Toluic acid	8.10E+00	1.4	1.0	70	1.29E-01	1.62E-01	3.00E+00	5.40E-02	6.43%
Arsenic	7.78E-02	1.4	0.05	70	1.29E-01	7.78E-05	3.00E-04	2.59E-01	30.91%
Barium	3.80E-01	1.4	0.05	70	1.29E-01	3.80E-04	7.00E-02	5.43E-03	0.65%
Cadmium	6.80E-03	1.4	0.06	70	1.29E-01	8.16E-06	5.00E-04	1.63E-02	1.95%
Lead	2.50E-02	1.4	0.06	70	1.29E-01	3.00E-05	3.00E-02	1.00E-03	0.12%
Vanadium	1.06E-01	1.4	0.05	70	1.29E-01	1.06E-04	7.00E-03	1.52E-02	1.81%
						HAZARD INDEX		8.39E-01	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.15\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	1.15	1.0	35	1.29E-01	4.73E-04	2.00E-02	2.36E-02	13.29%
Xylenes	3.95E-01	1.15	1.0	35	1.29E-01	1.67E-03	2.00E+00	8.37E-04	0.47%
o-Toluic acid	3.43E+01	1.15	1.0	35	1.29E-01	1.45E-01	3.00E+00	4.84E-02	27.22%
m-Toluic acid	2.16E+01	1.15	1.0	35	1.29E-01	9.16E-02	3.00E+00	3.05E-02	17.17%
p-Toluic acid	8.10E+00	1.15	1.0	35	1.29E-01	3.43E-02	3.00E+00	1.14E-02	6.43%
Arsenic	7.78E-02	1.15	0.05	35	1.29E-01	1.65E-05	3.00E-04	5.50E-02	30.92%
Barium	3.80E-01	1.15	0.05	35	1.29E-01	8.05E-05	7.00E-02	1.15E-03	0.65%
Cadmium	6.80E-03	1.15	0.06	35	1.29E-01	1.73E-06	5.00E-04	3.46E-03	1.95%
Lead	2.50E-02	1.15	0.05	35	1.29E-01	5.30E-06	3.00E-02	1.77E-04	0.10%
Vanadium	1.06E-01	1.15	0.05	35	1.29E-01	2.25E-05	7.00E-03	3.22E-03	1.81%
						HAZARD INDEX		1.78E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	=	CDI (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 70 kg	x	30 / 70	=	CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	2.00E-01	2	1.0	70	4.29E-01	5.71E-03	2.00E-02	2.86E-01	12.41%
Xylenes	4.80E-01	2	1.0	70	4.29E-01	1.37E-02	2.00E+00	6.86E-03	0.30%
o-Toluic acid	8.40E+01	2	1.0	70	4.29E-01	2.40E+00	3.00E+00	8.00E-01	34.75%
m-Toluic acid	4.20E+01	2	1.0	70	4.29E-01	1.20E+00	3.00E+00	4.00E-01	17.38%
p-Toluic acid	1.80E+01	2	1.0	70	4.29E-01	5.14E-01	3.00E+00	1.71E-01	7.45%
Arsenic	1.14E-01	2	0.05	70	4.29E-01	1.63E-04	3.00E-04	5.43E-01	23.58%
Barium	8.38E-01	2	0.06	70	4.29E-01	1.44E-03	7.00E-02	2.05E-02	0.89%
Cadmium	1.21E-02	2	0.05	70	4.29E-01	1.73E-05	5.00E-04	3.46E-02	1.50%
Lead	3.17E-02	2	0.05	70	4.29E-01	4.53E-05	3.00E-02	1.51E-03	0.07%
Vanadium	1.88E-01	2	0.05	70	4.29E-01	2.69E-04	7.00E-03	3.84E-02	1.67%
						HAZARD INDEX		2.30E+00	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child (0-17 years)

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	=	CDI (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 35 kg	x	9 / 70	=	CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	2.00E-01	2	1.0	35	1.29E-01	1.47E-03	2.00E-02	7.37E-02	12.39%
Xylenes	4.80E-01	2	1.0	35	1.29E-01	3.54E-03	2.00E+00	1.77E-03	0.30%
o-Toluic acid	8.40E+01	2	1.0	35	1.29E-01	6.19E-01	3.00E+00	2.06E-01	34.70%
m-Toluic acid	4.20E+01	2	1.0	35	1.29E-01	3.10E-01	3.00E+00	1.03E-01	17.35%
p-Toluic acid	1.80E+01	2	1.0	35	1.29E-01	1.33E-01	3.00E+00	4.42E-02	7.44%
Arsenic	1.14E-01	2	0.05	35	1.29E-01	4.20E-05	3.00E-04	1.40E-01	23.54%
Barium	8.38E-01	2	0.05	35	1.29E-01	3.09E-04	7.00E-02	4.41E-03	0.74%
Cadmium	1.21E-02	2	0.06	35	1.29E-01	5.35E-06	5.00E-04	1.07E-02	1.80%
Lead	3.17E-02	2	0.06	35	1.29E-01	1.40E-05	3.00E-02	4.67E-04	0.08%
Vanadium	1.88E-01	2	0.05	35	1.29E-01	6.93E-05	7.00E-03	9.90E-03	1.66%
						HAZARD INDEX		5.95E-01	

TABLE H-22. RESIDENTIAL USE OF GROUNDWATER - INGESTION PATHWAY
FUTURE-USE SCENARIO - Off-Site Deep Bedrock Well Use

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	1.4 L/day	x	1.0	x	1 / 70 kg	x	9 yrs / 70 yrs	= CDI

Group	Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Trichloroethene	4.00E-03	1.4	1.0	70	0.129	1.03E-05	1.10E-02	1.14E-07	10.97%
	Tetrachloroethene	7.00E-03	1.4	1.0	70	0.129	1.81E-05	5.10E-02	9.21E-07	89.03%
								TOTAL RISK	1.03E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 70 kg	x	30 yrs / 70 yrs	= CDI

Group	Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Adults	Trichloroethene	4.00E-03	2	1.0	70	0.429	4.90E-05	1.10E-02	5.39E-07	10.97%
	Tetrachloroethene	7.00E-03	2	1.0	70	0.429	8.58E-05	5.10E-02	4.38E-06	89.03%
								TOTAL RISK	4.92E-06	

Note: Database from wells MW-7D, MW-16D and MW-17D (Round 2 only)

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.4\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Group	Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Years exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Adults	Acetone	1.90E-02	1.4	1.0	70	0.129	3.80E-04	1.00E-01	3.80E-03	1.25%
	1,1-Dichloroethane	5.00E-03	1.4	1.0	70	0.129	1.00E-04	1.00E-02	1.00E-02	3.28%
	1,2-Dichloroethene	4.00E-03	1.4	1.0	70	0.129	8.00E-05	2.00E-02	4.00E-03	1.31%
	Tetrachloroethene	4.00E-03	1.4	1.0	70	0.129	8.00E-05	1.00E-02	8.00E-03	2.63%
	Xylenes	1.13E-01	1.4	1.0	70	0.129	2.27E-03	2.00E+00	1.13E-03	0.37%
	2-Methylphenol	6.70E-03	1.4	1.0	70	0.129	1.34E-04	5.00E-02	2.68E-03	0.88%
	Pentachlorophenol	2.83E-02	1.4	1.0	70	0.129	5.66E-04	3.00E-02	1.89E-02	6.19%
	o-Toluic acid	5.68E+00	1.4	1.0	70	0.129	1.14E-01	3.00E+00	3.79E-02	12.43%
	m-Toluic acid	5.68E+00	1.4	1.0	70	0.129	1.14E-01	3.00E+00	3.79E-02	12.43%
	p-Toluic acid	4.50E-01	1.4	1.0	70	0.129	9.00E-03	3.00E+00	3.00E-03	0.98%
	Arsenic	5.03E-02	1.4	0.05	70	0.129	5.03E-05	3.00E-04	1.68E-01	55.03%
	Cadmium	4.00E-03	1.4	0.06	70	0.129	4.80E-06	5.00E-04	9.60E-03	3.15%
	Lead	5.30E-03	1.4	0.05	70	0.129	5.30E-06	3.00E-02	1.77E-04	0.06%
							HAZARD INDEX		3.05E-01	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.15\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Group	Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Child	Acetone	1.90E-02	1.15	1.0	35	0.129	8.03E-05	1.00E-01	8.03E-04	1.25%
	1,1-Dichloroethane	5.00E-03	1.15	1.0	35	0.129	2.11E-05	1.00E-02	2.11E-03	3.28%
	1,2-Dichloroethene	4.00E-03	1.15	1.0	35	0.129	1.69E-05	2.00E-02	8.45E-04	1.31%
	Tetrachloroethene	4.00E-03	1.15	1.0	35	0.129	1.69E-05	1.00E-02	1.69E-03	2.63%
	Xylenes	1.13E-01	1.15	1.0	35	0.129	4.79E-04	2.00E+00	2.39E-04	0.37%
	2-Methylphenol	6.70E-03	1.15	1.0	35	0.129	2.83E-05	5.00E-02	5.66E-04	0.88%
	Pentachlorophenol	2.83E-02	1.15	1.0	35	0.129	1.20E-04	3.00E-02	3.99E-03	6.19%
	o-Toluic acid	5.68E+00	1.15	1.0	35	0.129	2.40E-02	3.00E+00	8.00E-03	12.43%
	m-Toluic acid	5.68E+00	1.15	1.0	35	0.129	2.40E-02	3.00E+00	8.00E-03	12.43%
	p-Toluic acid	4.50E-01	1.15	1.0	35	0.129	1.90E-03	3.00E+00	6.34E-04	0.98%
	Arsenic	5.03E-02	1.15	0.05	35	0.129	1.06E-05	3.00E-04	3.54E-02	55.03%
	Cadmium	4.00E-03	1.15	0.06	35	0.129	1.01E-06	5.00E-04	2.03E-03	3.15%
	Lead	5.30E-03	1.15	0.05	35	0.129	1.12E-06	3.00E-02	3.73E-05	0.06%
							HAZARD INDEX		6.44E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	=	CDI (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 70 kg	x	30 / 70	=	CDI (mg/kg-day)

Group	Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Adults	Acetone	4.51E-02	2	1.0	70	0.429	1.29E-03	1.00E-01	1.29E-02	1.13%
	1,1-Dichloroethane	5.00E-03	2	1.0	70	0.429	1.43E-04	1.00E-02	1.43E-02	1.25%
	1,2-Dichloroethene	4.00E-03	2	1.0	70	0.429	1.14E-04	2.00E-02	5.71E-03	0.50%
	Tetrachloroethene	4.00E-03	2	1.0	70	0.429	1.14E-04	1.00E-02	1.14E-02	1.00%
	Xylenes	3.15E-01	2	1.0	70	0.429	9.01E-03	2.00E+00	4.50E-03	0.40%
	2-Methylphenol	9.80E-03	2	1.0	70	0.429	2.80E-04	5.00E-02	5.60E-03	0.49%
	Pentachlorophenol	5.78E-02	2	1.0	70	0.429	1.65E-03	3.00E-02	5.50E-02	4.83%
	o-Toluic acid	1.62E+01	2	1.0	70	0.429	4.64E-01	3.00E+00	1.55E-01	13.57%
	m-Toluic acid	1.62E+01	2	1.0	70	0.429	4.64E-01	3.00E+00	1.55E-01	13.57%
	p-Toluic acid	1.24E+00	2	1.0	70	0.429	3.55E-02	3.00E+00	1.18E-02	1.04%
	Arsenic	1.42E-01	2	0.05	70	0.429	2.03E-04	3.00E-04	6.78E-01	59.51%
	Cadmium	8.80E-03	2	0.06	70	0.429	1.51E-05	5.00E-04	3.02E-02	2.65%
	Lead	1.06E-02	2	0.05	70	0.429	1.51E-05	3.00E-02	5.05E-04	0.04%
							HAZARD INDEX			1.14E+00

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	=	CDI (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 35 kg	x	9 / 70	=	CDI (mg/kg-day)

Group	Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Child	Acetone	4.51E-02	2	1.0	35	0.129	3.31E-04	1.00E-01	3.31E-03	1.13%
	1,1-Dichloroethane	5.00E-03	2	1.0	35	0.129	3.67E-05	1.00E-02	3.67E-03	1.25%
	1,2-Dichloroethene	4.00E-03	2	1.0	35	0.129	2.94E-05	2.00E-02	1.47E-03	0.50%
	Tetrachloroethene	4.00E-03	2	1.0	35	0.129	2.94E-05	1.00E-02	2.94E-03	1.00%
	Xylenes	3.15E-01	2	1.0	35	0.129	2.32E-03	2.00E+00	1.16E-03	0.40%
	2-Methylphenol	9.80E-03	2	1.0	35	0.129	7.20E-05	5.00E-02	1.44E-03	0.49%
	Pentachlorophenol	5.78E-02	2	1.0	35	0.129	4.25E-04	3.00E-02	1.42E-02	4.83%
	o-Toluic acid	1.62E+01	2	1.0	35	0.129	1.19E-01	3.00E+00	3.97E-02	13.57%
	m-Toluic acid	1.62E+01	2	1.0	35	0.129	1.19E-01	3.00E+00	3.97E-02	13.57%
	p-Toluic acid	1.24E+00	2	1.0	35	0.129	9.12E-03	3.00E+00	3.04E-03	1.04%
	Arsenic	1.42E-01	2	0.05	35	0.129	5.23E-05	3.00E-04	1.74E-01	59.51%
	Cadmium	8.80E-03	2	0.06	35	0.129	3.88E-06	5.00E-04	7.76E-03	2.65%
	Lead	1.06E-02	2	0.05	35	0.129	3.89E-06	3.00E-02	1.30E-04	0.04%
							HAZARD INDEX			2.93E-01

TABLE H-23. RESIDENTIAL USE OF GROUNDWATER - INGESTION PATHWAY (FS-5)
FUTURE-USE SCENARIO - Off-Site Mixed Bedrock Well Use

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	1.4 L/day	x	1.0	x	1 / 70 kg	x	9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.50E-03	1.4	1.0	70	0.129	2.19E-05	1.10E-02	2.41E-07	14.29%
Tetrachloroethene	1.10E-02	1.4	1.0	70	0.129	2.84E-05	5.10E-02	1.45E-06	85.71%
							TOTAL RISK	1.69E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	2 L/day	x	1.0	x	1 / 70 kg	x	30 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.19E-02	2	1.0	70	0.429	1.46E-04	1.10E-02	1.60E-06	18.92%
Tetrachloroethene	1.10E-02	2	1.0	70	0.429	1.35E-04	5.10E-02	6.88E-06	81.08%
							TOTAL RISK	8.48E-06	

Note: Database from wells MW-7I, MW-16I, MW-7D, MW-16D and MW-17D (Round 2 only).

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.4\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Years exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	1.4	1.0	70	1.29E-01	2.23E-03	2.00E-02	1.11E-01	18.85%
Tetrachloroethene	1.10E-02	1.4	1.0	70	1.29E-01	2.20E-04	1.00E-02	2.20E-02	3.72%
o-Toluic acid	1.80E+01	1.4	1.0	70	1.29E-01	3.60E-01	3.00E+00	1.20E-01	20.29%
m-Toluic acid	1.23E+01	1.4	1.0	70	1.29E-01	2.46E-01	3.00E+00	8.19E-02	13.84%
p-Toluic acid	3.54E+00	1.4	1.0	70	1.29E-01	7.08E-02	3.00E+00	2.36E-02	3.99%
Arsenic	6.24E-02	1.4	0.05	70	1.29E-01	6.24E-05	3.00E-04	2.08E-01	35.16%
Barium	2.07E-01	1.4	0.05	70	1.29E-01	2.07E-04	7.00E-02	2.96E-03	0.50%
Cadmium	5.10E-03	1.4	0.06	70	1.29E-01	6.12E-06	5.00E-04	1.22E-02	2.07%
Lead	1.30E-02	1.4	0.05	70	1.29E-01	1.30E-05	3.00E-02	4.33E-04	0.07%
Vanadium	6.22E-02	1.4	0.05	70	1.29E-01	6.22E-05	7.00E-03	8.89E-03	1.50%
						HAZARD INDEX		5.92E-01	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.15\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	1.15	1.0	35	1.29E-01	4.73E-04	2.00E-02	2.36E-02	18.73%
Tetrachloroethene	1.10E-02	1.15	1.0	35	1.29E-01	4.66E-05	1.00E-02	4.66E-03	3.69%
o-Toluic acid	1.80E+01	1.15	1.0	35	1.29E-01	7.63E-02	3.00E+00	2.54E-02	20.16%
m-Toluic acid	1.23E+01	1.15	1.0	35	1.29E-01	5.21E-02	3.00E+00	1.74E-02	13.75%
p-Toluic acid	3.54E+00	1.15	1.0	35	1.29E-01	1.50E-02	3.00E+00	5.00E-03	3.96%
Arsenic	6.24E-02	1.15	0.05	35	1.29E-01	1.32E-05	3.00E-04	4.41E-02	34.93%
Barium	2.07E-01	1.15	0.05	35	1.29E-01	4.39E-05	7.00E-02	6.27E-04	0.50%
Cadmium	5.10E-03	1.15	0.06	35	1.29E-01	1.30E-06	5.00E-04	2.59E-03	2.06%
Lead	1.30E-01	1.15	0.05	35	1.29E-01	2.76E-05	3.00E-02	9.18E-04	0.73%
Vanadium	6.22E-02	1.15	0.05	35	1.29E-01	1.32E-05	7.00E-03	1.88E-03	1.49%
						HAZARD INDEX		1.26E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 2\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{30}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.98E-01	2	1.0	70	4.29E-01	5.67E-03	2.00E-02	2.83E-01	13.81%
Tetrachloroethene	1.10E-02	2	1.0	70	4.29E-01	3.14E-04	1.00E-02	3.14E-02	1.53%
o-Toluic acid	6.40E+01	2	1.0	70	4.29E-01	1.83E+00	3.00E+00	6.10E-01	29.70%
m-Toluic acid	4.20E+01	2	1.0	70	4.29E-01	1.20E+00	3.00E+00	4.00E-01	19.49%
p-Toluic acid	1.60E+01	2	1.0	70	4.29E-01	4.57E-01	3.00E+00	1.52E-01	7.43%
Arsenic	1.08E-01	2	0.05	70	4.29E-01	1.55E-04	3.00E-04	5.16E-01	25.13%
Barium	3.85E-01	2	0.05	70	4.29E-01	5.50E-04	7.00E-02	7.86E-03	0.38%
Cadmium	8.70E-03	2	0.06	70	4.29E-01	1.49E-05	5.00E-04	2.98E-02	1.45%
Lead	2.20E-02	2	0.05	70	4.29E-01	3.14E-05	3.00E-02	1.05E-03	0.05%
Vanadium	1.02E-01	2	0.05	70	4.29E-01	1.46E-04	7.00E-03	2.09E-02	1.02%
						HAZARD INDEX		2.05E+00	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 2\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.98E-01	2	1.0	35	1.29E-01	1.46E-03	2.00E-02	7.31E-02	13.41%
Tetrachloroethene	1.10E-02	2	1.0	35	1.29E-01	8.11E-05	1.00E-02	8.11E-03	1.49%
o-Toluic acid	6.40E+01	2	1.0	35	1.29E-01	4.72E-01	3.00E+00	1.57E-01	28.83%
m-Toluic acid	4.20E+01	2	1.0	35	1.29E-01	3.10E-01	3.00E+00	1.03E-01	18.92%
p-Toluic acid	1.60E+01	2	1.0	35	1.29E-01	1.18E-01	3.00E+00	3.93E-02	7.21%
Arsenic	1.08E-01	2	0.05	35	1.29E-01	3.99E-05	3.00E-04	1.33E-01	24.40%
Barium	3.85E-01	2	0.05	35	1.29E-01	1.42E-04	7.00E-02	2.03E-03	0.37%
Cadmium	8.70E-03	2	0.06	35	1.29E-01	3.85E-06	5.00E-04	7.70E-03	1.41%
Lead	2.20E-02	2	0.05	35	1.29E-01	8.11E-06	5.00E-04	1.62E-02	2.97%
Vanadium	1.02E-01	2	0.05	35	1.29E-01	3.77E-05	7.00E-03	5.39E-03	0.99%
						HAZARD INDEX		5.45E-01	

TABLE H-24. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure (FS-6)
FUTURE-USE SCENARIO - Off-Site Upper Bedrock Wells

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.50E-03	8.00E-04	2.6	26	0.129	18,150	70	1.53E-05	1.10E-02	1.69E-07	100.00%
									TOTAL RISK	1.69E-07	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs/day	x	26 days/yr	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.20E-02	8.00E-04	2.6	26	0.429	18,150	70	7.21E-05	1.10E-02	7.93E-07	100.00%
									TOTAL RISK	7.93E-07	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	8.00E-04	2.6	26	0.129	18,150	70	2.02E-04	1.00E-01	2.02E-03	4.67%
Xylenes	3.95E-01	8.00E-04	2.6	26	0.129	18,150	70	7.12E-04	2.00E+00	3.56E-04	0.82%
o-Toluic acid	3.43E+01	8.00E-04	2.6	26	0.129	18,150	70	6.18E-02	3.00E+00	2.06E-02	47.64%
m-Toluic acid	2.16E+01	8.00E-04	2.6	26	0.129	18,150	70	3.89E-02	3.00E+00	1.30E-02	30.00%
p-Toluic acid	8.10E+00	8.00E-04	2.6	26	0.129	18,150	70	1.46E-02	2.00E+00	7.30E-03	16.87%

HAZ INDEX 4.33E-02

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.00E-01	8.00E-04	2.6	45	0.129	9,400	35	6.46E-04	1.00E-01	6.46E-03	8.48%
Xylenes	4.80E-01	8.00E-04	2.6	45	0.129	9,400	35	1.55E-03	2.00E+00	7.76E-04	1.02%
o-Toluic acid	3.43E+01	8.00E-04	2.6	45	0.129	9,400	35	1.11E-01	3.00E+00	3.70E-02	48.50%
m-Toluic acid	2.16E+01	8.00E-04	2.6	45	0.129	9,400	35	6.98E-02	3.00E+00	2.33E-02	30.54%
p-Toluic acid	8.10E+00	8.00E-04	2.6	45	0.129	9,400	35	2.62E-02	3.00E+00	8.73E-03	11.45%

HAZ INDEX 7.62E-02

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.00E-01	8.00E-04	2.6	26	0.429	18,150	70	1.20E-03	1.00E-01	1.20E-02	3.98%
Xylenes	4.80E-01	8.00E-04	2.6	26	0.429	18,150	70	2.88E-03	2.00E+00	1.44E-03	0.48%
o-Toluic acid	8.40E+01	8.00E-04	2.6	26	0.429	18,150	70	5.05E-01	3.00E+00	1.68E-01	55.73%
m-Toluic acid	4.20E+01	8.00E-04	2.6	26	0.429	18,150	70	2.52E-01	3.00E+00	8.41E-02	27.87%
p-Toluic acid	1.80E+01	8.00E-04	2.6	26	0.429	18,150	70	1.08E-01	3.00E+00	3.61E-02	11.94%

HAZ INDEX 3.02E-01

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.00E-01	8.00E-04	2.6	45	0.129	9,400	35	6.46E-04	1.00E-01	6.46E-03	2.14%
Xylenes	4.80E-01	8.00E-04	2.6	45	0.129	9,400	35	1.55E-03	2.00E+00	7.76E-04	0.26%
o-Toluic acid	8.40E+01	8.00E-04	2.6	45	0.129	9,400	35	2.71E-01	3.00E+00	9.05E-02	29.97%
m-Toluic acid	4.20E+01	8.00E-04	2.6	45	0.129	9,400	35	1.36E-01	3.00E+00	4.52E-02	14.99%
p-Toluic acid	1.80E+01	8.00E-04	2.6	45	0.129	9,400	35	5.82E-02	3.00E+00	1.94E-02	6.42%

HAZ INDEX 1.62E-01

TABLE H-25. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure (FS-6)
FUTURE-USE SCENARIO - Off-Site Deep Bedrock Wells

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.129	18,150	70	7.21E-06	1.10E-02	7.93E-08	10.97%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	26	0.129	18,150	70	1.26E-05	5.10E-02	6.44E-07	89.03%
									TOTAL RISK	7.23E-07	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs/day	x	26 days/yr	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.429	18,150	70	2.40E-05	1.10E-02	2.64E-07	10.97%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	26	0.429	18,150	70	4.21E-05	5.10E-02	2.15E-06	89.03%
									TOTAL RISK	2.41E-06	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	1.90E-02	8.00E-04	2.6	26	0.129	18,150	70	3.43E-05	1.00E-01	3.43E-04	11.54%
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	26	0.129	18,150	70	7.21E-06	2.00E-02	3.61E-04	12.15%
1,1-Dichloroethane	5.00E-03	8.00E-04	2.6	26	0.129	18,150	70	9.01E-06	1.00E-02	9.01E-04	30.37%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	26	0.129	18,150	70	1.26E-05	1.00E-02	1.26E-03	42.51%
Xylenes	1.13E-01	8.00E-04	2.6	26	0.129	18,150	70	2.04E-04	2.00E+00	1.02E-04	3.43%
									HAZ INDEX	2.97E-03	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	1.90E-02	8.00E-04	2.6	45	0.129	9,400	35	6.14E-05	1.00E-01	6.14E-04	11.54%
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.29E-05	2.00E-02	6.46E-04	12.15%
1,1-Dichloroethane	5.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.62E-05	1.00E-02	1.62E-03	30.37%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	45	0.129	9,400	35	2.26E-05	1.00E-02	2.26E-03	42.51%
Xylenes	1.13E-01	8.00E-04	2.6	45	0.129	9,400	35	3.65E-04	2.00E+00	1.83E-04	3.43%
									HAZ INDEX	5.32E-03	

TABLE H-25. Continued

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	4.51E-02	8.00E-04	2.6	26	0.429	18,150	70	2.71E-04	1.00E-01	2.71E-03	22.45%
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	26	0.429	18,150	70	2.40E-05	2.00E-02	1.20E-03	9.96%
1,1-Dichloroethane	5.00E-03	8.00E-04	2.6	26	0.429	18,150	70	3.00E-05	1.00E-02	3.00E-03	24.89%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	26	0.429	18,150	70	4.21E-05	1.00E-02	4.21E-03	34.85%
Xylenes	3.15E-01	8.00E-04	2.6	26	0.429	18,150	70	1.89E-03	2.00E+00	9.46E-04	7.84%
									HAZ INDEX	1.21E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	4.51E-02	8.00E-04	2.6	45	0.129	9,400	35	1.46E-04	2.00E-02	7.29E-03	60.38%
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.29E-05	1.00E-02	1.29E-03	10.71%
1,1-Dichloroethane	5.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.62E-05	3.00E+00	5.39E-06	0.04%
Tetrachloroethene	7.00E-03	8.00E-04	2.6	45	0.129	9,400	35	2.26E-05	3.00E+00	7.54E-06	0.06%
Xylenes	3.15E-01	8.00E-04	2.6	45	0.129	9,400	35	1.02E-03	3.00E+00	3.39E-04	2.81%
									HAZ INDEX	8.93E-03	

TABLE H-26. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - Off-Site Mixed Bedrock Wells

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.50E-03	8.00E-04	2.6	26	0.129	18,150	70	1.53E-05	1.10E-02	1.69E-07	14.29%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	26	0.129	18,150	70	1.98E-05	5.10E-02	1.01E-06	85.71%
									TOTAL RISK	1.18E-06	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs/day	x	26 days/yr	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.19E-02	8.00E-04	2.6	26	0.429	18,150	70	7.15E-05	1.10E-02	7.87E-07	18.92%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	26	0.429	18,150	70	6.61E-05	5.10E-02	3.37E-06	81.08%
									TOTAL RISK	4.16E-06	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	8.00E-04	2.6	26	0.129	18,150	70	2.02E-04	2.00E-02	1.01E-02	31.15%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	26	0.129	18,150	70	1.98E-05	1.00E-02	1.98E-03	6.12%
o-Toluic acid	1.80E+01	8.00E-04	2.6	26	0.129	18,150	70	3.25E-02	3.00E+00	1.08E-02	33.37%
m-Toluic acid	1.23E+01	8.00E-04	2.6	26	0.129	18,150	70	2.22E-02	3.00E+00	7.39E-03	22.80%
p-Toluic acid	3.54E+00	8.00E-04	2.6	26	0.129	18,150	70	6.38E-03	3.00E+00	2.13E-03	6.56%

HAZ INDEX 3.24E-02

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.12E-01	8.00E-04	2.6	45	0.129	9,400	35	3.62E-04	2.00E-02	1.81E-02	31.15%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	45	0.129	9,400	35	3.56E-05	1.00E-02	3.56E-03	6.12%
o-Toluic acid	1.80E+01	8.00E-04	2.6	45	0.129	9,400	35	5.82E-02	3.00E+00	1.94E-02	33.37%
m-Toluic acid	1.23E+01	8.00E-04	2.6	45	0.129	9,400	35	3.98E-02	3.00E+00	1.33E-02	22.80%
p-Toluic acid	3.54E+00	8.00E-04	2.6	45	0.129	9,400	35	1.14E-02	3.00E+00	3.81E-03	6.56%

HAZ INDEX 5.81E-02

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.98E-01	8.00E-04	2.6	26	0.429	18,150	70	1.19E-03	2.00E-02	5.95E-02	19.16%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	26	0.429	18,150	70	6.61E-05	1.00E-02	6.61E-03	2.13%
o-Toluic acid	6.40E+01	8.00E-04	2.6	26	0.429	18,150	70	3.85E-01	3.00E+00	1.28E-01	41.29%
m-Toluic acid	4.20E+01	8.00E-04	2.6	26	0.429	18,150	70	2.52E-01	3.00E+00	8.41E-02	27.10%
p-Toluic acid	1.60E+01	8.00E-04	2.6	26	0.429	18,150	70	9.62E-02	3.00E+00	3.21E-02	10.32%

HAZ INDEX 3.10E-01

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.98E-01	8.00E-04	2.6	45	0.129	9,400	35	6.40E-04	2.00E-02	3.20E-02	10.31%
Tetrachloroethene	1.10E-02	8.00E-04	2.6	45	0.129	9,400	35	3.56E-05	1.00E-02	3.56E-03	1.15%
o-Toluic acid	6.40E+01	8.00E-04	2.6	45	0.129	9,400	35	2.07E-01	3.00E+00	6.90E-02	22.21%
m-Toluic acid	4.20E+01	8.00E-04	2.6	45	0.129	9,400	35	1.36E-01	3.00E+00	4.52E-02	14.57%
p-Toluic acid	1.60E+01	8.00E-04	2.6	45	0.129	9,400	35	5.17E-02	3.00E+00	1.72E-02	5.55%

HAZ INDEX 1.67E-01

TABLE H-27. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING (FS-7)
FUTURE-USE SCENARIO RESIDENTIAL - OFF-SITE WELLS
Upper Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	8.5	1	2	3.392

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	3.392	10	6	5.653	0.5	15	20	0.927

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.5	0.83	5.653	70	0.5	15	20	0.129	2.56E-04	1.70E-02	4.35E-06	100.0%
									TOTAL RISK		4.35E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	12	1	2	4.788

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	4.788	10	6	7.980	0.5	15	20	1.309

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	12.0	0.83	7.980	70	0.5	15	20	0.429	1.20E-03	1.70E-02	2.05E-05	100.0%
									TOTAL RISK		2.05E-05	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	112	1	2	49.177
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	395	1	2	167.719

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichloroethene	49.177	10	6	81.961	0.5	15	20	13.448
Xylenes	167.719	10	6	279.532	0.5	15	20	45.865

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	112.0	0.83	81.961	70	0.5	15	20	0.129	3.71E-03	2.00E-02	1.85E-01	96.7%
Xylenes	395.0	0.83	279.532	70	0.5	15	20	0.129	1.26E-02	2.00E+00	6.32E-03	3.3%

TOTAL HAZARD INDEX	1.92E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	200	1	2	87.815
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	480	1	2	203.811

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichloroethene	87.815	10	6	146.359	0.5	15	20	24.014
Xylenes	203.811	10	6	339.685	0.5	15	20	55.735

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	200.0	0.83	146.359	70	0.5	15	20	0.429	2.21E-02	2.00E-02	1.10E+00	97.7%
Xylenes	480.0	0.83	339.685	70	0.5	15	20	0.429	5.12E-02	2.00E+00	2.56E-02	2.3%

TOTAL HAZARD INDEX	1.13E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	112.0	1	2	49.177
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	395	1	2	167.719

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1}	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichloroethene	49.177	10	6	81.961	0.5	15	20	13.448
Xylenes	167.719	10	6	279.532	0.5	15	20	45.865

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	112.0	0.9	81.961	35	0.5	15	20	0.129	8.04E-03	2.00E-02	4.02E-01	96.70%
Xylenes	395.0	0.9	279.532	35	0.5	15	20	0.129	2.74E-02	2.00E+00	1.37E-02	3.30%

TOTAL HAZARD INDEX 4.16E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	200	1	2	87.815
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	480	1	2	203.811

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichloroethene	87.815	10	6	146.359	0.5	15	20	24.014
Xylenes	203.811	10	6	339.685	0.5	15	20	55.735

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	200.0	0.9	146.359	35	0.5	15	20	0.129	1.44E-02	2.00E-02	7.18E-01	97.73%
Xylenes	480.0	0.9	339.685	35	0.5	15	20	0.129	3.33E-02	2.00E+00	1.67E-02	2.27%

TOTAL HAZARD INDEX	7.35E-01

TABLE H-28. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING (FS-7)
FUTURE-USE SCENARIO RESIDENTIAL - OFF-SITE DEEP BEDROCK WELLS

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7	1	2	2.575

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.129	1.20E-04	1.70E-02	2.05E-06	85.4%
Tetrachloroethene	7.0	0.83	4.292	70	0.5	15	20	0.129	1.94E-04	1.80E-03	3.49E-07	14.6%
										TOTAL RIS	2.40E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7	1	2	2.575

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.429	4.01E-04	1.70E-02	6.82E-06	85.4%
Tetrachloroethene	7.0	0.83	4.292	70	0.5	15	20	0.429	6.47E-04	1.80E-03	1.16E-06	14.6%
									TOTAL RISK		7.98E-06	

TABLE H-28 (Continued)

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	19	1	2	2.049
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7	1	2	2.575
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	113	1	2	47.980

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.049	10	6	3.414	0.5	15	20	0.560
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704
Xylenes	47.980	10	6	79.967	0.5	15	20	13.121

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	19.0	0.83	3.414	70	0.5	15	20	0.129	1.54E-04	1.00E-01	1.54E-03	3.3%
1,2-Dichloroethene	4.0	0.83	2.927	70	0.5	15	20	0.129	1.32E-04	2.00E-02	6.62E-03	14.3%
1,1-Dichloroethene	5.0	0.83	3.755	70	0.5	15	20	0.129	1.70E-04	1.00E-02	1.70E-02	36.6%
Tetrachloroethene	7.0	0.83	4.292	70	0.5	15	20	0.129	1.94E-04	1.00E-02	1.94E-02	41.9%
Xylenes	113.0	0.83	79.967	70	0.5	15	20	0.129	3.62E-03	2.00E+00	1.81E-03	3.9%

TOTAL HAZARD INDEX 4.64E-02

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	45.1	1	2	4.863
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7	1	2	2.575
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	315	1	2	133.751

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	4.863	10	6	8.104	0.5	15	20	1.330
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704
Xylenes	133.751	10	6	222.918	0.5	15	20	36.576

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	45.1	0.83	8.104	70	0.5	15	20	0.429	1.22E-03	1.00E-01	1.22E-02	7.1%
1,2-Dichloroethene	4.0	0.83	2.927	70	0.5	15	20	0.429	4.41E-04	2.00E-02	2.21E-02	12.8%
1,1-Dichloroethene	5.0	0.83	3.755	70	0.5	15	20	0.429	5.66E-04	1.00E-02	5.66E-02	32.8%
Tetrachloroethene	7.0	0.83	4.292	70	0.5	15	20	0.429	6.47E-04	1.00E-02	6.47E-02	37.5%
Xylenes	315.0	0.83	222.918	70	0.5	15	20	0.429	3.36E-02	2.00E+00	1.68E-02	9.7%

TOTAL HAZARD INDEX	1.72E-01

TABLE H-28 (Continued)

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	19.0	1	2	2.049
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4.0	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5.0	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7.0	1	2	2.575
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	113	1	2	47.980

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.049	10	6	3.414	0.5	15	20	0.560
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704
Xylenes	47.980	10	6	79.967	0.5	15	20	13.121

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	19.0	0.9	3.414	35	0.5	15	20	0.129	3.35E-04	1.00E-01	3.35E-03	3.33%
1,2-Dichloroethene	4.0	0.9	2.927	35	0.5	15	20	0.129	2.87E-04	2.00E-02	1.44E-02	14.28%
1,1-Dichloroethene	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	36.63%
Tetrachloroethene	7.0	0.9	4.292	35	0.5	15	20	0.129	4.21E-04	1.00E-02	4.21E-02	41.86%
Xylenes	113.0	0.9	79.967	35	0.5	15	20	0.129	7.84E-03	2.00E+00	3.92E-03	3.90%

TOTAL HAZARD INDEX	1.01E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	45.1	1	2	4.863
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7	1	2	2.575
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	315	1	2	133.751

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	4.863	10	6	8.104	0.5	15	20	1.330
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.575	10	6	4.292	0.5	15	20	0.704
Xylenes	133.751	10	6	222.918	0.5	15	20	36.576

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	45.1	0.9	8.104	35	0.5	15	20	0.129	7.95E-04	1.00E-01	7.95E-03	7.09%
1,2-Dichloroethene	4.0	0.9	2.927	35	0.5	15	20	0.129	2.87E-04	2.00E-02	1.44E-02	12.80%
1,1-Dichloroethene	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	32.84%
Tetrachloroethene	7.0	0.9	4.292	35	0.5	15	20	0.129	4.21E-04	1.00E-02	4.21E-02	37.53%
Xylenes	315.0	0.9	222.918	35	0.5	15	20	0.129	2.19E-02	2.00E+00	1.09E-02	9.75%

TOTAL HAZARD INDEX	1.12E-01

TABLE H-29. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING (FS-7)
FUTURE-USE SCENARIO RESIDENTIAL - OFF-SITE WELLS
Mixed Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	8.5	1	2	3.392
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	11	1	2	4.047

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	3.392	10	6	5.653	0.5	15	20	0.927
Tetrachloroethene	4.047	10	6	6.744	0.5	15	20	1.107

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.5	0.83	5.653	70	0.5	15	20	0.129	2.56E-04	1.70E-02	4.35E-06	88.8%
Tetrachloroethene	11.0	0.83	6.744	70	0.5	15	20	0.129	3.05E-04	1.80E-03	5.49E-07	11.2%
									TOTAL RISK		4.90E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	11.9	1	2	4.748
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	11	1	2	4.047

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	4.748	10	6	7.914	0.5	15	20	1.298
Tetrachloroethene	4.047	10	6	6.744	0.5	15	20	1.107

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	11.9	0.83	7.914	70	0.5	15	20	0.429	1.19E-03	1.70E-02	2.03E-05	91.7%
Tetrachloroethene	11.0	0.83	6.744	70	0.5	15	20	0.429	1.02E-03	1.80E-03	1.83E-06	8.3%
									TOTAL RISK		2.21E-05	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1671.26	17.42	45	0.5960	2.543	3.428	27.5	1	2	2.969
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	111.5	1	2	48.957
1,1-Dichloroethane	97	2.29E-02	1292.72	13.47	45	0.5960	13.329	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	987.88	10.30	45	0.5960	10.201	13.753	11	1	2	4.045
Xylenes	106	5.35E-03	1236.25	12.89	45	0.5960	12.309	16.594	323	1	2	137.230

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.969	10	6	4.949	0.5	15	20	0.812
1,2-Dichloroethene	48.957	10	6	81.595	0.5	15	20	13.388
1,1-Dichloroethane	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	4.045	10	6	6.742	0.5	15	20	1.106
Xylenes	137.230	10	6	228.717	0.5	15	20	37.528

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	27.5	0.83	4.949	70	0.5	15	20	0.129	2.24E-04	1.00E-01	2.24E-03	0.9%
1,2-Dichloroethene	111.5	0.83	81.595	70	0.5	15	20	0.129	3.69E-03	2.00E-02	1.85E-01	77.1%
1,1-Dichloroethane	5.0	0.83	3.755	70	0.5	15	20	0.129	1.70E-04	1.00E-02	1.70E-02	7.1%
Tetrachloroethene	11.0	0.83	6.742	70	0.5	15	20	0.129	3.05E-04	1.00E-02	3.05E-02	12.7%
Xylenes	323.0	0.83	228.717	70	0.5	15	20	0.129	1.03E-02	2.00E+00	5.17E-03	2.2%

TOTAL HAZARD INDEX	2.39E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1671.26	17.42	45	0.5960	2.543	3.428	47	1	2	5.075
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	188.4	1	2	82.722
1,1-Dichloroethane	97	2.29E-02	1292.72	13.47	45	0.5960	13.329	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	987.88	10.30	45	0.5960	10.201	13.753	11	1	2	4.045
Xylenes	106	5.35E-03	1236.25	12.89	45	0.5960	12.309	16.594	460.7	1	2	195.733

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	5.075	10	6	8.458	0.5	15	20	1.388
1,2-Dichloroethene	82.722	10	6	137.870	0.5	15	20	22.622
1,1-Dichloroethane	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	4.045	10	6	6.742	0.5	15	20	1.106
Xylenes	195.733	10	6	326.222	0.5	15	20	53.526

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	47.0	0.83	8.458	70	0.5	15	20	0.429	1.28E-03	1.00E-01	1.28E-02	1.0%
1,2-Dichloroethene	188.4	0.83	137.870	70	0.5	15	20	0.429	2.08E-02	2.00E-02	1.04E+00	84.2%
1,1-Dichloroethane	5.0	0.83	3.755	70	0.5	15	20	0.429	5.66E-04	1.00E-02	5.66E-02	4.6%
Tetrachloroethene	11.0	0.83	6.742	70	0.5	15	20	0.429	1.02E-03	1.00E-02	1.02E-01	8.2%
Xylenes	460.7	0.83	326.222	70	0.5	15	20	0.429	4.92E-02	2.00E+00	2.46E-02	2.0%

TOTAL HAZARD INDEX	1.24E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1671.26	17.42	45	0.5960	2.543	3.428	27.5	1	2	2.969
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	111.5	1	2	48.957
1,1-Dichloroethane	97	2.29E-02	1292.72	13.47	45	0.5960	13.329	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	987.88	10.30	45	0.5960	10.201	13.753	11	1	2	4.045
Xylenes	106	5.35E-03	1236.25	12.89	45	0.5960	12.309	16.594	323	1	2	137.230

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.969	10	6	4.949	0.5	15	20	0.812
1,2-Dichloroethene	48.957	10	6	81.595	0.5	15	20	13.388
1,1-Dichloroethane	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	4.045	10	6	6.742	0.5	15	20	1.106
Xylenes	137.230	10	6	228.717	0.5	15	20	37.528

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	27.5	0.9	4.949	35	0.5	15	20	0.129	4.85E-04	1.00E-01	4.85E-03	0.93%
1,2-Dichloroethene	111.5	0.9	81.595	35	0.5	15	20	0.129	8.00E-03	2.00E-02	4.00E-01	77.07%
1,1-Dichloroethane	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	7.09%
Tetrachloroethene	11.0	0.9	6.742	35	0.5	15	20	0.129	6.61E-04	1.00E-02	6.61E-02	12.74%
Xylenes	323.0	0.9	228.717	35	0.5	15	20	0.129	2.24E-02	2.00E+00	1.12E-02	2.16%

TOTAL HAZARD INDEX	5.19E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1671.26	17.42	45	0.5960	2.543	3.428	47	1	2	5.075
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	188.4	1	2	82.722
1,1-Dichloroethane	97	2.29E-02	1292.72	13.47	45	0.5960	13.329	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	987.88	10.30	45	0.5960	10.201	13.753	11	1	2	4.045
Xylenes	106	5.35E-03	1236.25	12.89	45	0.5960	12.309	16.594	460.7	1	2	195.733

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	5.075	10	6	8.458	0.5	15	20	1.388
1,2-Dichloroethene	82.722	10	6	137.870	0.5	15	20	22.622
1,1-Dichloroethane	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	4.045	10	6	6.742	0.5	15	20	1.106
Xylenes	195.733	10	6	326.222	0.5	15	20	53.526

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	47.0	0.9	8.458	35	0.5	15	20	0.129	8.30E-04	1.00E-01	8.30E-03	1.03%
1,2-Dichloroethene	188.4	0.9	137.870	35	0.5	15	20	0.129	1.35E-02	2.00E-02	6.76E-01	84.16%
1,1-Dichloroethane	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	4.58%
Tetrachloroethene	11.0	0.9	6.742	35	0.5	15	20	0.129	6.61E-04	1.00E-02	6.61E-02	8.23%
Xylenes	460.7	0.9	326.222	35	0.5	15	20	0.129	3.20E-02	2.00E+00	1.60E-02	1.99%

TOTAL HAZARD INDEX	8.04E-01

Table H-30. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
CALCULATION OF FOOD CHEMICAL CONCENTRATIONS

Off-Site Groundwater Use - Upper Bedrock (MW-7I, 16I)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
1,2-Dichloroethene	1.48	1.24	1.15E-01	1.42E-01
Trichloroethene	2.53	3.50	8.50E-03	2.97E-02
Toluene	2.69	4.38	1.20E-02	5.25E-02
Xylenes	2.95	6.46	3.95E-01	2.55E+00
Phenol	1.46	1.22	1.45E-02	1.77E-02
2-Methylphenol	1.95	1.78	7.50E-03	1.33E-02
4-Methylphenol	1.92	1.73	6.40E-03	1.11E-02
2,4-Dimethylphenol	2.42	3.02	6.00E-04	1.81E-03
o-Toluic acid	2.54	3.55	3.43E+01	1.22E+02
m-Toluic acid	2.37	2.84	2.16E+01	6.13E+01
p-Toluic acid	2.27	2.51	8.10E+00	2.03E+01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
1,2-Dichloroethene	1.48	1.24	2.00E-01	2.47E-01
Trichloroethene	2.53	3.50	1.20E-02	4.20E-02
Toluene	2.69	4.38	1.90E-02	8.32E-02
Xylenes	2.95	6.46	4.90E-01	3.17E+00
Phenol	1.46	1.22	2.40E-02	2.93E-02
2-Methylphenol	1.95	1.78	1.40E-02	2.49E-02
4-Methylphenol	1.92	1.73	1.20E-02	2.07E-02
2,4-Dimethylphenol	2.42	3.02	6.00E-04	1.81E-03
o-Toluic acid	2.54	3.55	6.40E+01	2.27E+02
m-Toluic acid	2.37	2.84	4.20E+01	1.19E+02
p-Toluic acid	2.27	2.51	1.60E+01	4.02E+01

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
1,2-Dichloroethene	1.48	0.76	1.15E-01	8.69E-02
Trichloroethene	2.53	0.62	8.50E-03	5.29E-03
Toluene	2.69	0.56	1.20E-02	6.70E-03
Xylenes	2.95	0.45	3.95E-01	1.77E-01
Phenol	1.46	0.75	1.45E-02	1.09E-02
2-Methylphenol	1.95	0.77	7.50E-03	5.81E-03
4-Methylphenol	1.92	0.78	6.40E-03	4.98E-03
2,4-Dimethylphenol	2.42	0.66	6.00E-04	3.98E-04
o-Toluic acid	2.54	0.62	3.43E+01	2.12E+01
m-Toluic acid	2.37	0.68	2.16E+01	1.47E+01
p-Toluic acid	2.27	0.71	8.10E+00	5.75E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
1,2-Dichloroethene	1.48	0.76	2.00E-01	1.51E-01
Trichloroethene	2.53	0.62	1.20E-02	7.47E-03
Toluene	2.69	0.56	1.90E-02	1.06E-02
Xylenes	2.95	0.45	4.90E-01	2.19E-01
Phenol	1.46	0.75	2.40E-02	1.80E-02
2-Methylphenol	1.95	0.77	1.40E-02	1.08E-02
4-Methylphenol	1.92	0.78	1.20E-02	9.33E-03
2,4-Dimethylphenol	2.42	0.66	6.00E-04	3.98E-04
o-Toluic acid	2.54	0.62	6.40E+01	3.96E+01
m-Toluic acid	2.37	0.68	4.20E+01	2.86E+01
p-Toluic acid	2.27	0.71	1.60E+01	1.14E+01

Off-Site Groundwater Use - Deep Bedrock (MW-7D, 16D, 17D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	1.96E-02	1.65E-02
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	4.00E-03	4.95E-03
Trichloroethene	2.53	3.50	4.00E-03	1.40E-02
Tetrachloroethene	2.53	3.50	7.00E-03	2.45E-02
Toluene	2.69	4.38	4.00E-03	1.75E-02
Xylenes	2.95	6.46	1.13E-01	7.32E-01
Phenol	1.46	1.22	1.50E-02	1.83E-02
2-Methylphenol	1.95	1.78	6.70E-03	1.19E-02
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	5.68E+00	2.02E+01
m-Toluic acid	2.37	2.84	5.68E+00	1.61E+01
p-Toluic acid	2.27	2.51	4.50E-01	1.13E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	4.51E-02	3.79E-02
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	4.00E-03	4.95E-03
Trichloroethene	2.53	3.50	4.00E-03	1.40E-02
Tetrachloroethene	2.53	3.50	1.07E-02	3.74E-02
Toluene	2.69	4.38	4.00E-03	1.75E-02
Xylenes	2.95	6.46	3.15E-01	2.04E+00
Phenol	1.46	1.22	3.36E-02	4.11E-02
2-Methylphenol	1.95	1.78	9.80E-03	1.74E-02
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	1.62E+01	5.76E+01
m-Toluic acid	2.37	2.84	1.62E+01	4.60E+01
p-Toluic acid	2.27	2.51	1.24E+00	3.12E+00

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	1.96E-02	2.89E-03
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	4.00E-03	3.02E-03
Trichloroethene	2.53	0.62	4.00E-03	2.49E-03
Tetrachloroethene	2.53	0.62	7.00E-03	4.36E-03
Toluene	2.69	0.56	4.00E-03	2.23E-03
Xylenes	2.95	0.45	1.13E-01	5.07E-02
Phenol	1.46	0.75	1.50E-02	1.13E-02
2-Methylphenol	1.95	0.77	6.70E-03	5.19E-03
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	5.68E+00	3.52E+00
m-Toluic acid	2.37	0.68	5.68E+00	3.86E+00
p-Toluic acid	2.27	0.71	4.50E-01	3.20E-01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	4.51E-02	6.64E-03
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	4.00E-03	3.02E-03
Trichloroethene	2.53	0.62	4.00E-03	2.49E-03
Tetrachloroethene	2.53	0.62	1.07E-02	6.66E-03
Toluene	2.69	0.56	4.00E-03	2.23E-03
Xylenes	2.95	0.45	3.15E-01	1.41E-01
Phenol	1.46	0.75	3.36E-02	2.53E-02
2-Methylphenol	1.95	0.77	9.80E-03	7.59E-03
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	1.62E+01	1.00E+01
m-Toluic acid	2.37	0.68	1.62E+01	1.10E+01
p-Toluic acid	2.27	0.71	1.24E+00	8.82E-01

Off-Site Groundwater Use - Mixed Bedrock (MW-7I, 16I, 7D, 16D, 17D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	2.75E-02	2.31E-02
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	1.12E-01	1.38E-01
Trichloroethene	2.53	3.50	8.50E-03	2.97E-02
Tetrachloroethene	2.53	3.50	1.10E-02	3.85E-02
Toluene	2.69	4.38	7.60E-03	3.33E-02
Xylenes	2.95	6.46	3.23E-01	2.09E+00
Phenol	1.46	1.22	1.48E-02	1.81E-02
2-Methylphenol	1.95	1.78	6.20E-03	1.10E-02
4-Methylphenol	1.92	1.73	5.50E-03	9.51E-03
2,4-Dimethylphenol	2.42	3.02	6.00E-04	1.81E-03
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	1.80E+01	6.39E+01
m-Toluic acid	2.37	2.84	1.23E+01	3.49E+01
p-Toluic acid	2.27	2.51	3.54E+00	8.89E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	4.70E-03	3.95E-03
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	1.98E-01	2.45E-01
Trichloroethene	2.53	3.50	1.19E-02	4.16E-02
Tetrachloroethene	2.53	3.50	1.10E-02	3.85E-02
Toluene	2.69	4.38	1.20E-02	5.25E-02
Xylenes	2.95	6.46	4.61E-01	2.98E+00
Phenol	1.46	1.22	2.45E-02	2.99E-02
2-Methylphenol	1.95	1.78	1.02E-02	1.81E-02
4-Methylphenol	1.92	1.73	9.00E-03	1.56E-02
2,4-Dimethylphenol	2.42	3.02	6.00E-04	1.81E-03
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	6.40E+01	2.27E+02
m-Toluic acid	2.37	2.84	4.20E+01	1.19E+02
p-Toluic acid	2.27	2.51	1.60E+01	4.02E+01

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	2.75E-02	4.05E-03
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	1.12E-01	8.43E-02
Trichloroethene	2.53	0.62	8.50E-03	5.29E-03
Tetrachloroethene	2.53	0.62	1.10E-02	6.85E-03
Toluene	2.69	0.56	7.60E-03	4.24E-03
Xylenes	2.95	0.45	3.23E-01	1.45E-01
Phenol	1.46	0.75	1.48E-02	1.11E-02
2-Methylphenol	1.95	0.77	6.20E-03	4.80E-03
4-Methylphenol	1.92	0.78	5.50E-03	4.28E-03
2,4-Dimethylphenol	2.42	0.66	6.00E-04	3.98E-04
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	1.80E+01	1.11E+01
m-Toluic acid	2.37	0.68	1.23E+01	8.35E+00
p-Toluic acid	2.27	0.71	3.54E+00	2.52E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	4.70E-03	6.92E-04
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	1.98E-01	1.50E-01
Trichloroethene	2.53	0.62	1.19E-02	7.41E-03
Tetrachloroethene	2.53	0.62	1.10E-02	6.85E-03
Toluene	2.69	0.56	1.20E-02	6.70E-03
Xylenes	2.95	0.45	4.61E-01	2.06E-01
Phenol	1.46	0.75	2.45E-02	1.84E-02
2-Methylphenol	1.95	0.77	1.02E-02	7.90E-03
4-Methylphenol	1.92	0.78	9.00E-03	7.00E-03
2,4-Dimethylphenol	2.42	0.66	6.00E-04	3.98E-04
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	6.40E+01	3.96E+01
m-Toluic acid	2.37	0.68	4.20E+01	2.86E+01
p-Toluic acid	2.27	0.71	1.60E+01	1.14E+01

On-Site Groundwater Use - Upper Bedrock - Round 1 (MW-1I, 2I, 3I, 3I Dup, 4I, 5I, 6I, 7I, 7I Dup, 8I, 9I, 10I, 11I)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Vinyl chloride	0.60	0.91	3.00E-03	2.72E-03
Benzene	2.13	2.14	1.00E-03	2.14E-03
1,2-Dichloroethene	1.48	1.24	5.35E-02	6.62E-02
Trichloroethene	2.53	3.50	3.79E-02	1.33E-01
Toluene	2.69	4.38	2.02E-02	8.85E-02
Xylenes	2.95	6.46	5.82E-01	3.76E+00
Phenol	1.46	1.22	3.48E-02	4.25E-02
2-Methylphenol	1.95	1.78	1.06E-02	1.88E-02
4-Methylphenol	1.92	1.73	1.63E-02	2.82E-02
Benzoic acid	1.87	1.65	6.40E-02	1.06E-01
o-Toluic acid	2.54	3.55	2.28E+01	8.08E+01
m-Toluic acid	2.37	2.84	1.03E+01	2.93E+01
p-Toluic acid	2.27	2.51	1.18E+00	2.97E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Vinyl chloride	0.60	0.91	3.00E-03	2.72E-03
Benzene	2.13	2.14	1.00E-03	2.14E-03
1,2-Dichloroethene	1.48	1.24	8.96E-02	1.11E-01
Trichloroethene	2.53	3.50	7.43E-02	2.60E-01
Toluene	2.69	4.38	3.44E-02	1.51E-01
Xylenes	2.95	6.46	1.06E+00	6.87E+00
Phenol	1.46	1.22	5.63E-02	6.88E-02
2-Methylphenol	1.95	1.78	1.51E-02	2.69E-02
4-Methylphenol	1.92	1.73	2.25E-02	3.89E-02
Benzoic acid	1.87	1.65	1.16E-01	1.92E-01
o-Toluic acid	2.54	3.55	3.94E+01	1.40E+02
m-Toluic acid	2.37	2.84	1.89E+01	5.37E+01
p-Toluic acid	2.27	2.51	2.25E+00	5.64E+00

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Vinyl chloride	0.60	0.44	1.15E-01	5.10E-02
Benzene	2.13	0.75	8.50E-03	6.34E-03
1,2-Dichloroethene	1.48	0.76	1.20E-02	9.07E-03
Trichloroethene	2.53	0.62	3.95E-01	2.46E-01
Toluene	2.69	0.56	1.45E-02	8.10E-03
Xylenes	2.95	0.45	7.50E-03	3.36E-03
Phenol	1.46	0.75	6.40E-03	4.81E-03
2-Methylphenol	1.95	0.77	6.00E-04	4.65E-04
4-Methylphenol	1.92	0.78	3.43E+01	2.66E+01
Benzoic acid	1.87	0.78	3.43E+01	2.68E+01
o-Toluic acid	2.54	0.62	3.43E+01	2.12E+01
m-Toluic acid	2.37	0.68	2.16E+01	1.47E+01
p-Toluic acid	2.27	0.71	8.10E+00	5.75E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Vinyl chloride	0.60	0.44	2.00E-01	8.86E-02
Benzene	2.13	0.75	1.20E-02	8.95E-03
1,2-Dichloroethene	1.48	0.76	1.90E-02	1.44E-02
Trichloroethene	2.53	0.62	4.90E-01	3.05E-01
Toluene	2.69	0.56	2.40E-02	1.34E-02
Xylenes	2.95	0.45	1.40E-02	6.26E-03
Phenol	1.46	0.75	1.20E-02	9.02E-03
2-Methylphenol	1.95	0.77	6.00E-04	4.65E-04
4-Methylphenol	1.92	0.78	6.40E+01	4.98E+01
Benzoic acid	1.87	0.78	6.40E+01	5.00E+01
o-Toluic acid	2.54	0.62	6.40E+01	3.96E+01
m-Toluic acid	2.37	0.68	4.20E+01	2.86E+01
p-Toluic acid	2.27	0.71	1.60E+01	1.14E+01

On-Site Groundwater Use - Upper Bedrock - Round 2 (MW-1I, 2I, 3I, 4I, 5I, 6I, 7I, 8I, 8I Dup, 9I, 1oI, 11I, 12I, 13I, 14I, 18I)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	1.59E-02	1.34E-02
Vinyl chloride	0.60	0.91	1.44E-02	1.31E-02
1,1-Dichloroethane	1.79	1.54	2.33E-02	3.59E-02
1,2-Dichloroethene	1.48	1.24	1.44E-01	1.78E-01
Trichloroethene	2.53	3.50	1.18E-02	4.13E-02
Tetrachloroethene	2.53	3.50	2.87E-02	1.00E-01
Benzene	2.13	2.14	4.00E-03	8.55E-03
Toluene	2.69	4.38	1.53E-02	6.70E-02
Xylenes	2.95	6.46	4.54E-01	2.93E+00
Phenol	1.46	1.22	1.81E-01	2.22E-01
2-Methylphenol	1.95	1.78	8.10E-03	1.44E-02
4-Methylphenol	1.95	1.78	1.29E-02	2.29E-02
Naphthalane	3.37	12.70	8.00E-03	1.02E-01
o-Toluic acid	2.54	3.55	3.46E+01	1.23E+02
m-Toluic acid	2.37	2.84	2.18E+01	6.18E+01
p-Toluic acid	2.27	2.51	2.30E+01	5.76E+01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	2.52E-02	2.12E-02
Vinyl chloride	0.60	0.91	2.10E-02	1.91E-02
1,1-Dichloroethane	1.79	1.54	4.33E-02	6.68E-02
1,2-Dichloroethene	1.48	1.24	3.42E-01	4.23E-01
Trichloroethene	2.53	3.50	1.90E-02	6.65E-02
Tetrachloroethene	2.53	3.50	5.53E-02	1.94E-01
Benzene	2.13	2.14	4.00E-03	8.55E-03
Toluene	2.69	4.38	2.41E-02	1.06E-01
Xylenes	2.95	6.46	7.97E-01	5.15E+00
Phenol	1.46	1.22	5.00E-01	6.11E-01
2-Methylphenol	1.95	1.78	1.25E-02	2.22E-02
4-Methylphenol	1.95	1.78	2.33E-02	4.14E-02
Naphthalane	3.37	12.70	8.00E-03	1.02E-01
o-Toluic acid	2.54	3.55	7.15E+01	2.54E+02
m-Toluic acid	2.37	2.84	4.48E+01	1.27E+02
p-Toluic acid	2.27	2.51	5.60E+01	1.40E+02

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	1.59E-02	2.34E-03
Vinyl chloride	0.60	0.44	1.44E-02	6.38E-03
1,1-Dichloroethane	1.79	0.78	2.33E-02	1.83E-02
1,2-Dichloroethene	1.48	0.76	1.44E-01	1.09E-01
Trichloroethene	2.53	0.62	1.18E-02	7.35E-03
Tetrachloroethene	2.53	0.62	2.87E-02	1.79E-02
Benzene	2.13	0.75	4.00E-03	2.98E-03
Toluene	2.69	0.56	1.53E-02	8.54E-03
Xylenes	2.95	0.45	4.54E-01	2.03E-01
Phenol	1.46	0.75	1.81E-01	1.36E-01
2-Methylphenol	1.95	0.77	8.10E-03	6.28E-03
4-Methylphenol	1.95	0.77	1.29E-02	9.99E-03
Naphthalane	3.37	0.28	8.00E-03	2.23E-03
o-Toluic acid	2.54	0.62	3.46E+01	2.14E+01
m-Toluic acid	2.37	0.68	2.18E+01	1.48E+01
p-Toluic acid	2.27	0.71	2.30E+01	1.63E+01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	2.52E-02	3.71E-03
Vinyl chloride	0.60	0.44	2.10E-02	9.30E-03
1,1-Dichloroethane	1.79	0.78	4.33E-02	3.39E-02
1,2-Dichloroethene	1.48	0.76	3.42E-01	2.59E-01
Trichloroethene	2.53	0.62	1.90E-02	1.18E-02
Tetrachloroethene	2.53	0.62	5.53E-02	3.44E-02
Benzene	2.13	0.75	4.00E-03	2.98E-03
Toluene	2.69	0.56	2.41E-02	1.35E-02
Xylenes	2.95	0.45	7.97E-01	3.57E-01
Phenol	1.46	0.75	5.00E-01	3.76E-01
2-Methylphenol	1.95	0.77	1.25E-02	9.68E-03
4-Methylphenol	1.95	0.77	2.33E-02	1.81E-02
Naphthalane	3.37	0.28	8.00E-03	2.23E-03
o-Toluic acid	2.54	0.62	7.15E+01	4.43E+01
m-Toluic acid	2.37	0.68	4.48E+01	3.04E+01
p-Toluic acid	2.27	0.71	5.60E+01	3.98E+01

On-Site Groundwater Use - Deep Bedrock - Round 1 (MW-1D, 2D Split, 3D, 4D, 5D, 6D, 9D, 10D, 11D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	7.80E-03	6.55E-03
1,1-Dichloroethane	1.79	1.54	2.00E-03	3.08E-03
1,2-Dichloroethene	1.48	1.24	1.26E-02	1.56E-02
Trichloroethene	2.53	3.50	2.70E-03	9.45E-03
Tetrachloroethene	2.53	3.50	3.80E-03	1.33E-02
Benzene	2.13	2.14	2.50E-03	5.35E-03
Toluene	2.69	4.38	5.20E-03	2.28E-02
Xylenes	2.95	6.46	7.64E-02	4.94E-01
Phenol	1.46	1.22	6.90E-03	8.43E-03
2-Methylphenol	1.95	1.78	5.20E-03	9.25E-03
4-Methylphenol	1.92	1.73	5.40E-03	9.33E-03
2,4-Dimethylphenol	2.42	3.02	7.70E-03	2.33E-02
Benzoic acid	1.87	1.65	3.07E-02	5.07E-02
o-Toluic acid	2.54	3.55	2.91E+00	1.03E+01
m-Toluic acid	2.37	2.84	1.42E+00	4.04E+00
p-Toluic acid	2.27	2.51	1.89E-01	4.74E-01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	1.10E-02	9.24E-03
1,1-Dichloroethane	1.79	1.54	2.00E-03	3.08E-03
1,2-Dichloroethene	1.48	1.24	3.02E-02	3.73E-02
Trichloroethene	2.53	3.50	3.00E-03	1.05E-02
Tetrachloroethene	2.53	3.50	5.10E-03	1.78E-02
Benzene	2.13	2.14	2.60E-03	5.56E-03
Toluene	2.69	4.38	9.10E-03	3.98E-02
Xylenes	2.95	6.46	1.76E-01	1.14E+00
Phenol	1.46	1.22	1.02E-02	1.25E-02
2-Methylphenol	1.95	1.78	5.60E-03	9.96E-03
4-Methylphenol	1.92	1.73	6.20E-03	1.07E-02
2,4-Dimethylphenol	2.42	3.02	1.23E-02	3.72E-02
Benzoic acid	1.87	1.65	4.05E-02	6.69E-02
o-Toluic acid	2.54	3.55	6.74E+00	2.39E+01
m-Toluic acid	2.37	2.84	3.20E+00	9.07E+00
p-Toluic acid	2.27	2.51	3.98E-01	9.99E-01

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	7.80E-03	1.15E-03
1,1-Dichloroethane	1.79	0.78	2.00E-03	1.57E-03
1,2-Dichloroethene	1.48	0.76	1.26E-02	9.52E-03
Trichloroethene	2.53	0.62	2.70E-03	1.68E-03
Tetrachloroethene	2.53	0.62	3.80E-03	2.37E-03
Benzene	2.13	0.75	2.50E-03	1.86E-03
Toluene	2.69	0.56	5.20E-03	2.90E-03
Xylenes	2.95	0.45	7.64E-02	3.42E-02
Phenol	1.46	0.75	6.90E-03	5.19E-03
2-Methylphenol	1.95	0.77	5.20E-03	4.03E-03
4-Methylphenol	1.92	0.78	5.40E-03	4.20E-03
2,4-Dimethylphenol	2.42	0.66	7.70E-03	5.10E-03
Benzoic acid	1.87	0.78	3.07E-02	2.40E-02
o-Toluic acid	2.54	0.62	2.91E+00	1.80E+00
m-Toluic acid	2.37	0.68	1.42E+00	9.67E-01
p-Toluic acid	2.27	0.71	1.89E-01	1.34E-01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	1.10E-02	1.62E-03
1,1-Dichloroethane	1.79	0.78	2.00E-03	1.57E-03
1,2-Dichloroethene	1.48	0.76	3.02E-02	2.28E-02
Trichloroethene	2.53	0.62	3.00E-03	1.87E-03
Tetrachloroethene	2.53	0.62	5.10E-03	3.18E-03
Benzene	2.13	0.75	2.60E-03	1.94E-03
Toluene	2.69	0.56	9.10E-03	5.08E-03
Xylenes	2.95	0.45	1.76E-01	7.89E-02
Phenol	1.46	0.75	1.02E-02	7.67E-03
2-Methylphenol	1.95	0.77	5.60E-03	4.34E-03
4-Methylphenol	1.92	0.78	6.20E-03	4.82E-03
2,4-Dimethylphenol	2.42	0.66	1.23E-02	8.15E-03
Benzoic acid	1.87	0.78	4.05E-02	3.16E-02
o-Toluic acid	2.54	0.62	6.74E+00	4.17E+00
m-Toluic acid	2.37	0.68	3.20E+00	2.17E+00
p-Toluic acid	2.27	0.71	3.98E-01	2.83E-01

On-Site Groundwater Use - Deep Bedrock - Round 2 (MW-7D, 9D, 13D, 15D, 17D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	1.34E-02	1.13E-02
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	4.00E-03	4.95E-03
Trichloroethene	2.53	3.50	4.00E-03	1.40E-02
Tetrachloroethene	2.53	3.50	6.20E-03	2.17E-02
Toluene	2.69	4.38	4.00E-03	1.75E-02
Xylenes	2.95	6.46	7.00E-02	4.52E-01
Phenol	1.46	1.22	1.10E-02	1.34E-02
2-Methylphenol	1.95	1.78	6.00E-03	1.07E-02
Pentachlorophenol	5.01	218.44	2.20E-02	4.81E+00
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	3.42E+00	1.21E+01
m-Toluic acid	2.37	2.84	3.42E+00	9.71E+00
p-Toluic acid	2.27	2.51	2.80E-01	7.03E-01
4,4'-DDE	5.69	727.43	6.80E-05	4.95E-02

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	2.64E-02	2.22E-02
1,1-Dichloroethane	1.79	1.54	5.00E-03	7.71E-03
1,2-Dichloroethene	1.48	1.24	4.00E-03	4.95E-03
Trichloroethene	2.53	3.50	4.00E-03	1.40E-02
Tetrachloroethene	2.53	3.50	8.10E-03	2.83E-02
Toluene	2.69	4.38	4.00E-03	1.75E-02
Xylenes	2.95	6.46	1.71E-01	1.10E+00
Phenol	1.46	1.22	2.03E-02	2.48E-02
2-Methylphenol	1.95	1.78	7.60E-03	1.35E-02
Pentachlorophenol	5.01	218.44	3.67E-02	8.02E+00
Naphthalane	3.37	12.70	1.00E-03	1.27E-02
o-Toluic acid	2.54	3.55	8.69E+00	3.08E+01
m-Toluic acid	2.37	2.84	8.69E+00	2.47E+01
p-Toluic acid	2.27	2.51	6.76E-01	1.70E+00
4,4'-DDE	5.69	727.43	9.59E-05	6.98E-02

Chemical concentrations in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	1.34E-02	1.97E-03
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	4.00E-03	3.02E-03
Trichloroethene	2.53	0.62	4.00E-03	2.49E-03
Tetrachloroethene	2.53	0.62	6.20E-03	3.86E-03
Toluene	2.69	0.56	4.00E-03	2.23E-03
Xylenes	2.95	0.45	7.00E-02	3.13E-02
Phenol	1.46	0.75	1.10E-02	8.27E-03
2-Methylphenol	1.95	0.77	6.00E-03	4.65E-03
Pentachlorophenol	5.01	0.01	2.20E-02	2.40E-04
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	3.42E+00	2.12E+00
m-Toluic acid	2.37	0.68	3.42E+00	2.32E+00
p-Toluic acid	2.27	0.71	2.80E-01	1.99E-01
4,4'-DDE	5.69	0.00	6.80E-05	1.01E-07

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	2.64E-02	3.89E-03
1,1-Dichloroethane	1.79	0.78	5.00E-03	3.92E-03
1,2-Dichloroethene	1.48	0.76	4.00E-03	3.02E-03
Trichloroethene	2.53	0.62	4.00E-03	2.49E-03
Tetrachloroethene	2.53	0.62	8.10E-03	5.04E-03
Toluene	2.69	0.56	4.00E-03	2.23E-03
Xylenes	2.95	0.45	1.71E-01	7.65E-02
Phenol	1.46	0.75	2.03E-02	1.53E-02
2-Methylphenol	1.95	0.77	7.60E-03	5.89E-03
Pentachlorophenol	5.01	0.01	3.67E-02	4.00E-04
Naphthalane	3.37	0.28	1.00E-03	2.78E-04
o-Toluic acid	2.54	0.62	8.69E+00	5.38E+00
m-Toluic acid	2.37	0.68	8.69E+00	5.91E+00
p-Toluic acid	2.27	0.71	6.76E-01	4.80E-01
4,4'-DDE	5.69	0.00	9.59E-05	1.43E-07

On-Site Groundwater Use - Mixed Bedrock - Round 1 (MW-1I, 2I, 3I, 3I Dup, 4I, 5I, 6I, 7I, 7I Dup, 8I, 9I, 10I, 11I, 1D, 2D, 3D, 4D, 5D, 6D, 9D, 10D, 11D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	2.30E-02	1.93E-02
Vinyl chloride	0.60	0.91	3.00E-03	2.72E-03
1,1-Dichloroethene	1.48	1.24	7.60E-03	9.40E-03
1,2-Dichloroethene	1.48	1.24	3.68E-02	4.55E-02
Trichloroethene	2.53	3.50	2.35E-02	8.22E-02
Tetrachloroethene	2.53	3.50	2.19E-01	7.66E-01
Benzene	2.13	2.14	3.00E-03	6.42E-03
Toluene	2.69	4.38	1.40E-02	6.13E-02
Xylenes	2.95	6.46	3.75E-01	2.43E+00
Phenol	1.46	1.22	2.29E-02	2.80E-02
2-Methylphenol	1.95	1.78	8.40E-03	1.49E-02
4-Methylphenol	1.92	1.73	1.17E-02	2.02E-02
Benzoic acid	1.87	1.65	4.97E-02	8.21E-02
Naphthalane	3.37	12.70	7.70E-03	9.78E-02
o-Toluic acid	2.54	3.55	1.31E+01	4.63E+01
m-Toluic acid	2.37	2.84	5.91E+00	1.68E+01
p-Toluic acid	2.27	2.51	7.05E-01	1.77E+00

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	4.19E-02	3.52E-02
Vinyl chloride	0.60	0.91	3.00E-03	2.72E-03
1,1-Dichloroethene	1.48	1.24	1.00E-02	1.24E-02
1,2-Dichloroethene	1.48	1.24	6.66E-02	8.23E-02
Trichloroethene	2.53	3.50	5.13E-02	1.80E-01
Tetrachloroethene	2.53	3.50	5.69E-01	1.99E+00
Benzene	2.13	2.14	3.00E-03	6.42E-03
Toluene	2.69	4.38	2.53E-02	1.11E-01
Xylenes	2.95	6.46	7.50E-01	4.85E+00
Phenol	1.46	1.22	3.97E-02	4.85E-02
2-Methylphenol	1.95	1.78	1.20E-02	2.13E-02
4-Methylphenol	1.92	1.73	1.68E-02	2.90E-02
Benzoic acid	1.87	1.65	8.81E-02	1.46E-01
Naphthalane	3.37	12.70	9.00E-03	1.14E-01
o-Toluic acid	2.54	3.55	2.85E+01	1.01E+02
m-Toluic acid	2.37	2.84	1.39E+01	3.94E+01
p-Toluic acid	2.27	2.51	1.69E+00	4.25E+00

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	2.30E-02	3.39E-03
Vinyl chloride	0.60	0.44	3.00E-03	1.33E-03
1,1-Dichloroethene	1.48	0.76	7.60E-03	5.74E-03
1,2-Dichloroethene	1.48	0.76	3.68E-02	2.78E-02
Trichloroethene	2.53	0.62	2.35E-02	1.46E-02
Tetrachloroethene	2.53	0.62	2.19E-01	1.36E-01
Benzene	2.13	0.75	3.00E-03	2.24E-03
Toluene	2.69	0.56	1.40E-02	7.82E-03
Xylenes	2.95	0.45	3.75E-01	1.68E-01
Phenol	1.46	0.75	2.29E-02	1.72E-02
2-Methylphenol	1.95	0.77	8.40E-03	6.51E-03
4-Methylphenol	1.92	0.78	1.17E-02	9.10E-03
Benzoic acid	1.87	0.78	4.97E-02	3.88E-02
Naphthalane	3.37	0.28	7.70E-03	2.14E-03
o-Toluic acid	2.54	0.62	1.31E+01	8.08E+00
m-Toluic acid	2.37	0.68	5.91E+00	4.02E+00
p-Toluic acid	2.27	0.71	7.05E-01	5.01E-01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	4.19E-02	6.17E-03
Vinyl chloride	0.60	0.44	3.00E-03	1.33E-03
1,1-Dichloroethene	1.48	0.76	1.00E-02	7.56E-03
1,2-Dichloroethene	1.48	0.76	6.66E-02	5.03E-02
Trichloroethene	2.53	0.62	5.13E-02	3.19E-02
Tetrachloroethene	2.53	0.62	5.69E-01	3.54E-01
Benzene	2.13	0.75	3.00E-03	2.24E-03
Toluene	2.69	0.56	2.53E-02	1.41E-02
Xylenes	2.95	0.45	7.50E-01	3.36E-01
Phenol	1.46	0.75	3.97E-02	2.98E-02
2-Methylphenol	1.95	0.77	1.20E-02	9.30E-03
4-Methylphenol	1.92	0.78	1.68E-02	1.31E-02
Benzoic acid	1.87	0.78	8.81E-02	6.88E-02
Naphthalane	3.37	0.28	9.00E-03	2.50E-03
o-Toluic acid	2.54	0.62	2.85E+01	1.77E+01
m-Toluic acid	2.37	0.68	1.39E+01	9.45E+00
p-Toluic acid	2.27	0.71	1.69E+00	1.20E+00

On-Site Groundwater Use - Mixed Bedrock - Round 2 (MW-1I, 2I, 3I, 4I, 5I, 6I, 7I, 8I, 8I Dup, 9I, 10I, 11I, 12I, 13I, 14I, 18I, 7D, 9D, 13D, 15D, 17D)

Chemcial concentration in root crops (e.g., carrots)

Mean Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	1.53E-02	1.28E-02
Vinyl chloride	0.60	0.91	1.22E-02	1.11E-02
1,1-Dichloroethane	1.79	1.54	1.89E-02	2.91E-02
1,2-Dichloroethene	1.48	1.24	1.11E-01	1.37E-01
Trichloroethene	2.53	3.50	1.01E-02	3.53E-02
Tetrachloroethene	2.53	3.50	2.33E-02	8.15E-02
Benzene	2.13	2.14	4.00E-03	8.55E-03
Toluene	2.69	4.38	1.28E-02	5.60E-02
Xylenes	2.95	6.46	3.63E-01	2.34E+00
Phenol	1.46	1.22	1.41E-01	1.72E-01
2-Methylphenol	1.95	1.78	7.60E-03	1.35E-02
4-Methylphenol	1.92	1.73	1.10E-02	1.90E-02
Pentachlorophenol	5.01	218.44	1.55E-02	3.39E+00
Naphthalane	3.37	12.70	8.00E-03	1.02E-01
o-Toluic acid	2.54	3.55	2.72E+01	9.65E+01
m-Toluic acid	2.37	2.84	1.74E+01	4.94E+01
p-Toluic acid	2.27	2.51	1.76E+01	4.41E+01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.84	2.36E-02	1.98E-02
Vinyl chloride	0.60	0.91	1.88E-02	1.71E-02
1,1-Dichloroethane	1.79	1.54	3.46E-02	5.33E-02
1,2-Dichloroethene	1.48	1.24	2.64E-01	3.26E-01
Trichloroethene	2.53	3.50	1.58E-02	5.53E-02
Tetrachloroethene	2.53	3.50	4.41E-02	1.54E-01
Benzene	2.13	2.14	4.00E-03	8.55E-03
Toluene	2.69	4.38	1.98E-02	8.67E-02
Xylenes	2.95	6.46	6.36E-01	4.11E+00
Phenol	1.46	1.22	3.85E-01	4.70E-01
2-Methylphenol	1.95	1.78	1.10E-02	1.96E-02
4-Methylphenol	1.92	1.73	1.91E-02	3.30E-02
Pentachlorophenol	5.01	218.44	2.34E-02	5.11E+00
Naphthalane	3.37	12.70	8.00E-03	1.02E-01
o-Toluic acid	2.54	3.55	5.59E+01	1.98E+02
m-Toluic acid	2.37	2.84	3.53E+01	1.00E+02
p-Toluic acid	2.27	2.51	4.30E+01	1.08E+02

Chemical concentratios in stems and leaves (e.g., lettuce)

Mean Concentrations

Chemical	Log Kow	Calc TSCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	1.53E-02	2.25E-03
Vinyl chloride	0.60	0.44	1.22E-02	5.41E-03
1,1-Dichloroethane	1.79	0.78	1.89E-02	1.48E-02
1,2-Dichloroethene	1.48	0.76	1.11E-01	8.39E-02
Trichloroethene	2.53	0.62	1.01E-02	6.29E-03
Tetrachloroethene	2.53	0.62	2.33E-02	1.45E-02
Benzene	2.13	0.75	4.00E-03	2.98E-03
Toluene	2.69	0.56	1.28E-02	7.15E-03
Xylenes	2.95	0.45	3.63E-01	1.62E-01
Phenol	1.46	0.75	1.41E-01	1.06E-01
2-Methylphenol	1.95	0.77	7.60E-03	5.89E-03
4-Methylphenol	1.92	0.78	1.10E-02	8.56E-03
Pentachlorophenol	5.01	0.01	1.55E-02	1.69E-04
Naphthalane	3.37	0.28	8.00E-03	2.23E-03
o-Toluic acid	2.54	0.62	2.72E+01	1.68E+01
m-Toluic acid	2.37	0.68	1.74E+01	1.18E+01
p-Toluic acid	2.27	0.71	1.76E+01	1.25E+01

UCL Concentrations

Chemical	Log Kow	Calc RCF	GW Conc (mg/L)	Calc Plant Conc (mg/kg)
Acetone	-0.24	0.15	2.36E-02	3.48E-03
Vinyl chloride	0.60	0.44	1.88E-02	8.33E-03
1,1-Dichloroethane	1.79	0.78	3.46E-02	2.71E-02
1,2-Dichloroethene	1.48	0.76	2.64E-01	1.99E-01
Trichloroethene	2.53	0.62	1.58E-02	9.84E-03
Tetrachloroethene	2.53	0.62	4.41E-02	2.75E-02
Benzene	2.13	0.75	4.00E-03	2.98E-03
Toluene	2.69	0.56	1.98E-02	1.11E-02
Xylenes	2.95	0.45	6.36E-01	2.84E-01
Phenol	1.46	0.75	3.85E-01	2.89E-01
2-Methylphenol	1.95	0.77	1.10E-02	8.52E-03
4-Methylphenol	1.92	0.78	1.91E-02	1.49E-02
Pentachlorophenol	5.01	0.01	2.34E-02	2.55E-04
Naphthalane	3.37	0.28	8.00E-03	2.23E-03
o-Toluic acid	2.54	0.62	5.59E+01	3.46E+01
m-Toluic acid	2.37	0.68	3.53E+01	2.40E+01
p-Toluic acid	2.27	0.71	4.30E+01	3.06E+01

Table H-31. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
OFF-SITE GROUNDWATER USE - Upper Bedrock

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.97E-02	15	1.0	70	0.959	0.129	7.87E-07	1.10E-02	8.66E-09	100.00%
							TOTAL RISK		8.66E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.20E-02	24	1	70	0.959	0.429	5.92E-06	1.10E-02	6.51E-08	100.00%
							TOTAL RISK		6.51E-08	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.42E-01	15	1	70	0.959	0.129	3.76E-06	2.00E-02	1.88E-04	8.89%
Toluene	5.25E-02	15	1	70	0.959	0.129	1.39E-06	2.00E-01	6.96E-06	0.33%
Xylenes	2.55E+00	15	1	70	0.959	0.129	6.76E-05	2.00E+00	3.38E-05	1.60%
o-Toluic acid	1.22E+02	15	1	70	0.959	0.129	3.23E-03	3.00E+00	1.08E-03	50.90%
m-Toluic acid	6.13E+01	15	1	70	0.959	0.129	1.62E-03	3.00E+00	5.42E-04	25.58%
p-Toluic acid	2.03E+01	15	1	70	0.959	0.129	5.38E-04	2.00E+00	2.69E-04	12.71%
							TOTAL HAZRD INDEX		2.12E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.47E-01	24	1	70	0.959	0.429	3.48E-05	2.00E-02	1.74E-03	8.25%
Toluene	8.32E-02	24	1	70	0.959	0.429	1.17E-05	2.00E-01	5.86E-05	0.28%
Xylenes	3.17E+00	24	1	70	0.959	0.429	4.47E-04	2.00E+00	2.23E-04	1.06%
o-Toluic acid	2.27E+02	24	1	70	0.959	0.429	3.20E-02	3.00E+00	1.07E-02	50.52%
m-Toluic acid	1.19E+02	24	1	70	0.959	0.429	1.68E-02	3.00E+00	5.59E-03	26.48%
p-Toluic acid	4.02E+01	24	1	70	0.959	0.429	5.66E-03	2.00E+00	2.83E-03	13.42%
							TOTAL HAZARD INDEX		2.11E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.42E-01	15	1	35	0.959	0.129	7.53E-06	2.00E-02	3.76E-04	8.89%
Toluene	5.25E-02	15	1	35	0.959	0.129	2.78E-06	2.00E-01	1.39E-05	0.33%
Xylenes	2.55E+00	15	1	35	0.959	0.129	1.35E-04	2.00E+00	6.76E-05	1.60%
o-Toluic acid	1.22E+02	15	1	35	0.959	0.129	6.47E-03	3.00E+00	2.16E-03	50.90%
m-Toluic acid	6.13E+01	15	1	35	0.959	0.129	3.25E-03	3.00E+00	1.08E-03	25.58%
p-Toluic acid	2.03E+01	15	1	35	0.959	0.129	1.08E-03	2.00E+00	5.38E-04	12.71%
							TOTAL HAZRD INDEX		4.24E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.47E-01	24	1	35	0.959	0.129	2.09E-05	2.00E-02	1.04E-03	8.25%
Toluene	8.32E-02	24	1	35	0.959	0.129	7.03E-06	2.00E-01	3.52E-05	0.28%
Xylenes	3.17E+00	24	1	35	0.959	0.129	2.68E-04	2.00E+00	1.34E-04	1.06%
o-Toluic acid	2.27E+02	24	1	35	0.959	0.129	1.92E-02	3.00E+00	6.40E-03	50.52%
m-Toluic acid	1.19E+02	24	1	35	0.959	0.129	1.01E-02	3.00E+00	3.35E-03	26.48%
p-Toluic acid	4.02E+01	24	1	35	0.959	0.129	3.40E-03	2.00E+00	1.70E-03	13.42%
							TOTAL HAZARD INDEX		1.27E-02	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	5.29E-03	25	1	70	0.959	0.129	2.34E-07	1.10E-02	2.57E-09	100.00%
							TOTAL RISK		2.57E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	7.47E-03	40	1	70	0.959	0.429	1.75E-06	1.10E-02	1.93E-08	100.00%
							TOTAL RISK		1.93E-08	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.69E-02	25	1	70	0.959	0.129	3.84E-06	2.00E-02	1.92E-04	22.50%
Toluene	6.70E-03	25	1	70	0.959	0.129	2.96E-07	2.00E-01	1.48E-06	0.17%
Xylenes	1.77E-01	25	1	70	0.959	0.129	7.82E-06	2.00E+00	3.91E-06	0.46%
o-Toluic acid	2.12E+01	25	1	70	0.959	0.129	9.37E-04	3.00E+00	3.12E-04	36.60%
m-Toluic acid	1.47E+01	25	1	70	0.959	0.129	6.49E-04	3.00E+00	2.16E-04	25.38%
p-Toluic acid	5.75E+00	25	1	70	0.959	0.129	2.54E-04	2.00E+00	1.27E-04	14.89%
							TOTAL HAZRD INDEX		8.53E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.51E-01	40	1	70	0.959	0.429	3.55E-05	2.00E-02	1.77E-03	20.89%
Toluene	1.06E-02	40	1	70	0.959	0.429	2.49E-06	2.00E-01	1.24E-05	0.06%
Xylenes	2.19E-01	40	1	70	0.959	0.429	5.14E-05	2.00E+00	2.57E-05	0.12%
o-Toluic acid	3.96E+01	40	1	70	0.959	0.429	9.30E-03	3.00E+00	3.10E-03	14.69%
m-Toluic acid	2.86E+01	40	1	70	0.959	0.429	6.72E-03	3.00E+00	2.24E-03	10.61%
p-Toluic acid	1.14E+01	40	1	70	0.959	0.429	2.68E-03	2.00E+00	1.34E-03	6.34%
							TOTAL HAZARD INDEX		8.49E-03	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.69E-02	25	1	35	0.959	0.129	7.68E-06	2.00E-02	3.84E-04	22.50%
Toluene	6.70E-03	25	1	35	0.959	0.129	5.92E-07	2.00E-01	2.96E-06	0.17%
Xylenes	1.77E-01	25	1	35	0.959	0.129	1.56E-05	2.00E+00	7.82E-06	0.46%
o-Toluic acid	2.12E+01	25	1	35	0.959	0.129	1.87E-03	3.00E+00	6.24E-04	36.60%
m-Toluic acid	1.47E+01	25	1	35	0.959	0.129	1.30E-03	3.00E+00	4.33E-04	25.38%
p-Toluic acid	5.75E+00	25	1	35	0.959	0.129	5.08E-04	2.00E+00	2.54E-04	14.89%
							TOTAL HAZRD INDEX		1.71E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.51E-01	40	1	35	0.959	0.129	2.13E-05	2.00E-02	1.06E-03	20.89%
Toluene	1.06E-02	40	1	35	0.959	0.129	1.49E-06	2.00E-01	7.47E-06	0.15%
Xylenes	2.19E-01	40	1	35	0.959	0.129	3.09E-05	2.00E+00	1.54E-05	0.30%
o-Toluic acid	3.96E+01	40	1	35	0.959	0.129	5.58E-03	3.00E+00	1.86E-03	36.52%
m-Toluic acid	2.86E+01	40	1	35	0.959	0.129	4.03E-03	3.00E+00	1.34E-03	26.37%
p-Toluic acid	1.14E+01	40	1	35	0.959	0.129	1.61E-03	2.00E+00	8.03E-04	15.77%
							TOTAL HAZARD INDEX		5.09E-03	

Table H-32. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners) - FS-8
OFF-SITE GROUNDWATER USE - Deep Bedrock

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.40E-02	15	1.0	70	0.959	0.129	3.71E-07	1.10E-02	4.08E-09	10.97%
Tetrachloroethene	2.45E-02	15	1.0	70	0.959	0.129	6.49E-07	5.10E-02	3.31E-08	89.03%
							TOTAL RISK		3.72E-08	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.20E-02	24	1	70	0.959	0.429	5.92E-06	1.10E-02	6.51E-08	17.74%
Tetarchloroethene	4.20E-02	24	1	70	0.959	0.429	5.92E-06	5.10E-02	3.02E-07	82.26%
							TOTAL RISK		3.67E-07	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	15	1	70	0.959	0.129	1.31E-07	2.00E-02	6.56E-06	1.56%
Tetrachloroethene	2.45E-02	15	1	70	0.959	0.129	6.49E-07	1.00E-02	6.49E-05	15.49%
Toluene	1.75E-02	15	1	70	0.959	0.129	4.64E-07	2.00E-01	2.32E-06	0.55%
Xylenes	7.32E-01	15	1	70	0.959	0.129	1.94E-05	2.00E+00	9.70E-06	2.31%
o-Toluic acid	2.02E+01	15	1	70	0.959	0.129	5.35E-04	3.00E+00	1.78E-04	42.57%
m-Toluic acid	1.61E+01	15	1	70	0.959	0.129	4.27E-04	3.00E+00	1.42E-04	33.93%
p-Toluic acid	1.13E+00	15	1	70	0.959	0.129	3.00E-05	2.00E+00	1.50E-05	3.57%
							TOTAL HAZRD INDEX		4.19E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	24	1	70	0.959	0.429	6.97E-07	2.00E-02	3.49E-05	0.60%
Tetrachloroethene	3.74E-02	24	1	70	0.959	0.429	5.27E-06	1.00E-02	5.27E-04	9.08%
Toluene	1.75E-02	24	1	70	0.959	0.429	2.47E-06	2.00E-01	1.23E-05	0.21%
Xylenes	2.04E+00	24	1	70	0.959	0.429	2.87E-04	2.00E+00	1.44E-04	2.48%
o-Toluic acid	5.76E+01	24	1	70	0.959	0.429	8.12E-03	3.00E+00	2.71E-03	46.62%
m-Toluic acid	4.60E+01	24	1	70	0.959	0.429	6.48E-03	3.00E+00	2.16E-03	37.23%
p-Toluic acid	3.12E+00	24	1	70	0.959	0.429	4.40E-04	2.00E+00	2.20E-04	3.79%
							TOTAL HAZARD INDEX		5.80E-03	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	15	1	35	0.959	0.129	2.62E-07	2.00E-02	1.31E-05	1.56%
Tetrachloroethene	2.45E-02	15	1	35	0.959	0.129	1.30E-06	1.00E-02	1.30E-04	15.49%
Toluene	1.75E-02	15	1	35	0.959	0.129	9.28E-07	2.00E-01	4.64E-06	0.55%
Xylenes	7.32E-01	15	1	35	0.959	0.129	3.88E-05	2.00E+00	1.94E-05	2.31%
o-Toluic acid	2.02E+01	15	1	35	0.959	0.129	1.07E-03	3.00E+00	3.57E-04	42.57%
m-Toluic acid	1.61E+01	15	1	35	0.959	0.129	8.54E-04	3.00E+00	2.85E-04	33.93%
p-Toluic acid	1.13E+00	15	1	35	0.959	0.129	5.99E-05	2.00E+00	3.00E-05	3.57%
							TOTAL HAZRD INDEX		8.38E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	24	1	35	0.959	0.129	4.18E-07	2.00E-02	2.09E-05	0.60%
Tetrachloroethene	3.74E-02	24	1	35	0.959	0.129	3.16E-06	1.00E-02	3.16E-04	9.08%
Toluene	1.75E-02	24	1	35	0.959	0.129	1.48E-06	2.00E-01	7.40E-06	0.21%
Xylenes	2.04E+00	24	1	35	0.959	0.129	1.72E-04	2.00E+00	8.62E-05	2.48%
o-Toluic acid	5.76E+01	24	1	35	0.959	0.129	4.87E-03	3.00E+00	1.62E-03	46.62%
m-Toluic acid	4.60E+01	24	1	35	0.959	0.129	3.89E-03	3.00E+00	1.30E-03	37.23%
p-Toluic acid	3.12E+00	24	1	35	0.959	0.129	2.64E-04	2.00E+00	1.32E-04	3.79%
							TOTAL HAZARD INDEX		3.48E-03	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.49E-03	25	1	70	0.959	0.129	1.10E-07	1.10E-02	1.21E-09	10.97%
Tetrachloroethene	4.36E-03	25	1	70	0.959	0.129	1.93E-07	5.10E-02	9.82E-09	89.03%
							TOTAL RISK		1.10E-08	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.49E-03	40	1	70	0.959	0.429	5.85E-07	1.10E-02	6.43E-09	7.46%
Tetrachloroethene	6.66E-03	40	1	70	0.959	0.429	1.56E-06	5.10E-02	7.98E-08	92.54%
							TOTAL RISK		8.62E-08	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	25	1	70	0.959	0.129	1.33E-07	2.00E-02	6.67E-06	4.66%
Tetrachloroethene	4.36E-03	25	1	70	0.959	0.129	1.93E-07	1.00E-02	1.93E-05	13.44%
Toluene	2.23E-03	25	1	70	0.959	0.129	9.85E-08	2.00E-01	4.93E-07	0.34%
Xylenes	5.07E-02	25	1	70	0.959	0.129	2.24E-06	2.00E+00	1.12E-06	0.78%
o-Toluic acid	3.52E+00	25	1	70	0.959	0.129	1.56E-04	3.00E+00	5.18E-05	36.17%
m-Toluic acid	3.86E+00	25	1	70	0.959	0.129	1.71E-04	3.00E+00	5.68E-05	39.67%
p-Toluic acid	3.20E-01	25	1	70	0.959	0.129	1.41E-05	2.00E+00	7.07E-06	4.93%
							TOTAL HAZRD INDEX		1.43E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	40	1	70	0.959	0.429	7.09E-07	2.00E-02	3.55E-05	1.81%
Tetrachloroethene	6.66E-03	40	1	70	0.959	0.429	1.56E-06	1.00E-02	1.56E-04	7.99%
Toluene	2.23E-03	40	1	70	0.959	0.429	5.24E-07	2.00E-01	2.62E-06	0.05%
Xylenes	1.41E-01	40	1	70	0.959	0.429	3.31E-05	2.00E+00	1.66E-05	0.29%
o-Toluic acid	1.00E+01	40	1	70	0.959	0.429	2.35E-03	3.00E+00	7.83E-04	13.49%
m-Toluic acid	1.10E+01	40	1	70	0.959	0.429	2.58E-03	3.00E+00	8.61E-04	14.84%
p-Toluic acid	8.82E-01	40	1	70	0.959	0.429	2.07E-04	2.00E+00	1.04E-04	1.78%
							TOTAL HAZARD INDEX		1.96E-03	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Days/Yr x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 25 g/day x 1.0 x 1/35 kg x 350 days/Days/Yr x 9 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	25	1	35	0.959	0.129	2.67E-07	2.00E-02	1.33E-05	4.66%
Tetrachloroethene	4.36E-03	25	1	35	0.959	0.129	3.85E-07	1.00E-02	3.85E-05	13.44%
Toluene	2.23E-03	25	1	35	0.959	0.129	1.97E-07	2.00E-01	9.85E-07	0.34%
Xylenes	5.07E-02	25	1	35	0.959	0.129	4.48E-06	2.00E+00	2.24E-06	0.78%
o-Toluic acid	3.52E+00	25	1	35	0.959	0.129	3.11E-04	3.00E+00	1.04E-04	36.17%
m-Toluic acid	3.86E+00	25	1	35	0.959	0.129	3.41E-04	3.00E+00	1.14E-04	39.67%
p-Toluic acid	3.20E-01	25	1	35	0.959	0.129	2.83E-05	2.00E+00	1.41E-05	4.93%

TOTAL HAZRD INDEX 2.87E-04

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 40 g/day x 1.0 x 1/35 kg x 350 days/year x 9 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	40	1	35	0.959	0.129	4.26E-07	2.00E-02	2.13E-05	1.81%
Tetrachloroethene	6.66E-03	40	1	35	0.959	0.129	9.38E-07	1.00E-02	9.38E-05	7.99%
Toluene	2.23E-03	40	1	35	0.959	0.129	3.14E-07	2.00E-01	1.57E-06	0.13%
Xylenes	1.41E-01	40	1	35	0.959	0.129	1.99E-05	2.00E+00	9.93E-06	0.85%
o-Toluic acid	1.00E+01	40	1	35	0.959	0.129	1.41E-03	3.00E+00	4.70E-04	39.97%
m-Toluic acid	1.10E+01	40	1	35	0.959	0.129	1.55E-03	3.00E+00	5.17E-04	43.97%
p-Toluic acid	8.82E-01	40	1	35	0.959	0.129	1.24E-04	2.00E+00	6.21E-05	5.29%

TOTAL HAZARD INDEX 1.18E-03

Table H-33. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners) - FS-8
OFF-SITE GROUNDWATER USE - Mixed Bedrock

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.97E-02	15	1.0	70	0.959	0.129	7.87E-07	1.10E-02	8.66E-09	14.27%
Tetrachloroethene	3.85E-02	15	1.0	70	0.959	0.129	1.02E-06	5.10E-02	5.20E-08	85.73%
							TOTAL RISK		6.07E-08	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.16E-02	24	1	70	0.959	0.429	5.86E-06	1.10E-02	6.45E-08	18.90%
Tetarchloroethene	3.85E-02	24	1	70	0.959	0.429	5.42E-06	5.10E-02	2.77E-07	81.10%
							TOTAL RISK		3.41E-07	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Days/Yr x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 15 g/day x 1.0 x 1/70 kg x 350 days/Days/Yr x 9 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.38E-01	15	1	70	0.959	0.129	3.66E-06	2.00E-02	1.83E-04	14.42%
Tetrachloroethene	3.85E-02	15	1	70	0.959	0.129	1.02E-06	1.00E-02	1.02E-04	8.04%
Toluene	3.33E-02	15	1	70	0.959	0.129	8.83E-07	2.00E-01	4.41E-06	0.35%
Xylenes	2.09E+00	15	1	70	0.959	0.129	5.54E-05	2.00E+00	2.77E-05	2.18%
o-Toluic acid	6.39E+01	15	1	70	0.959	0.129	1.69E-03	3.00E+00	5.65E-04	44.51%
m-Toluic acid	3.49E+01	15	1	70	0.959	0.129	9.25E-04	3.00E+00	3.08E-04	24.31%
p-Toluic acid	8.89E+00	15	1	70	0.959	0.129	2.36E-04	3.00E+00	7.85E-05	6.19%
							TOTAL HAZRD INDEX		1.27E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 24 g/day x 1.0 x 1/70 kg x 350 days/year x 30 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.45E-01	24	1	70	0.959	0.429	3.45E-05	2.00E-02	1.73E-03	8.36%
Tetrachloroethene	3.85E-02	24	1	70	0.959	0.429	5.42E-06	1.00E-02	5.42E-04	2.63%
Toluene	5.25E-02	24	1	70	0.959	0.429	7.40E-06	2.00E-01	3.70E-05	0.18%
Xylenes	2.98E+00	24	1	70	0.959	0.429	4.20E-04	2.00E+00	2.10E-04	1.02%
o-Toluic acid	2.27E+02	24	1	70	0.959	0.429	3.20E-02	3.00E+00	1.07E-02	51.62%
m-Toluic acid	1.19E+02	24	1	70	0.959	0.429	1.68E-02	3.00E+00	5.59E-03	27.06%
p-Toluic acid	4.02E+01	24	1	70	0.959	0.429	5.66E-03	3.00E+00	1.89E-03	9.14%
							TOTAL HAZARD INDEX		2.07E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.38E-01	15	1	35	0.959	0.129	7.32E-06	2.00E-02	3.66E-04	14.42%
Tetrachloroethene	3.85E-02	15	1	35	0.959	0.129	2.04E-06	1.00E-02	2.04E-04	8.04%
Toluene	3.33E-02	15	1	35	0.959	0.129	1.77E-06	2.00E-01	8.83E-06	0.35%
Xylenes	2.09E+00	15	1	35	0.959	0.129	1.11E-04	2.00E+00	5.54E-05	2.18%
o-Toluic acid	6.39E+01	15	1	35	0.959	0.129	3.39E-03	3.00E+00	1.13E-03	44.51%
m-Toluic acid	3.49E+01	15	1	35	0.959	0.129	1.85E-03	3.00E+00	6.17E-04	24.31%
p-Toluic acid	8.89E+00	15	1	35	0.959	0.129	4.71E-04	3.00E+00	1.57E-04	6.19%
							TOTAL HAZRD INDEX		2.54E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.45E-01	24	1	35	0.959	0.129	2.07E-05	2.00E-02	1.04E-03	8.36%
Tetrachloroethene	3.85E-02	24	1	35	0.959	0.129	3.25E-06	1.00E-02	3.25E-04	2.63%
Toluene	5.25E-02	24	1	35	0.959	0.129	4.44E-06	2.00E-01	2.22E-05	0.18%
Xylenes	2.98E+00	24	1	35	0.959	0.129	2.52E-04	2.00E+00	1.26E-04	1.02%
o-Toluic acid	2.27E+02	24	1	35	0.959	0.129	1.92E-02	3.00E+00	6.40E-03	51.62%
m-Toluic acid	1.19E+02	24	1	35	0.959	0.129	1.01E-02	3.00E+00	3.35E-03	27.06%
p-Toluic acid	4.02E+01	24	1	35	0.959	0.129	3.40E-03	3.00E+00	1.13E-03	9.14%
							TOTAL HAZARD INDEX		1.24E-02	

TABLE H-33. (Continued)

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	8.43E-02	25	1	70	0.959	0.129	3.72E-06	1.10E-02	4.10E-08	77.46%
Tetrachloroethene	5.29E-03	25	1	70	0.959	0.129	2.34E-07	5.10E-02	1.19E-08	22.54%
							TOTAL RISK		5.29E-08	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.50E-01	40	1	70	0.959	0.429	3.52E-05	1.10E-02	3.87E-07	81.36%
Tetrachloroethene	7.41E-03	40	1	70	0.959	0.429	1.74E-06	5.10E-02	8.87E-08	18.64%
							TOTAL RISK		4.76E-07	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.43E-02	25	1	70	0.959	0.129	3.72E-06	2.00E-02	1.86E-04	22.57%
Tetrachloroethene	6.85E-02	25	1	70	0.959	0.129	3.03E-06	1.00E-02	3.03E-04	36.68%
Toluene	4.24E-02	25	1	70	0.959	0.129	1.87E-06	2.00E-01	9.37E-06	1.14%
Xylenes	1.45E-01	25	1	70	0.959	0.129	6.41E-06	2.00E+00	3.20E-06	0.39%
o-Toluic acid	1.11E+01	25	1	70	0.959	0.129	4.90E-04	3.00E+00	1.63E-04	19.81%
m-Toluic acid	8.35E+00	25	1	70	0.959	0.129	3.69E-04	3.00E+00	1.23E-04	14.91%
p-Toluic acid	2.52E+00	25	1	70	0.959	0.129	1.11E-04	3.00E+00	3.71E-05	4.50%
							TOTAL HAZRD INDEX		8.25E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.50E-01	40	1	70	0.959	0.429	3.52E-05	2.00E-02	1.76E-03	21.52%
Tetrachloroethene	6.85E-03	40	1	70	0.959	0.429	1.61E-06	1.00E-02	1.61E-04	1.97%
Toluene	6.70E-03	40	1	70	0.959	0.429	1.57E-06	2.00E-01	7.87E-06	0.04%
Xylenes	2.06E-01	40	1	70	0.959	0.429	4.84E-05	2.00E+00	2.42E-05	0.12%
o-Toluic acid	3.96E+01	40	1	70	0.959	0.429	9.30E-03	3.00E+00	3.10E-03	15.01%
m-Toluic acid	2.86E+01	40	1	70	0.959	0.429	6.72E-03	3.00E+00	2.24E-03	10.84%
p-Toluic acid	1.14E+01	40	1	70	0.959	0.429	2.68E-03	3.00E+00	8.92E-04	4.32%
							TOTAL HAZARD INDEX		8.19E-03	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.43E-02	25	1	35	0.959	0.129	7.45E-06	2.00E-02	3.72E-04	22.57%
Tetrachloroethene	6.85E-02	25	1	35	0.959	0.129	6.05E-06	1.00E-02	6.05E-04	36.68%
Toluene	4.24E-02	25	1	35	0.959	0.129	3.75E-06	2.00E-01	1.87E-05	1.14%
Xylenes	1.45E-01	25	1	35	0.959	0.129	1.28E-05	2.00E+00	6.41E-06	0.39%
o-Toluic acid	1.11E+01	25	1	35	0.959	0.129	9.81E-04	3.00E+00	3.27E-04	19.81%
m-Toluic acid	8.35E+00	25	1	35	0.959	0.129	7.38E-04	3.00E+00	2.46E-04	14.91%
p-Toluic acid	2.52E+00	25	1	35	0.959	0.129	2.23E-04	3.00E+00	7.42E-05	4.50%
							TOTAL HAZRD INDEX		1.65E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.50E-01	40	1	35	0.959	0.129	2.11E-05	2.00E-02	1.06E-03	21.52%
Tetrachloroethene	6.85E-03	40	1	35	0.959	0.129	9.65E-07	1.00E-02	9.65E-05	1.97%
Toluene	6.70E-03	40	1	35	0.959	0.129	9.44E-07	2.00E-01	4.72E-06	0.10%
Xylenes	2.06E-01	40	1	35	0.959	0.129	2.90E-05	2.00E+00	1.45E-05	0.30%
o-Toluic acid	3.96E+01	40	1	35	0.959	0.129	5.58E-03	3.00E+00	1.86E-03	37.87%
m-Toluic acid	2.86E+01	40	1	35	0.959	0.129	4.03E-03	3.00E+00	1.34E-03	27.35%
p-Toluic acid	1.14E+01	40	1	35	0.959	0.129	1.61E-03	3.00E+00	5.35E-04	10.90%
							TOTAL HAZARD INDEX		4.91E-03	

TABLE H-34. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-6)
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	1.4 L / day	x	1.0	x	1 / 70 kg	x	7 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	1.4	1.00	70	1	0.962	0.129	7.42E-06	1.90E+00	1.41E-05	9.28%
Trichloroethene	3.79E-02	1.4	1.00	70	1	0.962	0.129	9.37E-05	1.10E-02	1.03E-06	0.68%
Benzene	1.00E-03	1.4	1.00	70	1	0.962	0.129	2.47E-06	2.90E-02	7.17E-08	0.05%
Tetrachloroethene	3.68E-01	1.4	1.00	70	1	0.962	0.129	9.10E-04	5.10E-02	4.64E-05	30.56%
Total c-PAHs	5.00E-03	1.4	1.00	70	1	0.962	0.129	1.24E-05	7.30E+00	9.02E-05	59.43%

TOTAL RISK 1.52E-04

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	2 L / day	x	1.0	x	1 / 70 kg	x	7 days / 7 days/wk		50 / 52		30 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	2	1.00	70	1	0.962	0.429	3.67E-05	1.90E+00	6.98E-05	6.66%
Trichloroethene	7.43E-02	2	1.00	70	1	0.962	0.429	9.10E-04	1.10E-02	1.00E-05	0.95%
Benzene	1.00E-03	2	1.00	70	1	0.962	0.429	1.22E-05	2.90E-02	3.55E-07	0.03%
Tetrachloroethene	8.35E-01	2	1.00	70	1	0.962	0.429	1.02E-02	5.10E-02	5.22E-04	49.74%
Total c-PAHs	5.00E-03	2	1.00	70	1	0.962	0.429	6.12E-05	7.30E+00	4.47E-04	42.62%

TOTAL RISK 1.05E-03

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	1.4	1.00	70	1	0.962	0.129	1.32E-04	2.00E-02	6.61E-03	3.70%
Tetrachloroethene	3.68E-01	1.4	1.00	70	1	0.962	0.129	9.10E-04	1.00E-02	9.10E-02	50.92%
o-Toluic acid	2.28E+01	1.4	1.00	70	1	0.962	0.129	5.63E-02	3.00E+00	1.88E-02	10.50%
m-Toluic acid	1.03E+01	1.4	1.00	70	1	0.962	0.129	2.55E-02	3.00E+00	8.51E-03	4.77%
p-Toluic acid	1.18E+00	1.4	1.00	70	1	0.962	0.129	2.93E-03	3.00E+00	9.76E-04	0.55%
Arsenic	1.24E-01	1.4	0.05	70	1	0.962	0.129	1.54E-05	3.00E-04	5.12E-02	28.65%
Barium	1.34E-01	1.4	0.05	70	1	0.962	0.129	1.65E-05	7.00E-02	2.36E-04	0.13%
Lead	2.55E-02	1.4	0.05	70	1	0.962	0.129	3.15E-06	3.00E-02	1.05E-04	0.06%
Vanadium	7.30E-02	1.4	0.05	70	1	0.962	0.129	9.02E-06	7.00E-03	1.29E-03	0.72%

HAZ INDEX 1.79E-01

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	2	1.00	70	1	0.962	0.429	1.05E-03	2.00E-02	5.27E-02	3.34%
Tetrachloroethene	8.35E-01	2	1.00	70	1	0.962	0.429	9.83E-03	1.00E-02	9.83E-01	62.25%
o-Toluic acid	3.94E+01	2	1.00	70	1	0.962	0.429	4.64E-01	3.00E+00	1.55E-01	9.80%
m-Toluic acid	1.89E+01	2	1.00	70	1	0.962	0.429	2.23E-01	3.00E+00	7.42E-02	4.70%
p-Toluic acid	2.25E+00	2	1.00	70	1	0.962	0.429	2.65E-02	3.00E+00	8.82E-03	0.56%
Arsenic	1.49E-01	2	0.05	70	1	0.962	0.429	8.78E-05	3.00E-04	2.93E-01	18.53%
Barium	1.88E-01	2	0.05	70	1	0.962	0.429	1.11E-04	7.00E-02	1.58E-03	0.10%
Lead	5.03E-02	2	0.05	70	1	0.962	0.429	2.96E-05	3.00E-02	9.87E-04	0.06%
Vanadium	1.26E-01	2	0.05	70	1	0.962	0.429	7.39E-05	7.00E-03	1.06E-02	0.67%

HAZ INDEX 1.58E+00

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	1.5 L / day	x	1.0	x	1 / 35 kg	x	7 days / 7 days/wk	x	50 / 52	x	9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	1.5	1.00	35	1	0.962	0.129	2.83E-04	2.00E-02	1.42E-02	3.70%
Tetrachloroethene	3.68E-01	1.5	1.00	35	1	0.962	0.129	1.95E-03	1.00E-02	1.95E-01	50.92%
o-Toluic acid	2.28E+01	1.5	1.00	35	1	0.962	0.129	1.21E-01	3.00E+00	4.02E-02	10.50%
m-Toluic acid	1.03E+01	1.5	1.00	35	1	0.962	0.129	5.47E-02	3.00E+00	1.82E-02	4.77%
p-Toluic acid	1.18E+00	1.5	1.00	35	1	0.962	0.129	6.27E-03	3.00E+00	2.09E-03	0.55%
Arsenic	1.24E-01	1.5	0.05	35	1	0.962	0.129	3.29E-05	3.00E-04	1.10E-01	28.65%
Barium	1.34E-01	1.5	0.05	35	1	0.962	0.129	3.54E-05	7.00E-02	5.06E-04	0.13%
Lead	2.55E-02	1.5	0.05	35	1	0.962	0.129	6.76E-06	3.00E-02	2.25E-04	0.06%
Vanadium	7.30E-02	1.5	0.05	35	1	0.962	0.129	1.93E-05	7.00E-03	2.76E-03	0.72%
								HAZARD INDEX		3.83E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	2 L / day	x	1.0	x	1 / 35 kg	x	7 days / 7 days/wk	x	50 / 52	x	9 yrs / 70 years	= CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	x Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	2	1.00	35	1	0.962	0.129	6.33E-04	2.00E-02	3.16E-02	3.35%
Tetrachloroethene	8.35E-01	2	1.00	35	1	0.962	0.129	5.90E-03	1.00E-02	5.90E-01	62.45%
o-Toluic acid	3.94E+01	2	1.00	35	1	0.962	0.129	2.79E-01	3.00E+00	9.29E-02	9.83%
m-Toluic acid	1.89E+01	2	1.00	35	1	0.962	0.129	1.34E-01	3.00E+00	4.45E-02	4.71%
p-Toluic acid	2.25E+00	2	1.00	35	1	0.962	0.129	1.59E-02	3.00E+00	5.29E-03	0.56%
Arsenic	1.49E-01	2	0.05	35	1	0.962	0.129	5.27E-05	3.00E-04	1.76E-01	18.59%
Barium	1.88E-01	2	0.05	35	1	0.962	0.129	6.64E-05	7.00E-02	9.48E-04	0.10%
Lead	5.03E-02	2	0.05	35	1	0.962	0.129	1.78E-05	3.00E-02	5.92E-04	0.06%
Vanadium	1.26E-01	2	0.05	70	1	0.962	0.129	2.22E-05	7.00E-03	3.17E-03	0.34%
								HAZARD INDEX		9.45E-01	

TABLE H-35. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-8)
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	1.4 L / day	x	1.0	x	1 / 70 kg	x	7 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.44E-02	1.4	1.00	70	1	0.962	0.129	3.56E-05	1.90E+00	6.76E-05	94.12%
Trichloroethene	1.18E-02	1.4	1.00	70	1	0.962	0.129	2.92E-05	1.10E-02	3.21E-07	0.45%
Benzene	4.00E-03	1.4	1.00	70	1	0.962	0.129	9.89E-06	2.90E-02	2.87E-07	0.40%
Tetrachloroethene	2.87E-02	1.4	1.00	70	1	0.962	0.129	7.10E-05	5.10E-02	3.62E-06	5.04%

TOTAL RISK 7.19E-05

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	2 L / day	x	1.0	x	1 / 70 kg	x	7 days / 7 days/wk		50 / 52		30 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	2.28E-02	2	1.00	70	1	0.962	0.429	2.79E-04	1.90E+00	5.30E-04	93.23%
Trichloroethene	1.90E-02	2	1.00	70	1	0.962	0.429	2.33E-04	1.10E-02	2.56E-06	0.45%
Benzene	4.00E-03	2	1.00	70	1	0.962	0.429	4.90E-05	2.90E-02	1.42E-06	0.25%
Tetrachloroethene	5.53E-02	2	1.00	70	1	0.962	0.429	6.77E-04	5.10E-02	3.45E-05	6.07%

TOTAL RISK 5.69E-04

Note: Database does not include off-site well MW-16I.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	1.4	1.00	70	1	0.962	0.129	3.57E-04	2.00E-02	1.79E-02	14.00%
Tetrachloroethene	2.87E-02	1.4	1.00	70	1	0.962	0.129	7.10E-05	1.00E-02	7.10E-03	5.57%
Xylenes	4.54E-01	1.4	1.00	70	1	0.962	0.129	1.12E-03	2.00E+00	5.61E-04	0.44%
o-Toluic acid	3.46E+01	1.4	1.00	70	1	0.962	0.129	8.56E-02	3.00E+00	2.85E-02	22.37%
m-Toluic acid	2.18E+01	1.4	1.00	70	1	0.962	0.129	5.38E-02	3.00E+00	1.79E-02	14.07%
p-Toluic acid	2.30E+01	1.4	1.00	70	1	0.962	0.129	5.68E-02	3.00E+00	1.89E-02	14.84%
Arsenic	8.60E-02	1.4	0.05	70	1	0.962	0.129	1.06E-05	3.00E-04	3.54E-02	27.79%
Barium	1.24E-01	1.4	0.05	70	1	0.962	0.129	1.54E-05	7.00E-02	2.20E-04	0.17%
Lead	2.49E-02	1.4	0.05	70	1	0.962	0.129	3.08E-06	3.00E-02	1.03E-04	0.08%
Vanadium	4.77E-02	1.4	0.05	70	1	0.962	0.129	5.90E-06	7.00E-03	8.42E-04	0.66%

HAZ INDEX 1.28E-01

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	2	1.00	70	1	0.962	0.429	4.03E-03	2.00E-02	2.02E-01	15.26%
Tetrachloroethene	5.53E-02	2	1.00	70	1	0.962	0.429	6.51E-04	1.00E-02	6.51E-02	4.93%
Xylenes	7.97E-01	2	1.00	70	1	0.962	0.429	9.38E-03	2.00E+00	4.69E-03	0.36%
o-Toluic acid	7.15E+01	2	1.00	70	1	0.962	0.429	8.42E-01	3.00E+00	2.81E-01	21.26%
m-Toluic acid	4.48E+01	2	1.00	70	1	0.962	0.429	5.27E-01	3.00E+00	1.76E-01	13.31%
p-Toluic acid	5.60E+01	2	1.00	70	1	0.962	0.429	6.59E-01	3.00E+00	2.20E-01	16.63%
Arsenic	1.85E-01	2	0.05	70	1	0.962	0.429	1.09E-04	3.00E-04	3.64E-01	27.55%
Barium	1.70E-01	2	0.05	70	1	0.962	0.429	9.98E-05	7.00E-02	1.43E-03	0.11%
Lead	4.61E-02	2	0.05	70	1	0.962	0.429	2.71E-05	3.00E-02	9.05E-04	0.07%
Vanadium	8.37E-02	2	0.05	70	1	0.962	0.429	4.93E-05	7.00E-03	7.04E-03	0.53%

HAZ INDEX 1.32E+00

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.5 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	1.5	1.00	35	1	0.962	0.129	7.65E-04	2.00E-02	3.83E-02	14.00%
Tetrachloroethene	2.87E-02	1.5	1.00	35	1	0.962	0.129	1.52E-04	1.00E-02	1.52E-02	5.57%
Xylenes	4.54E-01	1.5	1.00	35	1	0.962	0.129	2.41E-03	2.00E+00	1.20E-03	0.44%
o-Toluic acid	3.46E+01	1.5	1.00	35	1	0.962	0.129	1.83E-01	3.00E+00	6.11E-02	22.37%
m-Toluic acid	2.18E+01	1.5	1.00	35	1	0.962	0.129	1.15E-01	3.00E+00	3.84E-02	14.07%
p-Toluic acid	2.30E+01	1.5	1.00	35	1	0.962	0.129	1.22E-01	3.00E+00	4.06E-02	14.84%
Arsenic	8.60E-02	1.5	0.05	35	1	0.962	0.129	2.28E-05	3.00E-04	7.59E-02	27.79%
Barium	1.24E-01	1.5	0.05	35	1	0.962	0.129	3.29E-05	7.00E-02	4.70E-04	0.17%
Lead	2.49E-02	1.5	0.05	35	1	0.962	0.129	6.60E-06	3.00E-02	2.20E-04	0.08%
Vanadium	4.77E-02	1.5	0.05	35	1	0.962	0.129	1.26E-05	7.00E-03	1.81E-03	0.66%
								HAZARD INDEX		2.73E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	2	1.00	35	1	0.962	0.129	2.42E-03	2.00E-02	1.21E-01	15.30%
Tetrachloroethene	5.53E-02	2	1.00	35	1	0.962	0.129	3.91E-04	1.00E-02	3.91E-02	4.94%
Xylenes	7.97E-01	2	1.00	35	1	0.962	0.129	5.63E-03	2.00E+00	2.81E-03	0.36%
o-Toluic acid	7.15E+01	2	1.00	35	1	0.962	0.129	5.05E-01	3.00E+00	1.68E-01	21.31%
m-Toluic acid	4.48E+01	2	1.00	35	1	0.962	0.129	3.16E-01	3.00E+00	1.05E-01	13.35%
p-Toluic acid	5.60E+01	2	1.00	35	1	0.962	0.129	3.95E-01	3.00E+00	1.32E-01	16.68%
Arsenic	1.85E-01	2	0.05	35	1	0.962	0.129	6.55E-05	3.00E-04	2.18E-01	27.62%
Barium	1.70E-01	2	0.05	35	1	0.962	0.129	5.99E-05	7.00E-02	8.56E-04	0.11%
Lead	4.61E-02	2	0.05	35	1	0.962	0.129	1.63E-05	3.00E-02	5.43E-04	0.07%
Vanadium	8.37E-02	2	0.05	70	1	0.962	0.129	1.48E-05	7.00E-03	2.11E-03	0.27%
								HAZARD INDEX		7.90E-01	

TABLE H-36. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-8)
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk 50/52 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	2.70E-03	1.4	1.00	70	1	0.962	0.129	6.68E-06	1.10E-02	7.34E-08	10.03%
Benzene	2.50E-03	1.4	1.00	70	1	0.962	0.129	6.18E-06	2.90E-02	1.79E-07	24.49%
Tetrachloroethene	3.80E-03	1.4	1.00	70	1	0.962	0.129	9.40E-06	5.10E-02	4.79E-07	65.47%
									TOTAL RISK	7.32E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs Exposed/Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk 50/52 30 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	3.00E-03	2	1.00	70	1	0.962	0.429	3.67E-05	1.10E-02	4.04E-07	8.96%
Benzene	2.60E-03	2	1.00	70	1	0.962	0.429	3.18E-05	2.90E-02	9.23E-07	20.46%
Tetrachloroethene	5.10E-03	2	1.00	70	1	0.962	0.429	6.24E-05	5.10E-02	3.18E-06	70.58%
									TOTAL RISK	4.51E-06	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.80E-03	1.4	1.00	70	1	0.962	0.129	1.93E-05	1.00E-01	1.93E-04	0.75%
1,2-Dichloroethene	1.26E-02	1.4	1.00	70	1	0.962	0.129	3.12E-05	2.00E-02	1.56E-03	6.07%
Tetrachloroethene	3.80E-03	1.4	1.00	70	1	0.962	0.129	9.40E-06	1.00E-02	9.40E-04	3.66%
Xylenes	7.64E-02	1.4	1.00	70	1	0.962	0.129	1.89E-04	2.00E+00	9.45E-05	0.37%
2-methyl phenol	5.20E-03	1.4	1.00	70	1	0.962	0.129	1.29E-05	5.00E-02	2.57E-04	1.00%
4-methyl phenol	5.40E-03	1.4	1.00	70	1	0.962	0.129	1.34E-05	5.00E-02	2.67E-04	1.04%
o-Toluic acid	2.91E+00	1.4	1.00	70	1	0.962	0.129	7.19E-03	3.00E+00	2.40E-03	9.34%
m-Toluic acid	1.42E+00	1.4	1.00	70	1	0.962	0.129	3.52E-03	3.00E+00	1.17E-03	4.57%
p-Toluic acid	1.89E-01	1.4	1.00	70	1	0.962	0.129	4.67E-04	3.00E+00	1.56E-04	0.61%
Arsenic	1.91E-02	1.4	0.05	70	1	0.962	0.129	2.36E-06	3.00E-04	7.87E-03	30.68%
Antimony	2.93E-02	1.4	0.05	70	1	0.962	0.129	3.62E-06	4.00E-04	9.06E-03	35.30%
Barium	7.72E-02	1.4	0.05	70	1	0.962	0.129	9.54E-06	7.00E-02	1.36E-04	0.53%
Mercury	6.50E-04	1.4	0.05	70	1	0.962	0.129	8.04E-08	3.00E-04	2.68E-04	1.04%
Lead	2.00E-03	1.4	0.05	70	1	0.962	0.129	2.47E-07	3.00E-02	8.24E-06	0.03%
Thallium	7.00E-04	1.4	0.05	70	1	0.962	0.129	8.65E-08	8.00E-05	1.08E-03	4.22%
Vanadium	1.12E-02	1.4	0.05	70	1	0.962	0.129	1.38E-06	7.00E-03	1.98E-04	0.77%

HAZARD INDEX 2.57E-02

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	x Wks expd Wks/year	Yrs exposed Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.10E-02	2	1.00	70	1	0.962	0.429	1.30E-04	1.00E-01	1.30E-03	0.61%
1,2-Dichloroethene	3.02E-02	2	1.00	70	1	0.962	0.429	3.56E-04	2.00E-02	1.78E-02	8.40%
Tetrachloroethene	5.10E-03	2	1.00	70	1	0.962	0.429	6.00E-05	1.00E-02	6.00E-03	2.84%
Xylenes	1.76E-01	2	1.00	70	1	0.962	0.429	2.08E-03	2.00E+00	1.04E-03	0.49%
2-methyl phenol	5.60E-03	2	1.00	70	1	0.962	0.429	6.59E-05	5.00E-02	1.32E-03	0.62%
4-methyl phenol	6.20E-03	2	1.00	70	1	0.962	0.429	7.30E-05	5.00E-02	1.46E-03	0.69%
o-Toluic acid	6.74E+00	2	1.00	70	1	0.962	0.429	7.93E-02	3.00E+00	2.64E-02	12.49%
m-Toluic acid	3.20E+00	2	1.00	70	1	0.962	0.429	3.76E-02	3.00E+00	1.25E-02	5.93%
p-Toluic acid	3.98E-01	2	1.00	70	1	0.962	0.429	4.69E-03	3.00E+00	1.56E-03	0.74%
Arsenic	3.98E-02	2	0.05	70	1	0.962	0.429	2.34E-05	3.00E-04	7.81E-02	36.89%
Antimony	3.60E-02	2	0.05	70	1	0.962	0.429	2.12E-05	4.00E-04	5.30E-02	25.03%
Barium	1.82E-01	2	0.05	70	1	0.962	0.429	1.07E-04	7.00E-02	1.53E-03	0.72%
Mercury	9.30E-04	2	0.05	70	1	0.962	0.429	5.47E-07	3.00E-04	1.82E-03	0.86%
Lead	3.10E-03	2	0.05	70	1	0.962	0.429	1.82E-06	3.00E-02	6.08E-05	0.03%
Thallium	8.00E-04	2	0.05	70	1	0.962	0.429	4.71E-07	8.00E-05	5.89E-03	2.78%
Vanadium	2.20E-02	2	0.05	70	1	0.962	0.429	1.30E-05	7.00E-03	1.85E-03	0.87%

HAZARD INDEX 2.12E-01

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.5 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	7.80E-03	1.5	1.00	35	1	0.962	0.129	4.13E-05	1.00E-01	4.13E-04	0.75%
1,2-Dichloroethene	1.26E-02	1.5	1.00	35	1	0.962	0.129	6.68E-05	2.00E-02	3.34E-03	6.07%
Tetrachloroethene	3.80E-03	1.5	1.00	35	1	0.962	0.129	2.01E-05	1.00E-02	2.01E-03	3.66%
Xylenes	7.64E-02	1.5	1.00	35	1	0.962	0.129	4.05E-04	2.00E+00	2.02E-04	0.37%
2-methyl phenol	5.20E-03	1.5	1.00	35	1	0.962	0.129	2.76E-05	5.00E-02	5.51E-04	1.00%
4-methyl phenol	5.40E-03	1.5	1.00	35	1	0.962	0.129	2.86E-05	5.00E-02	5.72E-04	1.04%
o-Toluic acid	2.91E+00	1.5	1.00	35	1	0.962	0.129	1.54E-02	3.00E+00	5.13E-03	9.34%
m-Toluic acid	1.42E+00	1.5	1.00	35	1	0.962	0.129	7.53E-03	3.00E+00	2.51E-03	4.57%
p-Toluic acid	1.89E-01	1.5	1.00	35	1	0.962	0.129	1.00E-03	3.00E+00	3.34E-04	0.61%
Arsenic	1.91E-02	1.5	0.05	35	1	0.962	0.129	5.06E-06	3.00E-04	1.69E-02	30.68%
Antimony	2.93E-02	1.5	0.05	35	1	0.962	0.129	7.76E-06	4.00E-04	1.94E-02	35.30%
Barium	7.72E-02	1.5	0.05	35	1	0.962	0.129	2.05E-05	7.00E-02	2.92E-04	0.53%
Mercury	6.50E-04	1.5	0.05	35	1	0.962	0.129	1.72E-07	3.00E-04	5.74E-04	1.04%
Lead	2.00E-03	1.5	0.05	35	1	0.962	0.129	5.30E-07	3.00E-02	1.77E-05	0.03%
Thallium	7.00E-04	1.5	0.05	35	1	0.962	0.129	1.85E-07	8.00E-05	2.32E-03	4.22%
Vanadium	1.12E-02	1.5	0.05	35	1	0.962	0.129	2.97E-06	7.00E-03	4.24E-04	0.77%
								HAZARD INDEX		5.50E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.10E-02	2	1.00	35	1	0.962	0.129	7.77E-05	1.00E-01	7.77E-04	0.61%
1,2-Dichloroethene	3.02E-02	2	1.00	35	1	0.962	0.129	2.13E-04	2.00E-02	1.07E-02	8.40%
Tetrachloroethene	5.10E-03	2	1.00	35	1	0.962	0.129	3.60E-05	1.00E-02	3.60E-03	2.84%
Xylenes	1.76E-01	2	1.00	35	1	0.962	0.129	1.25E-03	2.00E+00	6.23E-04	0.49%
2-methyl phenol	5.60E-03	2	1.00	35	1	0.962	0.129	3.96E-05	5.00E-02	7.91E-04	0.62%
4-methyl phenol	6.20E-03	2	1.00	35	1	0.962	0.129	4.38E-05	5.00E-02	8.76E-04	0.69%
o-Toluic acid	6.74E+00	2	1.00	35	1	0.962	0.129	4.76E-02	3.00E+00	1.59E-02	12.49%
m-Toluic acid	3.20E+00	2	1.00	35	1	0.962	0.129	2.26E-02	3.00E+00	7.53E-03	5.93%
p-Toluic acid	3.98E-01	2	1.00	35	1	0.962	0.129	2.81E-03	3.00E+00	9.37E-04	0.74%
Arsenic	3.98E-02	2	0.05	35	1	0.962	0.129	1.41E-05	3.00E-04	4.69E-02	36.89%
Antimony	3.60E-02	2	0.05	35	1	0.962	0.129	1.27E-05	4.00E-04	3.18E-02	25.03%
Barium	1.82E-01	2	0.05	35	1	0.962	0.129	6.44E-05	7.00E-02	9.20E-04	0.72%
Mercury	9.30E-04	2	0.05	35	1	0.962	0.129	3.28E-07	3.00E-04	1.09E-03	0.86%
Lead	3.10E-03	2	0.05	35	1	0.962	0.129	1.09E-06	3.00E-02	3.65E-05	0.03%
Thallium	8.00E-04	2	0.05	35	1	0.962	0.129	2.83E-07	8.00E-05	3.53E-03	2.78%
Vanadium	2.20E-02	2	0.05	35	1	0.962	0.129	7.77E-06	7.00E-03	1.11E-03	0.87%
								HAZARD INDEX		1.27E-01	

TABLE H-37. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-6)
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	1.4	1.00	70	1	0.962	0.129	9.89E-06	1.10E-02	1.09E-07	12.2%
Tetrachloroethene	6.20E-03	1.4	1.00	70	1	0.962	0.129	1.53E-05	5.10E-02	7.82E-07	87.8%
									TOTAL RISK	8.91E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs Exposed/Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	2	1.00	70	1	0.962	0.429	4.90E-05	1.10E-02	5.39E-07	9.6%
Tetrachloroethene	8.10E-03	2	1.00	70	1	0.962	0.429	9.92E-05	5.10E-02	5.06E-06	90.4%
									TOTAL RISK	5.60E-06	

Note: Database does not include off-site well MW-16D.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs expd/Years lifetime = ADD

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs expd/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.34E-02	1.4	1.00	70	1	0.962	0.129	3.31E-05	1.00E-01	3.31E-04	1.4%
1,2-Dichloroethene	4.00E-03	1.4	1.00	70	1	0.962	0.129	9.89E-06	2.00E-02	4.95E-04	2.1%
Tetrachloroethene	6.20E-03	1.4	1.00	70	1	0.962	0.129	1.53E-05	1.00E-02	1.53E-03	6.5%
Xylenes	7.00E-02	1.4	1.00	70	1	0.962	0.129	1.73E-04	2.00E+00	8.65E-05	0.4%
2-methyl phenol	6.00E-03	1.4	1.00	70	1	0.962	0.129	1.48E-05	5.00E-02	2.97E-04	1.3%
Pentachlorophenol	2.20E-02	1.4	1.00	70	1	0.962	0.129	5.44E-05	3.00E-02	1.81E-03	7.7%
o-Toluic acid	3.42E+00	1.4	1.00	70	1	0.962	0.129	8.46E-03	3.00E+00	2.82E-03	11.9%
m-Toluic acid	3.42E+00	1.4	1.00	70	1	0.962	0.129	8.46E-03	3.00E+00	2.82E-03	11.9%
p-Toluic acid	2.80E-01	1.4	1.00	70	1	0.962	0.129	6.92E-04	3.00E+00	2.31E-04	1.0%
Arsenic	3.08E-02	1.4	0.05	70	1	0.962	0.129	3.81E-06	3.00E-04	1.27E-02	53.7%
Antimony	1.60E-03	1.4	0.05	70	1	0.962	0.129	1.98E-07	4.00E-04	4.95E-04	2.1%
Cadmium	2.00E-03	1.4	0.05	70	1	0.962	0.129	2.47E-07	7.00E-03	3.53E-05	0.1%
								HAZARD INDEX		2.36E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs expd/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs expd/Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	2.64E-02	2	1.00	70	1	0.962	0.429	3.11E-04	1.00E-01	3.11E-03	1.2%
1,2-Dichloroethene	4.00E-03	2	1.00	70	1	0.962	0.429	4.71E-05	2.00E-02	2.35E-03	0.9%
Tetrachloroethene	8.10E-03	2	1.00	70	1	0.962	0.429	9.54E-05	1.00E-02	9.54E-03	3.8%
Xylenes	1.71E-01	2	1.00	70	1	0.962	0.429	2.01E-03	2.00E+00	1.01E-03	0.4%
2-methyl phenol	7.60E-03	2	1.00	70	1	0.962	0.429	8.95E-05	5.00E-02	1.79E-03	0.7%
Pentachlorophenol	3.67E-02	2	1.00	70	1	0.962	0.429	4.32E-04	5.00E-02	8.64E-03	3.4%
o-Toluic acid	8.69E+00	2	1.00	70	1	0.962	0.429	1.02E-01	3.00E+00	3.41E-02	13.6%
m-Toluic acid	8.67E+00	2	1.00	70	1	0.962	0.429	1.02E-01	3.00E+00	3.40E-02	13.5%
p-Toluic acid	6.76E-01	2	1.00	70	1	0.962	0.429	7.96E-03	3.00E+00	2.65E-03	1.1%
Arsenic	7.67E-02	2	0.05	70	1	0.962	0.429	4.52E-05	3.00E-04	1.51E-01	59.9%
Antimony	2.50E-03	2	0.05	70	1	0.962	0.429	1.47E-06	4.00E-04	3.68E-03	1.5%
Cadmium	2.70E-03	2	0.05	70	1	0.962	0.429	1.59E-06	7.00E-02	2.27E-05	0.0%
								HAZARD INDEX		2.51E-01	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs expd/Years lifetime = ADD

mg/L x 1.5 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = ADD

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs expd/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.34E-02	1.5	1.00	35	1	0.962	0.129	7.10E-05	1.00E-01	7.10E-04	1.4%
1,2-Dichloroethene	4.00E-03	1.5	1.00	35	1	0.962	0.129	2.12E-05	2.00E-02	1.06E-03	2.1%
Tetrachloroethene	6.20E-03	1.5	1.00	35	1	0.962	0.129	3.28E-05	1.00E-02	3.28E-03	6.5%
Xylenes	7.00E-02	1.5	1.00	35	1	0.962	0.129	3.71E-04	2.00E+00	1.85E-04	0.4%
2-methyl phenol	6.00E-03	1.5	1.00	35	1	0.962	0.129	3.18E-05	5.00E-02	6.36E-04	1.3%
Pentachlorophenol	2.20E-02	1.5	1.00	35	1	0.962	0.129	1.17E-04	3.00E-02	3.89E-03	7.7%
o-Toluic acid	3.42E+00	1.5	1.00	35	1	0.962	0.129	1.81E-02	3.00E+00	6.04E-03	11.9%
m-Toluic acid	3.42E+00	1.5	1.00	35	1	0.962	0.129	1.81E-02	3.00E+00	6.04E-03	11.9%
p-Toluic acid	2.80E-01	1.5	1.00	35	1	0.962	0.129	1.48E-03	3.00E+00	4.95E-04	1.0%
Arsenic	3.08E-02	1.5	0.05	35	1	0.962	0.129	8.16E-06	3.00E-04	2.72E-02	53.7%
Antimony	1.60E-03	1.5	0.05	35	1	0.962	0.129	4.24E-07	4.00E-04	1.06E-03	2.1%
Cadmium	2.00E-03	1.5	0.05	35	1	0.962	0.129	5.30E-07	7.00E-03	7.57E-05	0.1%
								HAZARD INDEX		5.07E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs expd/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs expd/Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	2.64E-02	2	1.00	35	1	0.962	0.129	1.86E-04	1.00E-01	1.86E-03	1.2%
1,2-Dichloroethene	4.00E-03	2	1.00	35	1	0.962	0.129	2.83E-05	2.00E-02	1.41E-03	0.6%
Tetrachloroethene	8.10E-03	2	1.00	35	1	0.962	0.129	5.72E-05	1.00E-02	5.72E-03	2.3%
Xylenes	1.71E-01	2	1.00	35	1	0.962	0.129	1.21E-03	2.00E+00	6.04E-04	0.2%
2-methyl phenol	7.60E-03	2	1.00	35	1	0.962	0.129	5.37E-05	5.00E-02	1.07E-03	0.4%
Pentachlorophenol	3.67E-02	2	1.00	35	1	0.962	0.129	2.59E-04	5.00E-02	5.19E-03	2.1%
o-Toluic acid	8.69E+00	2	1.00	35	1	0.962	0.129	6.14E-02	3.00E+00	2.05E-02	8.1%
m-Toluic acid	8.67E+00	2	1.00	35	1	0.962	0.129	6.12E-02	3.00E+00	2.04E-02	8.1%
p-Toluic acid	6.76E-01	2	1.00	35	1	0.962	0.129	4.77E-03	3.00E+00	1.59E-03	0.6%
Arsenic	7.67E-02	2	0.05	35	1	0.962	0.129	2.71E-05	3.00E-04	9.03E-02	35.9%
Antimony	2.50E-03	2	0.05	35	1	0.962	0.129	8.83E-07	4.00E-04	2.21E-03	0.9%
Cadmium	2.70E-03	2	0.05	35	1	0.962	0.129	9.54E-07	7.00E-02	1.36E-05	0.0%
								HAZARD INDEX		1.51E-01	

TABLE H-38. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-6)
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs exposed / Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	1.4	1.00	70	1	0.962	0.129	7.42E-06	1.90E+00	1.41E-05	10.61%
Trichloroethene	2.35E-02	1.4	1.00	70	1	0.962	0.129	5.81E-05	1.10E-02	6.39E-07	0.48%
Benzene	3.00E-03	1.4	1.00	70	1	0.962	0.129	7.42E-06	2.90E-02	2.15E-07	0.16%
Tetrachloroethene	2.19E-01	1.4	1.00	70	1	0.962	0.129	5.41E-04	5.10E-02	2.76E-05	20.79%
Total c-PAHs	5.00E-03	1.4	1.00	70	1	0.962	0.129	1.24E-05	7.30E+00	9.02E-05	67.95%

TOTAL RISK 1.33E-04

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs Exposed / Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	2	1.00	70	1	0.962	0.429	3.67E-05	1.90E+00	6.98E-05	7.93%
Trichloroethene	5.13E-02	2	1.00	70	1	0.962	0.429	6.28E-04	1.10E-02	6.91E-06	0.78%
Benzene	3.00E-03	2	1.00	70	1	0.962	0.429	3.67E-05	2.90E-02	1.07E-06	0.12%
Tetrachloroethene	5.69E-01	2	1.00	70	1	0.962	0.429	6.97E-03	5.10E-02	3.56E-04	40.39%
Total c-PAHs	5.00E-03	2	1.00	70	1	0.962	0.429	6.12E-05	7.30E+00	4.47E-04	50.77%

TOTAL RISK 8.80E-04

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	1.4	1.00	70	1	0.962	0.129	9.10E-05	2.00E-02	4.55E-03	4.29%
Tetrachloroethene	2.19E-01	1.4	1.00	70	1	0.962	0.129	5.41E-04	1.00E-02	5.41E-02	51.09%
Xylenes	3.75E-01	1.4	1.00	70	1	0.962	0.129	9.28E-04	2.00E+00	4.64E-04	0.44%
o-Toluic acid	1.31E+01	1.4	1.00	70	1	0.962	0.129	3.23E-02	3.00E+00	1.08E-02	10.15%
m-Toluic acid	5.91E+00	1.4	1.00	70	1	0.962	0.129	1.46E-02	3.00E+00	4.87E-03	4.60%
p-Toluic acid	7.05E-01	1.4	1.00	70	1	0.962	0.129	1.74E-03	3.00E+00	5.81E-04	0.55%
Arsenic	7.17E-02	1.4	0.05	70	1	0.962	0.129	8.86E-06	3.00E-04	2.95E-02	27.88%
Barium	1.38E-01	1.4	0.05	70	1	0.962	0.129	1.70E-05	7.00E-02	2.43E-04	0.23%
Lead	1.30E-03	1.4	0.05	70	1	0.962	0.129	1.61E-07	3.00E-02	5.36E-06	0.01%
Vanadium	4.65E-02	1.4	0.05	70	1	0.962	0.129	5.75E-06	7.00E-03	8.21E-04	0.77%
									HAZ INDEX	1.06E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	2	1.00	70	1	0.962	0.429	7.84E-04	2.00E-02	3.92E-02	3.31%
Tetrachloroethene	5.69E-01	2	1.00	70	1	0.962	0.429	6.70E-03	1.00E-02	6.70E-01	56.62%
Xylenes	7.50E-01	2	1.00	70	1	0.962	0.429	8.84E-03	2.00E+00	4.42E-03	0.37%
o-Toluic acid	2.85E+01	2	1.00	70	1	0.962	0.429	3.36E-01	3.00E+00	1.12E-01	9.46%
m-Toluic acid	1.39E+01	2	1.00	70	1	0.962	0.429	1.64E-01	3.00E+00	5.45E-02	4.61%
p-Toluic acid	2.85E+01	2	1.00	70	1	0.962	0.429	3.36E-01	3.00E+00	1.12E-01	9.46%
Arsenic	9.26E-02	2	0.05	70	1	0.962	0.429	5.45E-05	3.00E-04	1.82E-01	15.35%
Barium	2.03E-01	2	0.05	70	1	0.962	0.429	1.19E-04	7.00E-02	1.71E-03	0.14%
Lead	2.91E-02	2	0.05	70	1	0.962	0.429	1.71E-05	3.00E-02	5.71E-04	0.05%
Vanadium	8.73E-02	2	0.05	70	1	0.962	0.429	5.14E-05	7.00E-03	7.34E-03	0.62%
									HAZ INDEX	1.18E+00	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.5 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	1.5	1.00	35	1	0.962	0.129	1.95E-04	2.00E-02	9.75E-03	4.29%
Tetrachloroethene	2.19E-01	1.5	1.00	35	1	0.962	0.129	1.16E-03	1.00E-02	1.16E-01	51.09%
Xylenes	3.75E-01	1.5	1.00	35	1	0.962	0.129	1.99E-03	2.00E+00	9.94E-04	0.44%
o-Toluic acid	1.31E+01	1.5	1.00	35	1	0.962	0.129	6.91E-02	3.00E+00	2.30E-02	10.15%
m-Toluic acid	5.91E+00	1.5	1.00	35	1	0.962	0.129	3.13E-02	3.00E+00	1.04E-02	4.60%
p-Toluic acid	7.05E-01	1.5	1.00	35	1	0.962	0.129	3.74E-03	3.00E+00	1.25E-03	0.55%
Arsenic	7.17E-02	1.5	0.05	35	1	0.962	0.129	1.90E-05	3.00E-04	6.33E-02	27.88%
Barium	1.38E-01	1.5	0.05	35	1	0.962	0.129	3.65E-05	7.00E-02	5.22E-04	0.23%
Lead	1.30E-03	1.5	0.05	35	1	0.962	0.129	3.44E-07	3.00E-02	1.15E-05	0.01%
Vanadium	4.65E-02	1.5	0.05	35	1	0.962	0.129	1.23E-05	7.00E-03	1.76E-03	0.77%
								HAZARD INDEX		2.27E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	2	1.00	35	1	0.962	0.129	4.70E-04	2.00E-02	2.35E-02	3.32%
Tetrachloroethene	5.69E-01	2	1.00	35	1	0.962	0.129	4.02E-03	1.00E-02	4.02E-01	56.80%
Xylenes	7.50E-01	2	1.00	35	1	0.962	0.129	5.30E-03	2.00E+00	2.65E-03	0.37%
o-Toluic acid	2.85E+01	2	1.00	35	1	0.962	0.129	2.02E-01	3.00E+00	6.72E-02	9.49%
m-Toluic acid	1.39E+01	2	1.00	35	1	0.962	0.129	9.82E-02	3.00E+00	3.27E-02	4.62%
p-Toluic acid	2.85E+01	2	1.00	35	1	0.962	0.129	2.02E-01	3.00E+00	6.72E-02	9.49%
Arsenic	9.26E-02	2	0.05	35	1	0.962	0.129	3.27E-05	3.00E-04	1.09E-01	15.40%
Barium	2.03E-01	2	0.05	35	1	0.962	0.129	7.16E-05	7.00E-02	1.02E-03	0.14%
Lead	2.91E-02	2	0.05	35	1	0.962	0.129	1.03E-05	3.00E-02	3.43E-04	0.05%
Vanadium	8.73E-02	2	0.05	70	1	0.962	0.129	1.54E-05	7.00E-03	2.20E-03	0.31%
								HAZARD INDEX		7.08E-01	

TABLE H-39. RESIDENTIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-6)
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.22E-02	1.4	1.00	70	1	0.962	0.129	3.02E-05	1.90E+00	5.73E-05	94.13%
Trichloroethene	1.01E-02	1.4	1.00	70	1	0.962	0.129	2.50E-05	1.10E-02	2.75E-07	0.45%
Benzene	4.00E-03	1.4	1.00	70	1	0.962	0.129	9.89E-06	2.90E-02	2.87E-07	0.47%
Tetrachloroethene	2.33E-02	1.4	1.00	70	1	0.962	0.129	5.76E-05	5.10E-02	2.94E-06	4.83%
4,4'-DDE	9.00E-05	1.4	1.00	70	1	0.962	0.129	2.23E-07	3.40E-01	7.57E-08	0.12%
									TOTAL RISK	6.09E-05	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs Exposed/Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.88E-02	2	1.00	70	1	0.962	0.429	2.30E-04	1.90E+00	4.37E-04	97.93%
Trichloroethene	1.58E-02	2	1.00	70	1	0.962	0.429	1.93E-04	1.10E-02	2.13E-06	0.48%
Benzene	4.00E-03	2	1.00	70	1	0.962	0.429	4.90E-05	1.10E-02	5.39E-07	0.12%
Tetrachloroethene	4.41E-02	2	1.00	70	1	0.962	0.429	5.40E-04	1.10E-02	5.94E-06	1.33%
4,4'-DDE	1.50E-04	2	1.00	70	1	0.962	0.429	1.84E-06	3.40E-01	6.24E-07	0.14%
									TOTAL RISK	4.47E-04	

Note: Database does not include off-site well cluster MW-16I/16D.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.53E-02	1.4	1.00	70	1	0.962	0.129	3.78E-05	1.00E-01	3.78E-04	0.37%
1,2-Dichloroethene	1.11E-01	1.4	1.00	70	1	0.962	0.129	2.75E-04	2.00E-02	1.37E-02	13.26%
Tetrachloroethene	2.33E-02	1.4	1.00	70	1	0.962	0.129	5.76E-05	1.00E-02	5.76E-03	5.56%
Xylenes	3.63E-01	1.4	1.00	70	1	0.962	0.129	8.97E-04	2.00E+00	4.48E-04	0.43%
2-methyl phenol	7.60E-03	1.4	1.00	70	1	0.962	0.129	1.88E-05	5.00E-02	3.76E-04	0.36%
4-methyl phenol	1.10E-02	1.4	1.00	70	1	0.962	0.129	2.72E-05	5.00E-02	5.44E-04	0.53%
o-Toluic acid	2.72E+01	1.4	1.00	70	1	0.962	0.129	6.72E-02	3.00E+00	2.24E-02	21.64%
m-Toluic acid	1.74E+01	1.4	1.00	70	1	0.962	0.129	4.30E-02	3.00E+00	1.43E-02	13.85%
p-Toluic acid	1.76E+01	1.4	1.00	70	1	0.962	0.129	4.34E-02	3.00E+00	1.45E-02	13.98%
Arsenic	7.30E-02	1.4	0.05	70	1	0.962	0.129	9.02E-06	3.00E-04	3.01E-02	29.05%
Barium	1.14E-01	1.4	0.05	70	1	0.962	0.129	1.41E-05	7.00E-02	2.02E-04	0.19%
Mercury	1.70E-04	1.4	0.05	70	1	0.962	0.129	2.10E-08	3.00E-04	7.01E-05	0.07%
Lead	2.03E-02	1.4	0.05	70	1	0.962	0.129	2.51E-06	3.00E-02	8.37E-05	0.08%
Vanadium	3.69E-02	1.4	0.05	70	1	0.962	0.129	4.56E-06	7.00E-03	6.52E-04	0.63%
								HAZARD INDEX		1.04E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/70 kg x 7 days/7 days/wk x 50/52 x 30 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	2.36E-02	2	1.00	70	1	0.962	0.429	2.78E-04	1.00E-01	2.78E-03	0.26%
1,2-Dichloroethene	2.64E-01	2	1.00	70	1	0.962	0.429	3.11E-03	2.00E-02	1.55E-01	14.78%
Tetrachloroethene	4.41E-02	2	1.00	70	1	0.962	0.429	5.19E-04	1.00E-02	5.19E-02	4.94%
Xylenes	6.54E-01	2	1.00	70	1	0.962	0.429	7.70E-03	2.00E+00	3.85E-03	0.37%
2-methyl phenol	1.10E-02	2	1.00	70	1	0.962	0.429	1.30E-04	5.00E-02	2.59E-03	0.25%
4-methyl phenol	1.91E-02	2	1.00	70	1	0.962	0.429	2.25E-04	5.00E-02	4.50E-03	0.43%
o-Toluic acid	5.59E+01	2	1.00	70	1	0.962	0.429	6.59E-01	3.00E+00	2.20E-01	20.88%
m-Toluic acid	3.53E+01	2	1.00	70	1	0.962	0.429	4.16E-01	3.00E+00	1.39E-01	13.19%
p-Toluic acid	4.30E+01	2	1.00	70	1	0.962	0.429	5.06E-01	3.00E+00	1.69E-01	16.06%
Arsenic	1.50E-01	2	0.05	70	1	0.962	0.429	8.86E-05	3.00E-04	2.95E-01	28.09%
Barium	1.50E-01	2	0.05	70	1	0.962	0.429	8.85E-05	7.00E-02	1.26E-03	0.12%
Mercury	2.20E-04	2	0.05	70	1	0.962	0.429	1.30E-07	3.00E-04	4.32E-04	0.04%
Lead	3.68E-02	2	0.05	70	1	0.962	0.429	2.17E-05	3.00E-02	7.22E-04	0.07%
Vanadium	6.57E-02	2	0.05	70	1	0.962	0.429	3.87E-05	7.00E-03	5.53E-03	0.53%
								HAZARD INDEX		1.05E+00	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.5 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	1.53E-02	1.5	1.00	35	1	0.962	0.129	8.11E-05	1.00E-01	8.11E-04	0.37%
1,2-Dichloroethene	1.11E-01	1.5	1.00	35	1	0.962	0.129	5.89E-04	2.00E-02	2.94E-02	13.26%
Tetrachloroethene	2.33E-02	1.5	1.00	35	1	0.962	0.129	1.23E-04	1.00E-02	1.23E-02	5.56%
Xylenes	3.63E-01	1.5	1.00	35	1	0.962	0.129	1.92E-03	2.00E+00	9.61E-04	0.43%
2-methyl phenol	7.60E-03	1.5	1.00	35	1	0.962	0.129	4.03E-05	5.00E-02	8.05E-04	0.36%
4-methyl phenol	1.10E-02	1.5	1.00	35	1	0.962	0.129	5.83E-05	5.00E-02	1.17E-03	0.53%
o-Toluic acid	2.72E+01	1.5	1.00	35	1	0.962	0.129	1.44E-01	3.00E+00	4.80E-02	21.64%
m-Toluic acid	1.74E+01	1.5	1.00	35	1	0.962	0.129	9.22E-02	3.00E+00	3.07E-02	13.85%
p-Toluic acid	1.76E+01	1.5	1.00	35	1	0.962	0.129	9.30E-02	3.00E+00	3.10E-02	13.98%
Arsenic	7.30E-02	1.5	0.05	35	1	0.962	0.129	1.93E-05	3.00E-04	6.45E-02	29.05%
Barium	1.14E-01	1.5	0.05	35	1	0.962	0.129	3.03E-05	7.00E-02	4.32E-04	0.19%
Mercury	1.70E-04	1.5	0.05	35	1	0.962	0.129	4.50E-08	3.00E-04	1.50E-04	0.07%
Lead	2.03E-02	1.5	0.05	35	1	0.962	0.129	5.38E-06	3.00E-02	1.79E-04	0.08%
Vanadium	3.69E-02	1.5	0.05	35	1	0.962	0.129	9.78E-06	7.00E-03	1.40E-03	0.63%
								HAZARD INDEX		2.22E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = ADD

mg/L x 2 L/day x 1.0 x 1/35 kg x 7 days/7 days/wk x 50/52 x 9 yrs/70 years = ADD

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Years lifetime	ADD	RfD	ADD/RfD	% TOTAL HAZARD
Acetone	2.36E-02	2	1.00	35	1	0.962	0.129	1.67E-04	1.00E-01	1.67E-03	0.26%
1,2-Dichloroethene	2.64E-01	2	1.00	35	1	0.962	0.129	1.86E-03	2.00E-02	9.32E-02	14.78%
Tetrachloroethene	4.41E-02	2	1.00	35	1	0.962	0.129	3.12E-04	1.00E-02	3.12E-02	4.94%
Xylenes	6.54E-01	2	1.00	35	1	0.962	0.129	4.62E-03	2.00E+00	2.31E-03	0.37%
2-methyl phenol	1.10E-02	2	1.00	35	1	0.962	0.129	7.77E-05	5.00E-02	1.55E-03	0.25%
4-methyl phenol	1.91E-02	2	1.00	35	1	0.962	0.129	1.35E-04	5.00E-02	2.70E-03	0.43%
o-Toluic acid	5.59E+01	2	1.00	35	1	0.962	0.129	3.95E-01	3.00E+00	1.32E-01	20.88%
m-Toluic acid	3.53E+01	2	1.00	35	1	0.962	0.129	2.50E-01	3.00E+00	8.32E-02	13.19%
p-Toluic acid	4.30E+01	2	1.00	35	1	0.962	0.129	3.04E-01	3.00E+00	1.01E-01	16.06%
Arsenic	1.50E-01	2	0.05	35	1	0.962	0.129	5.32E-05	3.00E-04	1.77E-01	28.09%
Barium	1.50E-01	2	0.05	35	1	0.962	0.129	5.31E-05	7.00E-02	7.58E-04	0.12%
Mercury	2.20E-04	2	0.05	35	1	0.962	0.129	7.77E-08	3.00E-04	2.59E-04	0.04%
Lead	3.68E-02	2	0.05	35	1	0.962	0.129	1.30E-05	3.00E-02	4.33E-04	0.07%
Vanadium	6.57E-02	2	0.05	35	1	0.962	0.129	2.32E-05	7.00E-03	3.32E-03	0.53%
								HAZARD INDEX		6.31E-01	

TABLE H-40. RESIDENTIAL USE OF GROUNDWATER - INGESTION PATHWAY (FS-6)
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
(Data from wells SPW-01, SPW-02 and SPW-03)

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.4\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Chemical	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Yrs expd Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Arsenic	2.60E-03	1.4	0.05	70	1.29E-01	2.60E-06	3.00E-04	8.67E-03	89.00%
Barium	6.00E-02	1.4	0.05	70	1.29E-01	6.00E-05	7.00E-02	8.57E-04	8.80%
Lead	2.50E-03	1.4	0.05	70	1.29E-01	2.50E-06	3.00E-02	8.33E-05	0.86%
Zinc	3.93E-02	1.4	0.05	70	1.29E-01	3.93E-05	3.00E-01	1.31E-04	1.35%
						HAZARD INDEX		9.74E-03	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 1.15\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Chemical	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Arsenic	2.60E-03	1.15	0.05	35	1.29E-01	5.51E-07	3.00E-04	1.84E-03	89.00%
Barium	6.00E-02	1.15	0.05	35	1.29E-01	1.27E-05	7.00E-02	1.82E-04	8.80%
Lead	2.50E-03	1.15	0.05	35	1.29E-01	5.30E-07	3.00E-02	1.77E-05	0.86%
Zinc	3.93E-02	1.15	0.05	35	1.29E-01	8.33E-06	3.00E-01	2.78E-05	1.35%
						HAZARD INDEX		2.06E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 2\ \text{L/day} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{30}{70} = \text{CDI (mg/kg-day)}$$

Chemical	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Arsenic	6.00E-03	2	0.05	70	4.29E-01	8.57E-06	3.00E-04	2.86E-02	92.73%
Barium	8.89E-02	2	0.05	70	4.29E-01	1.27E-04	7.00E-02	1.81E-03	5.89%
Lead	3.50E-03	2	0.05	70	4.29E-01	5.00E-06	3.00E-02	1.67E-04	0.54%
Zinc	5.46E-02	2	0.05	70	4.29E-01	7.80E-05	3.00E-01	2.60E-04	0.84%
						HAZARD INDEX		3.08E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Child (0-17 years)

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{CDI (mg/kg-day)}$$

$$\text{mg/L} \times 2\ \text{L/day} \times 1.0 \times \frac{1}{35\ \text{kg}} \times \frac{9}{70} = \text{CDI (mg/kg-day)}$$

Chemical	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Yrs exposed Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Arsenic	6.00E-03	2	0.05	35	1.29E-01	2.21E-06	3.00E-04	7.37E-03	92.73%
Barium	8.89E-02	2	0.05	35	1.29E-01	3.28E-05	7.00E-02	4.68E-04	5.89%
Lead	3.50E-03	2	0.05	35	1.29E-01	1.29E-06	3.00E-02	4.30E-05	0.54%
Zinc	5.46E-02	2	0.05	35	1.29E-01	2.01E-05	3.00E-01	6.71E-05	0.84%
						HAZARD INDEX		7.95E-03	

TABLE H-41. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Upper Bedrock Wells - Round 1

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	3.79E-02	8.00E-04	2.6	26	0.129	18,150	70	6.83E-05	1.10E-02	7.52E-07	1.05%
Benzene	1.00E-03	4.10E-01	2.6	26	0.129	18,150	70	9.24E-04	2.90E-02	2.68E-05	37.39%
Vinyl chloride	3.00E-03	8.00E-04	2.6	26	0.129	18,150	70	5.41E-06	1.90E+00	1.03E-05	14.34%
Tetrachloroethene	3.68E-01	8.00E-04	2.6	26	0.129	18,150	70	6.63E-04	5.10E-02	3.38E-05	47.22%

TOTAL RISK 7.17E-05

CARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	7.43E-02	8.00E-04	2.6	26	0.429	18,150	70	4.47E-04	1.10E-02	4.91E-06	1.04%
Benzene	2.00E-03	4.10E-01	2.6	26	0.429	18,150	70	6.16E-03	2.90E-02	1.79E-04	37.70%
Vinyl chloride	3.00E-03	8.00E-04	2.6	26	0.429	18,150	70	1.80E-05	1.90E+00	3.43E-05	7.23%
Tetrachloroethene	8.35E-01	8.00E-04	2.6	26	0.429	18,150	70	5.02E-03	5.10E-02	2.56E-04	54.03%

TOTAL RISK 4.74E-04

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	8.00E-04	2.6	26	0.129	18,150	70	9.65E-05	2.00E-02	4.82E-03	6.73%
Xylenes	5.82E-01	8.00E-04	2.6	26	0.129	18,150	70	1.05E-03	2.00E+00	5.25E-04	0.73%
Tetrachloroethene	3.68E-01	8.00E-04	2.6	26	0.129	18,150	70	6.63E-04	1.00E-02	6.63E-02	92.54%
									HAZ INDEX	7.17E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	8.00E-04	2.6	45	0.129	9,400	35	1.73E-04	2.00E-02	8.65E-03	6.73%
Xylenes	5.82E-01	8.00E-04	2.6	45	0.129	9,400	35	1.88E-03	2.00E+00	9.41E-04	0.73%
Tetrachloroethene	3.68E-01	8.00E-04	2.6	45	0.129	9,400	35	1.19E-03	1.00E-02	1.19E-01	92.54%
									HAZ INDEX	1.29E-01	

TABLE H-41. Continued

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	8.00E-04	2.6	26	0.429	18,150	70	5.38E-04	2.00E-02	2.69E-02	3.17%
Xylenes	1.06E+00	8.00E-04	2.6	26	0.429	18,150	70	6.39E-03	2.00E-02	3.19E-01	37.64%
Tetrachloroethene	8.35E-01	8.00E-04	2.6	26	0.429	18,150	70	5.02E-03	1.00E-02	5.02E-01	59.18%
									HAZ INDEX	8.48E-01	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	8.00E-04	2.6	45	0.129	9,400	35	2.90E-04	2.00E-02	1.45E-02	1.71%
Xylenes	1.06E+00	8.00E-04	2.6	45	0.129	9,400	35	3.43E-03	2.00E-02	1.72E-01	20.25%
Tetrachloroethene	8.35E-01	8.00E-04	2.6	45	0.129	9,400	35	2.70E-03	1.00E-02	2.70E-01	31.83%
									HAZ INDEX	4.56E-01	

TABLE H-42. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Upper Bedrock Wells - Round 2

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.18E-02	8.00E-04	2.6	26	0.129	18,150	70	2.13E-05	1.10E-02	2.34E-07	0.15%
Benzene	4.00E-03	4.10E-01	2.6	26	0.129	18,150	70	3.70E-03	2.90E-02	1.07E-04	67.25%
Vinyl chloride	1.44E-02	8.00E-04	2.6	26	0.129	18,150	70	2.60E-05	1.90E+00	4.93E-05	30.95%
Tetrachloroethene	2.87E-02	8.00E-04	2.6	26	0.129	18,150	70	5.17E-05	5.10E-02	2.64E-06	1.66%

TOTAL RISK 1.59E-04

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.90E-02	8.00E-04	2.6	26	0.429	18,150	70	1.14E-04	1.10E-02	1.26E-06	0.20%
Benzene	4.00E-03	4.10E-01	2.6	26	0.429	18,150	70	1.23E-02	2.90E-02	3.57E-04	58.07%
Vinyl chloride	2.10E-02	8.00E-04	2.6	26	0.429	18,150	70	1.26E-04	1.90E+00	2.40E-04	38.97%
Tetrachloroethene	5.53E-02	8.00E-04	2.6	26	0.429	18,150	70	3.32E-04	5.10E-02	1.69E-05	2.75%

TOTAL RISK 6.15E-04

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	8.00E-04	2.6	26	0.129	18,150	70	2.60E-04	2.00E-02	1.30E-02	69.98%
Xylenes	4.54E-01	8.00E-04	2.6	26	0.129	18,150	70	8.19E-04	2.00E+00	4.09E-04	2.20%
Tetrachloroethene	2.87E-02	8.00E-04	2.6	26	0.129	18,150	70	5.17E-05	1.00E-02	5.17E-03	27.82%
									HAZ INDEX	1.86E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	8.00E-04	2.6	45	0.129	9,400	35	4.67E-04	2.00E-02	2.33E-02	69.98%
Xylenes	4.54E-01	8.00E-04	2.6	45	0.129	9,400	35	1.47E-03	2.00E+00	7.34E-04	2.20%
Tetrachloroethene	2.87E-02	8.00E-04	2.6	45	0.129	9,400	35	9.28E-05	1.00E-02	9.28E-03	27.82%
									HAZ INDEX	3.33E-02	

TABLE H-42. Continued

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	8.00E-04	2.6	26	0.429	18,150	70	2.06E-03	2.00E-02	1.03E-01	27.39%
Xylenes	7.97E-01	8.00E-04	2.6	26	0.429	18,150	70	4.79E-03	2.00E-02	2.39E-01	63.76%
Tetrachloroethene	5.53E-02	8.00E-04	2.6	26	0.429	18,150	70	3.32E-04	1.00E-02	3.32E-02	8.85%
									HAZ INDEX	3.76E-01	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	8.00E-04	2.6	45	0.129	9,400	35	1.11E-03	2.00E-02	5.53E-02	14.73%
Xylenes	7.97E-01	8.00E-04	2.6	45	0.129	9,400	35	2.58E-03	2.00E-02	1.29E-01	34.29%
Tetrachloroethene	5.53E-02	8.00E-04	2.6	45	0.129	9,400	35	1.79E-04	1.00E-02	1.79E-02	4.76%
									HAZ INDEX	2.02E-01	

TABLE H-43. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Deep Bedrock Wells - Round 1

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.129	18,150	70	7.21E-06	1.10E-02	7.93E-08	0.12%
Benzene	2.50E-03	4.10E-01	2.6	26	0.129	18,150	70	2.31E-03	2.90E-02	6.70E-05	99.36%
Tetrachloroethene	3.80E-03	8.00E-04	2.6	26	0.129	18,150	70	6.85E-06	5.10E-02	3.49E-07	0.52%
									TOTAL RISK	6.74E-05	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.429	18,150	70	2.40E-05	1.10E-02	2.64E-07	0.11%
Benzene	2.60E-03	4.10E-01	2.6	26	0.429	18,150	70	8.01E-03	2.90E-02	2.32E-04	99.22%
Tetrachloroethene	5.10E-03	8.00E-04	2.6	26	0.429	18,150	70	3.06E-05	5.10E-02	1.56E-06	0.67%
									TOTAL RISK	2.34E-04	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.26E-02	8.00E-04	2.6	26	0.129	18,150	70	2.27E-05	2.00E-02	1.14E-03	60.10%
Xylenes	7.64E-02	8.00E-04	2.6	26	0.129	18,150	70	1.38E-04	2.00E+00	6.89E-05	3.64%
Tetrachloroethene	3.80E-03	8.00E-04	2.6	26	0.129	18,150	70	6.85E-06	1.00E-02	6.85E-04	36.25%

HAZ INDEX 1.89E-03

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.26E-02	8.00E-04	2.6	45	0.129	9,400	35	4.07E-05	2.00E-02	2.04E-03	60.10%
Xylenes	7.64E-02	8.00E-04	2.6	45	0.129	9,400	35	2.47E-04	2.00E+00	1.23E-04	3.64%
Tetrachloroethene	3.80E-03	8.00E-04	2.6	45	0.129	9,400	35	1.23E-05	1.00E-02	1.23E-03	36.25%

HAZ INDEX 3.39E-03

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.02E-02	8.00E-04	2.6	26	0.429	18,150	70	1.81E-04	2.00E-02	9.07E-03	13.94%
Xylenes	1.76E-01	8.00E-04	2.6	26	0.429	18,150	70	1.06E-03	2.00E-02	5.30E-02	81.36%
Tetrachloroethene	5.10E-03	8.00E-04	2.6	26	0.429	18,150	70	3.06E-05	1.00E-02	3.06E-03	4.71%
									HAZ INDEX		6.51E-02

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp / day	Days exp / year	Yrs exp / Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.02E-02	8.00E-04	2.6	45	0.129	9,400	35	9.76E-05	2.00E-02	4.88E-03	7.50%
Xylenes	1.76E-01	8.00E-04	2.6	45	0.129	9,400	35	5.70E-04	2.00E-02	2.85E-02	43.76%
Tetrachloroethene	5.10E-03	8.00E-04	2.6	45	0.129	9,400	35	1.65E-05	1.00E-02	1.65E-03	2.53%
									HAZ INDEX		3.50E-02

TABLE H-44. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Deep Bedrock Wells - Round 2

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.129	18,150	70	7.21E-06	1.10E-02	7.93E-08	12.22%
Tetrachloroethene	6.20E-03	8.00E-04	2.6	26	0.129	18,150	70	1.12E-05	5.10E-02	5.70E-07	87.78%
									TOTAL RISK	6.49E-07	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2.6	26	0.429	18,150	70	2.40E-05	1.10E-02	2.64E-07	9.63%
Tetrachloroethene	8.10E-03	8.00E-04	2.6	26	0.429	18,150	70	4.87E-05	5.10E-02	2.48E-06	90.37%
									TOTAL RISK	2.75E-06	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	26	0.129	18,150	70	7.21E-06	2.00E-02	3.61E-04	23.39%
Xylenes	7.00E-02	8.00E-04	2.6	26	0.129	18,150	70	1.26E-04	2.00E+00	6.31E-05	4.09%
Tetrachloroethene	6.20E-03	8.00E-04	2.6	26	0.129	18,150	70	1.12E-05	1.00E-02	1.12E-03	72.51%
									HAZ INDEX	1.54E-03	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.29E-05	2.00E-02	6.46E-04	23.39%
Xylenes	7.00E-02	8.00E-04	2.6	45	0.129	9,400	35	2.26E-04	2.00E+00	1.13E-04	4.09%
Tetrachloroethene	6.20E-03	8.00E-04	2.6	45	0.129	9,400	35	2.00E-05	1.00E-02	2.00E-03	72.51%
									HAZ INDEX	2.76E-03	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	26	0.429	18,150	70	2.40E-05	2.00E-02	1.20E-03	2.09%
Xylenes	1.71E-01	8.00E-04	2.6	26	0.429	18,150	70	1.03E-03	2.00E-02	5.14E-02	89.43%
Tetrachloroethene	8.10E-03	8.00E-04	2.6	26	0.429	18,150	70	4.87E-05	1.00E-02	4.87E-03	8.48%
									HAZ INDEX	5.74E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	4.00E-03	8.00E-04	2.6	45	0.129	9,400	35	1.29E-05	2.00E-02	6.46E-04	1.13%
Xylenes	1.71E-01	8.00E-04	2.6	45	0.129	9,400	35	5.52E-04	2.00E-02	2.76E-02	48.10%
Tetrachloroethene	8.10E-03	8.00E-04	2.6	45	0.129	9,400	35	2.62E-05	1.00E-02	2.62E-03	4.56%
									HAZ INDEX	3.09E-02	

TABLE H-45. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Wells - Round 1

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.35E-02	8.00E-04	2.6	26	0.129	18,150	70	4.24E-05	1.10E-02	4.66E-07	0.42%
Benzene	3.00E-03	4.10E-01	2.6	26	0.129	18,150	70	2.77E-03	2.90E-02	8.04E-05	72.25%
Vinyl chloride	3.00E-03	8.00E-04	2.6	26	0.129	18,150	70	5.41E-06	1.90E+00	1.03E-05	9.24%
Tetrachloroethene	2.19E-01	8.00E-04	2.6	26	0.129	18,150	70	3.95E-04	5.10E-02	2.01E-05	18.10%

TOTAL RISK 1.11E-04

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	5.13E-02	8.00E-04	2.6	26	0.429	18,150	70	3.08E-04	1.10E-02	3.39E-06	0.71%
Benzene	3.00E-03	4.10E-01	2.6	26	0.429	18,150	70	9.24E-03	2.90E-02	2.68E-04	55.81%
Vinyl chloride	3.00E-03	8.00E-04	2.6	26	0.429	18,150	70	1.80E-05	1.90E+00	3.43E-05	7.13%
Tetrachloroethene	5.69E-01	8.00E-04	2.6	26	0.429	18,150	70	3.42E-03	5.10E-02	1.75E-04	36.35%

TOTAL RISK 4.80E-04

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	8.00E-04	2.6	26	0.129	18,150	70	6.63E-05	2.00E-02	3.32E-03	7.69%
Xylenes	3.75E-01	8.00E-04	2.6	26	0.129	18,150	70	6.77E-04	2.00E+00	3.38E-04	0.78%
Tetrachloroethene	2.19E-01	8.00E-04	2.6	26	0.129	18,150	70	3.95E-04	1.00E-02	3.95E-02	91.53%
									HAZ INDEX	4.31E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	8.00E-04	2.6	45	0.129	9,400	35	1.19E-04	2.00E-02	5.95E-03	7.69%
Xylenes	3.75E-01	8.00E-04	2.6	45	0.129	9,400	35	1.21E-03	2.00E+00	6.07E-04	0.78%
Tetrachloroethene	2.19E-01	8.00E-04	2.6	45	0.129	9,400	35	7.08E-04	1.00E-02	7.08E-02	91.53%
									HAZ INDEX	7.73E-02	

TABLE H-45. Continued

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	8.00E-04	2.6	26	0.429	18,150	70	4.00E-04	2.00E-02	2.00E-02	3.41%
Xylenes	7.50E-01	8.00E-04	2.6	26	0.429	18,150	70	4.51E-03	2.00E-02	2.26E-01	38.37%
Tetrachloroethene	5.69E-01	8.00E-04	2.6	26	0.429	18,150	70	3.42E-03	1.00E-02	3.42E-01	58.22%
									HAZ INDEX	5.88E-01	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	8.00E-04	2.6	45	0.129	9,400	35	2.15E-04	2.00E-02	1.08E-02	1.83%
Xylenes	7.50E-01	8.00E-04	2.6	45	0.129	9,400	35	2.43E-03	2.00E-02	1.21E-01	20.64%
Tetrachloroethene	5.69E-01	8.00E-04	2.6	45	0.129	9,400	35	1.84E-03	1.00E-02	1.84E-01	31.31%
									HAZ INDEX	3.16E-01	

TABLE H-46. DERMAL CONTACT WITH GROUNDWATER WHILE SWIMMING - Residential Exposure
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Wells - Round 2

CARCINOGENIC COMPOUNDS IN GROUINDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.01E-02	8.00E-04	2.6	26	0.129	18,150	70	1.82E-05	1.10E-02	2.00E-07	0.13%
Benzene	4.00E-03	4.10E-01	2.6	26	0.129	18,150	70	3.70E-03	2.90E-02	1.07E-04	70.83%
Vinyl chloride	1.22E-02	8.00E-04	2.6	26	0.129	18,150	70	2.20E-05	1.90E+00	4.18E-05	27.62%
Tetrachloroethene	2.33E-02	8.00E-04	2.6	26	0.129	18,150	70	4.20E-05	5.10E-02	2.14E-06	1.42%

TOTAL RISK 1.51E-04

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,500 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.58E-02	8.00E-04	2.6	26	0.429	18,150	70	9.50E-05	1.10E-02	1.04E-06	0.18%
Benzene	4.00E-03	4.10E-01	2.6	26	0.429	18,150	70	1.23E-02	2.90E-02	3.57E-04	60.92%
Vinyl chloride	1.88E-02	8.00E-04	2.6	26	0.429	18,150	70	1.13E-04	1.90E+00	2.15E-04	36.60%
Tetrachloroethene	4.41E-02	8.00E-04	2.6	26	0.429	18,150	70	2.65E-04	5.10E-02	1.35E-05	2.30%

TOTAL RISK 5.86E-04

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	9 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.11E-01	8.00E-04	2.6	26	0.129	18,150	70	2.00E-04	2.00E-02	1.00E-02	68.87%
Xylenes	3.63E-01	8.00E-04	2.6	26	0.129	18,150	70	6.54E-04	2.00E+00	3.27E-04	2.25%
Tetrachloroethene	2.33E-02	8.00E-04	2.6	26	0.129	18,150	70	4.20E-05	1.00E-02	4.20E-03	28.89%
									HAZ INDEX	1.45E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/35 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.11E-01	8.00E-04	2.6	45	0.129	9,400	35	3.59E-04	2.00E-02	1.80E-02	68.87%
Xylenes	3.63E-01	8.00E-04	2.6	45	0.129	9,400	35	1.17E-03	2.00E+00	5.86E-04	2.25%
Tetrachloroethene	2.33E-02	8.00E-04	2.6	45	0.129	9,400	35	7.53E-05	1.00E-02	7.53E-03	28.89%
									HAZ INDEX	2.61E-02	

TABLE H-46. Continued

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	26 days / year	x	30 yrs / 70 yrs	x	18,150 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.64E-01	8.00E-04	2.6	26	0.429	18,150	70	1.59E-03	2.00E-02	7.93E-02	26.71%
Xylenes	6.36E-01	8.00E-04	2.6	26	0.429	18,150	70	3.82E-03	2.00E-02	1.91E-01	64.36%
Tetrachloroethene	4.41E-02	8.00E-04	2.6	26	0.429	18,150	70	2.65E-04	1.00E-02	2.65E-02	8.93%
									HAZ INDEX	2.97E-01	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Child

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2.6 hrs / day	x	45 days / year	x	9 yrs / 70 yrs	x	9,400 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	2.64E-01	8.00E-04	2.6	45	0.129	9,400	35	8.53E-04	2.00E-02	4.26E-02	14.37%
Xylenes	6.36E-01	8.00E-04	2.6	45	0.129	9,400	35	2.05E-03	2.00E-02	1.03E-01	34.61%
Tetrachloroethene	4.41E-02	8.00E-04	2.6	45	0.129	9,400	35	1.43E-04	1.00E-02	1.43E-02	4.80%
									HAZ INDEX	1.60E-01	

TABLE H-47. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE UPPER BEDROCK WELLS
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	37.9	1	2	15.123
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	1	1	2	0.476
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	3	1	2	1.579
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	368	1	2	135.377

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	15.123	10	6	25.205	0.5	15	20	4.136
Benzene	0.476	10	6	0.793	0.5	15	20	0.130
Vinyl chloride	1.579	10	6	2.632	0.5	15	20	0.432
Tetrachloroethene	135.377	10	6	225.628	0.5	15	20	37.021

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	37.9	0.83	25.205	70	0.5	15	20	0.129	1.14E-03	1.70E-02	1.94E-05	26.0%
Benzene	1.0	0.83	0.793	70	0.5	15	20	0.129	3.59E-05	2.90E-02	1.04E-06	1.4%
Vinyl chloride	3.0	0.83	2.632	70	0.5	15	20	0.129	1.19E-04	3.00E-01	3.57E-05	47.9%
Tetrachloroethene	368.0	0.83	225.628	70	0.5	15	20	0.129	1.02E-02	1.80E-03	1.84E-05	24.7%
										TOTAL RISK	7.45E-05	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	74.3	1	2	29.647
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	2	1	2	0.952
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	3	1	2	1.579
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	835.3	1	2	307.284

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	29.647	10	6	49.412	0.5	15	20	8.107
Benzene	0.952	10	6	1.586	0.5	15	20	0.260
Vinyl chloride	1.579	10	6	2.632	0.5	15	20	0.432
Tetrachloroethene	307.284	10	6	512.139	0.5	15	20	84.031

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	74.3	0.83	49.412	70	0.5	15	20	0.429	7.45E-03	1.70E-02	1.27E-04	32.3%
Benzene	2.0	0.83	1.586	70	0.5	15	20	0.429	2.39E-04	2.90E-02	6.93E-06	1.8%
Vinyl chloride	3.0	0.83	2.632	70	0.5	15	20	0.429	3.97E-04	3.00E-01	1.19E-04	30.4%
Tetrachloroethene	835.3	0.83	512.139	70	0.5	15	20	0.429	7.72E-02	1.80E-03	1.39E-04	35.5%

TOTAL RISK	3.92E-04

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	33.5	1	2	3.612
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	53.5	1	2	23.491
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	10	1	2	4.506
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	368	1	2	135.377
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	582.3	1	2	247.248

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	3.612	10	6	6.020	0.5	15	20	0.988
1,2-Dichloroethene	23.491	10	6	39.151	0.5	15	20	6.424
1,1-Dichloroethene	4.506	10	6	7.510	0.5	15	20	1.232
Tetrachloroethene	135.377	10	6	225.628	0.5	15	20	37.021
Xylenes	247.248	10	6	412.080	0.5	15	20	67.614

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	33.5	0.83	6.020	70	0.5	15	20	0.129	2.72E-04	1.00E-01	2.72E-03	0.2%
1,2-Dichloroethene	53.5	0.83	39.151	70	0.5	15	20	0.129	1.77E-03	2.00E-02	8.85E-02	7.7%
1,1-Dichloroethene	10.0	0.83	7.510	70	0.5	15	20	0.129	3.40E-04	1.00E-02	3.40E-02	2.9%
Tetrachloroethene	368.0	0.83	225.628	70	0.5	15	20	0.129	1.02E-02	1.00E-02	1.02E+00	88.4%
Xylenes	582.3	0.83	412.080	70	0.5	15	20	0.129	1.86E-02	2.00E+00	9.32E-03	0.8%

TOTAL HAZARD INDEX	1.16E+00

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	57.9	1	2	6.243
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	89.6	1	2	39.341
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	10	1	2	4.506
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	835.3	1	2	307.284
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	1,062.6	1	2	451.186

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	6.243	10	6	10.405	0.5	15	20	1.707
1,2-Dichloroethene	39.341	10	6	65.569	0.5	15	20	10.758
1,1-Dichloroethene	4.506	10	6	7.510	0.5	15	20	1.232
Tetrachloroethene	307.284	10	6	512.139	0.5	15	20	84.031
Xylenes	451.186	10	6	751.977	0.5	15	20	123.384

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	57.9	0.83	10.405	70	0.5	15	20	0.429	1.57E-03	1.00E-01	1.57E-02	0.2%
1,2-Dichloroethene	89.6	0.83	65.569	70	0.5	15	20	0.429	9.89E-03	2.00E-02	4.94E-01	5.9%
1,1-Dichloroethene	10.0	0.83	7.510	70	0.5	15	20	0.429	1.13E-03	1.00E-02	1.13E-01	1.3%
Tetrachloroethene	835.3	0.83	512.139	70	0.5	15	20	0.429	7.72E-02	1.00E-02	7.72E+00	91.9%
Xylenes	1062.6	0.83	751.977	70	0.5	15	20	0.429	1.13E-01	2.00E+00	5.67E-02	0.7%

TOTAL HAZARD INDEX	8.40E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	33.5	1	2	3.612
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	53.5	1	2	23.491
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	10.0	1	2	4.506
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	368.0	1	2	135.377
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	582.3	1	2	247.248

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	3.612	10	6	6.020	0.5	15	20	0.988
1,2-Dichloroethene	23.491	10	6	39.151	0.5	15	20	6.424
1,1-Dichloroethene	4.506	10	6	7.510	0.5	15	20	1.232
Tetrachloroethene	135.377	10	6	225.628	0.5	15	20	37.021
Xylenes	247.248	10	6	412.080	0.5	15	20	67.614

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	33.5	0.9	6.020	35	0.5	15	20	0.129	5.91E-04	1.00E-01	5.91E-03	0.24%
1,2-Dichloroethene	53.5	0.9	39.151	35	0.5	15	20	0.129	3.84E-03	2.00E-02	1.92E-01	7.67%
1,1-Dichloroethene	10.0	0.9	7.510	35	0.5	15	20	0.129	7.37E-04	1.00E-02	7.37E-02	2.94%
Tetrachloroethene	368.0	0.9	225.628	35	0.5	15	20	0.129	2.21E-02	1.00E-02	2.21E+00	88.35%
Xylenes	582.3	0.9	412.080	35	0.5	15	20	0.129	4.04E-02	2.00E+00	2.02E-02	0.81%

TOTAL HAZARD INDEX	2.51E+00

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	57.9	1	2	6.243
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	89.6	1	2	39.341
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	10	1	2	4.506
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	835.3	1	2	307.284
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	1,062.6	1	2	451.186

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1}	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	6.243	10	6	10.405	0.5	15	20	1.707
1,2-Dichloroethene	39.341	10	6	65.569	0.5	15	20	10.758
1,1-Dichloroethene	4.506	10	6	7.510	0.5	15	20	1.232
Tetrachloroethene	307.284	10	6	512.139	0.5	15	20	84.031
Xylenes	451.186	10	6	751.977	0.5	15	20	123.384

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	57.9	0.9	10.405	35	0.5	15	20	0.129	1.02E-03	1.00E-01	1.02E-02	0.19%
1,2-Dichloroethene	89.6	0.9	65.569	35	0.5	15	20	0.129	6.43E-03	2.00E-02	3.22E-01	5.88%
1,1-Dichloroethene	10.0	0.9	7.510	35	0.5	15	20	0.129	7.37E-04	1.00E-02	7.37E-02	1.35%
Tetrachloroethene	835.3	0.9	512.139	35	0.5	15	20	0.129	5.02E-02	1.00E-02	5.02E+00	91.91%
Xylenes	1062.6	0.9	751.977	35	0.5	15	20	0.129	7.38E-02	2.00E+00	3.69E-02	0.67%

TOTAL HAZARD INDEX	5.47E+00

TABLE H-48. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE UPPER BEDROCK WELLS
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	11.8	1	2	4.708
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	4	1	2	1.903
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	14.4	1	2	7.580
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	4.708	10	6	7.847	0.5	15	20	1.288
Benzene	1.903	10	6	3.172	0.5	15	20	0.520
Vinyl chloride	7.580	10	6	12.633	0.5	15	20	2.073
Tetrachloroethene	10.558	10	6	17.597	0.5	15	20	2.887

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	11.8	0.83	7.847	70	0.5	15	20	0.129	3.55E-04	1.70E-02	6.03E-06	3.3%
Benzene	4.0	0.83	3.172	70	0.5	15	20	0.129	1.43E-04	2.90E-02	4.16E-06	2.3%
Vinyl chloride	14.4	0.83	12.633	70	0.5	15	20	0.129	5.71E-04	3.00E-01	1.71E-04	93.6%
Tetrachloroethene	28.7	0.83	17.597	70	0.5	15	20	0.129	7.96E-04	1.80E-03	1.43E-06	0.8%
									TOTAL RISK		1.83E-04	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	19	1	2	7.581
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	4	1	2	1.903
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	21	1	2	11.054
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	7.581	10	6	12.636	0.5	15	20	2.073
Benzene	1.903	10	6	3.172	0.5	15	20	0.520
Vinyl chloride	11.054	10	6	18.423	0.5	15	20	3.023
Tetrachloroethene	20.343	10	6	33.906	0.5	15	20	5.563

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	19.0	0.83	12.636	70	0.5	15	20	0.429	1.91E-03	1.70E-02	3.24E-05	3.6%
Benzene	4.0	0.83	3.172	70	0.5	15	20	0.429	4.78E-04	2.90E-02	1.39E-05	1.6%
Vinyl chloride	21.0	0.83	18.423	70	0.5	15	20	0.429	2.78E-03	3.00E-01	8.33E-04	93.8%
Tetrachloroethene	55.3	0.83	33.906	70	0.5	15	20	0.429	5.11E-03	1.80E-03	9.20E-06	1.0%
									TOTAL RISK		8.89E-04	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	15.9	1	2	1.714
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	144.4	1	2	63.403
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	454.1	1	2	192.814

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.714	10	6	2.857	0.5	15	20	0.469
1,2-Dichloroethene	63.403	10	6	105.671	0.5	15	20	17.338
Tetrachloroethene	10.558	10	6	17.597	0.5	15	20	2.887
Xylenes	192.814	10	6	321.356	0.5	15	20	52.728

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	15.9	0.83	2.857	70	0.5	15	20	0.129	1.29E-04	1.00E-01	1.29E-03	0.4%
1,2-Dichloroethene	144.4	0.83	105.671	70	0.5	15	20	0.129	4.78E-03	2.00E-02	2.39E-01	73.1%
Tetrachloroethene	28.7	0.83	17.597	70	0.5	15	20	0.129	7.96E-04	1.00E-02	7.96E-02	24.3%
Xylenes	454.1	0.83	321.356	70	0.5	15	20	0.129	1.45E-02	2.00E+00	7.27E-03	2.2%

TOTAL HAZARD INDEX	3.27E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	25.2	1	2	2.717
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	342.4	1	2	150.340
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	796.9	1	2	338.368

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.717	10	6	4.528	0.5	15	20	0.743
1,2-Dichloroethene	150.340	10	6	250.566	0.5	15	20	41.113
Tetrachloroethene	20.343	10	6	33.906	0.5	15	20	5.563
Xylenes	338.368	10	6	563.947	0.5	15	20	92.532

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	25.2	0.83	4.528	70	0.5	15	20	0.429	6.83E-04	1.00E-01	6.83E-03	0.3%
1,2-Dichloroethene	342.4	0.83	250.566	70	0.5	15	20	0.429	3.78E-02	2.00E-02	1.89E+00	77.1%
Tetrachloroethene	55.3	0.83	33.906	70	0.5	15	20	0.429	5.11E-03	1.00E-02	5.11E-01	20.9%
Xylenes	796.9	0.83	563.947	70	0.5	15	20	0.429	8.50E-02	2.00E+00	4.25E-02	1.7%

TOTAL HAZARD INDEX 2.45E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	15.9	1	2	1.714
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	144.4	1	2	63.403
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	454.1	1	2	192.814

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.714	10	6	2.857	0.5	15	20	0.469
1,2-Dichloroethene	63.403	10	6	105.671	0.5	15	20	17.338
Tetrachloroethene	10.558	10	6	17.597	0.5	15	20	2.887
Xylenes	192.814	10	6	321.356	0.5	15	20	52.728

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	15.9	0.9	2.857	35	0.5	15	20	0.129	2.80E-04	1.00E-01	2.80E-03	0.40%
1,2-Dichloroethene	144.4	0.9	105.671	35	0.5	15	20	0.129	1.04E-02	2.00E-02	5.18E-01	73.05%
Tetrachloroethene	28.7	0.9	17.597	35	0.5	15	20	0.129	1.73E-03	1.00E-02	1.73E-01	24.33%
Xylenes	454.1	0.9	321.356	35	0.5	15	20	0.129	3.15E-02	2.00E+00	1.58E-02	2.22%

TOTAL HAZARD INDEX	7.09E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	25.2	1	2	2.717
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	342.4	1	2	150.340
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	796.9	1	2	338.368

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.717	10	6	4.528	0.5	15	20	0.743
1,2-Dichloroethene	150.340	10	6	250.566	0.5	15	20	41.113
Tetrachloroethene	20.343	10	6	33.906	0.5	15	20	5.563
Xylenes	338.368	10	6	563.947	0.5	15	20	92.532

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	25.2	0.9	4.528	35	0.5	15	20	0.129	4.44E-04	1.00E-01	4.44E-03	0.28%
1,2-Dichloroethene	342.4	0.9	250.566	35	0.5	15	20	0.129	2.46E-02	2.00E-02	1.23E+00	77.12%
Tetrachloroethene	55.3	0.9	33.906	35	0.5	15	20	0.129	3.33E-03	1.00E-02	3.33E-01	20.87%
Xylenes	796.9	0.9	563.947	35	0.5	15	20	0.129	5.53E-02	2.00E+00	2.77E-02	1.74%

TOTAL HAZARD INDEX	1.59E+00

TABLE H-49. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE DEEP BEDROCK WELLS
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	2.5	1	2	1.189
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	3.8	1	2	1.398

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Benzene	1.189	10	6	1.982	0.5	15	20	0.325
Tetrachloroethene	1.398	10	6	2.330	0.5	15	20	0.382

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.129	1.20E-04	1.70E-02	2.05E-06	42.3%
Benzene	2.5	0.83	1.982	70	0.5	15	20	0.129	8.97E-05	2.90E-02	2.60E-06	53.8%
Tetrachloroethene	3.8	0.83	2.330	70	0.5	15	20	0.129	1.05E-04	1.80E-03	1.90E-07	3.9%
										TOTAL RISK	4.84E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	2.6	1	2	1.237
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	5.1	1	2	1.876

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Benzene	1.237	10	6	2.062	0.5	15	20	0.338
Tetrachloroethene	1.876	10	6	3.127	0.5	15	20	0.513

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.429	4.01E-04	1.70E-02	6.82E-06	40.9%
Benzene	2.6	0.83	2.062	70	0.5	15	20	0.429	3.11E-04	2.90E-02	9.02E-06	54.0%
Tetrachloroethene	5.1	0.83	3.127	70	0.5	15	20	0.429	4.71E-04	1.80E-03	8.49E-07	5.1%
									TOTAL RISK		1.67E-05	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	7.8	1	2	0.841
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	12.6	1	2	5.532
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	2	1	2	0.901
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	3.8	1	2	1.398
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	76.4	1	2	32.440

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	0.841	10	6	1.402	0.5	15	20	0.230
1,2-Dichloroethene	5.532	10	6	9.221	0.5	15	20	1.513
1,1-Dichloroethene	0.901	10	6	1.502	0.5	15	20	0.246
Tetrachloroethene	1.398	10	6	2.330	0.5	15	20	0.382
Xylenes	32.440	10	6	54.066	0.5	15	20	8.871

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.8	0.83	1.402	70	0.5	15	20	0.129	6.34E-05	1.00E-01	6.34E-04	1.6%
1,2-Dichloroethene	12.6	0.83	9.221	70	0.5	15	20	0.129	4.17E-04	2.00E-02	2.09E-02	52.1%
1,1-Dichloroethene	2.0	0.83	1.502	70	0.5	15	20	0.129	6.79E-05	1.00E-02	6.79E-03	17.0%
Tetrachloroethene	3.8	0.83	2.330	70	0.5	15	20	0.129	1.05E-04	1.00E-02	1.05E-02	26.3%
Xylenes	76.4	0.83	54.066	70	0.5	15	20	0.129	2.45E-03	2.00E+00	1.22E-03	3.1%

TOTAL HAZARD INDEX	4.00E-02

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	11	1	2	1.186
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	30.2	1	2	13.260
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	2	1	2	0.901
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	5.1	1	2	1.876
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	176.3	1	2	74.858

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.186	10	6	1.977	0.5	15	20	0.324
1,2-Dichloroethene	13.260	10	6	22.100	0.5	15	20	3.626
1,1-Dichloroethene	0.901	10	6	1.502	0.5	15	20	0.246
Tetrachloroethene	1.876	10	6	3.127	0.5	15	20	0.513
Xylenes	74.858	10	6	124.763	0.5	15	20	20.471

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	11.0	0.83	1.977	70	0.5	15	20	0.429	2.98E-04	1.00E-01	2.98E-03	1.2%
1,2-Dichloroethene	30.2	0.83	22.100	70	0.5	15	20	0.429	3.33E-03	2.00E-02	1.67E-01	67.0%
1,1-Dichloroethene	2.0	0.83	1.502	70	0.5	15	20	0.429	2.26E-04	1.00E-02	2.26E-02	9.1%
Tetrachloroethene	5.1	0.83	3.127	70	0.5	15	20	0.429	4.71E-04	1.00E-02	4.71E-02	19.0%
Xylenes	176.3	0.83	124.763	70	0.5	15	20	0.429	1.88E-02	2.00E+00	9.41E-03	3.8%

TOTAL HAZARD INDEX	2.49E-01

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	7.8	1	2	0.841
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	12.6	1	2	5.532
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	2.0	1	2	0.901
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	3.8	1	2	1.398
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	76.4	1	2	32.440

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	0.841	10	6	1.402	0.5	15	20	0.230
1,2-Dichloroethene	5.532	10	6	9.221	0.5	15	20	1.513
1,1-Dichloroethene	0.901	10	6	1.502	0.5	15	20	0.246
Tetrachloroethene	1.398	10	6	2.330	0.5	15	20	0.382
Xylenes	32.440	10	6	54.066	0.5	15	20	8.871

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.8	0.9	1.402	35	0.5	15	20	0.129	1.38E-04	1.00E-01	1.38E-03	1.58%
1,2-Dichloroethene	12.6	0.9	9.221	35	0.5	15	20	0.129	9.05E-04	2.00E-02	4.52E-02	52.08%
1,1-Dichloroethene	2.0	0.9	1.502	35	0.5	15	20	0.129	1.47E-04	1.00E-02	1.47E-02	16.97%
Tetrachloroethene	3.8	0.9	2.330	35	0.5	15	20	0.129	2.29E-04	1.00E-02	2.29E-02	26.32%
Xylenes	76.4	0.9	54.066	35	0.5	15	20	0.129	5.30E-03	2.00E+00	2.65E-03	3.05%

TOTAL HAZARD INDEX 8.68E-02

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	11	1	2	1.186
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	30.2	1	2	13.260
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	2	1	2	0.901
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	5.1	1	2	1.876
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	176.3	1	2	74.858

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1}	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.186	10	6	1.977	0.5	15	20	0.324
1,2-Dichloroethene	13.260	10	6	22.100	0.5	15	20	3.626
1,1-Dichloroethene	0.901	10	6	1.502	0.5	15	20	0.246
Tetrachloroethene	1.876	10	6	3.127	0.5	15	20	0.513
Xylenes	74.858	10	6	124.763	0.5	15	20	20.471

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	11.0	0.9	1.977	35	0.5	15	20	0.129	1.94E-04	1.00E-01	1.94E-03	1.20%
1,2-Dichloroethene	30.2	0.9	22.100	35	0.5	15	20	0.129	2.17E-03	2.00E-02	1.08E-01	66.97%
1,1-Dichloroethene	2.0	0.9	1.502	35	0.5	15	20	0.129	1.47E-04	1.00E-02	1.47E-02	9.10%
Tetrachloroethene	5.1	0.9	3.127	35	0.5	15	20	0.129	3.07E-04	1.00E-02	3.07E-02	18.95%
Xylenes	176.3	0.9	124.763	35	0.5	15	20	0.129	1.22E-02	2.00E+00	6.12E-03	3.78%

TOTAL HAZARD INDEX	1.62E-01

TABLE H-50. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE DEEP BEDROCK WELLS
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	6.2	1	2	2.281

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Tetrachloroethene	2.281	10	6	3.801	0.5	15	20	0.624

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.129	1.20E-04	1.70E-02	2.05E-06	86.9%
Tetrachloroethene	6.2	0.83	3.801	70	0.5	15	20	0.129	1.72E-04	1.80E-03	3.10E-07	13.1%
									TOTAL RISK		2.36E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	8.1	1	2	2.980

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	6	2.660	0.5	15	20	0.436
Tetrachloroethene	2.980	10	6	4.966	0.5	15	20	0.815

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	2.660	70	0.5	15	20	0.429	4.01E-04	1.70E-02	6.82E-06	83.5%
Tetrachloroethene	8.1	0.83	4.966	70	0.5	15	20	0.429	7.49E-04	1.80E-03	1.35E-06	16.5%
									TOTAL RISK		8.17E-06	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	13.4	1	2	1.445
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	6.2	1	2	2.281
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	70	1	2	29.722

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.445	10	6	2.408	0.5	15	20	0.395
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.281	10	6	3.801	0.5	15	20	0.624
Xylenes	29.722	10	6	49.537	0.5	15	20	8.128

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	13.4	0.83	2.408	70	0.5	15	20	0.129	1.09E-04	1.00E-01	1.09E-03	2.5%
1,2-Dichloroethene	4.0	0.83	2.927	70	0.5	15	20	0.129	1.32E-04	2.00E-02	6.62E-03	15.4%
1,1-Dichloroethene	5.0	0.83	3.755	70	0.5	15	20	0.129	1.70E-04	1.00E-02	1.70E-02	39.5%
Tetrachloroethene	6.2	0.83	3.801	70	0.5	15	20	0.129	1.72E-04	1.00E-02	1.72E-02	40.0%
Xylenes	70.0	0.83	49.537	70	0.5	15	20	0.129	2.24E-03	2.00E+00	1.12E-03	2.6%

TOTAL HAZARD INDEX	4.30E-02

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	26.4	1	2	2.846
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	8.1	1	2	2.980
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	170.9	1	2	72.565

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.846	10	6	4.744	0.5	15	20	0.778
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.980	10	6	4.966	0.5	15	20	0.815
Xylenes	72.565	10	6	120.942	0.5	15	20	19.844

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	26.4	0.83	4.744	70	0.5	15	20	0.429	7.15E-04	1.00E-01	7.15E-03	4.2%
1,2-Dichloroethene	4.0	0.83	2.927	70	0.5	15	20	0.429	4.41E-04	2.00E-02	2.21E-02	13.0%
1,1-Dichloroethene	5.0	0.83	3.755	70	0.5	15	20	0.429	5.66E-04	1.00E-02	5.66E-02	33.3%
Tetrachloroethene	8.1	0.83	4.966	70	0.5	15	20	0.429	7.49E-04	1.00E-02	7.49E-02	44.1%
Xylenes	170.9	0.83	120.942	70	0.5	15	20	0.429	1.82E-02	2.00E+00	9.12E-03	5.4%

TOTAL HAZARD INDEX	1.70E-01

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	13.4	1	2	1.445
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4.0	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5.0	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	6.2	1	2	2.281
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	70	1	2	29.722

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1}	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.445	10	6	2.408	0.5	15	20	0.395
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.281	10	6	3.801	0.5	15	20	0.624
Xylenes	29.722	10	6	49.537	0.5	15	20	8.128

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	13.4	0.9	2.408	35	0.5	15	20	0.129	2.36E-04	1.00E-01	2.36E-03	2.53%
1,2-Dichloroethene	4.0	0.9	2.927	35	0.5	15	20	0.129	2.87E-04	2.00E-02	1.44E-02	15.39%
1,1-Dichloroethene	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	39.49%
Tetrachloroethene	6.2	0.9	3.801	35	0.5	15	20	0.129	3.73E-04	1.00E-02	3.73E-02	39.98%
Xylenes	70.0	0.9	49.537	35	0.5	15	20	0.129	4.86E-03	2.00E+00	2.43E-03	2.60%

TOTAL HAZARD INDEX	9.33E-02

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	26.4	1	2	2.846
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
1,1-Dichloroethene	97	2.29E-02	1292.72	13.47	45	0.5960	13.328	17.968	5	1	2	2.253
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	8.1	1	2	2.980
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	170.9	1	2	72.565

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.846	10	6	4.744	0.5	15	20	0.778
1,2-Dichloroethene	1.756	10	6	2.927	0.5	15	20	0.480
1,1-Dichloroethene	2.253	10	6	3.755	0.5	15	20	0.616
Tetrachloroethene	2.980	10	6	4.966	0.5	15	20	0.815
Xylenes	72.565	10	6	120.942	0.5	15	20	19.844

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	26.4	0.9	4.744	35	0.5	15	20	0.129	4.65E-04	1.00E-01	4.65E-03	4.21%
1,2-Dichloroethene	4.0	0.9	2.927	35	0.5	15	20	0.129	2.87E-04	2.00E-02	1.44E-02	12.99%
1,1-Dichloroethene	5.0	0.9	3.755	35	0.5	15	20	0.129	3.68E-04	1.00E-02	3.68E-02	33.34%
Tetrachloroethene	8.1	0.9	4.966	35	0.5	15	20	0.129	4.87E-04	1.00E-02	4.87E-02	44.09%
Xylenes	170.9	0.9	120.942	35	0.5	15	20	0.129	1.19E-02	2.00E+00	5.93E-03	5.37%

TOTAL HAZARD INDEX	1.10E-01

TABLE H-51. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE MIXED BEDROCK WELLS
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	23.5	1	2	9.377
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	3	1	2	1.427
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	3	1	2	1.579
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	219	1	2	80.564

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	9.377	10	6	15.628	0.5	15	20	2.564
Benzene	1.427	10	6	2.379	0.5	15	20	0.390
Vinyl chloride	1.579	10	6	2.632	0.5	15	20	0.432
Tetrachloroethene	80.564	10	6	134.273	0.5	15	20	22.031

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	23.5	0.83	15.628	70	0.5	15	20	0.129	7.07E-04	1.70E-02	1.20E-05	19.5%
Benzene	3.0	0.83	2.379	70	0.5	15	20	0.129	1.08E-04	2.90E-02	3.12E-06	5.1%
Vinyl chloride	3.0	0.83	2.632	70	0.5	15	20	0.129	1.19E-04	3.00E-01	3.57E-05	57.8%
Tetrachloroethene	219.0	0.83	134.273	70	0.5	15	20	0.129	6.07E-03	1.80E-03	1.09E-05	17.7%
									TOTAL RISK		6.18E-05	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	51.3	1	2	20.470
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	3	1	2	1.427
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	3	1	2	1.579
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	569.4	1	2	209.466

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	20.470	10	6	34.116	0.5	15	20	5.598
Benzene	1.427	10	6	2.379	0.5	15	20	0.390
Vinyl chloride	1.579	10	6	2.632	0.5	15	20	0.432
Tetrachloroethene	209.466	10	6	349.111	0.5	15	20	57.282

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	51.3	0.83	34.116	70	0.5	15	20	0.429	5.14E-03	1.70E-02	8.74E-05	28.1%
Benzene	3.0	0.83	2.379	70	0.5	15	20	0.429	3.59E-04	2.90E-02	1.04E-05	3.3%
Vinyl chloride	3.0	0.83	2.632	70	0.5	15	20	0.429	3.97E-04	3.00E-01	1.19E-04	38.2%
Tetrachloroethene	569.4	0.83	349.111	70	0.5	15	20	0.429	5.26E-02	1.80E-03	9.48E-05	30.4%

TOTAL RISK	3.12E-04

TABLE H-51 (Continued)

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	23	1	2	2.480
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	36.8	1	2	16.158
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	219	1	2	80.564
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	375.4	1	2	159.397

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.480	10	6	4.133	0.5	15	20	0.678
1,2-Dichloroethene	16.158	10	6	26.930	0.5	15	20	4.419
Tetrachloroethene	80.564	10	6	134.273	0.5	15	20	22.031
Xylenes	159.397	10	6	265.662	0.5	15	20	43.590

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	23.0	0.83	4.133	70	0.5	15	20	0.129	1.87E-04	1.00E-01	1.87E-03	0.3%
1,2-Dichloroethene	36.8	0.83	26.930	70	0.5	15	20	0.129	1.22E-03	2.00E-02	6.09E-02	9.0%
Tetrachloroethene	219.0	0.83	134.273	70	0.5	15	20	0.129	6.07E-03	1.00E-02	6.07E-01	89.8%
Xylenes	375.4	0.83	265.662	70	0.5	15	20	0.129	1.20E-02	2.00E+00	6.01E-03	0.9%

TOTAL HAZARD INDEX 6.76E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	41.9	1	2	4.518
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	66.6	1	2	29.242
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	569.4	1	2	209.466
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	750.5	1	2	318.667

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	4.518	10	6	7.529	0.5	15	20	1.235
1,2-Dichloroethene	29.242	10	6	48.737	0.5	15	20	7.997
Tetrachloroethene	209.466	10	6	349.111	0.5	15	20	57.282
Xylenes	318.667	10	6	531.111	0.5	15	20	87.144

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	41.9	0.83	7.529	70	0.5	15	20	0.429	1.14E-03	1.00E-01	1.14E-02	0.2%
1,2-Dichloroethene	66.6	0.83	48.737	70	0.5	15	20	0.429	7.35E-03	2.00E-02	3.67E-01	6.5%
Tetrachloroethene	569.4	0.83	349.111	70	0.5	15	20	0.429	5.26E-02	1.00E-02	5.26E+00	92.6%
Xylenes	750.5	0.83	531.111	70	0.5	15	20	0.429	8.01E-02	2.00E+00	4.00E-02	0.7%

TOTAL HAZARD INDEX	5.68E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	23.0	1	2	2.480
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	36.8	1	2	16.158
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	219.0	1	2	80.564
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	375.4	1	2	159.397

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.480	10	6	4.133	0.5	15	20	0.678
1,2-Dichloroethene	16.158	10	6	26.930	0.5	15	20	4.419
Tetrachloroethene	80.564	10	6	134.273	0.5	15	20	22.031
Xylenes	159.397	10	6	265.662	0.5	15	20	43.590

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	23.0	0.9	4.133	35	0.5	15	20	0.129	4.05E-04	1.00E-01	4.05E-03	0.28%
1,2-Dichloroethene	36.8	0.9	26.930	35	0.5	15	20	0.129	2.64E-03	2.00E-02	1.32E-01	9.01%
Tetrachloroethene	219.0	0.9	134.273	35	0.5	15	20	0.129	1.32E-02	1.00E-02	1.32E+00	89.83%
Xylenes	375.4	0.9	265.662	35	0.5	15	20	0.129	2.61E-02	2.00E+00	1.30E-02	0.89%

TOTAL HAZARD INDEX	1.47E+00

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	41.9	1	2	4.518
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	66.6	1	2	29.242
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	569.4	1	2	209.466
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	750.5	1	2	318.667

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	4.518	10	6	7.529	0.5	15	20	1.235
1,2-Dichloroethene	29.242	10	6	48.737	0.5	15	20	7.997
Tetrachloroethene	209.466	10	6	349.111	0.5	15	20	57.282
Xylenes	318.667	10	6	531.111	0.5	15	20	87.144

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	41.9	0.9	7.529	35	0.5	15	20	0.129	7.39E-04	1.00E-01	7.39E-03	0.20%
1,2-Dichloroethene	66.6	0.9	48.737	35	0.5	15	20	0.129	4.78E-03	2.00E-02	2.39E-01	6.47%
Tetrachloroethene	569.4	0.9	349.111	35	0.5	15	20	0.129	3.42E-02	1.00E-02	3.42E+00	92.63%
Xylenes	750.5	0.9	531.111	35	0.5	15	20	0.129	5.21E-02	2.00E+00	2.61E-02	0.70%

TOTAL HAZARD INDEX	3.70E+00

TABLE H-52. INHALATION OF VOLATILE ORGANICS WHILE SHOWERING
FUTURE-USE SCENARIO RESIDENTIAL - ON-SITE MIXED BEDROCK WELLS
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	10.1	1	2	4.030
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	4	1	2	1.903
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	12.2	1	2	6.422
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	23.3	1	2	8.571

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	4.030	10	6	6.717	0.5	15	20	1.102
Benzene	1.903	10	6	3.172	0.5	15	20	0.520
Vinyl chloride	6.422	10	6	10.703	0.5	15	20	1.756
Tetrachloroethene	8.571	10	6	14.286	0.5	15	20	2.344

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	10.1	0.83	6.717	70	0.5	15	20	0.129	3.04E-04	1.70E-02	5.17E-06	3.3%
Benzene	4.0	0.83	3.172	70	0.5	15	20	0.129	1.43E-04	2.90E-02	4.16E-06	2.7%
Vinyl chloride	12.2	0.83	10.703	70	0.5	15	20	0.129	4.84E-04	3.00E-01	1.45E-04	93.3%
Tetrachloroethene	23.3	0.83	14.286	70	0.5	15	20	0.129	6.46E-04	1.80E-03	1.16E-06	0.7%
									TOTAL RISK		1.56E-04	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	15.8	1	2	6.304
Benzene	78	5.55E-03	1441.15	15.02	45	0.5960	14.373	19.376	4	1	2	1.903
Vinyl chloride	63	2.78E-02	1609.97	16.78	45	0.5960	16.631	22.420	18.8	1	2	9.896
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	44.1	1	2	16.223

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	6.304	10	6	10.507	0.5	15	20	1.724
Benzene	1.903	10	6	3.172	0.5	15	20	0.520
Vinyl chloride	9.896	10	6	16.493	0.5	15	20	2.706
Tetrachloroethene	16.223	10	6	27.039	0.5	15	20	4.436

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	15.8	0.83	10.507	70	0.5	15	20	0.429	1.58E-03	1.70E-02	2.69E-05	3.4%
Benzene	4.0	0.83	3.172	70	0.5	15	20	0.429	4.78E-04	2.90E-02	1.39E-05	1.7%
Vinyl chloride	18.8	0.83	16.493	70	0.5	15	20	0.429	2.49E-03	3.00E-01	7.46E-04	93.9%
Tetrachloroethene	44.1	0.83	27.039	70	0.5	15	20	0.429	4.08E-03	1.80E-03	7.34E-06	0.9%
									TOTAL RISK		7.94E-04	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	15.3	1	2	1.650
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	111.1	1	2	48.781
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	23.3	1	2	8.571
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	362.6	1	2	153.962

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.650	10	6	2.749	0.5	15	20	0.451
1,2-Dichloroethene	48.781	10	6	81.302	0.5	15	20	13.340
Tetrachloroethene	8.571	10	6	14.286	0.5	15	20	2.344
Xylenes	153.962	10	6	256.604	0.5	15	20	42.103

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	15.3	0.83	2.749	70	0.5	15	20	0.129	1.24E-04	1.00E-01	1.24E-03	0.5%
1,2-Dichloroethene	111.1	0.83	81.302	70	0.5	15	20	0.129	3.68E-03	2.00E-02	1.84E-01	72.0%
Tetrachloroethene	23.3	0.83	14.286	70	0.5	15	20	0.129	6.46E-04	1.00E-02	6.46E-02	25.3%
Xylenes	362.6	0.83	256.604	70	0.5	15	20	0.129	1.16E-02	2.00E+00	5.80E-03	2.3%

TOTAL HAZARD INDEX	2.56E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	23.6	1	2	2.545
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	263.9	1	2	115.872
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	44.1	1	2	16.223
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	635.8	1	2	269.964

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.545	10	6	4.241	0.5	15	20	0.696
1,2-Dichloroethene	115.872	10	6	193.120	0.5	15	20	31.687
Tetrachloroethene	16.223	10	6	27.039	0.5	15	20	4.436
Xylenes	269.964	10	6	449.941	0.5	15	20	73.826

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	23.6	0.83	4.241	70	0.5	15	20	0.429	6.39E-04	1.00E-01	6.39E-03	0.3%
1,2-Dichloroethene	263.9	0.83	193.120	70	0.5	15	20	0.429	2.91E-02	2.00E-02	1.46E+00	76.5%
Tetrachloroethene	44.1	0.83	27.039	70	0.5	15	20	0.429	4.08E-03	1.00E-02	4.08E-01	21.4%
Xylenes	635.8	0.83	449.941	70	0.5	15	20	0.429	6.78E-02	2.00E+00	3.39E-02	1.8%

TOTAL HAZARD INDEX 1.90E+00

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	15.3	1	2	1.650
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	111.1	1	2	48.781
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	23.3	1	2	8.571
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	362.6	1	2	153.962

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1}	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.650	10	6	2.749	0.5	15	20	0.451
1,2-Dichloroethene	48.781	10	6	81.302	0.5	15	20	13.340
Tetrachloroethene	8.571	10	6	14.286	0.5	15	20	2.344
Xylenes	153.962	10	6	256.604	0.5	15	20	42.103

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	15.3	0.9	2.749	35	0.5	15	20	0.129	2.70E-04	1.00E-01	2.70E-03	0.49%
1,2-Dichloroethene	111.1	0.9	81.302	35	0.5	15	20	0.129	7.98E-03	2.00E-02	3.99E-01	71.96%
Tetrachloroethene	23.3	0.9	14.286	35	0.5	15	20	0.129	1.40E-03	1.00E-02	1.40E-01	25.29%
Xylenes	362.6	0.9	256.604	35	0.5	15	20	0.129	2.52E-02	2.00E+00	1.26E-02	2.27%

TOTAL HAZARD INDEX	5.54E-01

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Child

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	23.6	1	2	2.545
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	263.9	1	2	115.872
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	44.1	1	2	16.223
Xylenes	106	5.35E-03	1235.25	12.88	45	0.5960	12.300	16.581	635.8	1	2	269.964

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.545	10	6	4.241	0.5	15	20	0.696
1,2-Dichloroethene	115.872	10	6	193.120	0.5	15	20	31.687
Tetrachloroethene	16.223	10	6	27.039	0.5	15	20	4.436
Xylenes	269.964	10	6	449.941	0.5	15	20	73.826

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	23.6	0.9	4.241	35	0.5	15	20	0.129	4.16E-04	1.00E-01	4.16E-03	0.34%
1,2-Dichloroethene	263.9	0.9	193.120	35	0.5	15	20	0.129	1.89E-02	2.00E-02	9.47E-01	76.47%
Tetrachloroethene	44.1	0.9	27.039	35	0.5	15	20	0.129	2.65E-03	1.00E-02	2.65E-01	21.41%
Xylenes	635.8	0.9	449.941	35	0.5	15	20	0.129	4.41E-02	2.00E+00	2.21E-02	1.78%

TOTAL HAZARD INDEX	1.24E+00

Table H-53. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners) - FS-8
ON-SITE GROUNDWATER USE - Upper Bedrock - Round 1

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	2.72E-03	15	1.0	70	0.959	0.129	7.21E-08	1.90E+00	1.37E-07	77.21%
Benzene	2.14E-03	15	1.0	70	0.959	0.129	5.67E-08	2.90E-02	1.65E-09	0.93%
Trichloroethene	1.33E-01	15	1.0	70	0.959	0.129	3.53E-06	1.10E-02	3.88E-08	21.86%
							TOTAL RISK		1.77E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	2.72E-03	24	1	70	0.959	0.429	3.83E-07	1.90E+00	7.28E-07	63.88%
Benzene	2.14E-03	24	1	70	0.959	0.429	3.02E-07	2.90E-02	8.74E-09	0.77%
Trichloroethene	2.60E-01	24	1	70	0.959	0.429	3.66E-05	1.10E-02	4.03E-07	35.35%
							TOTAL RISK		1.14E-06	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	6.62E-02	15	1	70	0.959	0.129	1.75E-06	2.00E-02	8.77E-05	7.64%
Toluene	8.85E-02	15	1	70	0.959	0.129	2.35E-06	2.00E-01	1.17E-05	1.02%
Xylenes	3.76E+00	15	1	70	0.959	0.129	9.97E-05	2.00E+00	4.98E-05	4.34%
o-Toluic acid	8.08E+01	15	1	70	0.959	0.129	2.14E-03	3.00E+00	7.14E-04	62.17%
m-Toluic acid	2.93E+01	15	1	70	0.959	0.129	7.77E-04	3.00E+00	2.59E-04	22.54%
p-Toluic acid	2.97E+00	15	1	70	0.959	0.129	7.87E-05	3.00E+00	2.62E-05	2.29%
							TOTAL HAZRD INDEX		1.15E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.11E-01	24	1	70	0.959	0.429	1.56E-05	2.00E-02	7.82E-04	7.22%
Toluene	1.51E-01	24	1	70	0.959	0.429	2.13E-05	2.00E-01	1.06E-04	0.98%
Xylenes	6.87E+00	24	1	70	0.959	0.429	9.68E-04	2.00E+00	4.84E-04	4.47%
o-Toluic acid	1.42E+02	24	1	70	0.959	0.429	2.00E-02	3.00E+00	6.67E-03	61.59%
m-Toluic acid	5.37E+01	24	1	70	0.959	0.429	7.57E-03	3.00E+00	2.52E-03	23.29%
p-Toluic acid	5.64E+00	24	1	70	0.959	0.429	7.95E-04	3.00E+00	2.65E-04	2.45%
							TOTAL HAZARD INDEX		1.08E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	6.62E-02	15	1	35	0.959	0.129	3.51E-06	2.00E-02	1.75E-04	7.64%
Toluene	8.85E-02	15	1	35	0.959	0.129	4.69E-06	2.00E-01	2.35E-05	1.02%
Xylenes	3.76E+00	15	1	35	0.959	0.129	1.99E-04	2.00E+00	9.97E-05	4.34%
o-Toluic acid	8.08E+01	15	1	35	0.959	0.129	4.28E-03	3.00E+00	1.43E-03	62.17%
m-Toluic acid	2.93E+01	15	1	35	0.959	0.129	1.55E-03	3.00E+00	5.18E-04	22.54%
p-Toluic acid	2.97E+00	15	1	35	0.959	0.129	1.57E-04	3.00E+00	5.25E-05	2.29%
							TOTAL HAZRD INDEX		2.30E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.11E-01	24	1	35	0.959	0.129	9.38E-06	2.00E-02	4.69E-04	7.22%
Toluene	1.51E-01	24	1	35	0.959	0.129	1.28E-05	2.00E-01	6.38E-05	0.98%
Xylenes	6.87E+00	24	1	35	0.959	0.129	5.81E-04	2.00E+00	2.90E-04	4.47%
o-Toluic acid	1.42E+02	24	1	35	0.959	0.129	1.20E-02	3.00E+00	4.00E-03	61.59%
m-Toluic acid	5.37E+01	24	1	35	0.959	0.129	4.54E-03	3.00E+00	1.51E-03	23.29%
p-Toluic acid	5.64E+00	24	1	35	0.959	0.129	4.77E-04	3.00E+00	1.59E-04	2.45%
							TOTAL HAZARD INDEX		6.50E-03	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	5.10E-02	25	1	70	0.959	0.129	2.25E-06	1.90E+00	4.28E-06	97.10%
Benzene	6.34E-03	25	1	70	0.959	0.129	2.80E-07	2.90E-02	8.12E-09	0.18%
Trichloroethene	2.46E-01	25	1	70	0.959	0.129	1.09E-05	1.10E-02	1.20E-07	2.71%
							TOTAL RISK		4.41E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	8.86E-02	40	1	70	0.959	0.429	2.08E-05	1.90E+00	3.95E-05	97.90%
Benzene	8.95E-03	40	1	70	0.959	0.429	2.10E-06	2.90E-02	6.10E-08	0.15%
Trichloroethene	3.05E-01	40	1	70	0.959	0.429	7.16E-05	1.10E-02	7.88E-07	1.95%
							TOTAL RISK		4.04E-05	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	9.07E-03	25	1	70	0.959	0.129	4.01E-07	2.00E-02	2.00E-05	3.15%
Toluene	8.10E-03	25	1	70	0.959	0.129	3.58E-07	2.00E-01	1.79E-06	0.28%
Xylenes	3.36E-03	25	1	70	0.959	0.129	1.48E-07	2.00E+00	7.42E-08	0.01%
o-Toluic acid	2.12E+01	25	1	70	0.959	0.129	9.37E-04	3.00E+00	3.12E-04	49.15%
m-Toluic acid	1.47E+01	25	1	70	0.959	0.129	6.49E-04	3.00E+00	2.16E-04	34.08%
p-Toluic acid	5.75E+00	25	1	70	0.959	0.129	2.54E-04	3.00E+00	8.47E-05	13.33%
							TOTAL HAZRD INDEX		6.35E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.44E-02	40	1	70	0.959	0.429	3.38E-06	2.00E-02	1.69E-04	2.64%
Toluene	1.34E-02	40	1	70	0.959	0.429	3.15E-06	2.00E-01	1.57E-05	0.15%
Xylenes	6.26E-03	40	1	70	0.959	0.429	1.47E-06	2.00E+00	7.35E-07	0.01%
o-Toluic acid	3.96E+01	40	1	70	0.959	0.429	9.30E-03	3.00E+00	3.10E-03	28.63%
m-Toluic acid	2.86E+01	40	1	70	0.959	0.429	6.72E-03	3.00E+00	2.24E-03	20.67%
p-Toluic acid	1.14E+01	40	1	70	0.959	0.429	2.68E-03	3.00E+00	8.92E-04	8.24%
							TOTAL HAZARD INDEX		6.42E-03	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	9.07E-03	25	1	35	0.959	0.129	8.01E-07	2.00E-02	4.01E-05	3.15%
Toluene	8.10E-03	25	1	35	0.959	0.129	7.16E-07	2.00E-01	3.58E-06	0.28%
Xylenes	3.36E-03	25	1	35	0.959	0.129	2.97E-07	2.00E+00	1.48E-07	0.01%
o-Toluic acid	2.12E+01	25	1	35	0.959	0.129	1.87E-03	3.00E+00	6.24E-04	49.15%
m-Toluic acid	1.47E+01	25	1	35	0.959	0.129	1.30E-03	3.00E+00	4.33E-04	34.08%
p-Toluic acid	5.75E+00	25	1	35	0.959	0.129	5.08E-04	3.00E+00	1.69E-04	13.33%
							TOTAL HAZRD INDEX		1.27E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.44E-02	40	1	35	0.959	0.129	2.03E-06	2.00E-02	1.01E-04	2.64%
Toluene	1.34E-02	40	1	35	0.959	0.129	1.89E-06	2.00E-01	9.44E-06	0.25%
Xylenes	6.26E-03	40	1	35	0.959	0.129	8.82E-07	2.00E+00	4.41E-07	0.01%
o-Toluic acid	3.96E+01	40	1	35	0.959	0.129	5.58E-03	3.00E+00	1.86E-03	48.31%
m-Toluic acid	2.86E+01	40	1	35	0.959	0.129	4.03E-03	3.00E+00	1.34E-03	34.89%
p-Toluic acid	1.14E+01	40	1	35	0.959	0.129	1.61E-03	3.00E+00	5.35E-04	13.91%
							TOTAL HAZARD INDEX		3.85E-03	

Table H-54. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners) - FS-8
ON-SITE GROUNDWATER USE - Upper Bedrock - Round 2

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Days/Yr x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 15 g/day x 1.0 x 1/70 kg x 350 days/Days/Yr x 9 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	1.31E-02	15	1.0	70	0.959	0.129	3.47E-07	1.90E+00	6.60E-07	81.10%
Benzene	8.55E-03	15	1.0	70	0.959	0.129	2.27E-07	2.90E-02	6.57E-09	0.81%
Trichloroethene	4.13E-02	15	1.0	70	0.959	0.129	1.09E-06	1.10E-02	1.20E-08	1.48%
Tetrachloroethene	1.00E-01	15	1.0	70	0.959	0.129	2.65E-06	5.10E-02	1.35E-07	16.62%
							TOTAL RISK		8.14E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 24 g/day x 1.0 x 1/70 kg x 350 days/year x 30 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	1.91E-02	24	1	70	0.959	0.429	2.69E-06	1.90E+00	5.11E-06	76.95%
Benzene	8.55E-03	24	1	70	0.959	0.429	1.20E-06	2.90E-02	3.49E-08	0.53%
Trichloroethene	6.65E-02	24	1	70	0.959	0.429	9.37E-06	1.10E-02	1.03E-07	1.55%
Tetrachloroethene	1.94E-01	24	1	70	0.959	0.429	2.73E-05	5.10E-02	1.39E-06	20.98%
							TOTAL RISK		6.65E-06	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.78E-01	15	1	70	0.959	0.129	4.72E-06	2.00E-02	2.36E-04	9.68%
Xylenes	2.93E+00	15	1	70	0.959	0.129	7.77E-05	2.00E+00	3.88E-05	1.59%
2-Methylphenol	1.44E-02	15	1	70	0.959	0.129	3.82E-07	5.00E-02	7.63E-06	0.31%
4-Methylphenol	2.29E-02	15	1	70	0.959	0.129	6.07E-07	5.00E-02	1.21E-05	0.50%
o-Toluic acid	1.23E+02	15	1	70	0.959	0.129	3.26E-03	3.00E+00	1.09E-03	44.61%
m-Toluic acid	6.18E+01	15	1	70	0.959	0.129	1.64E-03	3.00E+00	5.46E-04	22.41%
p-Toluic acid	5.76E+01	15	1	70	0.959	0.129	1.53E-03	3.00E+00	5.09E-04	20.89%
							TOTAL HAZRD INDEX		2.44E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.23E-01	24	1	70	0.959	0.429	5.96E-05	2.00E-02	2.98E-03	10.65%
Xylenes	5.15E+00	24	1	70	0.959	0.429	7.26E-04	2.00E+00	3.63E-04	1.30%
2-Methylphenol	2.22E-02	24	1	70	0.959	0.429	3.13E-06	5.00E-02	6.26E-05	0.22%
4-Methylphenol	4.14E-02	24	1	70	0.959	0.429	5.83E-06	5.00E-02	1.17E-04	0.42%
o-Toluic acid	2.54E+02	24	1	70	0.959	0.429	3.58E-02	3.00E+00	1.19E-02	42.62%
m-Toluic acid	1.27E+02	24	1	70	0.959	0.429	1.79E-02	3.00E+00	5.96E-03	21.31%
p-Toluic acid	1.40E+02	24	1	70	0.959	0.429	1.97E-02	3.00E+00	6.58E-03	23.49%
							TOTAL HAZARD INDEX		2.80E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	6.62E-02	15	1	35	0.959	0.129	3.51E-06	2.00E-02	1.75E-04	1.73%
Xylenes	8.85E-02	15	1	35	0.959	0.129	4.69E-06	2.00E+00	2.35E-06	0.02%
2-Methylphenol	3.76E+00	15	1	35	0.959	0.129	1.99E-04	5.00E-02	3.99E-03	39.28%
4-Methylphenol	3.76E+00	15	1	35	0.959	0.129	1.99E-04	5.00E-02	3.99E-03	39.28%
o-Toluic acid	8.08E+01	15	1	35	0.959	0.129	4.28E-03	3.00E+00	1.43E-03	14.07%
m-Toluic acid	2.93E+01	15	1	35	0.959	0.129	1.55E-03	3.00E+00	5.18E-04	5.10%
p-Toluic acid	2.97E+00	15	1	35	0.959	0.129	1.57E-04	3.00E+00	5.25E-05	0.52%
							TOTAL HAZRD INDEX		1.01E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.23E-01	24	1	35	0.959	0.129	3.58E-05	2.00E-02	1.79E-03	10.65%
Xylenes	5.15E+00	24	1	35	0.959	0.129	4.35E-04	2.00E+00	2.18E-04	1.30%
2-Methylphenol	2.22E-02	24	1	35	0.959	0.129	1.88E-06	5.00E-02	3.75E-05	0.22%
4-Methylphenol	4.14E-02	24	1	35	0.959	0.129	3.50E-06	5.00E-02	7.00E-05	0.42%
o-Toluic acid	2.54E+02	24	1	35	0.959	0.129	2.15E-02	3.00E+00	7.16E-03	42.62%
m-Toluic acid	1.27E+02	24	1	35	0.959	0.129	1.07E-02	3.00E+00	3.58E-03	21.31%
p-Toluic acid	1.40E+02	24	1	35	0.959	0.129	1.18E-02	3.00E+00	3.95E-03	23.49%
							TOTAL HAZARD INDEX		1.68E-02	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	2.22E-03	25	1	70	0.959	0.129	9.81E-08	1.90E+00	1.86E-07	61.64%
Benzene	8.45E-02	25	1	70	0.959	0.129	3.73E-06	2.90E-02	1.08E-07	35.81%
Trichloroethene	4.36E-03	25	1	70	0.959	0.129	1.93E-07	1.10E-02	2.12E-09	0.70%
Tetrachloroethene	2.49E-03	25	1	70	0.959	0.129	1.10E-07	5.10E-02	5.61E-09	1.86%
							TOTAL RISK		3.02E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	2.22E-03	40	1	70	0.959	0.429	5.21E-07	1.90E+00	9.91E-07	37.55%
Benzene	2.35E-01	40	1	70	0.959	0.429	5.52E-05	2.90E-02	1.60E-06	60.67%
Trichloroethene	6.66E-03	40	1	70	0.959	0.429	1.56E-06	1.10E-02	1.72E-08	0.65%
Tetrachloroethene	2.49E-03	40	1	70	0.959	0.429	5.85E-07	5.10E-02	2.98E-08	1.13%
							TOTAL RISK		2.64E-06	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.09E-01	25	1	70	0.959	0.129	4.82E-06	2.00E-02	2.41E-04	23.31%
Xylenes	2.03E-01	25	1	70	0.959	0.129	8.97E-06	2.00E+00	4.48E-06	0.43%
2-Methylphenol	6.28E-03	25	1	70	0.959	0.129	2.77E-07	5.00E-02	5.55E-06	0.54%
4-Methylphenol	9.99E-03	25	1	70	0.959	0.129	4.41E-07	5.00E-02	8.83E-06	0.85%
o-Toluic acid	2.14E+01	25	1	70	0.959	0.129	9.45E-04	3.00E+00	3.15E-04	30.51%
m-Toluic acid	1.48E+01	25	1	70	0.959	0.129	6.54E-04	3.00E+00	2.18E-04	21.10%
p-Toluic acid	1.63E+01	25	1	70	0.959	0.129	7.20E-04	3.00E+00	2.40E-04	23.24%
							TOTAL HAZRD INDEX		1.03E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	2.59E-01	40	1	70	0.959	0.429	6.08E-05	2.00E-02	3.04E-03	25.05%
Xylenes	3.57E-02	40	1	70	0.959	0.429	8.38E-06	2.00E+00	4.19E-06	0.01%
2-Methylphenol	9.68E-03	40	1	70	0.959	0.429	2.27E-06	5.00E-02	4.55E-05	0.16%
4-Methylphenol	1.81E-02	40	1	70	0.959	0.429	4.25E-06	5.00E-02	8.50E-05	0.30%
o-Toluic acid	4.43E+01	40	1	70	0.959	0.429	1.04E-02	3.00E+00	3.47E-03	12.39%
m-Toluic acid	3.04E+01	40	1	70	0.959	0.429	7.14E-03	3.00E+00	2.38E-03	8.50%
p-Toluic acid	3.98E+01	40	1	70	0.959	0.429	9.35E-03	3.00E+00	3.12E-03	11.13%
							TOTAL HAZARD INDEX		1.21E-02	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.09E-01	25	1	35	0.959	0.129	9.63E-06	2.00E-02	4.82E-04	23.31%
Xylenes	2.03E-01	25	1	35	0.959	0.129	1.79E-05	2.00E+00	8.97E-06	0.43%
2-Methylphenol	6.28E-03	25	1	35	0.959	0.129	5.55E-07	5.00E-02	1.11E-05	0.54%
4-Methylphenol	9.99E-03	25	1	35	0.959	0.129	8.83E-07	5.00E-02	1.77E-05	0.85%
o-Toluic acid	2.14E+01	25	1	35	0.959	0.129	1.89E-03	3.00E+00	6.30E-04	30.51%
m-Toluic acid	1.48E+01	25	1	35	0.959	0.129	1.31E-03	3.00E+00	4.36E-04	21.10%
p-Toluic acid	1.63E+01	25	1	35	0.959	0.129	1.44E-03	3.00E+00	4.80E-04	23.24%
							TOTAL HAZRD INDEX		2.07E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.59E-01	40	1	35	0.959	0.129	3.65E-05	2.00E-02	1.82E-03	25.05%
Xylenes	3.57E-02	40	1	35	0.959	0.129	5.03E-06	2.00E+00	2.52E-06	0.03%
2-Methylphenol	9.68E-03	40	1	35	0.959	0.129	1.36E-06	5.00E-02	2.73E-05	0.37%
4-Methylphenol	1.81E-02	40	1	35	0.959	0.129	2.55E-06	5.00E-02	5.10E-05	0.70%
o-Toluic acid	4.43E+01	40	1	35	0.959	0.129	6.24E-03	3.00E+00	2.08E-03	28.57%
m-Toluic acid	3.04E+01	40	1	35	0.959	0.129	4.28E-03	3.00E+00	1.43E-03	19.60%
p-Toluic acid	3.98E+01	40	1	35	0.959	0.129	5.61E-03	3.00E+00	1.87E-03	25.67%
							TOTAL HAZARD INDEX		7.28E-03	

Table H-55. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
ON-SITE GROUNDWATER USE - Deep Bedrock - Round 1

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	5.35E-03	15	1.0	70	0.959	0.129	1.42E-07	2.90E-02	4.11E-09	16.55%
Trichloroethene	9.45E-03	15	1.0	70	0.959	0.129	2.50E-07	1.10E-02	2.76E-09	11.09%
Tetrachloroethene	1.33E-02	15	1.0	70	0.959	0.129	3.53E-07	5.10E-02	1.80E-08	72.36%
							TOTAL RISK		2.48E-08	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	5.56E-03	24	1	70	0.959	0.429	7.83E-07	2.90E-02	2.27E-08	13.61%
Trichloroethene	1.05E-02	24	1	70	0.959	0.429	1.48E-06	1.10E-02	1.63E-08	9.75%
Tetrachloroethene	1.78E-02	24	1	70	0.959	0.429	2.51E-06	5.10E-02	1.28E-07	76.64%
							TOTAL RISK		1.67E-07	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.56E-02	15	1	70	0.959	0.129	4.14E-07	2.00E-02	2.07E-05	8.06%
Xylenes	4.94E-01	15	1	70	0.959	0.129	1.31E-05	2.00E+00	6.55E-06	2.55%
2-Methylphenol	9.25E-02	15	1	70	0.959	0.129	2.45E-06	5.00E-02	4.90E-05	19.11%
4-Methylphenol	9.33E-02	15	1	70	0.959	0.129	2.47E-06	5.00E-02	4.95E-05	19.27%
o-Toluic acid	1.03E+01	15	1	70	0.959	0.129	2.73E-04	3.00E+00	9.10E-05	35.46%
m-Toluic acid	4.04E+00	15	1	70	0.959	0.129	1.07E-04	3.00E+00	3.57E-05	13.91%
p-Toluic acid	4.74E-01	15	1	70	0.959	0.129	1.26E-05	3.00E+00	4.19E-06	1.63%
							TOTAL HAZRD INDEX		2.57E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.73E-02	24	1	70	0.959	0.429	5.26E-06	2.00E-02	2.63E-04	13.16%
Xylenes	1.14E+00	24	1	70	0.959	0.429	1.61E-04	2.00E+00	8.03E-05	4.02%
2-Methylphenol	9.96E-03	24	1	70	0.959	0.429	1.40E-06	5.00E-02	2.81E-05	1.41%
4-Methylphenol	1.07E-02	24	1	70	0.959	0.429	1.51E-06	5.00E-02	3.02E-05	1.51%
o-Toluic acid	2.39E+01	24	1	70	0.959	0.429	3.37E-03	3.00E+00	1.12E-03	56.22%
m-Toluic acid	9.07E+00	24	1	70	0.959	0.429	1.28E-03	3.00E+00	4.26E-04	21.33%
p-Toluic acid	9.99E-01	24	1	70	0.959	0.429	1.41E-04	3.00E+00	4.69E-05	2.35%
							TOTAL HAZARD INDEX		2.00E-03	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.56E-02	15	1	35	0.959	0.129	8.27E-07	2.00E-02	4.14E-05	8.06%
Xylenes	4.94E-01	15	1	35	0.959	0.129	2.62E-05	2.00E+00	1.31E-05	2.55%
2-Methylphenol	9.25E-02	15	1	35	0.959	0.129	4.90E-06	5.00E-02	9.81E-05	19.11%
4-Methylphenol	9.33E-02	15	1	35	0.959	0.129	4.95E-06	5.00E-02	9.89E-05	19.27%
o-Toluic acid	1.03E+01	15	1	35	0.959	0.129	5.46E-04	3.00E+00	1.82E-04	35.46%
m-Toluic acid	4.04E+00	15	1	35	0.959	0.129	2.14E-04	3.00E+00	7.14E-05	13.91%
p-Toluic acid	4.74E-01	15	1	35	0.959	0.129	2.51E-05	3.00E+00	8.38E-06	1.63%
							TOTAL HAZRD INDEX		5.13E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.73E-02	24	1	35	0.959	0.129	3.15E-06	2.00E-02	1.58E-04	13.16%
Xylenes	1.14E+00	24	1	35	0.959	0.129	9.64E-05	2.00E+00	4.82E-05	4.02%
2-Methylphenol	9.96E-03	24	1	35	0.959	0.129	8.42E-07	5.00E-02	1.68E-05	1.41%
4-Methylphenol	1.07E-02	24	1	35	0.959	0.129	9.05E-07	5.00E-02	1.81E-05	1.51%
o-Toluic acid	2.39E+01	24	1	35	0.959	0.129	2.02E-03	3.00E+00	6.74E-04	56.22%
m-Toluic acid	9.07E+00	24	1	35	0.959	0.129	7.67E-04	3.00E+00	2.56E-04	21.33%
p-Toluic acid	9.99E-01	24	1	35	0.959	0.129	8.45E-05	3.00E+00	2.82E-05	2.35%
							TOTAL HAZARD INDEX		1.20E-03	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	1.86E-03	25	1	70	0.959	0.129	8.22E-08	2.90E-02	2.38E-09	27.91%
Trichloroethene	1.68E-03	25	1	70	0.959	0.129	7.42E-08	1.10E-02	8.16E-10	9.56%
Tetrachloroethene	2.37E-03	25	1	70	0.959	0.129	1.05E-07	5.10E-02	5.34E-09	62.53%
							TOTAL RISK		8.54E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	1.94E-03	40	1	70	0.959	0.429	4.56E-07	2.90E-02	1.32E-08	23.54%
Trichloroethene	1.87E-03	40	1	70	0.959	0.429	4.39E-07	1.10E-02	4.83E-09	8.61%
Tetrachloroethene	3.18E-03	40	1	70	0.959	0.429	7.47E-07	5.10E-02	3.81E-08	67.85%
							TOTAL RISK		5.61E-08	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	9.52E-03	25	1	70	0.959	0.129	4.21E-07	2.00E-02	2.10E-05	29.30%
Xylenes	3.42E-02	25	1	70	0.959	0.129	1.51E-06	2.00E+00	7.55E-07	1.05%
2-Methylphenol	4.03E-03	25	1	70	0.959	0.129	1.78E-07	5.00E-02	3.56E-06	4.96%
4-Methylphenol	4.20E-03	25	1	70	0.959	0.129	1.86E-07	5.00E-02	3.71E-06	5.17%
o-Toluic acid	1.80E+00	25	1	70	0.959	0.129	7.95E-05	3.00E+00	2.65E-05	36.93%
m-Toluic acid	9.67E-01	25	1	70	0.959	0.129	4.27E-05	3.00E+00	1.42E-05	19.84%
p-Toluic acid	1.34E-01	25	1	70	0.959	0.129	5.92E-06	3.00E+00	1.97E-06	2.75%
							TOTAL HAZRD INDEX		7.18E-05	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	2.28E-03	40	1	70	0.959	0.429	5.35E-07	2.00E-02	2.68E-05	4.54%
Xylenes	7.89E-03	40	1	70	0.959	0.429	1.85E-06	2.00E+00	9.26E-07	0.05%
2-Methylphenol	4.34E-03	40	1	70	0.959	0.429	1.02E-06	5.00E-02	2.04E-05	1.02%
4-Methylphenol	4.82E-03	40	1	70	0.959	0.429	1.13E-06	5.00E-02	2.26E-05	1.13%
o-Toluic acid	4.17E+00	40	1	70	0.959	0.429	9.79E-04	3.00E+00	3.26E-04	16.35%
m-Toluic acid	2.17E+00	40	1	70	0.959	0.429	5.10E-04	3.00E+00	1.70E-04	8.51%
p-Toluic acid	2.83E-01	40	1	70	0.959	0.429	6.65E-05	3.00E+00	2.22E-05	1.11%
							TOTAL HAZARD INDEX		5.89E-04	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	9.52E-03	25	1	35	0.959	0.129	8.41E-07	2.00E-02	4.21E-05	29.30%
Xylenes	3.42E-02	25	1	35	0.959	0.129	3.02E-06	2.00E+00	1.51E-06	1.05%
2-Methylphenol	4.03E-03	25	1	35	0.959	0.129	3.56E-07	5.00E-02	7.12E-06	4.96%
4-Methylphenol	4.20E-03	25	1	35	0.959	0.129	3.71E-07	5.00E-02	7.42E-06	5.17%
o-Toluic acid	1.80E+00	25	1	35	0.959	0.129	1.59E-04	3.00E+00	5.30E-05	36.93%
m-Toluic acid	9.67E-01	25	1	35	0.959	0.129	8.54E-05	3.00E+00	2.85E-05	19.84%
p-Toluic acid	1.34E-01	25	1	35	0.959	0.129	1.18E-05	3.00E+00	3.95E-06	2.75%
							TOTAL HAZRD INDEX		1.44E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	2.28E-03	40	1	35	0.959	0.129	3.21E-07	2.00E-02	1.61E-05	4.54%
Xylenes	7.89E-03	40	1	35	0.959	0.129	1.11E-06	2.00E+00	5.56E-07	0.16%
2-Methylphenol	4.34E-03	40	1	35	0.959	0.129	6.12E-07	5.00E-02	1.22E-05	3.46%
4-Methylphenol	4.82E-03	40	1	35	0.959	0.129	6.79E-07	5.00E-02	1.36E-05	3.84%
o-Toluic acid	4.17E+00	40	1	35	0.959	0.129	5.88E-04	3.00E+00	1.96E-04	55.40%
m-Toluic acid	2.17E+00	40	1	35	0.959	0.129	3.06E-04	3.00E+00	1.02E-04	28.83%
p-Toluic acid	2.83E-01	40	1	35	0.959	0.129	3.99E-05	3.00E+00	1.33E-05	3.76%
							TOTAL HAZARD INDEX		3.53E-04	

Table H-56. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
ON-SITE GROUNDWATER USE - Deep Bedrock - Round 2

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
4,4'-DDE	4.95E-02	15	1.0	70	0.959	0.129	1.31E-06	3.40E-01	4.46E-07	93.03%
Trichloroethene	1.40E-02	15	1.0	70	0.959	0.129	3.71E-07	1.10E-02	4.08E-09	0.85%
Tetrachloroethene	2.17E-02	15	1.0	70	0.959	0.129	5.75E-07	5.10E-02	2.93E-08	6.12%
							TOTAL RISK		4.80E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
4,4'-DDE	6.98E-02	24	1	70	0.959	0.429	9.83E-06	3.40E-01	3.34E-06	93.69%
Trichloroethene	1.40E-02	24	1	70	0.959	0.429	1.97E-06	1.10E-02	2.17E-08	0.61%
Tetrachloroethene	2.83E-02	24	1	70	0.959	0.429	3.99E-06	5.10E-02	2.03E-07	5.70%
							TOTAL RISK		3.57E-06	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Days/Yr x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 15 g/day x 1.0 x 1/70 kg x 350 days/Days/Yr x 9 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	15	1	70	0.959	0.129	1.31E-07	2.00E-02	6.56E-06	2.39%
Xylenes	4.52E-01	15	1	70	0.959	0.129	1.20E-05	2.00E+00	5.99E-06	2.18%
Tetrachloroethene	2.17E-02	15	1	70	0.959	0.129	5.75E-07	1.00E-02	5.75E-05	20.94%
2-Methylphenol	1.07E-02	15	1	70	0.959	0.129	2.84E-07	5.00E-02	5.67E-06	2.07%
o-Toluic acid	1.21E+01	15	1	70	0.959	0.129	3.21E-04	3.00E+00	1.07E-04	38.92%
m-Toluic acid	9.71E+00	15	1	70	0.959	0.129	2.57E-04	3.00E+00	8.58E-05	31.24%
p-Toluic acid	7.03E-01	15	1	70	0.959	0.129	1.86E-05	3.00E+00	6.21E-06	2.26%
							TOTAL HAZRD INDEX		2.75E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc x Intake rate (g/day) x Fraction absorbed x 1/Body weight x Days expd/Year x Yrs expd/Yrs LT = Chronic Daily Intake (mg/kg-day)

mg/kg x 24 g/day x 1.0 x 1/70 kg x 350 days/year x 30 yrs/70 yrs = CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days/Days/Yr	Yrs expd/Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	24	1	70	0.959	0.429	6.97E-07	2.00E-02	3.49E-05	1.08%
Xylenes	1.10E+00	24	1	70	0.959	0.429	1.55E-04	2.00E+00	7.75E-05	2.40%
Tetrachloroethene	2.83E-02	24	1	70	0.959	0.429	3.99E-06	1.00E-02	3.99E-04	12.32%
2-Methylphenol	1.35E-02	24	1	70	0.959	0.429	1.90E-06	5.00E-02	3.80E-05	1.18%
o-Toluic acid	3.08E+01	24	1	70	0.959	0.429	4.34E-03	3.00E+00	1.45E-03	44.71%
m-Toluic acid	2.47E+01	24	1	70	0.959	0.429	3.48E-03	3.00E+00	1.16E-03	35.85%
p-Toluic acid	1.70E+00	24	1	70	0.959	0.429	2.40E-04	3.00E+00	7.98E-05	2.47%
							TOTAL HAZARD INDEX		3.24E-03	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	15	1	35	0.959	0.129	2.62E-07	2.00E-02	1.31E-05	2.39%
Xylenes	4.52E-01	15	1	35	0.959	0.129	2.40E-05	2.00E+00	1.20E-05	2.18%
Tetrachloroethene	2.17E-02	15	1	35	0.959	0.129	1.15E-06	1.00E-02	1.15E-04	20.94%
2-Methylphenol	1.07E-02	15	1	35	0.959	0.129	5.67E-07	5.00E-02	1.13E-05	2.07%
o-Toluic acid	1.21E+01	15	1	35	0.959	0.129	6.41E-04	3.00E+00	2.14E-04	38.92%
m-Toluic acid	9.71E+00	15	1	35	0.959	0.129	5.15E-04	3.00E+00	1.72E-04	31.24%
p-Toluic acid	7.03E-01	15	1	35	0.959	0.129	3.73E-05	3.00E+00	1.24E-05	2.26%
							TOTAL HAZRD INDEX		5.49E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	4.95E-03	24	1	35	0.959	0.129	4.18E-07	2.00E-02	2.09E-05	1.08%
Xylenes	1.10E+00	24	1	35	0.959	0.129	9.30E-05	2.00E+00	4.65E-05	2.40%
Tetrachloroethene	2.83E-02	24	1	35	0.959	0.129	2.39E-06	1.00E-02	2.39E-04	12.32%
2-Methylphenol	1.35E-02	24	1	35	0.959	0.129	1.14E-06	5.00E-02	2.28E-05	1.18%
o-Toluic acid	3.08E+01	24	1	35	0.959	0.129	2.60E-03	3.00E+00	8.68E-04	44.71%
m-Toluic acid	2.47E+01	24	1	35	0.959	0.129	2.09E-03	3.00E+00	6.96E-04	35.85%
p-Toluic acid	1.70E+00	24	1	35	0.959	0.129	1.44E-04	3.00E+00	4.79E-05	2.47%
							TOTAL HAZARD INDEX		1.94E-03	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
4,4'-DDE	1.01E-07	25	1	70	0.959	0.129	4.46E-12	3.40E-01	1.52E-12	0.02%
Trichloroethene	2.49E-03	25	1	70	0.959	0.129	1.10E-07	1.10E-02	1.21E-09	12.21%
Tetrachloroethene	3.86E-03	25	1	70	0.959	0.129	1.71E-07	5.10E-02	8.70E-09	87.77%
							TOTAL RISK		9.91E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
4,4'-DDE	1.43E-07	40	1	70	0.959	0.429	3.36E-11	3.40E-01	1.14E-11	0.02%
Trichloroethene	2.49E-03	40	1	70	0.959	0.429	5.85E-07	1.10E-02	6.43E-09	9.63%
Tetrachloroethene	5.04E-03	40	1	70	0.959	0.429	1.18E-06	5.10E-02	6.04E-08	90.35%
							TOTAL RISK		6.68E-08	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	25	1	70	0.959	0.129	1.33E-07	2.00E-02	6.67E-06	6.89%
Xylenes	3.13E-02	25	1	70	0.959	0.129	1.38E-06	2.00E+00	6.91E-07	0.71%
Tetrachloroethene	3.86E-03	25	1	70	0.959	0.129	1.71E-07	1.00E-02	1.71E-05	17.61%
2-Methylphenol	4.65E-03	25	1	70	0.959	0.129	2.05E-07	5.00E-02	4.11E-06	4.24%
o-Toluic acid	2.12E+00	25	1	70	0.959	0.129	9.37E-05	3.00E+00	3.12E-05	32.24%
m-Toluic acid	2.32E+00	25	1	70	0.959	0.129	1.02E-04	3.00E+00	3.42E-05	35.28%
p-Toluic acid	1.99E-01	25	1	70	0.959	0.129	8.79E-06	3.00E+00	2.93E-06	3.03%
							TOTAL HAZRD INDEX		9.68E-05	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	40	1	70	0.959	0.429	7.09E-07	2.00E-02	3.55E-05	3.19%
Xylenes	7.65E-02	40	1	70	0.959	0.429	1.80E-05	2.00E+00	8.98E-06	0.28%
Tetrachloroethene	5.04E-03	40	1	70	0.959	0.429	1.18E-06	1.00E-02	1.18E-04	3.66%
2-Methylphenol	5.89E-03	40	1	70	0.959	0.429	1.38E-06	5.00E-02	2.77E-05	0.85%
o-Toluic acid	5.38E+00	40	1	70	0.959	0.429	1.26E-03	3.00E+00	4.21E-04	13.02%
m-Toluic acid	5.91E+00	40	1	70	0.959	0.429	1.39E-03	3.00E+00	4.63E-04	14.30%
p-Toluic acid	4.80E-01	40	1	70	0.959	0.429	1.13E-04	3.00E+00	3.76E-05	1.16%
							TOTAL HAZARD INDEX		1.11E-03	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	25	1	35	0.959	0.129	2.67E-07	2.00E-02	1.33E-05	6.89%
Xylenes	3.13E-02	25	1	35	0.959	0.129	2.77E-06	2.00E+00	1.38E-06	0.71%
Tetrachloroethene	3.86E-03	25	1	35	0.959	0.129	3.41E-07	1.00E-02	3.41E-05	17.61%
2-Methylphenol	4.65E-03	25	1	35	0.959	0.129	4.11E-07	5.00E-02	8.22E-06	4.24%
o-Toluic acid	2.12E+00	25	1	35	0.959	0.129	1.87E-04	3.00E+00	6.24E-05	32.24%
m-Toluic acid	2.32E+00	25	1	35	0.959	0.129	2.05E-04	3.00E+00	6.83E-05	35.28%
p-Toluic acid	1.99E-01	25	1	35	0.959	0.129	1.76E-05	3.00E+00	5.86E-06	3.03%
							TOTAL HAZRD INDEX		1.94E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.02E-03	40	1	35	0.959	0.129	4.26E-07	2.00E-02	2.13E-05	3.19%
Xylenes	7.65E-02	40	1	35	0.959	0.129	1.08E-05	2.00E+00	5.39E-06	0.81%
Tetrachloroethene	5.04E-03	40	1	35	0.959	0.129	7.10E-07	1.00E-02	7.10E-05	10.65%
2-Methylphenol	5.89E-03	40	1	35	0.959	0.129	8.30E-07	5.00E-02	1.66E-05	2.49%
o-Toluic acid	5.38E+00	40	1	35	0.959	0.129	7.58E-04	3.00E+00	2.53E-04	37.88%
m-Toluic acid	5.91E+00	40	1	35	0.959	0.129	8.33E-04	3.00E+00	2.78E-04	41.61%
p-Toluic acid	4.80E-01	40	1	35	0.959	0.129	6.76E-05	3.00E+00	2.25E-05	3.38%
							TOTAL HAZARD INDEX		6.67E-04	

Table H-57. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
ON-SITE GROUNDWATER USE - Mixed Bedrock - Round 1

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	6.42E-03	15	1.0	70	0.959	0.129	1.70E-07	2.90E-02	4.94E-09	0.41%
Vinyl chloride	2.72E-03	15	1.0	70	0.959	0.129	7.21E-08	1.90E+00	1.37E-07	11.40%
Trichloroethene	8.22E-02	15	1.0	70	0.959	0.129	2.18E-06	1.10E-02	2.40E-08	1.99%
Tetrachloroethene	7.66E-01	15	1.0	70	0.959	0.129	2.03E-05	5.10E-02	1.04E-06	86.19%
							TOTAL RISK		1.20E-06	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	6.42E-03	24	1	70	0.959	0.429	9.05E-07	2.90E-02	2.62E-08	0.17%
Vinyl chloride	2.72E-03	24	1	70	0.959	0.429	3.83E-07	1.90E+00	7.28E-07	4.75%
Trichloroethene	1.80E-01	24	1	70	0.959	0.429	2.54E-05	1.10E-02	2.79E-07	1.82%
Tetrachloroethene	1.99E+00	24	1	70	0.959	0.429	2.80E-04	5.10E-02	1.43E-05	93.26%
							TOTAL RISK		1.53E-05	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.55E-02	15	1	70	0.959	0.129	1.21E-06	2.00E-02	6.03E-05	2.22%
Xylenes	2.43E+00	15	1	70	0.959	0.129	6.44E-05	2.00E+00	3.22E-05	1.19%
Tetrachloroethene	7.66E-01	15	1	70	0.959	0.129	2.03E-05	1.00E-02	2.03E-03	74.79%
2-Methylphenol	1.49E-02	15	1	70	0.959	0.129	3.95E-07	5.00E-02	7.90E-06	0.29%
4-Methylphenol	2.02E-02	15	1	70	0.959	0.129	5.35E-07	5.00E-02	1.07E-05	0.39%
o-Toluic acid	4.63E+01	15	1	70	0.959	0.129	1.23E-03	3.00E+00	4.09E-04	15.07%
m-Toluic acid	1.68E+01	15	1	70	0.959	0.129	4.45E-04	3.00E+00	1.48E-04	5.47%
p-Toluic acid	1.77E+00	15	1	70	0.959	0.129	4.69E-05	3.00E+00	1.56E-05	0.58%
							TOTAL HAZRD INDEX		2.71E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	8.23E-02	24	1	70	0.959	0.429	1.16E-05	2.00E-02	5.80E-04	1.62%
Xylenes	4.85E+00	24	1	70	0.959	0.429	6.83E-04	2.00E+00	3.42E-04	0.95%
Tetrachloroethene	1.99E+00	24	1	70	0.959	0.429	2.80E-04	1.00E-02	2.80E-02	78.11%
2-Methylphenol	2.13E-02	24	1	70	0.959	0.429	3.00E-06	5.00E-02	6.00E-05	0.17%
4-Methylphenol	2.90E-02	24	1	70	0.959	0.429	4.09E-06	5.00E-02	8.17E-05	0.23%
o-Toluic acid	1.01E+02	24	1	70	0.959	0.429	1.42E-02	3.00E+00	4.74E-03	13.21%
m-Toluic acid	3.94E+01	24	1	70	0.959	0.429	5.55E-03	3.00E+00	1.85E-03	5.16%
p-Toluic acid	4.25E+00	24	1	70	0.959	0.429	5.99E-04	3.00E+00	2.00E-04	0.56%
							TOTAL HAZARD INDEX		3.59E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	4.55E-02	15	1	35	0.959	0.129	2.41E-06	2.00E-02	1.21E-04	2.22%
Xylenes	2.43E+00	15	1	35	0.959	0.129	1.29E-04	2.00E+00	6.44E-05	1.19%
Tetrachloroethene	7.66E-01	15	1	35	0.959	0.129	4.06E-05	1.00E-02	4.06E-03	74.79%
2-Methylphenol	1.49E-02	15	1	35	0.959	0.129	7.90E-07	5.00E-02	1.58E-05	0.29%
4-Methylphenol	2.02E-02	15	1	35	0.959	0.129	1.07E-06	5.00E-02	2.14E-05	0.39%
o-Toluic acid	4.63E+01	15	1	35	0.959	0.129	2.45E-03	3.00E+00	8.18E-04	15.07%
m-Toluic acid	1.68E+01	15	1	35	0.959	0.129	8.91E-04	3.00E+00	2.97E-04	5.47%
p-Toluic acid	1.77E+00	15	1	35	0.959	0.129	9.38E-05	3.00E+00	3.13E-05	0.58%
							TOTAL HAZRD INDEX		5.43E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	8.23E-02	24	1	35	0.959	0.129	6.96E-06	2.00E-02	3.48E-04	1.62%
Xylenes	4.85E+00	24	1	35	0.959	0.129	4.10E-04	2.00E+00	2.05E-04	0.95%
Tetrachloroethene	1.99E+00	24	1	35	0.959	0.129	1.68E-04	1.00E-02	1.68E-02	78.11%
2-Methylphenol	2.13E-02	24	1	35	0.959	0.129	1.80E-06	5.00E-02	3.60E-05	0.17%
4-Methylphenol	2.90E-02	24	1	35	0.959	0.129	2.45E-06	5.00E-02	4.90E-05	0.23%
o-Toluic acid	1.01E+02	24	1	35	0.959	0.129	8.54E-03	3.00E+00	2.85E-03	13.21%
m-Toluic acid	3.94E+01	24	1	35	0.959	0.129	3.33E-03	3.00E+00	1.11E-03	5.16%
p-Toluic acid	4.25E+00	24	1	35	0.959	0.129	3.59E-04	3.00E+00	1.20E-04	0.56%
							TOTAL HAZARD INDEX		2.15E-02	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	2.24E-03	25	1	70	0.959	0.129	9.90E-08	2.90E-02	2.87E-09	0.67%
Vinyl chloride	1.33E-03	25	1	70	0.959	0.129	5.88E-08	1.90E+00	1.12E-07	26.08%
Trichloroethene	1.46E-02	25	1	70	0.959	0.129	6.45E-07	1.10E-02	7.09E-09	1.66%
Tetrachloroethene	1.36E-01	25	1	70	0.959	0.129	6.01E-06	5.10E-02	3.06E-07	71.59%
							TOTAL RISK		4.28E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	2.24E-03	40	1	70	0.959	0.429	5.26E-07	2.90E-02	1.53E-08	0.31%
Vinyl chloride	1.33E-03	40	1	70	0.959	0.429	3.12E-07	1.90E+00	5.93E-07	12.04%
Trichloroethene	3.19E-02	40	1	70	0.959	0.429	7.49E-06	1.10E-02	8.24E-08	1.67%
Tetrachloroethene	3.54E-01	40	1	70	0.959	0.429	8.31E-05	5.10E-02	4.24E-06	85.98%
							TOTAL RISK		4.93E-06	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	2.78E-02	25	1	70	0.959	0.129	1.23E-06	2.00E-02	6.14E-05	7.10%
Xylenes	1.68E-01	25	1	70	0.959	0.129	7.42E-06	2.00E+00	3.71E-06	0.43%
Tetrachloroethene	1.36E-01	25	1	70	0.959	0.129	6.01E-06	1.00E-02	6.01E-04	69.44%
2-Methylphenol	6.51E-03	25	1	70	0.959	0.129	2.88E-07	5.00E-02	5.75E-06	0.66%
4-Methylphenol	9.10E-03	25	1	70	0.959	0.129	4.02E-07	5.00E-02	8.04E-06	0.93%
o-Toluic acid	8.08E+00	25	1	70	0.959	0.129	3.57E-04	3.00E+00	1.19E-04	13.75%
m-Toluic acid	4.02E+00	25	1	70	0.959	0.129	1.78E-04	3.00E+00	5.92E-05	6.84%
p-Toluic acid	5.01E-01	25	1	70	0.959	0.129	2.21E-05	3.00E+00	7.38E-06	0.85%
							TOTAL HAZRD INDEX		8.65E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	5.03E-03	40	1	70	0.959	0.429	1.18E-06	2.00E-02	5.91E-05	0.55%
Xylenes	3.36E-01	40	1	70	0.959	0.429	7.89E-05	2.00E+00	3.95E-05	0.11%
Tetrachloroethene	3.54E-01	40	1	70	0.959	0.429	8.31E-05	1.00E-02	8.31E-03	23.16%
2-Methylphenol	9.30E-03	40	1	70	0.959	0.429	2.18E-06	5.00E-02	4.37E-05	0.12%
4-Methylphenol	1.31E-02	40	1	70	0.959	0.429	3.08E-06	5.00E-02	6.15E-05	0.17%
o-Toluic acid	1.77E+01	40	1	70	0.959	0.429	4.16E-03	3.00E+00	1.39E-03	3.86%
m-Toluic acid	9.45E+00	40	1	70	0.959	0.429	2.22E-03	3.00E+00	7.40E-04	2.06%
p-Toluic acid	1.20E+00	40	1	70	0.959	0.429	2.82E-04	3.00E+00	9.39E-05	0.26%
							TOTAL HAZARD INDEX		1.07E-02	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	2.78E-02	25	1	35	0.959	0.129	2.46E-06	2.00E-02	1.23E-04	7.10%
Xylenes	1.68E-01	25	1	35	0.959	0.129	1.48E-05	2.00E+00	7.42E-06	0.43%
Tetrachloroethene	1.36E-01	25	1	35	0.959	0.129	1.20E-05	1.00E-02	1.20E-03	69.44%
2-Methylphenol	6.51E-03	25	1	35	0.959	0.129	5.75E-07	5.00E-02	1.15E-05	0.66%
4-Methylphenol	9.10E-03	25	1	35	0.959	0.129	8.04E-07	5.00E-02	1.61E-05	0.93%
o-Toluic acid	8.08E+00	25	1	35	0.959	0.129	7.14E-04	3.00E+00	2.38E-04	13.75%
m-Toluic acid	4.02E+00	25	1	35	0.959	0.129	3.55E-04	3.00E+00	1.18E-04	6.84%
p-Toluic acid	5.01E-01	25	1	35	0.959	0.129	4.43E-05	3.00E+00	1.48E-05	0.85%
							TOTAL HAZRD INDEX		1.73E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	5.03E-03	40	1	35	0.959	0.129	7.09E-07	2.00E-02	3.54E-05	0.55%
Xylenes	3.36E-01	40	1	35	0.959	0.129	4.73E-05	2.00E+00	2.37E-05	0.37%
Tetrachloroethene	3.54E-01	40	1	35	0.959	0.129	4.99E-05	1.00E-02	4.99E-03	77.43%
2-Methylphenol	9.30E-03	40	1	35	0.959	0.129	1.31E-06	5.00E-02	2.62E-05	0.41%
4-Methylphenol	1.31E-02	40	1	35	0.959	0.129	1.85E-06	5.00E-02	3.69E-05	0.57%
o-Toluic acid	1.77E+01	40	1	35	0.959	0.129	2.49E-03	3.00E+00	8.31E-04	12.91%
m-Toluic acid	9.45E+00	40	1	35	0.959	0.129	1.33E-03	3.00E+00	4.44E-04	6.89%
p-Toluic acid	1.20E+00	40	1	35	0.959	0.129	1.69E-04	3.00E+00	5.64E-05	0.87%
							TOTAL HAZARD INDEX		6.44E-03	

Table H-58. FOOD CHAIN TRANSFER OF CONTAMINANTS - UPTAKE FROM VEGETABLES (Residential garderners)
ON-SITE GROUNDWATER USE - Mixed Bedrock - Round 2

ROOT CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	8.55E-03	15	1.0	70	0.959	0.129	2.27E-07	2.90E-02	6.57E-09	0.97%
Vinyl chloride	1.10E-02	15	1.0	70	0.959	0.129	2.92E-07	1.90E+00	5.54E-07	81.35%
Trichloroethene	3.53E-02	15	1.0	70	0.959	0.129	9.36E-07	1.10E-02	1.03E-08	1.51%
Tetrachloroethene	8.15E-02	15	1.0	70	0.959	0.129	2.16E-06	5.10E-02	1.10E-07	16.18%
							TOTAL RISK		6.81E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days Days/Yr	Yrs expd Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	8.55E-03	24	1	70	0.959	0.429	1.20E-06	2.90E-02	3.49E-08	0.60%
Vinyl chloride	1.71E-02	24	1	70	0.959	0.429	2.41E-06	1.90E+00	4.58E-06	78.86%
Trichloroethene	5.53E-02	24	1	70	0.959	0.429	7.79E-06	1.10E-02	8.57E-08	1.48%
Tetrachloroethene	1.54E-01	24	1	70	0.959	0.429	2.17E-05	5.10E-02	1.11E-06	19.06%
							TOTAL RISK		5.81E-06	

Daily ingestion rates are 50 g/day (average) and 80 g/day (plausible maximum).
Root crops represent 30% (15 g/day for average, and 24 g/day plauisible maximum) of the total consumption, based upon EPA (1989).
Leaf crops represent 50% (25 g/day for average, and 40 g/day plauisible maximum) of the total consumption, based upon EPA (1989).

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.37E-01	15	1	70	0.959	0.129	3.63E-06	2.00E-02	1.82E-04	8.55%
Xylenes	2.34E+00	15	1	70	0.959	0.129	6.20E-05	2.00E+00	3.10E-05	1.46%
Tetrachloroethene	8.15E-02	15	1	70	0.959	0.129	2.16E-06	1.00E-02	2.16E-04	10.17%
2-Methylphenol	1.35E-02	15	1	70	0.959	0.129	3.58E-07	5.00E-02	7.16E-06	0.34%
4-Methylphenol	1.90E-02	15	1	70	0.959	0.129	5.04E-07	5.00E-02	1.01E-05	0.47%
o-Toluic acid	9.65E+01	15	1	70	0.959	0.129	2.56E-03	3.00E+00	8.53E-04	40.13%
m-Toluic acid	4.94E+01	15	1	70	0.959	0.129	1.31E-03	3.00E+00	4.36E-04	20.54%
p-Toluic acid	4.41E+01	15	1	70	0.959	0.129	1.17E-03	3.00E+00	3.90E-04	18.34%
							TOTAL HAZRD INDEX		2.12E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.26E-01	24	1	70	0.959	0.429	4.59E-05	2.00E-02	2.30E-03	9.58%
Xylenes	4.11E+00	24	1	70	0.959	0.429	5.79E-04	2.00E+00	2.90E-04	1.21%
Tetrachloroethene	1.54E-01	24	1	70	0.959	0.429	2.17E-05	1.00E-02	2.17E-03	9.05%
2-Methylphenol	1.96E-02	24	1	70	0.959	0.429	2.76E-06	5.00E-02	5.52E-05	0.23%
4-Methylphenol	3.30E-02	24	1	70	0.959	0.429	4.65E-06	5.00E-02	9.30E-05	0.39%
o-Toluic acid	1.98E+02	24	1	70	0.959	0.429	2.79E-02	3.00E+00	9.30E-03	38.79%
m-Toluic acid	1.00E+02	24	1	70	0.959	0.429	1.41E-02	3.00E+00	4.70E-03	19.59%
p-Toluic acid	1.08E+02	24	1	70	0.959	0.429	1.52E-02	3.00E+00	5.07E-03	21.16%
							TOTAL HAZARD INDEX		2.40E-02	

ROOT CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	15 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.37E-01	15	1	35	0.959	0.129	7.26E-06	2.00E-02	3.63E-04	8.59%
Xylenes	2.34E+00	15	1	35	0.959	0.129	1.24E-04	2.00E+00	6.20E-05	1.47%
Tetrachloroethene	8.15E-02	15	1	35	0.959	0.129	4.32E-06	1.00E-02	4.32E-04	10.22%
2-Methylphenol	1.35E-02	15	1	35	0.959	0.129	7.16E-07	5.00E-02	1.43E-05	0.34%
4-Methylphenol	1.90E-02							5.00E-02		
o-Toluic acid	9.65E+01	15	1	35	0.959	0.129	5.12E-03	3.00E+00	1.71E-03	40.32%
m-Toluic acid	4.94E+01	15	1	35	0.959	0.129	2.62E-03	3.00E+00	8.73E-04	20.64%
p-Toluic acid	4.41E+01	15	1	35	0.959	0.129	2.34E-03	3.00E+00	7.79E-04	18.43%
							TOTAL HAZRD INDEX		4.23E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	24 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	3.26E-01	24	1	35	0.959	0.129	2.76E-05	2.00E-02	1.38E-03	9.58%
Xylenes	4.11E+00	24	1	35	0.959	0.129	3.47E-04	2.00E+00	1.74E-04	1.21%
Tetrachloroethene	1.54E-01	24	1	35	0.959	0.129	1.30E-05	1.00E-02	1.30E-03	9.05%
2-Methylphenol	1.96E-02	24	1	35	0.959	0.129	1.66E-06	5.00E-02	3.31E-05	0.23%
4-Methylphenol	3.30E-02	24	1	35	0.959	0.129	2.79E-06	5.00E-02	5.58E-05	0.39%
o-Toluic acid	1.98E+02	24	1	35	0.959	0.129	1.67E-02	3.00E+00	5.58E-03	38.79%
m-Toluic acid	1.00E+02	24	1	35	0.959	0.129	8.45E-03	3.00E+00	2.82E-03	19.59%
p-Toluic acid	1.08E+02	24	1	35	0.959	0.129	9.13E-03	3.00E+00	3.04E-03	21.16%
							TOTAL HAZARD INDEX		1.44E-02	

LEAF CROPS

CARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	2.98E-03	25	1	70	0.959	0.129	1.32E-07	2.90E-02	3.82E-09	0.77%
Vinyl chloride	5.41E-03	25	1	70	0.959	0.129	2.39E-07	1.90E+00	4.54E-07	91.99%
Trichloroethene	6.29E-03	25	1	70	0.959	0.129	2.78E-07	1.10E-02	3.06E-09	0.62%
Tetrachloroethene	1.45E-02	25	1	70	0.959	0.129	6.41E-07	5.10E-02	3.27E-08	6.62%
							TOTAL RISK		4.94E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Benzene	2.98E-03	40	1	70	0.959	0.429	7.00E-07	2.90E-02	2.03E-08	0.50%
Vinyl chloride	8.33E-03	40	1	70	0.959	0.429	1.96E-06	1.90E+00	3.72E-06	90.83%
Trichloroethene	9.84E-03	40	1	70	0.959	0.429	2.31E-06	1.10E-02	2.54E-08	0.62%
Tetrachloroethene	2.75E-02	40	1	70	0.959	0.429	6.46E-06	5.10E-02	3.29E-07	8.05%
							TOTAL RISK		4.09E-06	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 70 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.39E-02	25	1	70	0.959	0.129	3.71E-06	2.00E-02	1.85E-04	21.28%
Xylenes	1.62E-01	25	1	70	0.959	0.129	7.16E-06	2.00E+00	3.58E-06	0.41%
Tetrachloroethene	1.45E-02	25	1	70	0.959	0.129	6.41E-07	1.00E-02	6.41E-05	7.35%
2-Methylphenol	5.89E-03	25	1	70	0.959	0.129	2.60E-07	5.00E-02	5.20E-06	0.60%
4-Methylphenol	8.56E-03	25	1	70	0.959	0.129	3.78E-07	5.00E-02	7.56E-06	0.87%
o-Toluic acid	1.68E+01	25	1	70	0.959	0.129	7.42E-04	3.00E+00	2.47E-04	28.40%
m-Toluic acid	1.18E+01	25	1	70	0.959	0.129	5.21E-04	3.00E+00	1.74E-04	19.95%
p-Toluic acid	1.25E+01	25	1	70	0.959	0.129	5.52E-04	3.00E+00	1.84E-04	21.13%
							TOTAL HAZRD INDEX		8.71E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Adult

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 70 kg	x	350 days / year	x	30 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	1.99E-01	40	1	70	0.959	0.429	4.67E-05	2.00E-02	2.34E-03	22.32%
Xylenes	2.84E-01	40	1	70	0.959	0.429	6.67E-05	2.00E+00	3.33E-05	0.14%
Tetrachloroethene	2.75E-02	40	1	70	0.959	0.429	6.46E-06	1.00E-02	6.46E-04	2.69%
2-Methylphenol	8.52E-02	40	1	70	0.959	0.429	2.00E-05	5.00E-02	4.00E-04	1.67%
4-Methylphenol	1.49E-02	40	1	70	0.959	0.429	3.50E-06	5.00E-02	7.00E-05	0.29%
o-Toluic acid	3.46E+01	40	1	70	0.959	0.429	8.13E-03	3.00E+00	2.71E-03	11.30%
m-Toluic acid	2.40E+01	40	1	70	0.959	0.429	5.64E-03	3.00E+00	1.88E-03	7.84%
p-Toluic acid	3.06E+01	40	1	70	0.959	0.429	7.19E-03	3.00E+00	2.40E-03	9.99%
							TOTAL HAZARD INDEX		1.05E-02	

LEAF CROPS - Continued

NONCARCINOGENS - AVERAGE PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Days/Yr	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	25 g / day	x	1.0	x	1 / 35 kg	x	350 days / Days/Yr	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	Days expd / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI/RfD)	% TOTAL RISK
1,2-Dichloroethene	8.39E-02	25	1	35	0.959	0.129	7.41E-06	2.00E-02	3.71E-04	21.28%
Xylenes	1.62E-01	25	1	35	0.959	0.129	1.43E-05	2.00E+00	7.16E-06	0.41%
Tetrachloroethene	1.45E-02	25	1	35	0.959	0.129	1.28E-06	1.00E-02	1.28E-04	7.35%
2-Methylphenol	5.89E-03	25	1	35	0.959	0.129	5.20E-07	5.00E-02	1.04E-05	0.60%
4-Methylphenol	8.56E-03	25	1	35	0.959	0.129	7.56E-07	5.00E-02	1.51E-05	0.87%
o-Toluic acid	1.68E+01	25	1	35	0.959	0.129	1.48E-03	3.00E+00	4.95E-04	28.40%
m-Toluic acid	1.18E+01	25	1	35	0.959	0.129	1.04E-03	3.00E+00	3.48E-04	19.95%
p-Toluic acid	1.25E+01	25	1	35	0.959	0.129	1.10E-03	3.00E+00	3.68E-04	21.13%
							TOTAL HAZRD INDEX		1.74E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM PLANT INGESTION EXPOSURE - Child

Plant Conc	x	Intake rate (g/day)	x	Fraction absorbed	x	1 / Body weight	x	Days expd / Year	x	Yrs expd / Yrs LT	= Chronic Daily Intake (mg/kg-day)
mg/kg	x	40 g / day	x	1.0	x	1 / 35 kg	x	350 days / year	x	9 yrs / 70 yrs	= CDI

Compound	Conc (mg/kg)	IR (g/day)	Fraction absorbed	Body wt (kg)	350 days / Days/Yr	Yrs expd / Yrs LT	CDI	RfD	RISK (CDI*SF)	% TOTAL RISK
1,2-Dichloroethene	1.99E-01	40	1	35	0.959	0.129	2.80E-05	2.00E-02	1.40E-03	22.32%
Xylenes	2.84E-01	40	1	35	0.959	0.129	4.00E-05	2.00E+00	2.00E-05	0.32%
Tetrachloroethene	2.75E-02	40	1	35	0.959	0.129	3.87E-06	1.00E-02	3.87E-04	6.17%
2-Methylphenol	8.52E-02	40	1	35	0.959	0.129	1.20E-05	5.00E-02	2.40E-04	3.82%
4-Methylphenol	1.49E-02	40	1	35	0.959	0.129	2.10E-06	5.00E-02	4.20E-05	0.67%
o-Toluic acid	3.46E+01	40	1	35	0.959	0.129	4.88E-03	3.00E+00	1.63E-03	25.87%
m-Toluic acid	2.40E+01	40	1	35	0.959	0.129	3.38E-03	3.00E+00	1.13E-03	17.95%
p-Toluic acid	3.06E+01	40	1	35	0.959	0.129	4.31E-03	3.00E+00	1.44E-03	22.88%
							TOTAL HAZARD INDEX		6.28E-03	

TABLE H-59. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-9)
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs exposed / Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk 50/52 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	1.4	1.00	70	0.714	0.962	0.129	5.30E-06	1.90E+00	1.01E-05	9.28%
Trichloroethene	3.79E-02	1.4	1.00	70	0.714	0.962	0.129	6.69E-05	1.10E-02	7.36E-07	0.68%
Benzene	1.00E-03	1.4	1.00	70	0.714	0.962	0.129	1.77E-06	2.90E-02	5.12E-08	0.05%
Tetrachloroethene	3.68E-01	1.4	1.00	70	0.714	0.962	0.129	6.50E-04	5.10E-02	3.31E-05	30.56%
Total c-PAHs	5.00E-03	1.4	1.00	70	0.714	0.962	0.129	8.83E-06	7.30E+00	6.45E-05	59.43%
									TOTAL RISK	1.08E-04	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs Exposed / Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk 50/52 20 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	2	1.00	70	0.714	0.962	0.286	1.68E-05	1.90E+00	3.20E-05	6.66%
Trichloroethene	7.43E-02	2	1.00	70	0.714	0.962	0.286	4.17E-04	1.10E-02	4.58E-06	0.95%
Benzene	1.00E-03	2	1.00	70	0.714	0.962	0.286	5.61E-06	2.90E-02	1.63E-07	0.03%
Tetrachloroethene	8.35E-01	2	1.00	70	0.714	0.962	0.286	4.68E-03	5.10E-02	2.39E-04	49.74%
Total c-PAHs	5.00E-03	2	1.00	70	0.714	0.962	0.286	2.80E-05	7.30E+00	2.05E-04	42.62%
									TOTAL RISK	4.80E-04	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	1.4	1.00	70	0.714	0.962	0.129	9.45E-05	2.00E-02	4.72E-03	3.70%
Tetrachloroethene	3.68E-01	1.4	1.00	70	0.714	0.962	0.129	6.50E-04	1.00E-02	6.50E-02	50.95%
o-Toluic acid	2.28E+01	1.4	1.00	70	0.714	0.962	0.129	4.02E-02	3.00E+00	1.34E-02	10.51%
m-Toluic acid	1.03E+01	1.4	1.00	70	0.714	0.962	0.129	1.82E-02	3.00E+00	6.08E-03	4.77%
p-Toluic acid	1.18E+00	1.4	1.00	70	0.714	0.962	0.129	2.09E-03	3.00E+00	6.97E-04	0.55%
Arsenic	1.24E-01	1.4	0.05	70	0.714	0.962	0.129	1.10E-05	3.00E-04	3.66E-02	28.66%
Barium	1.34E-01	1.4	0.05	70	0.714	0.962	0.129	1.18E-05	7.00E-02	1.69E-04	0.13%
Vanadium	7.30E-02	1.4	0.05	70	0.714	0.962	0.129	6.45E-06	7.00E-03	9.21E-04	0.72%
								HAZARD INDEX		1.28E-01	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	2	1.00	70	0.714	0.962	0.286	5.02E-04	2.00E-02	2.51E-02	3.34%
Tetrachloroethene	8.35E-01	2	1.00	70	0.714	0.962	0.286	4.68E-03	1.00E-02	4.68E-01	62.28%
o-Toluic acid	3.94E+01	2	1.00	70	0.714	0.962	0.286	2.21E-01	3.00E+00	7.37E-02	9.80%
m-Toluic acid	1.89E+01	2	1.00	70	0.714	0.962	0.286	1.06E-01	3.00E+00	3.54E-02	4.70%
p-Toluic acid	2.25E+00	2	1.00	70	0.714	0.962	0.286	1.26E-02	3.00E+00	4.20E-03	0.56%
Arsenic	1.49E-01	2	0.05	70	0.714	0.962	0.286	4.18E-05	3.00E-04	1.39E-01	18.54%
Barium	1.88E-01	2	0.05	70	0.714	0.962	0.286	5.27E-05	7.00E-02	7.52E-04	0.10%
Vanadium	1.26E-01	2	0.05	70	0.714	0.962	0.286	3.52E-05	7.00E-03	5.03E-03	0.67%
								HAZARD INDEX		7.52E-01	

TABLE H-60. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-9)
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.44E-02	1.4	1.00	70	0.714	0.962	0.129	2.54E-05	1.90E+00	4.83E-05	94.12%
Trichloroethene	1.18E-02	1.4	1.00	70	0.714	0.962	0.129	2.08E-05	1.10E-02	2.29E-07	0.45%
Benzene	4.00E-03	1.4	1.00	70	0.714	0.962	0.129	7.06E-06	2.90E-02	2.05E-07	0.40%
Tetrachloroethene	2.87E-02	1.4	1.00	70	0.714	0.962	0.129	5.07E-05	5.10E-02	2.59E-06	5.04%
									TOTAL RISK	5.13E-05	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs Exposed/Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 20 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	2.10E-02	2	1.00	70	0.714	0.962	0.286	1.18E-04	1.90E+00	2.24E-04	92.69%
Trichloroethene	1.90E-02	2	1.00	70	0.714	0.962	0.286	1.07E-04	1.10E-02	1.17E-06	0.49%
Benzene	4.00E-03	2	1.00	70	0.714	0.962	0.286	2.24E-05	2.90E-02	6.50E-07	0.27%
Tetrachloroethene	5.53E-02	2	1.00	70	0.714	0.962	0.286	3.10E-04	5.10E-02	1.58E-05	6.55%
									TOTAL RISK	2.41E-04	

Note: Database from all upper bedrock wells *except* MW-16I.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/week x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	1.4	1.00	70	0.714	0.962	0.129	2.55E-04	2.00E-02	1.28E-02	14.01%
Tetrachloroethene	2.87E-02	1.4	1.00	70	0.714	0.962	0.129	5.07E-05	1.00E-02	5.07E-03	5.57%
Xylenes	4.54E-01	1.4	1.00	70	0.714	0.962	0.129	8.02E-04	2.00E+00	4.01E-04	0.44%
o-Toluic acid	3.46E+01	1.4	1.00	70	0.714	0.962	0.129	6.11E-02	3.00E+00	2.04E-02	22.39%
m-Toluic acid	2.18E+01	1.4	1.00	70	0.714	0.962	0.129	3.84E-02	3.00E+00	1.28E-02	14.08%
p-Toluic acid	2.30E+01	1.4	1.00	70	0.714	0.962	0.129	4.06E-02	3.00E+00	1.35E-02	14.85%
Arsenic	8.60E-02	1.4	0.05	70	0.714	0.962	0.129	7.59E-06	3.00E-04	2.53E-02	27.82%
Barium	1.24E-01	1.4	0.05	70	0.714	0.962	0.129	1.10E-05	7.00E-02	1.57E-04	0.17%
Vanadium	4.77E-02	1.4	0.05	70	0.714	0.962	0.129	4.21E-06	7.00E-03	6.02E-04	0.66%
								HAZARD INDEX		9.10E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/week x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	2	1.00	70	0.714	0.962	0.286	1.92E-03	2.00E-02	9.60E-02	15.27%
Tetrachloroethene	5.53E-02	2	1.00	70	0.714	0.962	0.286	3.10E-04	1.00E-02	3.10E-02	4.93%
Xylenes	7.97E-01	2	1.00	70	0.714	0.962	0.286	4.47E-03	2.00E+00	2.23E-03	0.36%
o-Toluic acid	7.15E+01	2	1.00	70	0.714	0.962	0.286	4.01E-01	3.00E+00	1.34E-01	21.27%
m-Toluic acid	4.48E+01	2	1.00	70	0.714	0.962	0.286	2.51E-01	3.00E+00	8.37E-02	13.32%
p-Toluic acid	5.60E+01	2	1.00	70	0.714	0.962	0.286	3.14E-01	3.00E+00	1.05E-01	16.64%
Arsenic	1.85E-01	2	0.05	70	0.714	0.962	0.286	5.20E-05	3.00E-04	1.73E-01	27.56%
Barium	1.70E-01	2	0.05	70	0.714	0.962	0.286	4.75E-05	7.00E-02	6.79E-04	0.11%
Vanadium	8.37E-02	2	0.05	70	0.714	0.962	0.286	2.35E-05	7.00E-03	3.35E-03	0.53%
								HAZARD INDEX		6.29E-01	

TABLE H-61. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY (FS-9)
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs exposed / Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L / day x 1.0 x 1 / 70 kg x 5 days / 7 days/wk 50 / 52 9 yrs / 70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	2.70E-03	1.4	1.00	70	0.714	0.962	0.129	4.77E-06	1.10E-02	5.25E-08	10.03%
Benzene	2.50E-03	1.4	1.00	70	0.714	0.962	0.129	4.42E-06	2.90E-02	1.28E-07	24.49%
Tetrachloroethene	3.80E-03	1.4	1.00	70	0.714	0.962	0.129	6.71E-06	5.10E-02	3.42E-07	65.47%
									TOTAL RISK	5.23E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs Exposed / Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L / day x 1.0 x 1 / 70 kg x 5 days / 7 days/wk 50 / 52 20 yrs / 70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	3.00E-03	2	1.00	70	0.714	0.962	0.286	1.68E-05	1.10E-02	1.85E-07	8.96%
Benzene	2.60E-03	2	1.00	70	0.714	0.962	0.286	1.46E-05	2.90E-02	4.23E-07	20.46%
Tetrachloroethene	5.10E-03	2	1.00	70	0.714	0.962	0.286	2.86E-05	5.10E-02	1.46E-06	70.58%
									TOTAL RISK	2.07E-06	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1 / Body weight x Exp (days) / Week (days) x Wks expd / Wks/year x Yrs exposed / Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 mL / day x 1.0 x 1 / 70 kg x 5 days / 7 days/wk x 50 / 52 x 9 yrs / 70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.80E-03	1.4	1.00	70	0.714	0.962	0.129	1.38E-05	1.00E-01	1.38E-04	0.75%
1,2-Dichloroethene	1.26E-02	1.4	1.00	70	0.714	0.962	0.129	2.23E-05	2.00E-02	1.11E-03	6.07%
Tetrachloroethene	3.80E-03	1.4	1.00	70	0.714	0.962	0.129	6.71E-06	1.00E-02	6.71E-04	3.66%
Xylenes	7.64E-02	1.4	1.00	70	0.714	0.962	0.129	1.35E-04	2.00E+00	6.75E-05	0.37%
2-methyl phenol	5.20E-03	1.4	1.00	70	0.714	0.962	0.129	9.18E-06	5.00E-02	1.84E-04	1.00%
4-methyl phenol	5.40E-03	1.4	1.00	70	0.714	0.962	0.129	9.54E-06	5.00E-02	1.91E-04	1.04%
o-Toluic acid	2.91E+00	1.4	1.00	70	0.714	0.962	0.129	5.13E-03	3.00E+00	1.71E-03	9.34%
m-Toluic acid	1.42E+00	1.4	1.00	70	0.714	0.962	0.129	2.51E-03	3.00E+00	8.37E-04	4.57%
p-Toluic acid	1.89E-01	1.4	1.00	70	0.714	0.962	0.129	3.34E-04	3.00E+00	1.11E-04	0.61%
Arsenic	1.91E-02	1.4	0.05	70	0.714	0.962	0.129	1.69E-06	3.00E-04	5.62E-03	30.69%
Antimony	2.93E-02	1.4	0.05	70	0.714	0.962	0.129	2.59E-06	4.00E-04	6.47E-03	35.31%
Barium	7.72E-02	1.4	0.05	70	0.714	0.962	0.129	6.82E-06	7.00E-02	9.74E-05	0.53%
Mercury	6.50E-04	1.4	0.05	70	0.714	0.962	0.129	5.74E-08	3.00E-04	1.91E-04	1.04%
Thallium	7.00E-04	1.4	0.05	70	0.714	0.962	0.129	6.18E-08	8.00E-05	7.73E-04	4.22%
Vanadium	1.12E-02	1.4	0.05	70	0.714	0.962	0.129	9.89E-07	7.00E-03	1.41E-04	0.77%
								HAZARD INDEX		1.83E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

$$\text{Water Conc} \times \text{Intake} \times \text{Fraction absorbed} \times \frac{1}{\text{Body weight}} \times \frac{\text{Exp (days)}}{\text{Week (days)}} \times \frac{\text{Wks expd}}{\text{Wks/year}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/L} \times \frac{2\ \text{L}}{\text{day}} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{5\ \text{days}}{7\ \text{days/wk}} \times \frac{50}{52} \times \frac{20\ \text{yrs}}{70\ \text{years}} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.10E-02	2	1.00	70	0.714	0.962	0.286	6.17E-05	1.00E-01	6.17E-04	0.61%
1,2-Dichloroethene	3.02E-02	2	1.00	70	0.714	0.962	0.286	1.69E-04	2.00E-02	8.47E-03	8.40%
Tetrachloroethene	5.10E-03	2	1.00	70	0.714	0.962	0.286	2.86E-05	1.00E-02	2.86E-03	2.84%
Xylenes	1.76E-01	2	1.00	70	0.714	0.962	0.286	9.88E-04	2.00E+00	4.94E-04	0.49%
2-methyl phenol	5.60E-03	2	1.00	70	0.714	0.962	0.286	3.14E-05	5.00E-02	6.28E-04	0.62%
4-methyl phenol	6.20E-03	2	1.00	70	0.714	0.962	0.286	3.48E-05	5.00E-02	6.95E-04	0.69%
o-Toluic acid	6.74E+00	2	1.00	70	0.714	0.962	0.286	3.78E-02	3.00E+00	1.26E-02	12.50%
m-Toluic acid	3.20E+00	2	1.00	70	0.714	0.962	0.286	1.79E-02	3.00E+00	5.97E-03	5.93%
p-Toluic acid	3.98E-01	2	1.00	70	0.714	0.962	0.286	2.23E-03	3.00E+00	7.44E-04	0.74%
Arsenic	3.98E-02	2	0.05	70	0.714	0.962	0.286	1.12E-05	3.00E-04	3.72E-02	36.90%
Antimony	3.60E-02	2	0.05	70	0.714	0.962	0.286	1.01E-05	4.00E-04	2.52E-02	25.04%
Barium	1.82E-01	2	0.05	70	0.714	0.962	0.286	5.11E-05	7.00E-02	7.30E-04	0.72%
Mercury	9.30E-04	2	0.05	70	0.714	0.962	0.286	2.61E-07	3.00E-04	8.69E-04	0.86%
Thallium	8.00E-04	2	0.05	70	0.714	0.962	0.286	2.24E-07	8.00E-05	2.80E-03	2.78%
Vanadium	2.20E-02	2	0.05	70	0.714	0.962	0.286	6.17E-06	7.00E-03	8.81E-04	0.87%
								HAZARD INDEX		1.01E-01	

TABLE H-62. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	1.4 L / day	x	1.0	x	1 / 70 kg	x	5 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	1.4	1.00	70	0.714	0.962	0.129	7.06E-06	1.10E-02	7.77E-08	12.2%
Tetrachloroethene	6.20E-03	1.4	1.00	70	0.714	0.962	0.129	1.09E-05	5.10E-02	5.58E-07	87.8%
									TOTAL RISK	6.36E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	2 L / day	x	1.0	x	1 / 70 kg	x	5 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	2	1.00	70	0.714	0.962	0.286	2.24E-05	1.10E-02	2.47E-07	9.6%
Tetrachloroethene	8.10E-03	2	1.00	70	0.714	0.962	0.286	4.54E-05	5.10E-02	2.32E-06	90.4%
									TOTAL RISK	2.56E-06	

Note: Database from all wells except MW-16D.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.34E-02	1.4	1.00	70	0.714	0.962	0.129	2.37E-05	1.00E-01	2.37E-04	1.4%
1,2-Dichloroethene	4.00E-03	1.4	1.00	70	0.714	0.962	0.129	7.06E-06	2.00E-02	3.53E-04	2.1%
Tetrachloroethene	6.20E-03	1.4	1.00	70	0.714	0.962	0.129	1.09E-05	1.00E-02	1.09E-03	6.5%
Xylenes	7.00E-02	1.4	1.00	70	0.714	0.962	0.129	1.24E-04	2.00E+00	6.18E-05	0.4%
2-methyl phenol	6.00E-03	1.4	1.00	70	0.714	0.962	0.129	1.06E-05	5.00E-02	2.12E-04	1.3%
Pentachlorophenol	2.20E-02	1.4	1.00	70	0.714	0.962	0.129	3.89E-05	3.00E-02	1.30E-03	7.7%
o-Toluic acid	3.42E+00	1.4	1.00	70	0.714	0.962	0.129	6.04E-03	3.00E+00	2.01E-03	11.9%
m-Toluic acid	3.42E+00	1.4	1.00	70	0.714	0.962	0.129	6.04E-03	3.00E+00	2.01E-03	11.9%
p-Toluic acid	2.80E-01	1.4	1.00	70	0.714	0.962	0.129	4.95E-04	3.00E+00	1.65E-04	1.0%
Arsenic	3.08E-02	1.4	0.05	70	0.714	0.962	0.129	2.72E-06	3.00E-04	9.07E-03	53.7%
Antimony	1.60E-03	1.4	0.05	70	0.714	0.962	0.129	1.41E-07	4.00E-04	3.53E-04	2.1%
Cadmium	2.00E-03	1.4	0.05	70	0.714	0.962	0.129	1.77E-07	7.00E-03	2.52E-05	0.1%
									HAZ INDEX	1.69E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	2.64E-02	2	1.00	70	0.714	0.962	0.286	1.48E-04	1.00E-01	1.48E-03	1.4%
1,2-Dichloroethene	4.00E-03	2	1.00	70	0.714	0.962	0.286	2.24E-05	2.00E-02	1.12E-03	1.1%
Tetrachloroethene	8.10E-03	2	1.00	70	0.714	0.962	0.286	4.54E-05	1.00E-02	4.54E-03	4.3%
Xylenes	1.71E-01	2	1.00	70	0.714	0.962	0.286	9.58E-04	2.00E+00	4.79E-04	0.5%
2-methyl phenol	7.60E-03	2	1.00	70	0.714	0.962	0.286	4.26E-05	5.00E-02	8.52E-04	0.8%
Pentachlorophenol	3.67E-02	2	1.00	70	0.714	0.962	0.286	2.06E-04	5.00E-02	4.12E-03	3.9%
o-Toluic acid	6.76E-01	2	1.00	70	0.714	0.962	0.286	3.79E-03	3.00E+00	1.26E-03	1.2%
m-Toluic acid	8.69E+00	2	1.00	70	0.714	0.962	0.286	4.87E-02	3.00E+00	1.62E-02	15.5%
p-Toluic acid	6.76E-01	2	1.00	70	0.714	0.962	0.286	3.79E-03	3.00E+00	1.26E-03	1.2%
Arsenic	7.67E-02	2	0.05	70	0.714	0.962	0.286	2.15E-05	3.00E-04	7.17E-02	68.4%
Antimony	2.50E-03	2	0.05	70	0.714	0.962	0.286	7.01E-07	4.00E-04	1.75E-03	1.7%
Cadmium	2.70E-03	2	0.05	70	0.714	0.962	0.286	7.57E-07	7.00E-02	1.08E-05	0.0%
									HAZ INDEX	1.05E-01	

TABLE H-63. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	1.4 L / day	x	1.0	x	1 / 70 kg	x	5 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	1.4	1.00	70	0.714	0.962	0.129	5.30E-06	1.90E+00	1.01E-05	10.61%
Trichloroethene	2.35E-02	1.4	1.00	70	0.714	0.962	0.129	4.15E-05	1.10E-02	4.57E-07	0.48%
Benzene	3.00E-03	1.4	1.00	70	0.714	0.962	0.129	5.30E-06	2.90E-02	1.54E-07	0.16%
Tetrachloroethene	2.19E-01	1.4	1.00	70	0.714	0.962	0.129	3.87E-04	5.10E-02	1.97E-05	20.79%
Total c-PAHs	5.00E-03	1.4	1.00	70	0.714	0.962	0.129	8.83E-06	7.30E+00	6.45E-05	67.95%

TOTAL RISK 9.49E-05

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	2 L / day	x	1.0	x	1 / 70 kg	x	5 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	2	1.00	70	0.714	0.962	0.286	1.68E-05	1.90E+00	3.20E-05	7.93%
Trichloroethene	5.13E-02	2	1.00	70	0.714	0.962	0.286	2.88E-04	1.10E-02	3.16E-06	0.78%
Benzene	3.00E-03	2	1.00	70	0.714	0.962	0.286	1.68E-05	2.90E-02	4.88E-07	0.12%
Tetrachloroethene	5.69E-01	2	1.00	70	0.714	0.962	0.286	3.19E-03	5.10E-02	1.63E-04	40.39%
Total c-PAHs	5.00E-03	2	1.00	70	0.714	0.962	0.286	2.80E-05	7.30E+00	2.05E-04	50.77%

TOTAL RISK 4.03E-04

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

$$\frac{\text{Water Conc}}{} \times \frac{\text{Intake}}{} \times \frac{\text{Fraction absorbed}}{} \times \frac{1}{\text{Body weight}} \times \frac{\text{Exp (days)}}{\text{Week (days)}} \times \frac{\text{Wks expd}}{\text{Wks/year}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/L} \times \frac{1.4\ \text{L}}{\text{day}} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{5\ \text{days}}{7\ \text{days/wk}} \times \frac{50}{52} \times \frac{9\ \text{yrs}}{70\ \text{yrs}} = \text{CDI}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	1.4	1.00	70	0.714	0.962	0.129	6.50E-05	2.00E-02	3.25E-03	4.29%
Tetrachloroethene	2.19E-01	1.4	1.00	70	0.714	0.962	0.129	3.87E-04	1.00E-02	3.87E-02	51.09%
Xylenes	3.75E-01	1.4	1.00	70	0.714	0.962	0.129	6.63E-04	2.00E+00	3.31E-04	0.44%
o-Toluic acid	1.31E+01	1.4	1.00	70	0.714	0.962	0.129	2.30E-02	3.00E+00	7.68E-03	10.15%
m-Toluic acid	5.91E+00	1.4	1.00	70	0.714	0.962	0.129	1.04E-02	3.00E+00	3.48E-03	4.60%
p-Toluic acid	7.05E-01	1.4	1.00	70	0.714	0.962	0.129	1.25E-03	3.00E+00	4.15E-04	0.55%
Arsenic	7.17E-02	1.4	0.05	70	0.714	0.962	0.129	6.33E-06	3.00E-04	2.11E-02	27.88%
Barium	1.38E-01	1.4	0.05	70	0.714	0.962	0.129	1.22E-05	7.00E-02	1.74E-04	0.23%
Lead	1.30E-03	1.4	0.05	70	0.714	0.962	0.129	1.15E-07	3.00E-02	3.83E-06	0.01%
Vanadium	4.65E-02	1.4	0.05	70	0.714	0.962	0.129	4.11E-06	7.00E-03	5.87E-04	0.77%
									HAZ INDEX	7.57E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

$$\frac{\text{Water Conc}}{} \times \frac{\text{Intake}}{} \times \frac{\text{Fraction absorbed}}{} \times \frac{1}{\text{Body weight}} \times \frac{\text{Exp (days)}}{\text{Week (days)}} \times \frac{\text{Wks expd}}{\text{Wks/year}} \times \frac{\text{Yrs exposed}}{\text{Years lifetime}} = \text{Chronic Daily Intake (mg/kg-day)}$$

$$\text{mg/L} \times \frac{2\ \text{L}}{\text{day}} \times 1.0 \times \frac{1}{70\ \text{kg}} \times \frac{5\ \text{days}}{7\ \text{days/wk}} \times \frac{50}{52} \times \frac{20\ \text{yrs}}{70\ \text{years}} = \text{CDI (mg/kg-day)}$$

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	2	1.00	70	0.714	0.962	0.286	3.73E-04	2.00E-02	1.87E-02	3.31%
Tetrachloroethene	5.69E-01	2	1.00	70	0.714	0.962	0.286	3.19E-03	1.00E-02	3.19E-01	56.62%
Xylenes	7.50E-01	2	1.00	70	0.714	0.962	0.286	4.21E-03	2.00E+00	2.10E-03	0.37%
o-Toluic acid	2.85E+01	2	1.00	70	0.714	0.962	0.286	1.60E-01	3.00E+00	5.34E-02	9.46%
m-Toluic acid	1.39E+01	2	1.00	70	0.714	0.962	0.286	7.79E-02	3.00E+00	2.60E-02	4.61%
p-Toluic acid	2.85E+01	2	1.00	70	0.714	0.962	0.286	1.60E-01	3.00E+00	5.34E-02	9.46%
Arsenic	9.26E-02	2	0.05	70	0.714	0.962	0.286	2.60E-05	3.00E-04	8.65E-02	15.35%
Barium	2.03E-01	2	0.05	70	0.714	0.962	0.286	5.69E-05	7.00E-02	8.12E-04	0.14%
Lead	2.91E-02	2	0.05	70	0.714	0.962	0.286	8.16E-06	3.00E-02	2.72E-04	0.05%
Vanadium	8.73E-02	2	0.05	70	0.714	0.962	0.286	2.45E-05	7.00E-03	3.50E-03	0.62%
									HAZ INDEX	5.64E-01	

TABLE H-64. INDUSTRIAL USE OF GROUNDWATER - DRINKING WATER INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

$$\frac{\text{Water Conc}}{\text{mg/L}} \times \frac{\text{Intake}}{\text{1.4 L/day}} \times \frac{\text{Fraction absorbed}}{1.0} \times \frac{1}{\text{Body weight } 70\text{ kg}} \times \frac{\text{Exp (days)}}{\text{Week (days) } 7\text{ days/wk}} \times \frac{\text{Wks expd}}{\text{Wks/year } 50/52} \times \frac{\text{Yrs exposed}}{\text{Years lifetime } 9/70\text{ yrs}} = \text{Chronic Daily Intake (mg/kg-day)} = \text{CDI}$$

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.22E-02	1.4	1.00	70	0.714	0.962	0.129	2.15E-05	1.90E+00	4.09E-05	94.13%
Trichloroethene	1.01E-02	1.4	1.00	70	0.714	0.962	0.129	1.78E-05	1.10E-02	1.96E-07	0.45%
Benzene	4.00E-03	1.4	1.00	70	0.714	0.962	0.129	7.06E-06	2.90E-02	2.05E-07	0.47%
Tetrachloroethene	2.33E-02	1.4	1.00	70	0.714	0.962	0.129	4.11E-05	5.10E-02	2.10E-06	4.83%
4,4-DDE	9.00E-05	1.4	1.00	70	0.714	0.962	0.129	1.59E-07	3.40E-01	5.40E-08	0.12%

TOTAL RISK 4.35E-05

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

$$\frac{\text{Water Conc}}{\text{mg/L}} \times \frac{\text{Intake}}{\text{2 L/day}} \times \frac{\text{Fraction absorbed}}{1.0} \times \frac{1}{\text{Body weight } 70\text{ kg}} \times \frac{\text{Exp (days)}}{\text{Week (days) } 7\text{ days/wk}} \times \frac{\text{Wks expd}}{\text{Wks/year } 50/52} \times \frac{\text{Yrs Exposed}}{\text{Yrs Lifetime } 20/70\text{ yrs}} = \text{Chronic Daily Intake (mg/kg-day)} = \text{CDI}$$

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.88E-02	2	1.00	70	0.714	0.962	0.286	1.05E-04	1.90E+00	2.00E-04	93.24%
Trichloroethene	1.58E-02	2	1.00	70	0.714	0.962	0.286	8.86E-05	1.10E-02	9.74E-07	0.45%
Benzene	4.00E-03	2	1.00	70	0.714	0.962	0.286	2.24E-05	2.90E-02	6.50E-07	0.30%
Tetrachloroethene	4.41E-02	2	1.00	70	0.714	0.962	0.286	2.47E-04	5.10E-02	1.26E-05	5.87%
4,4'-DDE	1.50E-04	2	1.00	70	0.714	0.962	0.286	8.41E-07	3.40E-01	2.86E-07	0.13%

TOTAL RISK 2.15E-04

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 1.4 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.11E-01	1.4	1.00	70	0.714	0.962	0.129	1.96E-04	2.00E-02	9.81E-03	13.44%
Tetrachloroethene	2.33E-02	1.4	1.00	70	0.714	0.962	0.129	4.11E-05	1.00E-02	4.11E-03	5.64%
Xylenes	3.63E-01	1.4	1.00	70	0.714	0.962	0.129	6.40E-04	2.00E+00	3.20E-04	0.44%
o-Toluic acid	2.72E+01	1.4	1.00	70	0.714	0.962	0.129	4.80E-02	3.00E+00	1.60E-02	21.94%
m-Toluic acid	1.74E+01	1.4	1.00	70	0.714	0.962	0.129	3.07E-02	3.00E+00	1.02E-02	14.03%
p-Toluic acid	1.76E+01	1.4	1.00	70	0.714	0.962	0.129	3.10E-02	3.00E+00	1.03E-02	14.16%
Arsenic	7.30E-02	1.4	0.05	70	0.714	0.962	0.129	6.45E-06	3.00E-04	2.15E-02	29.44%
Barium	1.14E-01	1.4	0.05	70	0.714	0.962	0.129	1.01E-05	7.00E-02	1.44E-04	0.20%
Lead	2.03E-02	1.4	0.05	70	0.714	0.962	0.129	1.79E-06	3.00E-02	5.98E-05	0.08%
Vanadium	3.69E-02	1.4	0.05	70	0.714	0.962	0.129	3.26E-06	7.00E-03	4.65E-04	0.64%
									HAZ INDEX	7.30E-02	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 5 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	2.64E-01	2	1.00	70	0.714	0.962	0.286	1.48E-03	2.00E-02	7.40E-02	14.93%
Tetrachloroethene	4.41E-02	2	1.00	70	0.714	0.962	0.286	2.47E-04	1.00E-02	2.47E-02	4.99%
Xylenes	6.36E-01	2	1.00	70	0.714	0.962	0.286	3.56E-03	2.00E+00	1.78E-03	0.36%
o-Toluic acid	5.59E+01	2	1.00	70	0.714	0.962	0.286	3.14E-01	3.00E+00	1.05E-01	21.10%
m-Toluic acid	3.53E+01	2	1.00	70	0.714	0.962	0.286	1.98E-01	3.00E+00	6.60E-02	13.32%
p-Toluic acid	4.30E+01	2	1.00	70	0.714	0.962	0.286	2.41E-01	3.00E+00	8.04E-02	16.22%
Arsenic	1.50E-01	2	0.05	70	0.714	0.962	0.286	4.21E-05	3.00E-04	1.40E-01	28.35%
Barium	1.50E-01	2	0.05	70	0.714	0.962	0.286	4.21E-05	7.00E-02	6.02E-04	0.12%
Lead	3.68E-02	2	0.05	70	0.714	0.962	0.286	1.03E-05	3.00E-02	3.44E-04	0.07%
Vanadium	6.57E-02	2	0.05	70	0.714	0.962	0.286	1.84E-05	7.00E-03	2.63E-03	0.53%
									HAZ INDEX	4.95E-01	

TABLE H-65. INDUSTRIAL USE OF GROUNDWATER - INCIDENTAL INGESTION PATHWAY (FS-10)
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	0.025	1.00	70	0.429	0.962	0.129	5.68E-08	1.90E+00	1.08E-07	9.28%
Trichloroethene	3.79E-02	0.025	1.00	70	0.429	0.962	0.129	7.17E-07	1.10E-02	7.89E-09	0.68%
Benzene	1.00E-03	0.025	1.00	70	0.429	0.962	0.129	1.89E-08	2.90E-02	5.49E-10	0.05%
Tetrachloroethene	3.68E-01	0.025	1.00	70	0.429	0.962	0.129	6.96E-06	5.10E-02	3.55E-07	30.56%
Total c-PAHs	5.00E-03	0.025	1.00	70	0.429	0.962	0.129	9.46E-08	7.30E+00	6.91E-07	59.43%

TOTAL RISK 1.16E-06

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs Exposed/Yrs Lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	0.05	1.00	70	0.429	0.962	0.286	6.12E-07	1.90E+00	1.16E-06	6.66%
Trichloroethene	7.43E-02	0.05	1.00	70	0.429	0.962	0.286	1.52E-05	1.10E-02	1.67E-07	0.95%
Benzene	1.00E-03	0.05	1.00	70	0.429	0.962	0.286	2.04E-07	2.90E-02	5.92E-09	0.03%
Tetrachloroethene	8.35E-01	0.05	1.00	70	0.429	0.962	0.286	1.70E-04	5.10E-02	8.69E-06	49.74%
Total c-PAHs	5.00E-03	0.05	1.00	70	0.429	0.962	0.286	1.02E-06	7.30E+00	7.45E-06	42.62%

TOTAL RISK 1.75E-05

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	0.025	1.00	70	0.429	0.962	0.129	1.01E-06	2.00E-02	5.06E-05	3.70%
Tetrachloroethene	3.68E-01	0.025	1.00	70	0.429	0.962	0.129	6.96E-06	1.00E-02	6.96E-04	50.95%
o-Toluic acid	2.28E+01	0.025	1.00	70	0.429	0.962	0.129	4.31E-04	3.00E+00	1.44E-04	10.51%
m-Toluic acid	1.03E+01	0.025	1.00	70	0.429	0.962	0.129	1.95E-04	3.00E+00	6.52E-05	4.77%
p-Toluic acid	1.18E+00	0.025	1.00	70	0.429	0.962	0.129	2.24E-05	3.00E+00	7.47E-06	0.55%
Arsenic	1.24E-01	0.025	0.05	70	0.429	0.962	0.129	1.18E-07	3.00E-04	3.92E-04	28.66%
Barium	1.34E-01	0.025	0.05	70	0.429	0.962	0.129	1.27E-07	7.00E-02	1.81E-06	0.13%
Vanadium	7.30E-02	0.025	0.05	70	0.429	0.962	0.129	6.91E-08	7.00E-03	9.87E-06	0.72%
								HAZARD INDEX		1.37E-03	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	8.96E-02	0.025	1.00	70	0.429	0.962	0.286	3.77E-06	2.00E-02	1.88E-04	3.34%
Tetrachloroethene	8.35E-01	0.025	1.00	70	0.429	0.962	0.286	3.51E-05	1.00E-02	3.51E-03	62.28%
o-Toluic acid	3.94E+01	0.025	1.00	70	0.429	0.962	0.286	1.66E-03	3.00E+00	5.53E-04	9.80%
m-Toluic acid	1.89E+01	0.025	1.00	70	0.429	0.962	0.286	7.95E-04	3.00E+00	2.65E-04	4.70%
p-Toluic acid	2.25E+00	0.025	1.00	70	0.429	0.962	0.286	9.45E-05	3.00E+00	3.15E-05	0.56%
Arsenic	1.49E-01	0.025	0.05	70	0.429	0.962	0.286	3.14E-07	3.00E-04	1.05E-03	18.54%
Barium	1.88E-01	0.025	0.05	70	0.429	0.962	0.286	3.95E-07	7.00E-02	5.64E-06	0.10%
Vanadium	1.26E-01	0.025	0.05	70	0.429	0.962	0.286	2.64E-07	7.00E-03	3.77E-05	0.67%
								HAZARD INDEX		5.64E-03	

TABLE H-66. INDUSTRIAL USE OF GROUNDWATER - ACCIDENTAL INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Upper Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	25 mL/day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.44E-02	0.025	1.00	70	0.429	0.962	0.129	2.72E-07	1.90E+00	5.18E-07	94.12%
Trichloroethene	1.18E-02	0.025	1.00	70	0.429	0.962	0.129	2.23E-07	1.10E-02	2.46E-09	0.45%
Benzene	4.00E-03	0.025	1.00	70	0.429	0.962	0.129	7.57E-08	2.90E-02	2.19E-09	0.40%
Tetrachloroethene	2.87E-02	0.025	1.00	70	0.429	0.962	0.129	5.43E-07	5.10E-02	2.77E-08	5.04%
									TOTAL RISK	5.50E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	=	Chronic Daily Intake (mg/kg-day)
mg/L	x	25 mL/day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	=	CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	2.10E-02	0.025	1.00	70	0.429	0.962	0.286	8.83E-07	1.90E+00	1.68E-06	92.69%
Trichloroethene	1.90E-02	0.025	1.00	70	0.429	0.962	0.286	7.99E-07	1.10E-02	8.79E-09	0.49%
Benzene	4.00E-03	0.025	1.00	70	0.429	0.962	0.286	1.68E-07	2.90E-02	4.88E-09	0.27%
Tetrachloroethene	5.53E-02	0.025	1.00	70	0.429	0.962	0.286	2.33E-06	5.10E-02	1.19E-07	6.55%
									TOTAL RISK	1.81E-06	

Note: Database from all wells *except* MW-16I.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	0.025	1.00	70	0.429	0.962	0.129	2.73E-06	2.00E-02	1.37E-04	26.26%
Tetrachloroethene	2.87E-02	0.025	1.00	70	0.429	0.962	0.129	5.43E-07	1.00E-02	5.43E-05	10.44%
o-Toluic acid	3.46E+01	0.025	0.10	70	0.429	0.962	0.129	6.55E-05	3.00E+00	2.18E-05	4.20%
m-Toluic acid	2.18E+01	0.025	0.10	70	0.429	0.962	0.129	4.12E-05	3.00E+00	1.37E-05	2.64%
p-Toluic acid	2.30E+01	0.025	0.10	70	0.429	0.962	0.129	4.35E-05	3.00E+00	1.45E-05	2.78%
Arsenic	8.60E-02	0.025	0.05	70	0.429	0.962	0.129	8.14E-08	3.00E-04	2.71E-04	52.13%
Barium	1.24E-01	0.025	0.05	70	0.429	0.962	0.129	1.18E-07	7.00E-02	1.68E-06	0.32%
Vanadium	4.77E-02	0.025	0.05	70	0.429	0.962	0.129	4.51E-08	7.00E-03	6.45E-06	1.24%
									HAZ INDEX	5.20E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 2 L/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	0.025	1.00	70	0.429	0.962	0.286	1.44E-05	2.00E-02	7.20E-04	28.53%
Tetrachloroethene	5.53E-02	0.025	1.00	70	0.429	0.962	0.286	2.33E-06	1.00E-02	2.33E-04	9.21%
o-Toluic acid	7.15E+01	0.025	0.10	70	0.429	0.962	0.286	3.01E-04	3.00E+00	1.00E-04	3.97%
m-Toluic acid	4.48E+01	0.025	0.10	70	0.429	0.962	0.286	1.88E-04	3.00E+00	6.28E-05	2.49%
p-Toluic acid	5.60E+01	0.025	0.10	70	0.429	0.962	0.286	2.35E-04	3.00E+00	7.84E-05	3.11%
Arsenic	1.85E-01	0.025	0.05	70	0.429	0.962	0.286	3.90E-07	3.00E-04	1.30E-03	51.49%
Barium	1.70E-01	0.025	0.05	70	0.429	0.962	0.286	3.57E-07	7.00E-02	5.09E-06	0.20%
Vanadium	8.37E-02	0.025	0.05	70	0.429	0.962	0.286	1.76E-07	7.00E-03	2.51E-05	1.00%
									HAZ INDEX	2.52E-03	

TABLE H-67. INDUSTRIAL USE OF GROUNDWATER - ACCIDENTAL INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	25 mL/day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	2.70E-03	0.025	1.00	70	0.429	0.962	0.129	5.11E-08	1.10E-02	5.62E-10	10.03%
Benzene	2.50E-03	0.025	1.00	70	0.429	0.962	0.129	4.73E-08	2.90E-02	1.37E-09	24.49%
Tetrachloroethene	3.80E-03	0.025	1.00	70	0.429	0.962	0.129	7.19E-08	5.10E-02	3.67E-09	65.47%
									TOTAL RISK	5.60E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	50 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	3.00E-03	0.05	1.00	70	0.429	0.962	0.286	2.52E-07	1.10E-02	2.78E-09	8.96%
Benzene	2.60E-03	0.05	1.00	70	0.429	0.962	0.286	2.19E-07	2.90E-02	6.34E-09	20.46%
Tetrachloroethene	5.10E-03	0.05	1.00	70	0.429	0.962	0.286	4.29E-07	5.10E-02	2.19E-08	70.58%
									TOTAL RISK	3.10E-08	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	25 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk	x	50 / 52	x	9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.80E-03	0.025	1.00	70	0.429	0.962	0.129	1.48E-07	1.00E-01	1.48E-06	0.75%
1,2-Dichloroethene	1.26E-02	0.025	1.00	70	0.429	0.962	0.129	2.38E-07	2.00E-02	1.19E-05	6.07%
Tetrachloroethene	3.80E-03	0.025	1.00	70	0.429	0.962	0.129	7.19E-08	1.00E-02	7.19E-06	3.66%
Xylenes	7.64E-02	0.025	1.00	70	0.429	0.962	0.129	1.45E-06	2.00E+00	7.23E-07	0.37%
2-methyl phenol	5.20E-03	0.025	1.00	70	0.429	0.962	0.129	9.84E-08	5.00E-02	1.97E-06	1.00%
4-methyl phenol	5.40E-03	0.025	1.00	70	0.429	0.962	0.129	1.02E-07	5.00E-02	2.04E-06	1.04%
o-Toluic acid	2.91E+00	0.025	1.00	70	0.429	0.962	0.129	5.50E-05	3.00E+00	1.83E-05	9.34%
m-Toluic acid	1.42E+00	0.025	1.00	70	0.429	0.962	0.129	2.69E-05	3.00E+00	8.97E-06	4.57%
p-Toluic acid	1.89E-01	0.025	1.00	70	0.429	0.962	0.129	3.58E-06	3.00E+00	1.19E-06	0.61%
Arsenic	1.91E-02	0.025	0.05	70	0.429	0.962	0.129	1.81E-08	3.00E-04	6.02E-05	30.69%
Antimony	2.93E-02	0.025	0.05	70	0.429	0.962	0.129	2.77E-08	4.00E-04	6.93E-05	35.31%
Barium	7.72E-02	0.025	0.05	70	0.429	0.962	0.129	7.30E-08	7.00E-02	1.04E-06	0.53%
Mercury	6.50E-04	0.025	0.05	70	0.429	0.962	0.129	6.15E-10	3.00E-04	2.05E-06	1.04%
Thallium	7.00E-04	0.025	0.05	70	0.429	0.962	0.129	6.62E-10	8.00E-05	8.28E-06	4.22%
Vanadium	1.12E-02	0.025	0.05	70	0.429	0.962	0.129	1.06E-08	7.00E-03	1.51E-06	0.77%
								HAZARD INDEX		1.96E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x	Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.10E-02	0.05	1.00	70	0.429		0.962	0.286	9.25E-07	1.00E-01	9.25E-06	0.61%
1,2-Dichloroethene	3.02E-02	0.05	1.00	70	0.429		0.962	0.286	2.54E-06	2.00E-02	1.27E-04	8.40%
Tetrachloroethene	5.10E-03	0.05	1.00	70	0.429		0.962	0.286	4.29E-07	1.00E-02	4.29E-05	2.84%
Xylenes	1.76E-01	0.05	1.00	70	0.429		0.962	0.286	1.48E-05	2.00E+00	7.41E-06	0.49%
2-methyl phenol	5.60E-03	0.05	1.00	70	0.429		0.962	0.286	4.71E-07	5.00E-02	9.42E-06	0.62%
4-methyl phenol	6.20E-03	0.05	1.00	70	0.429		0.962	0.286	5.21E-07	5.00E-02	1.04E-05	0.69%
o-Toluic acid	6.74E+00	0.05	1.00	70	0.429		0.962	0.286	5.67E-04	3.00E+00	1.89E-04	12.50%
m-Toluic acid	3.20E+00	0.05	1.00	70	0.429		0.962	0.286	2.69E-04	3.00E+00	8.96E-05	5.93%
p-Toluic acid	3.98E-01	0.05	1.00	70	0.429		0.962	0.286	3.35E-05	3.00E+00	1.12E-05	0.74%
Arsenic	3.98E-02	0.05	0.05	70	0.429		0.962	0.286	1.67E-07	3.00E-04	5.58E-04	36.90%
Antimony	3.60E-02	0.05	0.05	70	0.429		0.962	0.286	1.51E-07	4.00E-04	3.78E-04	25.04%
Barium	1.82E-01	0.05	0.05	70	0.429		0.962	0.286	7.67E-07	7.00E-02	1.10E-05	0.72%
Mercury	9.30E-04	0.05	0.05	70	0.429		0.962	0.286	3.91E-09	3.00E-04	1.30E-05	0.86%
Thallium	8.00E-04	0.05	0.05	70	0.429		0.962	0.286	3.36E-09	8.00E-05	4.20E-05	2.78%
Vanadium	2.20E-02	0.05	0.05	70	0.429		0.962	0.286	9.25E-08	7.00E-03	1.32E-05	0.87%
									HAZARD INDEX		1.51E-03	

TABLE H-68. INDUSTRIAL USE OF GROUNDWATER - ACCIDENTAL INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Deep Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	25 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	0.025	1.00	70	0.429	0.962	0.129	7.57E-08	1.10E-02	8.33E-10	12.6%
Tetrachloroethene	6.00E-03	0.025	1.00	70	0.429	0.962	0.129	1.14E-07	5.10E-02	5.79E-09	87.4%
									TOTAL RISK	6.62E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg/L	x	50 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Trichloroethene	4.00E-03	0.05	1.00	70	0.429	0.962	0.286	3.36E-07	1.10E-02	3.70E-09	10.2%
Tetrachloroethene	7.60E-03	0.05	1.00	70	0.429	0.962	0.286	6.39E-07	5.10E-02	3.26E-08	89.8%
									TOTAL RISK	3.63E-08	

Note: Database from all wells except MW-16D.

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	1.20E-02	0.025	1.00	70	0.429	0.962	0.129	2.27E-07	1.00E-01	2.27E-06	1.5%
1,2-Dichloroethene	4.00E-03	0.025	1.00	70	0.429	0.962	0.129	7.57E-08	2.00E-02	3.78E-06	2.4%
Tetrachloroethene	6.00E-03	0.025	1.00	70	0.429	0.962	0.129	1.14E-07	1.00E-02	1.14E-05	7.3%
Xylenes	5.92E-02	0.025	1.00	70	0.429	0.962	0.129	1.12E-06	2.00E+00	5.60E-07	0.4%
2-methyl phenol	5.80E-03	0.025	1.00	70	0.429	0.962	0.129	1.10E-07	5.00E-02	2.19E-06	1.4%
Pentachlorophenol	2.04E-02	0.025	1.00	70	0.429	0.962	0.129	3.86E-07	3.00E-02	1.29E-05	8.3%
o-Toluic acid	2.85E+00	0.025	1.00	70	0.429	0.962	0.129	5.40E-05	3.00E+00	1.80E-05	11.5%
m-Toluic acid	2.85E+00	0.025	1.00	70	0.429	0.962	0.129	5.40E-05	3.00E+00	1.80E-05	11.5%
p-Toluic acid	2.37E-01	0.025	1.00	70	0.429	0.962	0.129	4.49E-06	3.00E+00	1.50E-06	1.0%
Arsenic	2.58E-02	0.025	0.05	70	0.429	0.962	0.129	2.44E-08	3.00E-04	8.14E-05	52.2%
Antimony	1.50E-03	0.025	0.05	70	0.429	0.962	0.129	1.42E-09	4.00E-04	3.55E-06	2.3%
Cadmium	3.20E-03	0.025	0.05	70	0.429	0.962	0.129	3.03E-09	7.00E-03	4.33E-07	0.3%
								HAZARD INDEX		1.56E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	2.30E-02	0.05	1.00	70	0.429	0.962	0.286	1.93E-06	1.00E-01	1.93E-05	1.3%
1,2-Dichloroethene	4.00E-03	0.05	1.00	70	0.429	0.962	0.286	3.36E-07	2.00E-02	1.68E-05	1.1%
Tetrachloroethene	7.60E-03	0.05	1.00	70	0.429	0.962	0.286	6.39E-07	1.00E-02	6.39E-05	4.2%
Xylenes	1.44E-01	0.05	1.00	70	0.429	0.962	0.286	1.21E-05	2.00E+00	6.07E-06	0.4%
2-methyl phenol	7.10E-03	0.05	1.00	70	0.429	0.962	0.286	5.97E-07	5.00E-02	1.19E-05	0.8%
Pentachlorophenol	3.29E-02	0.05	1.00	70	0.429	0.962	0.286	2.77E-06	5.00E-02	5.53E-05	3.6%
o-Toluic acid	7.31E+00	0.05	1.00	70	0.429	0.962	0.286	6.15E-04	3.00E+00	2.05E-04	13.4%
m-Toluic acid	7.31E+00	0.05	1.00	70	0.429	0.962	0.286	6.15E-04	3.00E+00	2.05E-04	13.4%
p-Toluic acid	5.72E-01	0.05	1.00	70	0.429	0.962	0.286	4.81E-05	3.00E+00	1.60E-05	1.0%
Arsenic	6.46E-02	0.05	0.05	70	0.429	0.962	0.286	2.72E-07	3.00E-04	9.05E-04	59.3%
Antimony	2.20E-03	0.05	0.05	70	0.429	0.962	0.286	9.25E-09	4.00E-04	2.31E-05	1.5%
Cadmium	5.10E-03	0.05	0.05	70	0.429	0.962	0.286	2.14E-08	7.00E-02	3.06E-07	0.0%
								HAZARD INDEX		1.53E-03	

TABLE H-69. INDUSTRIAL USE OF GROUNDWATER - ACCIDENTAL INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 1 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	25 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs exposed / Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	0.025	1.00	70	0.429	0.962	0.129	5.68E-08	1.90E+00	1.08E-07	10.61%
Trichloroethene	2.35E-02	0.025	1.00	70	0.429	0.962	0.129	4.45E-07	1.10E-02	4.89E-09	0.48%
Benzene	3.00E-03	0.025	1.00	70	0.429	0.962	0.129	5.68E-08	2.90E-02	1.65E-09	0.16%
Tetrachloroethene	2.19E-01	0.025	1.00	70	0.429	0.962	0.129	4.14E-06	5.10E-02	2.11E-07	20.79%
Total c-PAHs	5.00E-03	0.025	1.00	70	0.429	0.962	0.129	9.46E-08	7.30E+00	6.91E-07	67.95%

TOTAL RISK 1.02E-06

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	50 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) / Week (days)	Wks expd / Wks/year	Yrs Exposed / Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	3.00E-03	0.05	1.00	70	0.429	0.962	0.286	2.52E-07	1.90E+00	4.79E-07	7.93%
Trichloroethene	5.13E-02	0.05	1.00	70	0.429	0.962	0.286	4.31E-06	1.10E-02	4.75E-08	0.78%
Benzene	3.00E-03	0.05	1.00	70	0.429	0.962	0.286	2.52E-07	2.90E-02	7.32E-09	0.12%
Tetrachloroethene	5.69E-01	0.05	1.00	70	0.429	0.962	0.286	4.79E-05	5.10E-02	2.44E-06	40.39%
Total c-PAHs	5.00E-03	0.05	1.00	70	0.429	0.962	0.286	4.20E-07	7.30E+00	3.07E-06	50.77%

TOTAL RISK 6.05E-06

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	3.68E-02	0.025	1.00	70	0.429	0.962	0.129	6.96E-07	2.00E-02	3.48E-05	4.29%
Tetrachloroethene	2.19E-01	0.025	1.00	70	0.429	0.962	0.129	4.14E-06	1.00E-02	4.14E-04	51.09%
Xylenes	3.75E-01	0.025	1.00	70	0.429	0.962	0.129	7.10E-06	2.00E+00	3.55E-06	0.44%
o-Toluic acid	1.31E+01	0.025	1.00	70	0.429	0.962	0.129	2.47E-04	3.00E+00	8.23E-05	10.15%
m-Toluic acid	5.91E+00	0.025	1.00	70	0.429	0.962	0.129	1.12E-04	3.00E+00	3.73E-05	4.60%
p-Toluic acid	7.05E-01	0.025	1.00	70	0.429	0.962	0.129	1.33E-05	3.00E+00	4.45E-06	0.55%
Arsenic	7.17E-02	0.025	0.05	70	0.429	0.962	0.129	6.78E-08	3.00E-04	2.26E-04	27.88%
Barium	1.38E-01	0.025	0.05	70	0.429	0.962	0.129	1.30E-07	7.00E-02	1.86E-06	0.23%
Lead	1.30E-03	0.025	0.05	70	0.429	0.962	0.129	1.23E-09	3.00E-02	4.10E-08	0.01%
Vanadium	4.65E-02	0.025	0.05	70	0.429	0.962	0.129	4.40E-08	7.00E-03	6.28E-06	0.77%

HAZ INDEX 8.11E-04

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	6.66E-02	0.05	1.00	70	0.429	0.962	0.286	5.60E-06	2.00E-02	2.80E-04	3.31%
Tetrachloroethene	5.69E-01	0.05	1.00	70	0.429	0.962	0.286	4.79E-05	1.00E-02	4.79E-03	56.62%
Xylenes	7.50E-01	0.05	1.00	70	0.429	0.962	0.286	6.31E-05	2.00E+00	3.16E-05	0.37%
o-Toluic acid	2.85E+01	0.05	1.00	70	0.429	0.962	0.286	2.40E-03	3.00E+00	8.00E-04	9.46%
m-Toluic acid	1.39E+01	0.05	1.00	70	0.429	0.962	0.286	1.17E-03	3.00E+00	3.90E-04	4.61%
p-Toluic acid	2.85E+01	0.05	1.00	70	0.429	0.962	0.286	2.40E-03	3.00E+00	8.00E-04	9.46%
Arsenic	9.26E-02	0.05	0.05	70	0.429	0.962	0.286	3.89E-07	3.00E-04	1.30E-03	15.35%
Barium	2.03E-01	0.05	0.05	70	0.429	0.962	0.286	8.53E-07	7.00E-02	1.22E-05	0.14%
Lead	2.91E-02	0.05	0.05	70	0.429	0.962	0.286	1.22E-07	3.00E-02	4.08E-06	0.05%
Vanadium	8.73E-02	0.05	0.05	70	0.429	0.962	0.286	3.67E-07	7.00E-03	5.24E-05	0.62%

HAZ INDEX 8.46E-03

TABLE H-70. INDUSTRIAL USE OF GROUNDWATER - ACCIDENTAL INGESTION PATHWAY
FUTURE-USE SCENARIO - On-Site Mixed Bedrock Well Use
Round 2 Data

CARCINOGENS - AVERAGE GROUNDWATER INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs exposed / Years lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	25 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		9 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs exposed Years lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.22E-02	0.025	1.00	70	0.429	0.962	0.129	2.31E-07	1.90E+00	4.39E-07	94.13%
Trichloroethene	1.01E-02	0.025	1.00	70	0.429	0.962	0.129	1.91E-07	1.10E-02	2.10E-09	0.45%
Benzene	4.00E-03	0.025	1.00	70	0.429	0.962	0.129	7.57E-08	2.90E-02	2.19E-09	0.47%
Tetrachloroethene	2.33E-02	0.025	1.00	70	0.429	0.962	0.129	4.41E-07	5.10E-02	2.25E-08	4.83%
4,4'-DDE	9.00E-05	0.025	1.00	70	0.429	0.962	0.129	1.70E-09	3.40E-01	5.79E-10	0.12%
									TOTAL RISK	4.66E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM INGESTION EXPOSURE

Water Conc	x	Intake	x	Fraction absorbed	x	1 / Body weight	x	Exp (days) / Week (days)	x	Wks expd / Wks/year	x	Yrs Exposed / Yrs Lifetime	= Chronic Daily Intake (mg/kg-day)
mg / L	x	50 mL / day	x	1.0	x	1 / 70 kg	x	3 days / 7 days/wk		50 / 52		20 yrs / 70 yrs	= CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days) Week (days)	Wks expd Wks/year	Yrs Exposed Yrs Lifetime	CDI	SF	RISK (CDI*SF)	% Total
Vinyl chloride	1.88E-02	0.05	1.00	70	0.429	0.962	0.286	1.58E-06	1.90E+00	3.00E-06	93.24%
Trichloroethene	1.58E-02	0.05	1.00	70	0.429	0.962	0.286	1.33E-06	1.10E-02	1.46E-08	0.45%
Benzene	4.00E-03	0.05	1.00	70	0.429	0.962	0.286	3.36E-07	2.90E-02	9.76E-09	0.30%
Tetrachloroethene	4.41E-02	0.05	1.00	70	0.429	0.962	0.286	3.71E-06	5.10E-02	1.89E-07	5.87%
4,4'-DDE	1.50E-04	0.05	1.00	70	0.429	0.962	0.286	1.26E-08	3.40E-01	4.29E-09	0.13%
									TOTAL RISK	3.22E-06	

NONCARCINOGENS - AVERAGE GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 25 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 9 yrs/70 yrs = CDI

Compound	Water Conc (mg/L)	Intake (L/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	Wks expd/Wks/year	Yrs exposed/Yrs lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	1.11E-01	0.025	1.00	70	0.429	0.962	0.129	2.10E-06	2.00E-02	1.05E-04	13.43%
Tetrachloroethene	2.33E-02	0.025	1.00	70	0.429	0.962	0.129	4.41E-07	1.00E-02	4.41E-05	5.64%
Xylenes	3.63E-01	0.025	1.00	70	0.429	0.962	0.129	6.87E-06	2.00E+00	3.43E-06	0.44%
o-Toluic acid	2.72E+01	0.025	1.00	70	0.429	0.962	0.129	5.15E-04	3.00E+00	1.72E-04	21.93%
m-Toluic acid	1.74E+01	0.025	1.00	70	0.429	0.962	0.129	3.29E-04	3.00E+00	1.10E-04	14.03%
p-Toluic acid	1.76E+01	0.025	1.00	70	0.429	0.962	0.129	3.33E-04	3.00E+00	1.11E-04	14.19%
Arsenic	7.30E-02	0.025	0.05	70	0.429	0.962	0.129	6.91E-08	3.00E-04	2.30E-04	29.43%
Barium	1.14E-01	0.025	0.05	70	0.429	0.962	0.129	1.08E-07	7.00E-02	1.54E-06	0.20%
Lead	2.03E-02	0.025	0.05	70	0.429	0.962	0.129	1.92E-08	3.00E-02	6.40E-07	0.08%
Vanadium	3.69E-02	0.025	0.05	70	0.429	0.962	0.129	3.49E-08	7.00E-03	4.99E-06	0.64%
									HAZ INDEX	7.82E-04	

NONCARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER INGESTION : Adults

Water Conc x Intake x Fraction absorbed x 1/Body weight x Exp (days)/Week (days) x Wks expd/Wks/year x Yrs exposed/Years lifetime = Chronic Daily Intake (mg/kg-day)

mg/L x 50 mL/day x 1.0 x 1/70 kg x 3 days/7 days/wk x 50/52 x 20 yrs/70 years = CDI (mg/kg-day)

Compound	Water Conc (mg/L)	Intake (l/day)	Fraction absorbed	Body Wt (kg)	Exp (days)/Week (days)	x Wks expd/Wks/year	Yrs exposed/Years lifetime	CDI	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichloroethene	2.64E-01	0.05	1.00	70	0.429	0.962	0.286	2.22E-05	2.00E-02	1.11E-03	14.89%
Tetrachloroethene	4.41E-02	0.05	1.00	70	0.429	0.962	0.286	3.71E-06	1.00E-02	3.71E-04	4.98%
Xylenes	6.36E-01	0.05	1.00	70	0.429	0.962	0.286	5.35E-05	2.00E+00	2.67E-05	0.36%
o-Toluic acid	5.59E+01	0.05	1.00	70	0.429	0.962	0.286	4.70E-03	3.00E+00	1.57E-03	21.02%
m-Toluic acid	3.63E+01	0.05	1.00	70	0.429	0.962	0.286	3.05E-03	3.00E+00	1.02E-03	13.65%
p-Toluic acid	4.30E+01	0.05	1.00	70	0.429	0.962	0.286	3.62E-03	3.00E+00	1.21E-03	16.17%
Arsenic	1.50E-01	0.05	0.05	70	0.429	0.962	0.286	6.31E-07	3.00E-04	2.10E-03	28.21%
Barium	1.50E-01	0.05	0.05	70	0.429	0.962	0.286	6.31E-07	7.00E-02	9.01E-06	0.12%
Lead	3.68E-02	0.05	0.05	70	0.429	0.962	0.286	1.55E-07	3.00E-02	5.16E-06	0.07%
Vanadium	6.57E-02	0.05	0.05	70	0.429	0.962	0.286	2.76E-07	7.00E-03	3.95E-05	0.53%
									HAZ INDEX	7.45E-03	

TABLE H-71. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE UPPER BEDROCK WELLS - Round 1 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Water Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.00E-03	8.00E-04	2	50	0.129	2,600	70	1.15E-06	1.90E+00	2.18E-06	8.91%
Trichloroethene	7.43E-02	8.00E-04	2	50	0.129	2,600	70	2.84E-05	1.10E-02	3.12E-07	1.28%
Benzene	1.00E-03	4.10E-01	2	50	0.129	2,600	70	1.96E-04	2.90E-02	5.68E-06	23.24%
Tetrachloroethene	8.35E-01	8.00E-04	2	50	0.129	2,600	70	3.19E-04	5.10E-02	1.63E-05	66.58%
									TOTAL RISK	2.44E-05	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs/day	x	100 days / year	x	20 days / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.00E-03	8.00E-04	2	100	0.286	2,600	70	5.09E-06	1.90E+00	9.68E-06	8.91%
Trichloroethene	7.43E-02	8.00E-04	2	100	0.286	2,600	70	1.26E-04	1.10E-02	1.39E-06	1.28%
Benzene	1.00E-03	4.10E-01	2	100	0.286	2,600	70	8.70E-04	2.90E-02	2.52E-05	23.24%
Tetrachloroethene	8.35E-01	8.00E-04	2	100	0.286	2,600	70	1.42E-03	5.10E-02	7.23E-05	66.58%
									TOTAL RISK	1.09E-04	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	5.35E-02	8.00E-04	2	50	0.129	2,600	70	2.04E-05	2.00E-02	1.02E-03	5.25%
Tetrachloroethene	3.68E-01	8.00E-04	2	50	0.129	2,600	70	1.41E-04	1.00E-02	1.41E-02	72.29%
o-Toluic acid	2.28E+01	8.00E-04	2	50	0.129	2,600	70	8.70E-03	3.00E+00	2.90E-03	14.91%
m-Toluic acid	1.03E+01	8.00E-04	2	50	0.129	2,600	70	3.95E-03	3.00E+00	1.32E-03	6.76%
p-Toluic acid	1.18E+00	8.00E-04	2	50	0.129	2,600	70	4.52E-04	3.00E+00	1.51E-04	0.78%
									HAZ INDEX	1.94E-02	

NONCARCINOGENIC COMPOUNDS IN CREEK SEEPS - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	4.49E-01	8.00E-04	2	100	0.286	2,600	70	7.62E-04	2.00E-02	3.81E-02	21.81%
Tetrachloroethene	3.78E-01	8.00E-04	2	100	0.286	2,600	70	6.42E-04	1.00E-02	6.42E-02	36.77%
o-Toluic acid	7.46E+01	8.00E-04	2	100	0.286	2,600	70	1.27E-01	3.00E+00	4.22E-02	24.15%
m-Toluic acid	4.15E+01	8.00E-04	2	100	0.286	2,600	70	7.05E-02	3.00E+00	2.35E-02	13.45%
p-Toluic acid	1.18E+01	8.00E-04	2	100	0.286	2,600	70	2.00E-02	3.00E+00	6.68E-03	3.82%
									HAZ INDEX	1.75E-01	

TABLE H-72. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE UPPER BEDROCK WELLS - Round 2 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	1.44E-02	8.00E-04	2	50	0.129	2,600	70	5.50E-06	1.90E+00	1.05E-05	30.95%
Trichloroethene	1.18E-02	8.00E-04	2	50	0.129	2,600	70	4.51E-06	1.10E-02	4.96E-08	0.15%
Benzene	4.00E-03	4.10E-01	2	50	0.129	2,600	70	7.83E-04	2.90E-02	2.27E-05	67.25%
Tetrachloroethene	2.87E-02	8.00E-04	2	50	0.129	2,600	70	1.10E-05	5.10E-02	5.59E-07	1.66%
									TOTAL RISK	3.38E-05	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs/day	x	100 days / year	x	20 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	2.10E-02	8.00E-04	2	100	0.286	2,600	70	3.57E-05	1.90E+00	6.77E-05	38.97%
Trichloroethene	1.90E-02	8.00E-04	2	100	0.286	2,600	70	3.23E-05	1.10E-02	3.55E-07	0.20%
Benzene	4.00E-03	4.10E-01	2	100	0.286	2,600	70	3.48E-03	2.90E-02	1.01E-04	58.07%
Tetrachloroethene	5.53E-02	8.00E-04	2	100	0.286	2,600	70	9.39E-05	5.10E-02	4.79E-06	2.75%
									TOTAL RISK	1.74E-04	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	1.44E-01	8.00E-04	2	50	0.129	2,600	70	5.50E-05	2.00E-02	2.75E-03	19.72%
Tetrachloroethene	2.87E-02	8.00E-04	2	50	0.129	2,600	70	1.10E-05	1.00E-02	1.10E-03	7.86%
o-Toluic acid	3.46E+01	8.00E-04	2	50	0.129	2,600	70	1.32E-02	3.00E+00	4.41E-03	31.60%
m-Toluic acid	2.18E+01	8.00E-04	2	50	0.129	2,600	70	8.32E-03	3.00E+00	2.77E-03	19.87%
p-Toluic acid	2.30E+01	8.00E-04	2	50	0.129	2,600	70	8.77E-03	3.00E+00	2.92E-03	20.96%
									HAZ INDEX	1.40E-02	

NONCARCINOGENIC COMPOUNDS IN CREEK SEEPS - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
1,2-Dichloroethene	3.42E-01	8.00E-04	2	100	0.286	2,600	70	5.81E-04	2.00E-02	2.90E-02	21.36%
Tetrachloroethene	5.53E-02	8.00E-04	2	100	0.286	2,600	70	9.39E-05	1.00E-02	9.39E-03	6.91%
o-Toluic acid	7.15E+01	8.00E-04	2	100	0.286	2,600	70	1.21E-01	3.00E+00	4.05E-02	29.78%
m-Toluic acid	4.48E+01	8.00E-04	2	100	0.286	2,600	70	7.61E-02	3.00E+00	2.54E-02	18.65%
p-Toluic acid	5.60E+01	8.00E-04	2	100	0.286	2,600	70	9.50E-02	3.00E+00	3.17E-02	23.30%
									HAZ INDEX	1.36E-01	

TABLE H-73. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE DEEP BEDROCK WELLS - Round 1 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2,600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.70E-03	8.00E-04	2	50	0.129	2,600	70	1.03E-06	1.10E-02	1.13E-08	0.08%
Benzene	2.50E-03	4.10E-01	2	50	0.129	2,600	70	4.89E-04	2.90E-02	1.42E-05	99.40%
Tetrachloroethene	3.80E-03	8.00E-04	2	50	0.129	2,600	70	1.45E-06	5.10E-02	7.40E-08	0.52%
									TOTAL RISK	1.43E-05	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	3.00E-03	8.00E-04	2	100	0.286	2,600	70	5.09E-06	1.10E-02	5.60E-08	0.08%
Benzene	2.60E-03	4.10E-01	2	100	0.286	2,600	70	2.26E-03	2.90E-02	6.56E-05	99.25%
Tetrachloroethene	5.10E-03	8.00E-04	2	100	0.286	2,600	70	8.66E-06	5.10E-02	4.42E-07	0.67%
									TOTAL RISK	6.61E-05	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm³	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm²	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm²)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	7.80E-03	8.00E-04	2	50	0.129	2,600	70	2.98E-06	1.00E-01	2.98E-05	2.95%
1,2-Dichloroethene	1.26E-02	8.00E-04	2	50	0.129	2,600	70	4.81E-06	2.00E-02	2.41E-04	23.84%
Tetrachloroethene	3.90E-03	8.00E-04	2	50	0.129	2,600	70	1.49E-06	1.00E-02	1.49E-04	14.76%
Xylenes	7.64E-02	8.00E-04	2	50	0.129	2,600	70	2.92E-05	2.00E+00	1.46E-05	1.45%
o-Toluic acid	2.91E+00	8.00E-04	2	50	0.129	2,600	70	1.11E-03	3.00E+00	3.70E-04	36.67%
m-Toluic acid	1.42E+00	8.00E-04	2	50	0.129	2,600	70	5.43E-04	3.00E+00	1.81E-04	17.94%
p-Toluic acid	1.89E-01	8.00E-04	2	50	0.129	2,600	70	7.22E-05	3.00E+00	2.41E-05	2.38%
									HAZ INDEX	1.01E-03	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm³	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm²	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm²)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	1.10E-02	8.00E-04	2	100	0.286	2,600	70	1.87E-05	1.00E-01	1.87E-04	2.53%
1,2-Dichloroethene	3.02E-03	8.00E-04	2	100	0.286	2,600	70	5.13E-06	2.00E-02	2.56E-04	3.47%
Tetrachloroethene	5.60E-03	8.00E-04	2	100	0.286	2,600	70	9.51E-06	1.00E-02	9.51E-04	12.86%
Xylenes	1.76E-01	8.00E-04	2	100	0.286	2,600	70	2.99E-04	2.00E+00	1.49E-04	2.02%
o-Toluic acid	6.74E+00	8.00E-04	2	100	0.286	2,600	70	1.14E-02	3.00E+00	3.81E-03	51.60%
m-Toluic acid	3.20E+00	8.00E-04	2	100	0.286	2,600	70	5.43E-03	3.00E+00	1.81E-03	24.47%
p-Toluic acid	3.98E-01	8.00E-04	2	100	0.286	2,600	70	6.76E-04	3.00E+00	2.25E-04	3.05%
									HAZ INDEX	7.39E-03	

TABLE H-74. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE DEEP BEDROCK WELLS - Round 2 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2	50	0.129	2,600	70	1.53E-06	1.10E-02	1.68E-08	12.57%
Tetrachloroethene	6.00E-03	8.00E-04	2	50	0.129	2,600	70	2.29E-06	5.10E-02	1.17E-07	87.43%
									TOTAL RISK	1.34E-07	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.00E-03	8.00E-04	2	100	0.286	2,600	70	6.79E-06	1.10E-02	7.47E-08	10.19%
Tetrachloroethene	7.60E-03	8.00E-04	2	100	0.286	2,600	70	1.29E-05	5.10E-02	6.58E-07	89.81%
									TOTAL RISK	7.33E-07	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	2.30E-02	8.00E-04	2	50	0.129	2,600	70	8.79E-06	1.00E-01	8.79E-05	7.56%
1,2-Dichloroethene	4.00E-03	8.00E-04	2	50	0.129	2,600	70	1.53E-06	2.00E-02	7.64E-05	6.58%
Tetrachloroethene	6.00E-03	8.00E-04	2	50	0.129	2,600	70	2.29E-06	1.00E-02	2.29E-04	19.73%
Xylenes	5.92E-02	8.00E-04	2	50	0.129	2,600	70	2.26E-05	2.00E+00	1.13E-05	0.97%
o-Toluic acid	2.85E+00	8.00E-04	2	50	0.129	2,600	70	1.09E-03	3.00E+00	3.63E-04	31.28%
m-Toluic acid	2.85E+00	8.00E-04	2	50	0.129	2,600	70	1.09E-03	3.00E+00	3.63E-04	31.28%
p-Toluic acid	2.37E-01	8.00E-04	2	50	0.129	2,600	70	9.07E-05	3.00E+00	3.02E-05	2.60%
									HAZ INDEX	1.16E-03	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	2.30E-02	8.00E-04	2	100	0.286	2,600	70	3.91E-05	1.00E-01	3.91E-04	3.64%
1,2-Dichloroethene	4.00E-03	8.00E-04	2	100	0.286	2,600	70	6.79E-06	2.00E-02	3.40E-04	3.16%
Tetrachloroethene	7.60E-03	8.00E-04	2	100	0.286	2,600	70	1.29E-05	1.00E-02	1.29E-03	12.02%
Xylenes	1.44E-01	8.00E-04	2	100	0.286	2,600	70	2.45E-04	2.00E+00	1.22E-04	1.14%
o-Toluic acid	7.31E+00	8.00E-04	2	100	0.286	2,600	70	1.24E-02	3.00E+00	4.14E-03	38.52%
m-Toluic acid	7.31E+00	8.00E-04	2	100	0.286	2,600	70	1.24E-02	3.00E+00	4.14E-03	38.52%
p-Toluic acid	5.72E-01	8.00E-04	2	100	0.286	2,600	70	9.71E-04	3.00E+00	3.24E-04	3.02%
									HAZ INDEX	1.07E-02	

TABLE H-75. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE MIXED BEDROCK WELLS - Round 1 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.35E-02	8.00E-04	2	50	0.129	2,600	70	8.98E-06	1.10E-02	9.88E-08	0.42%
Benzene	3.00E-03	4.10E-01	2	50	0.129	2,600	70	5.87E-04	2.90E-02	1.70E-05	72.25%
Vinyl chloride	3.00E-03	8.00E-04	2	50	0.129	2,600	70	1.15E-06	1.90E+00	2.18E-06	9.24%
Tetrachloroethene	2.19E-01	8.00E-04	2	50	0.129	2,600	70	8.37E-05	5.10E-02	4.27E-06	18.10%
									TOTAL RISK	2.36E-05	

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	5.13E-02	8.00E-04	2	100	0.286	2,600	70	8.71E-05	1.10E-02	9.58E-07	0.71%
Benzene	3.00E-03	4.10E-01	2	100	0.286	2,600	70	2.61E-03	2.90E-02	7.57E-05	55.82%
Vinyl chloride	3.00E-03	8.00E-04	2	100	0.286	2,600	70	5.09E-06	1.90E+00	9.68E-06	7.14%
Tetrachloroethene	5.69E-01	8.00E-04	2	100	0.286	2,600	70	9.66E-04	5.10E-02	4.93E-05	36.33%
									TOTAL RISK	1.36E-04	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm³	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm²	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm²)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	2.30E-02	8.00E-04	2	50	0.129	2,600	70	8.79E-06	1.00E-01	8.79E-05	0.75%
1,2-Dichloroethene	3.68E-02	8.00E-04	2	50	0.129	2,600	70	1.41E-05	2.00E-02	7.03E-04	5.99%
Tetrachloroethene	2.19E-01	8.00E-04	2	50	0.129	2,600	70	8.37E-05	1.00E-02	8.37E-03	71.30%
Xylenes	3.75E-01	8.00E-04	2	50	0.129	2,600	70	1.43E-04	2.00E+00	7.17E-05	0.61%
o-Toluic acid	1.31E+01	8.00E-04	2	50	0.129	2,600	70	4.99E-03	3.00E+00	1.66E-03	14.16%
m-Toluic acid	5.91E+00	8.00E-04	2	50	0.129	2,600	70	2.26E-03	3.00E+00	7.53E-04	6.42%
p-Toluic acid	7.05E-01	8.00E-04	2	50	0.129	2,600	70	2.69E-04	3.00E+00	8.98E-05	0.77%
									HAZ INDEX	1.17E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

GW Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm³	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm²	x	1/70 kg	x	1/1000	= CDI

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm²)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	4.19E-02	8.00E-04	2	100	0.286	2,600	70	7.11E-05	1.00E-01	7.11E-04	1.07%
1,2-Dichloroethene	3.68E-02	8.00E-04	2	100	0.286	2,600	70	6.25E-05	2.00E-02	3.12E-03	4.69%
Tetrachloroethene	2.19E-01	8.00E-04	2	100	0.286	2,600	70	3.72E-04	1.00E-02	3.72E-02	55.80%
Xylenes	7.50E-01	8.00E-04	2	100	0.286	2,600	70	1.27E-03	2.00E+00	6.37E-04	0.96%
o-Toluic acid	2.85E+01	8.00E-04	2	100	0.286	2,600	70	4.85E-02	3.00E+00	1.62E-02	24.25%
m-Toluic acid	1.39E+01	8.00E-04	2	100	0.286	2,600	70	2.36E-02	3.00E+00	7.86E-03	11.80%
p-Toluic acid	1.69E+00	8.00E-04	2	100	0.286	2,600	70	2.88E-03	3.00E+00	9.59E-04	1.44%
									HAZ INDEX	6.66E-02	

TABLE H-76. DERMAL CONTACT WITH GROUNDWATER - Industrial Use
ON-SITE MIXED BEDROCK WELLS - Round 2 Data
FUTURE-USE SCENARIO

CARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	50 days / year	x	9 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.01E-02	8.00E-04	2	50	0.129	2,600	70	3.86E-06	1.10E-02	4.24E-08	0.13%
Benzene	4.00E-03	4.10E-01	2	50	0.129	2,600	70	7.83E-04	2.90E-02	2.27E-05	70.81%
Vinyl chloride	1.22E-02	8.00E-04	2	50	0.129	2,600	70	4.66E-06	1.90E+00	8.86E-06	27.61%
Tetrachloroethene	2.33E-02	8.00E-04	2	50	0.129	2,600	70	8.90E-06	5.10E-02	4.54E-07	1.42%
4,4'-DDE	9.00E-05	8.00E-04	2	50	0.129	2,600	70	3.44E-08	3.40E-01	1.17E-08	0.04%

TOTAL RISK 3.21E-05

CARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

Seep Conc	x	Dermal Permability	x	Hrs exp / day	x	Days exp / year	x	Yrs exp / Yrs lifetime	x	Skin Surface area	x	1 / Body wt	x	1 liter / 1000 cm^3	= CDI
mg/L	x	cm/hr	x	2 hrs / day	x	100 days / year	x	20 yrs / 70 yrs	x	2600 cm^2	x	1/70 kg	x	1/1000	= CDI

Compound	GW Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	1.58E-02	8.00E-04	2	100	0.286	2,600	70	2.68E-05	1.10E-02	2.95E-07	0.06%
Benzene	1.80E-02	4.10E-01	2	100	0.286	2,600	70	1.57E-02	2.90E-02	4.54E-04	87.51%
Vinyl chloride	1.88E-02	8.00E-04	2	100	0.286	2,600	70	3.19E-05	1.90E+00	6.07E-05	11.68%
Tetrachloroethene	4.41E-02	8.00E-04	2	100	0.286	2,600	70	7.49E-05	5.10E-02	3.82E-06	0.74%
4,4'-DDE	1.50E-04	8.00E-04	2	100	0.286	2,600	70	2.55E-07	3.40E-01	8.66E-08	0.02%

TOTAL RISK 5.19E-04

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - AVERAGE DERMAL CONTACT: Adults

$$\text{GW Conc} \times \text{Dermal Permability} \times \frac{\text{Hrs exp}}{\text{day}} \times \frac{\text{Days exp}}{\text{year}} \times \frac{\text{Yrs exp}}{\text{Yrs lifetime}} \times \text{Skin Surface area} \times \frac{1}{\text{Body wt}} \times \frac{1 \text{ liter}}{1000 \text{ cm}^3} = \text{CDI}$$

$$\text{mg/L} \times \text{cm/hr} \times \frac{2 \text{ hrs}}{\text{day}} \times \frac{50 \text{ days}}{\text{year}} \times \frac{9 \text{ yrs}}{70 \text{ yrs}} \times 2600 \text{ cm}^2 \times 1/70 \text{ kg} \times 1/1000 = \text{CDI}$$

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	1.53E-02	8.00E-04	2	50	0.129	2,600	70	5.85E-06	1.00E-01	5.85E-05	0.39%
1,2-Dichloroethene	2.64E-01	8.00E-04	2	50	0.129	2,600	70	1.01E-04	2.00E-02	5.04E-03	34.01%
Tetrachloroethene	4.41E-02	8.00E-04	2	50	0.129	2,600	70	1.68E-05	1.00E-02	1.68E-03	11.37%
Xylenes	6.36E-01	8.00E-04	2	50	0.129	2,600	70	2.43E-04	2.00E+00	1.21E-04	0.82%
o-Toluic acid	2.72E+01	8.00E-04	2	50	0.129	2,600	70	1.04E-02	3.00E+00	3.46E-03	23.36%
m-Toluic acid	1.74E+01	8.00E-04	2	50	0.129	2,600	70	6.65E-03	3.00E+00	2.22E-03	14.95%
p-Toluic acid	1.76E+01	8.00E-04	2	50	0.129	2,600	70	6.71E-03	3.00E+00	2.24E-03	15.09%
									HAZ INDEX	1.48E-02	

NONCARCINOGENIC COMPOUNDS IN GROUNDWATER - PLAUSIBLE MAXIMUM DERMAL CONTACT: Adults

$$\text{GW Conc} \times \text{Dermal Permability} \times \frac{\text{Hrs exp}}{\text{day}} \times \frac{\text{Days exp}}{\text{year}} \times \frac{\text{Yrs exp}}{\text{Yrs lifetime}} \times \text{Skin Surface area} \times \frac{1}{\text{Body wt}} \times \frac{1 \text{ liter}}{1000 \text{ cm}^3} = \text{CDI}$$

$$\text{mg/L} \times \text{cm/hr} \times \frac{2 \text{ hrs}}{\text{day}} \times \frac{100 \text{ days}}{\text{year}} \times \frac{20 \text{ yrs}}{70 \text{ yrs}} \times 2600 \text{ cm}^2 \times 1/70 \text{ kg} \times 1/1000 = \text{CDI}$$

Compound	Water Conc (mg/L)	Dermal Permability (cm/hr)	Hrs exp day	Days exp year	Yrs exp Yrs lifetime	Skin Surface Area (cm^2)	Body wt (kg)	CDI	RfD	RISK (CDI/RfD)	% TOTAL HAZARD
Acetone	2.36E-02	8.00E-04	2	100	0.286	2,600	70	4.01E-05	1.00E-01	4.01E-04	0.38%
1,2-Dichloroethene	2.64E-01	8.00E-04	2	100	0.286	2,600	70	4.48E-04	2.00E-02	2.24E-02	20.97%
Tetrachloroethene	4.41E-02	8.00E-04	2	100	0.286	2,600	70	7.49E-05	1.00E-02	7.49E-03	7.01%
Xylenes	6.36E-01	8.00E-04	2	100	0.286	2,600	70	1.08E-03	2.00E+00	5.40E-04	0.51%
o-Toluic acid	5.59E+01	8.00E-04	2	100	0.286	2,600	70	9.50E-02	3.00E+00	3.17E-02	29.64%
m-Toluic acid	3.53E+01	8.00E-04	2	100	0.286	2,600	70	6.00E-02	3.00E+00	2.00E-02	18.71%
p-Toluic acid	4.30E+01	8.00E-04	2	100	0.286	2,600	70	7.30E-02	3.00E+00	2.43E-02	22.79%
									HAZ INDEX	1.07E-01	

TABLE H-77. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 1 Upper Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	3	1	2	1.583
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	37.9	1	2	15.123
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	1	1	2	0.476
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	368	1	2	135.377

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	1.583	10	7,500	0.002	0.5	15	20	0.000
Trichloroethene	15.123	10	7,500	0.020	0.5	15	20	0.003
Benzene	0.476	10	7,500	0.001	0.5	15	20	0.000
Tetrachloroethene	135.377	10	7,500	0.181	0.5	15	20	0.030

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.0	0.83	0.002	70	0.5	15	20	0.129	9.55E-08	3.00E-01	2.86E-08	48.00%
Trichloroethene	37.9	0.83	0.020	70	0.5	15	20	0.129	9.12E-07	1.70E-02	1.55E-08	25.98%
Benzene	1.0	0.83	0.001	70	0.5	15	20	0.129	2.87E-08	2.90E-02	8.32E-10	1.39%
Tetrachloroethene	368.0	0.83	0.181	70	0.5	15	20	0.129	8.16E-06	1.80E-03	1.47E-08	24.62%

TOTAL RISK	5.97E-08

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	3	1	2	1.583
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	74.3	1	2	29.647
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	1	1	2	0.476
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	835	1	2	307.173

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	1.583	10	7,500	0.002	0.5	15	20	0.000
Trichloroethene	29.647	10	7,500	0.040	0.5	15	20	0.006
Benzene	0.476	10	7,500	0.001	0.5	15	20	0.000
Tetrachloroethene	307.173	10	7,500	0.410	0.5	15	20	0.067

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.0	0.83	0.002	70	0.5	15	20	0.286	2.12E-07	3.00E-01	6.37E-08	30.73%
Trichloroethene	74.3	0.83	0.040	70	0.5	15	20	0.286	3.97E-06	1.70E-02	6.75E-08	32.61%
Benzene	1.0	0.83	0.001	70	0.5	15	20	0.286	6.37E-08	2.90E-02	1.85E-09	0.89%
Tetrachloroethene	835.0	0.83	0.410	70	0.5	15	20	0.286	4.12E-05	1.80E-03	7.41E-08	35.77%

TOTAL RISK	2.07E-07

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	53.5	1	2	23.495
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	368	1	2	135.377

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	23.495	10	7,500	0.031	0.5	15	20	0.005
Tetrachloroethene	135.377	10	7,500	0.181	0.5	15	20	0.030

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	53.5	0.83	0.031	70	0.5	15	20	0.129	1.42E-06	2.00E-02	7.09E-05	8.0%
Tetrachloroethene	368.0	0.83	0.181	70	0.5	15	20	0.129	8.16E-06	1.00E-02	8.16E-04	92.0%

TOTAL HAZARD INDEX	8.87E-04

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	89.6	1	2	39.349
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	835	1	2	307.173

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	39.349	10	7,500	0.052	0.5	15	20	0.009
Tetrachloroethene	307.173	10	7,500	0.410	0.5	15	20	0.067

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	89.6	1.25	0.052	70	0.5	15	20	0.286	7.94E-06	2.00E-02	3.97E-04	44.8%
Tetrachloroethene	835.0	1.25	0.410	70	0.5	15	20	0.286	6.20E-05	1.00E-02	6.20E-03	698.7%

TOTAL HAZARD INDEX	6.60E-03

TABLE H-78. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 2 Upper Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WAS ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	14.4	1	2	7.600
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	11.8	1	2	4.708
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	4	1	2	1.902
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	7.600	10	7,500	0.010	0.5	15	20	0.002
Trichloroethene	4.708	10	7,500	0.006	0.5	15	20	0.001
Benzene	1.902	10	7,500	0.003	0.5	15	20	0.000
Tetrachloroethene	10.558	10	7,500	0.014	0.5	15	20	0.002

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	14.4	0.83	0.010	70	0.5	15	20	0.129	4.58E-07	3.00E-01	1.38E-07	93.67%
Trichloroethene	11.8	0.83	0.006	70	0.5	15	20	0.129	2.84E-07	1.70E-02	4.83E-09	3.29%
Benzene	4.0	0.83	0.003	70	0.5	15	20	0.129	1.15E-07	2.90E-02	3.33E-09	2.27%
Tetrachloroethene	28.7	0.83	0.014	70	0.5	15	20	0.129	6.37E-07	1.80E-03	1.15E-09	0.78%
								TOTAL RISK			1.47E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	21	1	2	11.084
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	19	1	2	7.581
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	4	1	2	1.902
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	11.084	10	7,500	0.015	0.5	15	20	0.002
Trichloroethene	7.581	10	7,500	0.010	0.5	15	20	0.002
Benzene	1.902	10	7,500	0.003	0.5	15	20	0.000
Tetrachloroethene	20.343	10	7,500	0.027	0.5	15	20	0.004

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	21.0	1.25	0.015	70	0.5	15	20	0.286	2.24E-06	3.00E-01	6.71E-07	93.78%
Trichloroethene	19.0	1.25	0.010	70	0.5	15	20	0.286	1.53E-06	1.70E-02	2.60E-08	3.63%
Benzene	4.0	1.25	0.003	70	0.5	15	20	0.286	3.84E-07	2.90E-02	1.11E-08	1.56%
Tetrachloroethene	55.3	1.25	0.027	70	0.5	15	20	0.286	4.11E-06	1.80E-03	7.39E-09	1.03%
									TOTAL RISK		7.16E-07	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	144	1	2	63.239
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	63.239	10	7,500	0.084	0.5	15	20	0.014
Tetrachloroethene	10.558	10	7,500	0.014	0.5	15	20	0.002

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	144.0	0.83	0.084	70	0.5	15	20	0.129	3.81E-06	2.00E-02	1.91E-04	75.0%
Tetrachloroethene	28.7	0.83	0.014	70	0.5	15	20	0.129	6.37E-07	1.00E-02	6.37E-05	25.0%

TOTAL HAZARD INDEX	2.54E-04

NON-CARCINOGENS - PLAUSIBLE MAXIMUN EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	342	1	2	150.192
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	150.192	10	7,500	0.200	0.5	15	20	0.033
Tetrachloroethene	20.343	10	7,500	0.027	0.5	15	20	0.004

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	342.0	1.25	0.200	70	0.5	15	20	0.286	3.03E-05	2.00E-02	1.52E-03	595.9%
Tetrachloroethene	55.3	1.25	0.027	70	0.5	15	20	0.286	4.11E-06	1.00E-02	4.11E-04	161.4%

TOTAL HAZARD INDEX	1.93E-03

TABLE H-79. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 1 Deep Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WAS ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	2.7	1	2	1.077
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	2.5	1	2	1.189
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	3.8	1	2	1.398

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.077	10	7,500	0.001	0.5	15	20	0.000
Benzene	1.189	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	1.398	10	7,500	0.002	0.5	15	20	0.000

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	2.7	0.83	0.001	70	0.5	15	20	0.129	6.50E-08	1.70E-02	1.10E-09	33.11%
Benzene	2.5	0.83	0.002	70	0.5	15	20	0.129	7.17E-08	2.90E-02	2.08E-09	62.34%
Tetrachloroethene	3.8	0.83	0.002	70	0.5	15	20	0.129	8.43E-08	1.80E-03	1.52E-10	4.55%

TOTAL RISK	3.34E-09

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	3	1	2	1.197
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	2.6	1	2	1.236
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	5.6	1	2	2.060

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.197	10	7,500	0.002	0.5	15	20	0.000
Benzene	1.236	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	2.060	10	7,500	0.003	0.5	15	20	0.000

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	3.0	1.25	0.002	70	0.5	15	20	0.286	2.42E-07	1.70E-02	4.11E-09	33.96%
Benzene	2.6	1.25	0.002	70	0.5	15	20	0.286	2.50E-07	2.90E-02	7.24E-09	59.85%
Tetrachloroethene	5.6	1.25	0.003	70	0.5	15	20	0.286	4.16E-07	1.80E-03	7.48E-10	6.19%
									TOTAL RISK		1.21E-08	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	7.8	1	2	0.841
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	12.6	1	2	5.532
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	3.8	1	2	1.398
Xylenes	107	5.35E-03	1231.20	12.83	45	0.5960	12.259	16.527	76.4	1	2	32.360

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	0.841	10	7,500	0.001	0.5	15	20	0.000
1,2-Dichloroethene	5.532	10	7,500	0.007	0.5	15	20	0.001
Tetrachloroethene	1.398	10	7,500	0.002	0.5	15	20	0.000
Xylenes	32.360	10	7,500	0.043	0.5	15	20	0.007

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	7.8	0.83	0.001	70	0.5	15	20	0.129	5.07E-08	1.00E-01	5.07E-07	1.9%
1,2-Dichloroethene	12.6	0.83	0.007	70	0.5	15	20	0.129	3.34E-07	2.00E-02	1.67E-05	62.7%
Tetrachloroethene	3.8	0.83	0.002	70	0.5	15	20	0.129	8.43E-08	1.00E-02	8.43E-06	31.7%
Xylenes	76.4	0.83	0.043	70	0.5	15	20	0.129	1.95E-06	2.00E+00	9.76E-07	3.7%

TOTAL HAZARD INDEX	2.66E-05

NON-CARCINOGENS - PLAUSIBLE MAXIMUN EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	11	1	2	1.186
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	30.2	1	2	13.260
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	5.6	1	2	2.060
Xylenes	107	5.35E-03	1231.20	12.83	45	0.5960	12.259	16.527	176	1	2	74.547

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.186	10	7,500	0.002	0.5	15	20	0.000
1,2-Dichloroethene	13.260	10	7,500	0.018	0.5	15	20	0.003
Tetrachloroethene	2.060	10	7,500	0.003	0.5	15	20	0.000
Xylenes	74.547	10	7,500	0.099	0.5	15	20	0.016

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	11.0	1.25	0.002	70	0.5	15	20	0.286	2.39E-07	1.00E-01	2.39E-06	9.0%
1,2-Dichloroethene	30.2	1.25	0.018	70	0.5	15	20	0.286	2.68E-06	2.00E-02	1.34E-04	503.2%
Tetrachloroethene	5.6	1.25	0.003	70	0.5	15	20	0.286	4.16E-07	1.00E-02	4.16E-05	156.3%
Xylenes	176.0	1.25	0.099	70	0.5	15	20	0.286	1.50E-05	2.00E+00	7.52E-06	28.3%
									TOTAL HAZARD INDEX		1.85E-04	

TABLE H-80. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 2 Deep Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WAS ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	6	1	2	2.207

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	2.207	10	7,500	0.003	0.5	15	20	0.000

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	0.83	0.002	70	0.5	15	20	0.129	9.63E-08	1.70E-02	1.64E-09	87.23%
Tetrachloroethene	6.0	0.83	0.003	70	0.5	15	20	0.129	1.33E-07	1.80E-03	2.40E-10	12.77%
									TOTAL RISK		1.88E-09	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	4	1	2	1.596
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7.6	1	2	2.796

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Trichloroethene	1.596	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	2.796	10	7,500	0.004	0.5	15	20	0.001

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Trichloroethene	4.0	1.25	0.002	70	0.5	15	20	0.286	3.22E-07	1.70E-02	5.48E-09	84.35%
Tetrachloroethene	7.6	1.25	0.004	70	0.5	15	20	0.286	5.64E-07	1.80E-03	1.02E-09	15.65%
									TOTAL RISK		6.49E-09	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	12	1	2	1.294
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	6	1	2	2.207
Xylenes	107	5.35E-03	1231.20	12.83	45	0.5960	12.259	16.527	59.2	1	2	25.075

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	1.294	10	7,500	0.002	0.5	15	20	0.000
1,2-Dichloroethene	1.756	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	2.207	10	7,500	0.003	0.5	15	20	0.000
Xylenes	25.075	10	7,500	0.033	0.5	15	20	0.005

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	12.0	0.83	0.002	70	0.5	15	20	0.129	7.80E-08	1.00E-01	7.80E-07	3.9%
1,2-Dichloroethene	4.0	0.83	0.002	70	0.5	15	20	0.129	1.06E-07	2.00E-02	5.30E-06	26.3%
Tetrachloroethene	6.0	0.83	0.003	70	0.5	15	20	0.129	1.33E-07	1.00E-02	1.33E-05	66.1%
Xylenes	59.2	0.83	0.033	70	0.5	15	20	0.129	1.51E-06	2.00E+00	7.56E-07	3.8%

TOTAL HAZARD INDEX	2.01E-05

TABLE H-80 (Continued)

NON-CARCINOGENS - PLAUSIBLE MAXIMUM EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Acetone	58	4.28E-05	1670.11	17.41	45	0.5960	2.539	3.423	23	1	2	2.480
1,2-Dichloroethene	97	5.30E-03	1292.72	13.47	45	0.5960	12.866	17.345	4	1	2	1.756
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	7.6	1	2	2.796
Xylenes	107	5.35E-03	1231.20	12.83	45	0.5960	12.259	16.527	144	1	2	60.993

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Acetone	2.480	10	7,500	0.003	0.5	15	20	0.001
1,2-Dichloroethene	1.756	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	2.796	10	7,500	0.004	0.5	15	20	0.001
Xylenes	60.993	10	7,500	0.081	0.5	15	20	0.013

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
Acetone	23.0	1.25	0.003	70	0.5	15	20	0.286	5.01E-07	1.00E-01	5.01E-06	24.8%
1,2-Dichloroethene	4.0	1.25	0.002	70	0.5	15	20	0.286	3.55E-07	2.00E-02	1.77E-05	88.0%
Tetrachloroethene	7.6	1.25	0.004	70	0.5	15	20	0.286	5.64E-07	1.00E-02	5.64E-05	280.1%
Xylenes	144.0	1.25	0.081	70	0.5	15	20	0.286	1.23E-05	2.00E+00	6.16E-06	30.6%

TOTAL HAZARD INDEX	8.53E-05

TABLE H-81. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 1 Mixed Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	3	1	2	1.583
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	23.5	1	2	9.377
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	3	1	2	1.427
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	219	1	2	80.564

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	1.583	10	7,500	0.002	0.5	15	20	0.000
Trichloroethene	9.377	10	7,500	0.013	0.5	15	20	0.002
Benzene	1.427	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	80.564	10	7,500	0.107	0.5	15	20	0.018

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.0	0.83	0.002	70	0.5	15	20	0.129	9.55E-08	3.00E-01	2.86E-08	57.87%
Trichloroethene	23.5	0.83	0.013	70	0.5	15	20	0.129	5.66E-07	1.70E-02	9.61E-09	19.42%
Benzene	3.0	0.83	0.002	70	0.5	15	20	0.129	8.60E-08	2.90E-02	2.50E-09	5.04%
Tetrachloroethene	219.0	0.83	0.107	70	0.5	15	20	0.129	4.86E-06	1.80E-03	8.75E-09	17.67%
										TOTAL RISK		4.95E-08

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	3	1	2	1.583
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	51.3	1	2	20.470
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	3	1	2	1.427
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	569	1	2	209.319

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	1.583	10	7,500	0.002	0.5	15	20	0.000
Trichloroethene	20.470	10	7,500	0.027	0.5	15	20	0.004
Benzene	1.427	10	7,500	0.002	0.5	15	20	0.000
Tetrachloroethene	209.319	10	7,500	0.279	0.5	15	20	0.046

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	3.0	0.83	0.002	70	0.5	15	20	0.286	2.12E-07	3.00E-01	6.37E-08	38.27%
Trichloroethene	51.3	0.83	0.027	70	0.5	15	20	0.286	2.74E-06	1.70E-02	4.66E-08	28.04%
Benzene	3.0	0.83	0.002	70	0.5	15	20	0.286	1.91E-07	2.90E-02	5.55E-09	3.33%
Tetrachloroethene	569.0	0.83	0.279	70	0.5	15	20	0.286	2.81E-05	1.80E-03	5.05E-08	30.36%
										TOTAL RISK		1.66E-07

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	36.8	1	2	16.161
Xylenes	107	5.35E-03	1230.45	12.83	45	0.5960	12.252	16.517	375.4	1	2	158.933
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	219	1	2	80.564

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	16.161	10	7,500	0.022	0.5	15	20	0.004
Xylenes	158.933	10	7,500	0.212	0.5	15	20	0.035
Tetrachloroethene	80.564	10	7,500	0.107	0.5	15	20	0.018

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	36.8	0.83	0.022	70	0.5	15	20	0.129	9.75E-07	2.00E-02	4.87E-05	9.0%
Xylenes	375.4	0.83	0.212	70	0.5	15	20	0.129	9.59E-06	2.00E+00	4.79E-06	0.9%
Tetrachloroethene	219.0	0.83	0.107	70	0.5	15	20	0.129	4.86E-06	1.00E-02	4.86E-04	90.1%

TOTAL HAZARD INDEX	5.39E-04

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	66.6	1	2	29.248
Xylenes	107	5.35E-03	1230.45	12.83	45	0.5960	12.252	16.517	750.5	1	2	317.738
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	569.4	1	2	209.466

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	29.248	10	7,500	0.039	0.5	15	20	0.006
Xylenes	317.738	10	7,500	0.424	0.5	15	20	0.070
Tetrachloroethene	209.466	10	7,500	0.279	0.5	15	20	0.046

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	66.6	1.25	0.039	70	0.5	15	20	0.286	5.90E-06	2.00E-02	2.95E-04	54.7%
Xylenes	750.5	1.25	0.424	70	0.5	15	20	0.286	6.41E-05	2.00E+00	3.21E-05	5.9%
Tetrachloroethene	569.4	1.25	0.279	70	0.5	15	20	0.286	4.23E-05	1.00E-02	4.23E-03	783.8%

TOTAL HAZARD INDEX	4.56E-03

TABLE H-82. INHALATION OF VOLATILE ORGANICS WHILE WASHING VEHICLES
FUTURE-USE INDUSTRIAL SCENARIO - ON-SITE WELLS
Round 2 Mixed Bedrock Wells

CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	14.4	1	2	7.600
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	11.8	1	2	4.708
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	4	1	2	1.902
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (l/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	7.600	10	7,500	0.010	0.5	15	20	0.002
Trichloroethene	4.708	10	7,500	0.006	0.5	15	20	0.001
Benzene	1.902	10	7,500	0.003	0.5	15	20	0.000
Tetrachloroethene	10.558	10	7,500	0.014	0.5	15	20	0.002

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	14.4	0.83	0.010	70	0.5	15	20	0.129	4.58E-07	3.00E-01	1.38E-07	93.67%
Trichloroethene	11.8	0.83	0.006	70	0.5	15	20	0.129	2.84E-07	1.70E-02	4.83E-09	3.29%
Benzene	4.0	0.83	0.003	70	0.5	15	20	0.129	1.15E-07	2.90E-02	3.33E-09	2.27%
Tetrachloroethene	28.7	0.83	0.014	70	0.5	15	20	0.129	6.37E-07	1.80E-03	1.15E-09	0.78%
									TOTAL RISK		1.47E-07	

CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE

STEP 1 - VOC RELEASE TO SHOWER ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
Vinyl chloride	62	2.78E-02	1616.45	16.85	45	0.5960	16.698	22.511	21	1	2	11.084
Trichloroethene	131	1.17E-02	1110.39	11.57	45	0.5960	11.331	15.276	19	1	2	7.581
Benzene	78	5.55E-03	1440.14	15.01	45	0.5960	14.363	19.362	4	1	2	1.902
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Shower duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
Vinyl chloride	11.084	10	7,500	0.015	0.5	15	20	0.002
Trichloroethene	7.581	10	7,500	0.010	0.5	15	20	0.002
Benzene	1.902	10	7,500	0.003	0.5	15	20	0.000
Tetrachloroethene	20.343	10	7,500	0.027	0.5	15	20	0.004

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	SF	RISK (CDI*SF)	% TOTAL RISK
Vinyl chloride	21.0	0.83	0.015	70	0.5	15	20	0.286	1.49E-06	3.00E-01	4.46E-07	93.78%
Trichloroethene	19.0	0.83	0.010	70	0.5	15	20	0.286	1.02E-06	1.70E-02	1.73E-08	3.63%
Benzene	4.0	0.83	0.003	70	0.5	15	20	0.286	2.55E-07	2.90E-02	7.39E-09	1.56%
Tetrachloroethene	55.3	0.83	0.027	70	0.5	15	20	0.286	2.73E-06	1.80E-03	4.91E-09	1.03%
									TOTAL RISK		4.75E-07	

NON-CARCINOGENS - AVERAGE GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	144.4	1	2	63.415
Xylenes	107	5.35E-03	1230.45	12.83	45	0.5960	12.252	16.517	454.1	1	2	192.252
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	28.7	1	2	10.558

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	63.415	10	7,500	0.085	0.5	15	20	0.014
Xylenes	192.252	10	7,500	0.256	0.5	15	20	0.042
Tetrachloroethene	10.558	10	7,500	0.014	0.5	15	20	0.002

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	144.4	0.83	0.085	70	0.5	15	20	0.129	3.82E-06	2.00E-02	1.91E-04	73.4%
Xylenes	454.1	0.83	0.256	70	0.5	15	20	0.129	1.16E-05	2.00E+00	5.80E-06	2.2%
Tetrachloroethene	28.7	0.83	0.014	70	0.5	15	20	0.129	6.37E-07	1.00E-02	6.37E-05	24.4%

TOTAL HAZARD INDEX	2.61E-04

NON-CARCINOGENS - PLAUSIBLE MAXIMUM GROUNDWATER EXPOSURE: Adult

STEP 1 - VOC RELEASE TO TRUCK WASH ROOM AIR

Compound	MW	HLC	Kg	Kl	Water temp (C)	Mu2	KL	KaL	Conc (ug/L)	Drop Diam (mm)	Drop time (sec)	Cwd
1,2-Dichlorothene	97	5.33E-03	1292.72	13.47	45	0.5960	12.870	17.350	342.4	1	2	150.368
Xylenes	107	5.35E-03	1230.45	12.83	45	0.5960	12.252	16.517	796.9	1	2	337.383
Tetrachloroethene	166	2.68E-02	988.38	10.30	45	0.5960	10.207	13.760	55.3	1	2	20.343

STEP 2 - VOLATILE GENERATION RATE

Compound	Cwd	Flow rate (L/min)	Air volume (m^3)	VOC Gen (ug/m^3-min)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Indoor Air Conc (ug/m^3) *
1,2-Dichlorothene	150.368	10	7,500	0.200	0.5	15	20	0.033
Xylenes	337.383	10	7,500	0.450	0.5	15	20	0.074
Tetrachloroethene	20.343	10	7,500	0.027	0.5	15	20	0.004

* VOC concentration at end of total time

STEP 3 - RISK CALCULATION

Compound	Conc (ug/L)	Inh Rate (m^3/min)	VOC.Gen (ug/m^3-min)	Body wt (kg)	Air Exch Rate (min^{-1})	Wash duration (min)	Total time (min)	Yrs exposed / Yrs lifetime	CDI (mg/kg-day)	RfD	CDI/RfD	% TOTAL HAZARD
1,2-Dichlorothene	342.4	1.25	0.200	70	0.5	15	20	0.286	3.04E-05	2.00E-02	1.52E-03	582.1%
Xylenes	796.9	1.25	0.450	70	0.5	15	20	0.286	6.81E-05	2.00E+00	3.41E-05	13.1%
Tetrachloroethene	55.3	1.25	0.027	70	0.5	15	20	0.286	4.11E-06	1.00E-02	4.11E-04	157.5%
									TOTAL HAZARD INDEX		1.96E-03	