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BASELINE HUMAN HEALTH RISK ASSESSMENT FOR THE OGDEN RAILYARD SITE OGDEN, UTAH

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LIST OF ACRONYMS AND ABBREVIATIONS

AF	Absorption Fraction
Ah	Aryl Hydrocarbon
AOI	Area of Interest
AT	Averaging Time
AtF	Attenuation Factor
BKSF	Biokinetic Slope Factor for lead
BW	Body Weight
C	Concentration of a chemical in an environmental medium
COPC	Chemical of Potential Concern
CTE	Central Tendency Exposure
DCE	1,2-Dichloroethene
DI	Daily Intake of a chemical
DI_L	Daily Intake - Lifetime Average
DNAPL	Dense Non-Aqueous Phase Liquid
D&RGW	Denver & Rio Grande Western Railroad
ED	Exposure Duration
EF	Exposure Frequency
EOP	Estimated Order of Potency
EPC	Exposure Point Concentration
GSD	Geometric Standard Deviation
HEAST	Health Effects Assessment Summary Table
HI	Hazard Index
HIF	Human Intake Factor
HQ	Hazard Quotient
IR	Ingestion Rate
IRIS	Integrated Risk Information System
LOAEL	Lowest-Observed-Adverse-Effect-Level
NCEA	National Center for Environmental Assessment
NOAEL	No-Observed-Adverse-Effect-Level
OUR&D	Ogden Union Railway & Depot Company
P10	Probability of blood lead concentration exceeding 10 ug/dL
PAH	Polyaromatic Hydrocarbon
PbB	Blood Lead Concentration (ug/dL)
PbS	Mean Lead Concentration in Soil
PCB	Polychlorinated Biphenyl
PEF	Particulate Emission Factor

LIST OF ACRONYMS AND ABBREVIATIONS (cont.)

RAGS	Risk Assessment Guidance for Superfund
RBC	Risk-Based Concentration
RfD	Reference Dose
RI	Remedial Investigation
RME	Reasonable Maximum Exposure
SAP	Sampling and Analysis Plan
SF	Cancer Slope Factor
SPRR	Southern Pacific Railroad
TCE	Trichloroethene
TCDD	2,3,7,8-Tetrachlorodibenzo-*para*-dioxin
TEF	Toxicity Equivalency Factor
TF	Transfer Factor
TEQ	TCDD Equivalent Concentration
UCL	Upper Confidence Limit of the Mean
UPRR	Union Pacific Railroad
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

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EXECUTIVE SUMMARY
OGDEN RAILYARD HUMAN HEALTH RISK ASSESSMENT

INTRODUCTION

This document is a baseline human health risk assessment for the Ogden Railyard Superfund site, located in Ogden, Utah. The purpose of this document is to assess the potential risks to humans, both now and in the future, from contaminants in sediment, surface water, soils, groundwater and soil gas that are present on the railyard site ("on-yard") and in nearby areas surrounding the site ("off-yard"), assuming that no steps are taken to remediate or cleanup the environment or to reduce human contact with the contaminated media. The methods used to evaluate risks to humans and the environment in this baseline risk assessment are consistent with current guidelines provided by the United States Environmental Protection Agency (USEPA) for use at Superfund sites.

The results of this baseline risk assessment are intended to help inform risk managers and the public about potential risks which are attributable to site-related contaminants and to help determine the need for remedial action.

SITE CHARACTERIZATION

The Ogden Railyard Site is located in Weber County, Utah, just west of the City of Ogden. A general map of the site is shown in Figure ES-1. The railyard extends from Riverdale Road on the south to the 20th Street overpass on the north, a distance of about 3.4 miles. The site is bounded on the west by the Weber River and on the east by Wall Avenue and Pacific Avenue in the City of Ogden.

The site has been used as a railyard since 1869. Since that time, four railroad companies, including the Union Pacific Railroad (UPRR), Southern Pacific Railroad, Denver and Rio Grande Western Railroad, and the Ogden Union Railway and Depot Company, have built and operated on various portions of the site. The entire yard is currently under the ownership of UPRR, with the exception of a facility owned and operated by Atlas Steel.

At present, the western perimeter of the railyard is a riparian zone along the banks of the Weber River. North of the site is a small pond (the 21st Street Pond) that receives water from the Ogden River and is used by area residents for fishing and may also be used for swimming. The eastern perimeter of the railyard is occupied by a number of railroad-related as well as private industrial facilities. A few residences are located near the site perimeter on the eastern side, with the largest number of residences being located east of Wall Avenue.

DATA SUMMARY AND EVALUATION

The site is of potential human health concern because of various chemicals that have been released to the environment on or near the site. In order to help assess this issue, in 1999 UPRR entered into an Administrative Order on Consent to perform a Remedial Investigation at the railyard. The primary purpose of this study was to characterize chemical contamination associated with the railyard and to determine if there were any releases to nearby off-yard areas west of the site. A Phase 1 Remedial Investigation of the nature and extent of contamination at the site was performed in 1999. The Phase 1 investigation focused on 31 Areas of Interest (AOIs) located on UPRR property, which were identified based on a review of historical aerial photographs. Analysis of soil, sediment, groundwater, and/or surface water at these AOIs revealed the presence of a number of chemicals of potential concern, including:

- Diesel fuel, grease, oils, and associated petroleum hydrocarbons
- Chlorinated solvents and associated degradation products (e.g., vinyl chloride)
- Metals
- Polycyclic aromatic hydrocarbons (PAHs)

The USEPA and the Utah Department of Environmental Quality reviewed the adequacy of the Phase 1 data to support reliable human health and ecological risk evaluations for the railyard area, and recommended additional sampling and analysis of environmental media be performed. This additional sampling is referred to as the Phase 2 investigation. During the Phase 2 investigation, two important new concerns associated with the site were identified:

- A large plume of dense non-aqueous phase liquid (DNAPL) was discovered below the ground surface at the northern end of the site. This DNAPL zone is suspected to originate at the location of a former Pintsch Gas Process plant that produced gas from petroleum products (manufactured gas). The DNAPL zone extends towards the north,

coming into direct contact with the east end of the 21st Street Pond and extending under the Ogden River.

- Polychlorinated biphenyls (PCBs) were detected in tissues of fish collected from the 21st Street Pond as well as in sediments collected from the 21st Street Pond and the Ogden River. The source of the PCBs is presently unknown.

These two new concerns generated the need to collect additional samples specifically designed to characterize the potential risk to human health and the environment from the DNAPL zone and the PCBs. This additional sampling event is referred to as the Phase 3 investigation.

The data from all of these three phases of investigation are used as the basis for assessing current and potential future risks to humans at the site. These data are presented in electronic format in Appendix A.

EXPOSURE ASSESSMENT

Site Conceptual Model

Figure ES-2 is a site conceptual model that identifies sources of contamination at the site, pathways by which site-related chemicals can migrate from one part of the environment to another, and scenarios by which humans could come into contact with site-related contaminants. Based on this model, the populations most likely to come into contact with site-related chemicals and the exposure pathways that are most likely to be of potential concern are as follows:

Exposed Population	Exposure Medium	Exposure Route
On-yard workers	Soil Soil gas Groundwater	Incidental ingestion Inhalation in buildings Ingestion, Inhalation (VOCs)
Recreational visitors	Soil Surface water Sediment Fish	Incidental ingestion Incidental ingestion Incidental ingestion Ingestion

Exposed Population	Exposure Medium	Exposure Route
Off-site residents	Groundwater Airborne dust Soil gas	Ingestion, Inhalation (VOCs) Inhalation Inhalation in buildings

VOC = Volatile Organic Compound

Selection of Exposure Points

An exposure point (also referred to as an exposure unit or an exposure area) is an area where a receptor (worker, resident, or recreational visitor) may be exposed to one or more contaminated environmental media. Selection of the bounds of an exposure point is based mainly on a consideration of the likely activity patterns of the exposed receptors; that is, an exposure point is an area within which a receptor is likely to spend most of their time and to move about more or less at random.

On-Yard Workers

For on-yard workers, exposures to soil and groundwater were evaluated at each AOI established during the on-site investigations. Potential exposures to volatile organic compounds (VOCs) released into indoor air from soil gas emanating from water and/or soil were evaluated at all AOIs where soil gas data were available.

Off-Yard Residents

For off-site residents, exposure to dust blowing in air was evaluated by dividing the off-yard residential area into four zones and estimating the exposure that would result from dust blowing from adjacent on-yard locations.

For hypothetical future exposure of residents to groundwater, exposures were evaluated based on the conservative assumption that if contaminated groundwater moved off-site, the concentration would remain the same as has been measured at the various on-site source areas (AOIs). Thus, potential future risks to off-yard residents were estimated based on AOI-specific groundwater measurements, similar to the approach used for on-yard workers.

Data are not currently available to identify exposure points or estimate potential exposure concentrations at off-site locations from site-related releases of soil gas. This pathway will be assessed after more data are collected.

Recreational Visitors

Recreational visitors might come into contact with contaminants at a number of different locations along the Weber and the Ogden Rivers. For the purposes of this assessment, a series of 9 areas were identified for use in evaluation of recreational visitor exposures. These are listed below:

River	Designation	Description
Ogden	A	East of Wall Ave; treat as "background"
	B	Wall Ave to 21st Street Pond
	C	Downstream of 21st Street Pond
		21st Street Pond
Weber	A	Upstream (south) of railyard; treat as "background"
	B	From southern end of railyard to 33rd Street
	C	33rd Street to 24th Street
	D	North of 24th Street to confluence with Ogden River
		Buena Ventura Park Pond

Chemicals of Potential Concern

Chemicals of potential concern (COPCs) are chemicals which exist in the environment at concentrations that might be of potential health concern to humans. COPCs in soil and groundwater were identified by comparing the maximum detected concentration of each chemical in each medium to a conservative risk-based concentration (RBC). If the maximum detected concentration was lower than the RBC, it was concluded the chemical was not present at a concentration of potential concern, and that chemical was not evaluated further. If the maximum detected concentration exceeded the RBC, it was identified as a COPC and retained

for quantitative risk evaluation. Table ES-1 summarizes the chemicals that were identified and retained as quantitative COPCs in each medium.

Quantification of Exposure

Exposure of humans to site-related chemicals was quantified using the basic equations recommended by USEPA for use at Superfund sites. This approach requires an estimate of the concentration of each COPC in the exposure medium, and an estimate of the extent of human contact with that environmental medium. These two steps are summarized below.

Calculating the Concentration Term

Ideally, the concentration term used in exposure assessment would be the true arithmetic mean concentration, averaged over the entire point (exposure area) where a person may be exposed. However, because the true arithmetic mean cannot be determined from a small set of environmental samples collected at an exposure point, the USEPA recommends using the 95% upper confidence limit (UCL) on the arithmetic mean of the available samples to ensure that the true risk is not underestimated. If the maximum detected value in an exposure area is smaller than the UCL, the maximum value is used instead. This value (the UCL or the maximum detected value) is referred to as the exposure point concentration (EPC).

In some cases, direct measurements of COPCs in a site medium were not available, so concentrations and EPCs were estimated by mathematical modeling. This approach was used for chemicals in air due to dust erosion into air, and for VOCs in indoor air that result from soil gas intrusion or from release from indoor water uses.

Human Exposure Parameters

For every exposure pathway of potential concern, it is expected that there will be differences between different individuals in the level of exposure at a specific location due to differences in intake rates, body weights, exposure frequencies and exposure durations. Thus, there is normally a wide range of average daily intakes between different members of an exposed population. Typically, attention is focused on intakes that are "average" or are otherwise near the central portion of the range, and on intakes that are near the upper end of the range (e.g., the

95th percentile). These two exposure estimates are referred to as Central Tendency Exposure (CTE) and Reasonable Maximum Exposure (RME), respectively.

The USEPA has collected a wide variety of data and has performed a number of studies to help establish default values for most residential and worker exposure parameters, and some recreational exposure parameters. Whenever possible, human exposure parameters were derived from USEPA guidance. In some cases, no data or guidance was available, and these exposure parameters were selected based on professional judgement. The specific exposure parameters selected for use at this site are detailed in Section 3.4.4 of the main report.

TOXICITY ASSESSMENT

The basic objective of a toxicity assessment is to identify what adverse health effects a chemical causes, and how the occurrence of these adverse effects depends on the level of exposure. In addition, the toxic effects of a chemical frequently depend on the route of exposure (oral, inhalation, dermal) and the duration of exposure (subchronic, chronic or lifetime). Thus, a full description of the toxic effects of a chemical includes a listing of what adverse health effects the chemical may cause, and how the occurrence of these effects depends upon dose, route, and duration of exposure.

The toxicity assessment process is usually divided into two parts: the first characterizes and quantifies the non-cancer effects of the chemical, while the second addresses the cancer effects of the chemical. This two-part approach is employed because there are typically major differences in the time-course of action and the shape of the dose-response curve for cancer and non-cancer effects.

Non-Cancer Effects

Essentially all chemicals can cause adverse health effects if given at a high enough dose. However, when the dose is sufficiently low, typically no adverse effect is observed. Thus, in characterizing the non-cancer effects of a chemical, the key parameter is the threshold dose at which an adverse effect first becomes evident. Doses below the threshold are considered to be safe, while doses above the threshold are likely to cause an effect. Non-cancer risk evaluations are based on a value referred to as the Reference Dose (RfD), which is a conservative estimate of

the threshold dose. Exposure to doses below the RfD are likely to be without appreciable risk of deleterious effects during a lifetime, even in sensitive individuals.

Cancer Effects

For cancer effects, the toxicity assessment process has two components. The first is a qualitative evaluation of the weight of evidence (WOE) that the chemical does or does not cause cancer in humans. For those chemicals which are judged to definitely or possibly cause cancer in humans, the second part of the toxicity assessment is to describe the carcinogenic potency of the chemical. This is done by estimating the cancer slope factor (SF), which quantifies how the numbers of observed cancers in exposed animals or humans increases as the dose increases.

Toxicity Values Used in this Assessment

Toxicity values (slope factors and/or reference doses) that have been established by USEPA are available through EPA's Integrated Risk Information System (IRIS), and in EPA's Health Effects Assessment Summary Tables (HEAST). Provisional toxicity values are also available from EPA's Superfund Technical Assistance Center operated by the National Center for Environmental Assessment (NCEA). Chemical-specific toxicity values used for this risk assessment are presented in Section 4 (Table 4-1 of the main report).

RISK CHARACTERIZATION

Method for Characterizing Non-cancer Risks

The potential for non-cancer effects from exposure to a chemical is evaluated by comparing the estimated daily intake of the chemical over a specific time period with the RfD for that chemical derived for a similar exposure period. This comparison results in a non-cancer Hazard Quotient, as follows:

$$HQ = DI / RfD$$

where:

HQ	=	Hazard Quotient
DI	=	Daily Intake (mg/kg-day)
RfD	=	Reference Dose (mg/kg-day)

If the HQ for a chemical is equal to or less than one, it is believed that there is no appreciable risk that non-cancer health effects will occur. If an HQ exceeds one, there is some possibility that non-cancer effects may occur, although an HQ above one does not indicate an effect will definitely occur. If an individual is exposed to more than one chemical, a screening-level estimate of the total non-cancer risk is derived simply by summing the HQ values for that individual. This total is referred to as the Hazard Index (HI).

Method for Characterizing Cancer Risks

The risk of cancer from exposure to a chemical is described in terms of the probability that an exposed individual will develop cancer because of that exposure by age 70. For each chemical of concern, this value is calculated from the daily intake of the chemical from the site, averaged over a lifetime (DI_L), and the slope factor (SF) for the chemical, as follows:

$$\text{Cancer Risk} = DI_L \cdot SF$$

Excess cancer risks are summed across all chemicals of concern and all exposure pathways that contribute to exposure of an individual in a given population.

The level of total cancer risk that is of concern is a matter of personal, community, and regulatory judgement. In general, the USEPA considers excess cancer risks below about one in one million (1 in 1,000,000) to be so small as to be negligible, and risks above one in ten-thousand (1 in 10,000) to be sufficiently large that some sort of remediation is usually desirable. Excess cancer risks that range between these two values are generally considered to be acceptable, although this is evaluated on a case by case basis.

Risk Estimates for On-Yard Workers

Section 5.2 of the main report presents detailed tables of risk estimates for on-yard workers. The main findings are summarized below.

Risks from Soil

Non-cancer HI values at most AOIs do not exceed a value of one for either the CTE or the RME receptor. The exception is for AOI 21, where non-cancer risks for RME workers are slightly above one, mainly from the ingestion of arsenic. Cancer risks are mainly within or below EPA's risk range (1 in 10,000 to 1 in 1,000,000), except for RME workers at AOI 21 and 27. At AOI 21, cancer risk to an RME worker may reach a level of 2 in 10,000, due mainly to the presence of arsenic. At AOI 27, cancer risk to an RME worker may reach 7 in 10,000, due mainly to PAHs (especially benzo(a)pyrene) in soil.

Risks from Groundwater

Ingestion of groundwater would be of clear and substantial non-cancer and cancer concern to workers at a number of AOIs. In most cases the excess cancer risk is due primarily to vinyl chloride, although arsenic and benzo(a)pyrene contribute to the risk in a few cases. Non-cancer risk drivers vary from AOI to AOI, with most of the risk coming from vinyl chloride, arsenic, antimony, naphthalene, benzene, trichloroethene, or acetone.

Inhalation of VOCs that could be released from water into indoor air are also of potential concern at a number of AOIs. Excess cancer risks above EPA's usual maximum of 1 in 10,000 are attributable to several different chemicals including vinyl chloride, benzene, ethylbenzene, and 1,2,3-trichloropropane. Non-cancer risks are due mainly to naphthalene and 1,2-dichloroethene, with benzene, vinyl chloride, 2-methylnaphthalene and acetone contributing risk in some cases.

These results indicate that groundwater beneath several areas of the site would pose a substantial risk to workers from one or both of two pathways (direct ingestion of water, inhalation of VOCs released from water) if it were ever used for drinking or other indoor purposes.

Risks from Soil Gas Intrusion

Risks from intrusion of VOCs in soil gas do not exceed EPA's target risk range for either cancer or non-cancer effects. These results indicate that soil gas intrusion is not likely to be of concern to workers in on-site buildings.

Risk Estimates for Off-Yard Residents

Section 5.3 in the main report presents detailed tables of risk estimates for off-yard residents. The main findings are summarized below.

Risks from Dust in Air

Risks to off-yard residents from inhalation of dust in air are below EPA's risk range for both cancer and non-cancer effects in all exposure zones. This indicates that dust released to off-site locations is not likely to be of health concern to off-yard residents.

Risks from Groundwater

If on-site groundwater were to migrate to off-site locations and be used for drinking, risks to residents would be unacceptable in many cases, with risks even higher than to on-yard workers. This is because water ingestion rates and time spent inside are both higher for residents than workers. These results further support the conclusion that groundwater at several locations on-site is not suitable for human use or consumption.

Risks from Soil Gas Intrusion

At present, no measurements of off-yard soil gas migration are available, so this pathway has not been evaluated quantitatively. Based on the finding that risks to on-yard workers from soil gas intrusion into current or future on-yard buildings are within or below EPA's risk range (see above), it is considered likely that risks from soil gas intrusion at off-site locations are also low. However, further studies will be conducted to more fully assess this potential exposure pathway, and these results will be summarized in a supplement to this risk assessment.

Risk Estimates for Off-Yard Recreational Visitors

Section 5.4 in the main report presents detailed tables of risk estimates for off-yard recreational visitors. The main findings are summarized below.

Risks from Surface Water and Sediment

Risks to recreational visitors from ingestion of surface water or sediment are within or below EPA's risk range for both cancer and non-cancer effects at all exposure areas. This indicates that risks to recreational visitors from surface water and sediment along the river corridors are not likely to be of concern.

Risks from Soil

Risks to recreational visitors from incidental ingestion of soil along the Weber River riparian corridor and at the 21st Street Pond are within or below EPA's risk range for both cancer and non-cancer effects. This indicates that risks to recreational visitors from contact with surface soil are not likely to be of concern.

Risks from Ingestion of Fish

Risks from non-PCBs in fish from the 21st Street Pond do not exceed EPA's risk range for cancer or non-cancer effects. Data for non-PCB contaminants are not available for fish from the Weber River or the Ogden River, but there is no known reason to suspect that risks would be higher at these locations than in the 21st Street Pond.

Risks from PCBs in fish were estimated using two different approaches. The first approach is based on an estimate of the total amount of PCB present in fish tissue, expressed as the Aroclor-equivalent concentration (mg/kg). At this site, Aroclor-equivalent data are available for fish caught from the 21st Street Pond. Based on this approach, the estimated cancer and non-cancer risks to area anglers from ingestion of these fish are as follows:

Estimated Risks from PCBs (as Aroclor) in Fish from the 21st Street Pond

Recreational Population	Non-Cancer HQ		Excess Cancer Risk	
	CTE	RME	CTE	RME
Adult	0.9	6	8 per 1,000,000	9 per 100,000
Child	0.8	5	2 per 1,000,000	3 per 100,000

These results suggest that ingestion of fish caught within the 21st Street Pond might be of potential health concern to fishermen because of non-cancer (but not cancer) risks from PCBs.

The second approach for evaluating risks from PCBs is to measure the concentration of each of 12 different PCB congeners that has significant 2,3,7,8-tetrachlorodibenzodioxin (TCDD) activity, and then to calculate the probability of cancer based on the TCDD-equivalent concentration. Based on this approach, estimated cancer risks are mainly within or below EPA's risk range, except for a risk estimate of 2 in 10,000 for an RME adult who fishes mainly along the Ogden River in Reach B (just upstream of the 21st Street Pond).

Taken together, these results suggest that cancer risks from PCBs in fish from within and near the 21st Street Pond are likely to be mainly within EPA's acceptable risk range. Potential non-cancer risks based on the Aroclor equivalent method suggest a basis for concern, but these results should be interpreted cautiously. Most importantly, the Aroclor-based approach is uncertain because the toxicity factor is derived from studies of a commercial Aroclor mixture, while the on-site exposure is to a mixture of congeners that is generally quite different than the original commercial Aroclor mixture. However, at present there is no congener-based method for estimating non-cancer-based risks from PCBs. If it is assumed that the ratio of congener-based non-cancer risk compared to Aroclor-based non-cancer risk is the same as was observed for cancer risk (congener-based cancer risk estimates for fish from the 21st Street Pond are about 2-3 fold lower than estimates based on the Aroclor-equivalent method), then non-cancer risk estimates for RME receptors would likely be at or below the threshold for concern.

UNCERTAINTIES

Quantitative evaluation of the risks to humans from environmental contamination is frequently limited by uncertainty regarding a number of key data items, including concentration levels in the environment, the true level of human contact with contaminated media, and the true dose-

response curves for non-cancer and cancer effects in humans. This uncertainty is usually addressed by making assumptions or estimates for uncertain parameters based on whatever limited data are available. Because of these assumptions and estimates, the results of risk calculations are themselves uncertain, and it is important for risk managers and the public to keep this in mind when interpreting the results of a risk assessment.

The main sources of uncertainty in the risk calculations performed at this site are summarized in Table ES-2. As seen, some uncertainties will tend to lead to an underestimate of risk, but these underestimates are thought to be relatively small. A number of uncertainties are likely to lead to an overestimate of risk, and in some cases, these overestimates might be moderate to large. Based on this, the risk estimates derived in this risk assessment are more likely to overestimate than underestimate risk.

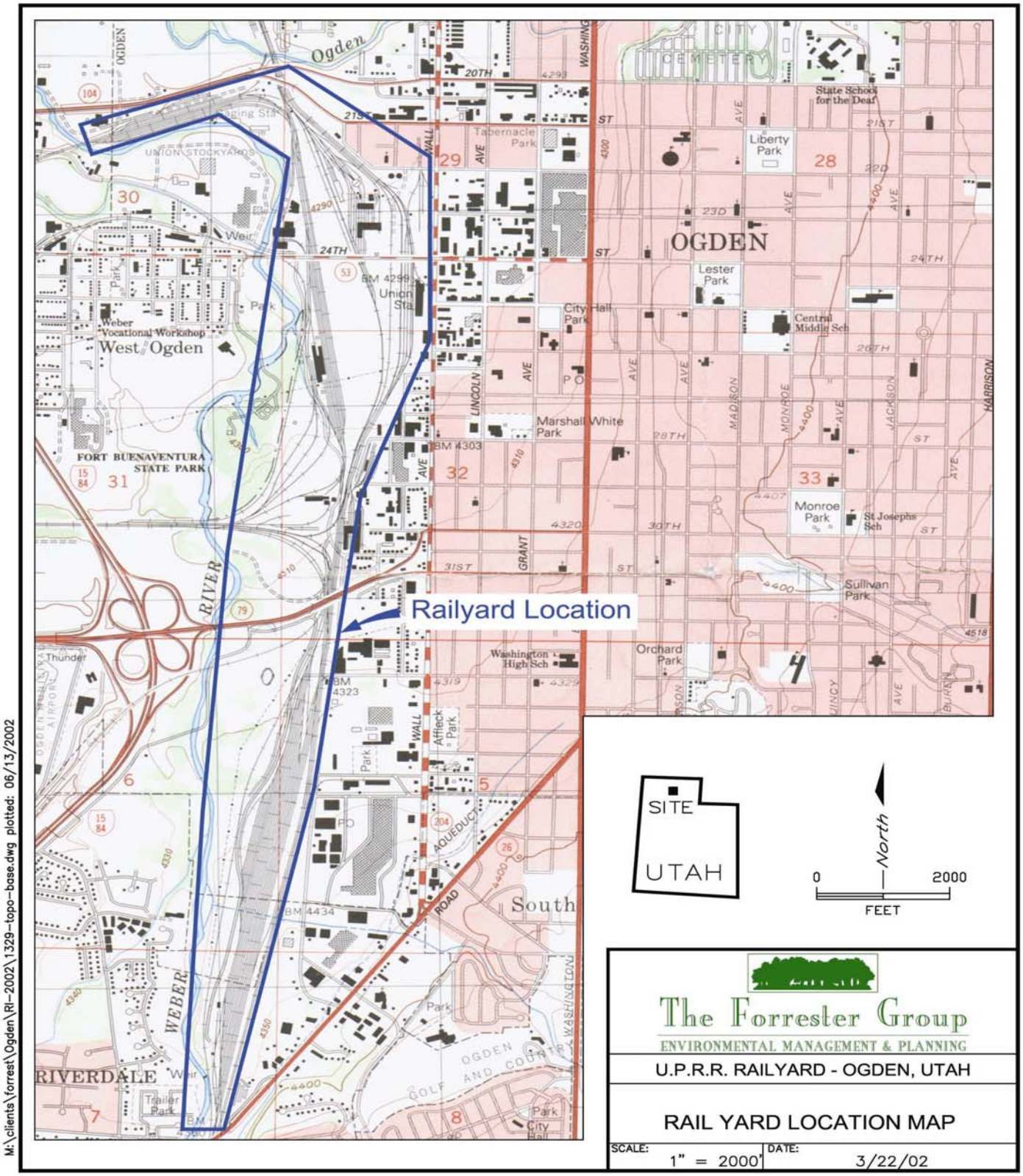

Figure ES-1
Ogden Railyard Location Map

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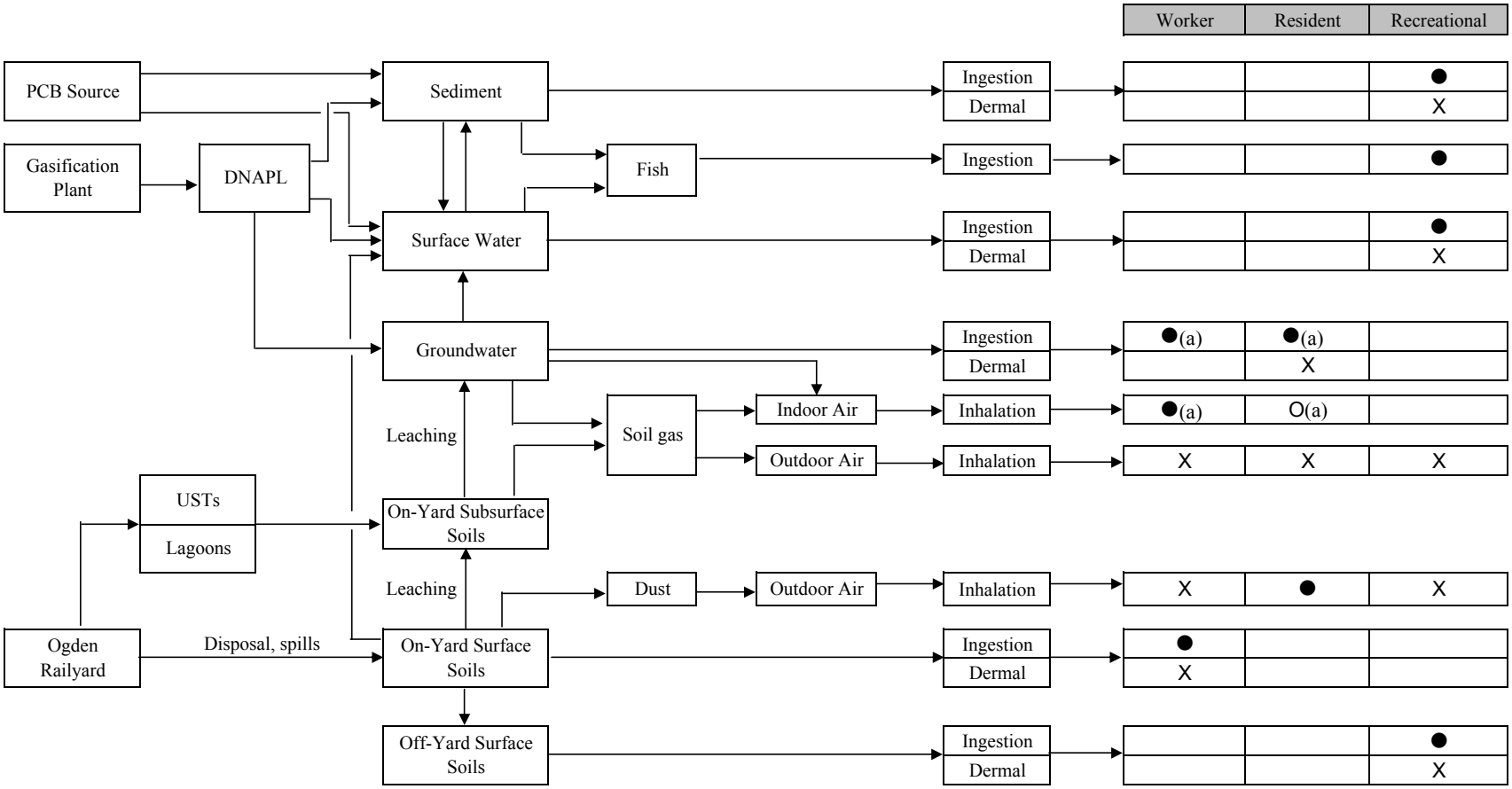
Figure ES-2. Site Conceptual Model for Human Exposure



LEGEND

	Pathway is not complete; no evaluation required
X	Pathway is or might be complete, but is judged to be minor; qualitative evaluation
O	Pathway is or might be complete and could be significant, but data are lacking to support quantitative evaluation; qualitative evaluation
●	Pathway is or might be complete and could be significant; quantitative evaluation

(a) Pathway is not currently complete but might be complete in the future

Fig ES-2 SCM.xls
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Table ES-1 List of Quantitative COPCs

Ogden Railyard Human Health Risk Assessment

Chemical Class	Off-Site Recreational Visitor				On-Yard Worker	Current and Future On-Yard Worker and Future Off-Site Resident
	Soil	Sediment	Surface Water	Fish	Soil	Groundwater
Inorganics	Arsenic	*NONE*	*NONE*	*NONE*	Aluminum Antimony Arsenic Chromium Copper Lead Manganese Mercury Selenium	Antimony Arsenic Barium Cadmium Chromium Lead Manganese Mercury Selenium Silver
Polyaromatic Hydrocarbons (PAHs)	Benzo[a]pyrene	Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Dibenz[a,h]anthracene Indeno[1,2,3-c,d]pyrene	*NONE*	*NONE*	Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Chrysene Dibenz[a,h]anthracene Indeno[1,2,3-c,d]pyrene	2-Methylnaphthalene Acenaphthene Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Chrysene Dibenz[a,h]anthracene Dibenzofuran Fluoranthene Fluorene Indeno[1,2,3-c,d]pyrene Naphthalene Phenanthrene Pyrene
Polychlorinated Biphenyls (PCBs)	*NONE*	PCBs (as Aroclor)	*NONE*	PCBs (as Aroclor) PCBs (as TEQ)	*NONE*	PCBs (as Aroclor)
Pesticides	*NONE*	*NONE*	*NONE*	4,4'-DDE	*NONE*	*NONE*
Semi-Volatile Organic Compounds	*NONE*	*NONE*	*NONE*	bis(2-Ethylhexyl)phthalate	n-Nitrosodipropylamine	1,4-Dichlorobenzene 2,6-Dinitrotoluene 4,6-Dinitro-o-cresol 4-Methylphenol (p-Cresol) bis(2-Chloroethyl)ether bis(2-Ethylhexyl)phthalate Carbazole n-Nitrosodipropylamine Pentachlorophenol
Volatile Organic Compounds	*NONE*	*NONE*	Dichloromethane	*NONE*	*NONE*	1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,2,3-Trichloropropane 1,2-Dichloroethane 1,2-Dichloroethene Acetone Benzene Chlorodibromomethane Ethyl chloride Methyl chloride cis-1,2-Dichloroethene Dichloromethane Ethylbenzene Tetrachloroethene Toluene Trichloroethene Vinyl Chloride Xylenes (Total)

Table ES-2. Sources and Estimated Direction and Magnitude of Uncertainties in Risk Estimates

Risk Assessment Step	Source of Uncertainty	Probable Direction (a)	Estimated Magnitude (a)
Exposure Assessment	Exposure pathways not evaluated	Underestimate	Small
	Chemicals not evaluated	Underestimate	Probably Small
	Calculation of exposure point concentrations from measurements	Overestimate	Moderate
	Mathematical modeling of exposure when data are not available	Overestimate	Moderate
	Human exposure parameters	Overestimate	Moderate
Toxicity Assessment	Adjustments to account for limited toxicity data	Overestimate	Moderate-Large
	Extrapolation from animals to humans	Overestimate	Moderate-Large
	Extrapolation from high dose to low dose	Overestimate	Moderate-Large
	Extrapolation across exposure frequency and duration	Overestimate	Small
	Accounting for sensitive human subpopulations	Overestimate	Moderate
Risk Characterization	Effects of combined exposures to multiple chemicals	Unknown	Probably small

(a) See Section 6 for discussion

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

This document is a baseline human health risk assessment for the Ogden Railyard Superfund site in Ogden, Utah. The purpose of the document is to assess the potential risks to humans, both now and in the future, from site-related contaminants present in on-yard and off-yard environmental media, assuming that no steps are taken to remediate the environment or to reduce human contact with contaminated environmental media.

The results of this assessment are intended to help inform risk managers and the public about potential human risks attributable to site-related contaminants and to help determine if there is a need for action at the site (USEPA 1989). The overall management goal is to ensure protection of humans from deleterious effects of acute and chronic exposures to site-related chemicals for both current and future land uses (USEPA 1999).

The methods used to evaluate risks to humans in this assessment are consistent with current guidelines provided by the USEPA for use at Superfund sites (USEPA 1989, 1991a, 1992, 1993a).

An evaluation of potential risks to ecological receptors from site-related contamination is presented in a separate report (USEPA 2003).

1.2 ORGANIZATION OF THIS DOCUMENT

In addition to this introduction, this report is organized into the following sections:

Section 2 This section provides a description of the site and a review of data that characterize the nature and extent of environmental contamination at the site.

Section 3 This section identifies human exposure scenarios of potential concern at the site, identifies chemicals of potential concern (COPCs) for each exposure scenario, and derives quantitative estimates of exposure for those pathways that are most likely to be significant.

Section 4 This section summarizes the characteristic cancer and non-cancer health effects associated with the COPCs at the site and lists the quantitative toxicity factors used to calculate cancer and non-cancer risk levels in exposed humans.

Section 5 This section provides quantitative estimates of cancer and non-cancer risk to humans exposed to site-related contaminants by each of the exposure scenarios of primary concern.

Section 6 This section summarizes the likely magnitude and direction of the sources of uncertainty in the risk estimates for human receptors.

Section 7 This section provides full citations for USEPA guidance documents, site-related documents, and scientific publications referenced in the baseline risk assessment.

2.0 SITE CHARACTERIZATION

2.1 SITE LOCATION

The Ogden Railyard Site is located in Weber County, Utah, just west of the City of Ogden. The railyard portion of the site is shown in Figure 2-1. The railyard extends from Riverdale Road on the south to the 20th Street overpass on the north, a distance of about 3.4 miles. The area of the railyard is bounded on the west by the Weber River and on the east by Wall Avenue and Pacific Avenue in the City of Ogden. Areas included in the site investigation include not only the railyard itself but also surrounding areas that are or may have been impacted by off-yard releases.

2.2 LAND USE

The site was first used as a railyard by the Central Pacific Railroad (the predecessor of the Southern Pacific) and Union Pacific Railroad (UPRR) in 1869. Since that time, four railroad companies, including UPRR, Southern Pacific Railroad (SPRR), Denver and Rio Grande Western Railroad (D&RGW), and the Ogden Union Railway and Depot Company (OUR&D), have built and operated on various portions of the site. SPRR and D&RGW operated in the northern portion of the site, while UPRR and OUR&D operated in the southern portion of the site. With the completion of the UPRR-SPRR merger in 1996, the entire yard is currently under the ownership of UPRR, with the exception of a facility owned and operated by Atlas Steel (Forrester Group 2002).

Railroad facilities previously located at the site included coal yards, freight houses, passenger service depots, switching yards, machine shops, boiler shops, transfer tracks, oil/water treatment plants, fuel storage tanks, cold storage houses, warehouses, offices, turntables, and roundhouses. Use of the various facilities at the site has declined significantly and a number of the old buildings have been demolished (Forrester Group 2002).

In 2000, it was discovered that a section of the railyard was the location of the former Pintsch Gas Works facility. This facility operated in the northern portion of the site from 1891 to no later than 1935 and manufactured an illumination gas used to light rail cars. The illumination gas was reportedly produced from a petroleum-based feedstock by the “Pintsch” process.

At present, the western perimeter of the railyard is a riparian zone along the banks of the Weber River. The eastern perimeter is occupied by a number of railroad-related facilities and private industrial facilities (Forrester Group 2002). A few residences are located near the site perimeter on the eastern side, with the largest number of residences being located east of Wall Avenue.

2.3 SITE INVESTIGATIONS

The site is of potential human health concern because of various chemicals that have been released to the environment on or near the site. In order to help assess this issue, in 1999 UPRR entered into an Administrative Order on Consent to perform a Remedial Investigation (RI) at the railyard. The primary purpose of this study was to characterize chemical contamination associated with the railyard and to determine if there were any releases to nearby off-yard areas west of the site. Phase 1 of the RI was performed in 1998 (Safety-Kleen 1998). The Phase 1 investigation focused on 31 Areas of Interest (AOIs) located on UPRR property. The location of these AOIs (selected based on historic aerial photos) are shown on the map in Figure 2-2, and the current or former operations at each AOI are described in Table 2-1.

The Phase 1 investigation identified the presence of a number of chemicals of potential concern in site soil, sediment, groundwater, and surface water, including:

- Diesel fuel, grease, oils, and associated petroleum hydrocarbons
- Chlorinated solvents and associated degradation products (e.g., vinyl chloride)
- Metals
- Polycyclic aromatic hydrocarbons (PAHs)

The USEPA reviewed the adequacy of the Phase 1 data to support reliable human health and ecological risk evaluations, and identified several data gaps. The USEPA recommended additional sampling and analysis of environmental media that were needed to support the risk assessment at site-related locations, and developed a Phase 2 Sampling and Analysis Plan (SAP) to collect the additional data (USEPA 1999). A field sampling plan was issued in early 2000 (USEPA/ERTC 2000) as part of the overall UPRR Phase 2 Sampling and Analysis Plan. The results of the Phase 2 investigation, performed primarily in May and July of 2000, were summarized in reports issued by EPA (USEPA/ERTC 2001) and the Forrester Group (2001a, 2001b). These data were consolidated in the draft remedial investigation for the railyard site (Forrester Group 2002).

During the Phase 2 investigation, two important new concerns associated with the site were identified:

- A large plume of dense non-aqueous phase liquid (DNAPL) was discovered below the ground surface (Forrester Group 2001b). This DNAPL zone is suspected to originate at the location of the former Pintsch Gas Process plant that produced gas from petroleum products (manufactured gas). The former Pintsch Gas facility location is northeast of AOI 34. The DNAPL zone extends towards the north, coming into direct contact with the east end of the 21st Street Pond and extending under the Ogden River. A map showing the DNAPL zone extent is provided in Figure 2-3.

- Polychlorinated biphenyls (PCBs) were detected in tissues of fish collected from the 21st Street Pond as well as in sediments collected from the 21st Street Pond and the Ogden River (USEPA/ERTC 2001). The source of the PCBs is presently unknown.

These two new concerns generated the need to collect additional samples specifically designed to characterize the potential risk to human health and the environment from the DNAPL plume and the PCBs. This additional sampling event is referred to as the Phase 3 investigation. A field SAP was prepared in July 2001 (SRC 2001) and the Phase 3 samples were collected in late July and early August of 2001. The final results from the Phase 3 sampling effort were summarized in a field investigation report released in October 2002 (SRC 2002).

The data from all of these reports are used as the basis for assessing current and potential future risks to humans at the site. These data are presented in electronic format in Appendix A.

3.0 EXPOSURE ASSESSMENT

3.1 OVERVIEW

Exposure is the process by which humans come into contact with chemicals in the environment. In general, humans can be exposed to chemicals in a variety of environmental media (e.g., soil, water, air, food), and these exposures can occur through several pathways (e.g., ingestion, dermal contact, inhalation). Section 3.2 provides an evaluation of exposure pathways that could lead to human contact with site-related contaminants at this site. Section 3.3 identifies chemicals of potential concern in each medium, and Section 3.4 describes the methods used to quantify exposure from each pathway that is considered to be of possible significance.

3.2 SITE CONCEPTUAL MODEL

Figure 3-1 presents a site conceptual model showing the exposure pathways by which site-related chemicals may migrate or be transported into other environmental media, and the scenarios by which humans might reasonably be exposed to site-related contaminants in the environment. However, not all of these potential exposure routes are likely to be of equal concern. Exposure scenarios that are considered to be complete and potentially significant are shown in Figure 3-1 by boxes containing a circle. If sufficient data are available to support quantitative evaluation, the pathway is indicated by a solid black circle. An open circle indicates a pathway that is potentially significant but which lacks sufficient information to allow meaningful quantification. Pathways that are judged to be complete but which are likely to contribute only occasional or minor exposures are shown by boxes with an "X". Incomplete pathways (i.e., those which are not thought to occur) are shown by open boxes. The following sections present a more detailed description of site-related contamination, migration pathways, and exposure scenarios selected for evaluation at the site.

3.2.1 Exposed Populations

At present, most of the railyard is used for railroad operations, although there are some commercial-industrial operations located on the yard site. Because of the heavy industrial nature of the site, it is considered very probable that this land use will not change in the future. Therefore, the population most likely to be exposed to contaminants in on-yard locations is current and future on-yard workers.

However, some site-related contaminants may have migrated to off-yard locations (or might do so in the future), creating the potential for exposure of other human populations. Under current site conditions, the off-yard areas where humans might come into contact with site-related releases include the residential areas east of the site as well as areas around the 21st Street Pond, the riparian zone along the Weber River, and the Ogden River, which are used mainly for recreational purposes. Therefore, the human populations of potential concern include current and future residents east of the site and recreational visitors along the Weber and Ogden Rivers.

3.2.2 Potential On-Yard Exposure Scenarios

Incidental Ingestion of Soil

Some of the on-yard area (primarily near the railroad tracks) is covered with coarse ballast, but contact with soil or dust derived from soil is still possible in most areas of the site. Even though few people intentionally ingest soil, workers who have direct contact with soil or soil-covered ballast at the site might ingest small amounts that adhere to their hands during outdoor activities. Incidental ingestion of soil is often one of the most important routes of human exposure at a site. Therefore, ingestion of surface soil is considered a potentially complete and significant pathway for on-site workers.

Dermal Contact with Soil

Workers who are in direct contact with soil may get soil on their skin during outdoor activities. Because the skin is relatively impermeable, it is generally considered that dermal absorption of chemicals from soil is relatively small compared to absorption from ingested soil. Based on this, and recognizing that current methods and data are very limited for attempting to quantify dermal absorption of chemicals from soil, USEPA Region 8 generally recommends that dermal exposure to chemicals in soil not be evaluated quantitatively (USEPA 1995). Therefore, dermal contact with soil is evaluated qualitatively in this risk assessment.

Inhalation of Airborne Soil Particulates

Particles of contaminated surface soil may become suspended in air by wind or mechanical disturbance. However, screening level calculations presented in Appendix B indicate that exposure by the inhalation route is likely to be substantially smaller than by the soil ingestion

route, even when release of particles to air is quite extensive. Therefore, this pathway is evaluated qualitatively for on-yard workers.

Ingestion of Groundwater

At present, there are no on-site wells in the shallow aquifer that are used as a source of drinking water, so exposure of workers to groundwater is not currently of concern. Even though it is not considered likely that any on-site drinking water wells will ever be installed in the shallow aquifer in the future, the groundwater beneath the site is classified as a Class II aquifer and is viewed by the State as a potential drinking water source in the future. Therefore, this pathway was evaluated quantitatively for hypothetical future on-site workers in order to provide information on the level of concern that would exist if groundwater were ever to be considered for ingestion by workers.

Inhalation of VOCs Released from Indoor Uses of Groundwater

If on-site groundwater were ever to be used for indoor purposes, volatile organic compounds (VOCs) present in the water could be released from the water into indoor air, leading to inhalation exposure of indoor workers. As noted above, even though site groundwater is not currently used for any indoor purposes, this exposure pathway was evaluated quantitatively to characterize the level of concern that would exist if on-site groundwater wells were ever used in the future.

Inhalation of VOCs Emanating from Soil Gas

Subsurface soil and groundwater that are contaminated with VOCs may release those VOCs into soil gas, and the VOCs may diffuse laterally and upward through pores in the soil and be released at the surface. If the surface is not covered by a building, the VOCs enter outdoor air where they are diluted and dispersed by wind. Therefore, inhalation of VOCs in outdoor air is not considered to be an important exposure route. However, if the VOCs approach the surface at a location near a building, the soil gas may be drawn into the building and the concentration in the building may tend to build up. Inhalation of VOCs in indoor air volatilized from soil gas emanating from groundwater and/or subsurface soil is considered a complete and potentially significant pathway for indoor workers at the site, and this pathway is evaluated quantitatively.

Exposure to Surface Water and Sediment

Because there are no surface water bodies on the railyard site, exposure to surface water and sediments was not evaluated for on-site workers.

3.2.3 Potential Off-Yard Recreational Exposure Scenarios

There are a number of locations near the site that may be used by area residents for recreational activities such as fishing, swimming, wading, or hiking. This may include both adults and children (mainly older children, 6-15 years of age). The exposure scenarios believed to be of greatest potential concern for recreational visitors are summarized below.

Exposure to Soil in the Weber River Riparian Zone

Area residents who hike, fish, or play along the banks of the Weber River west of the railyard could be exposed to contaminants present in the soils of the riparian zone. As noted above, even though few people intentionally ingest soil, intake may occur via hand to mouth contact, so this pathway is considered to be complete and potentially significant, and is evaluated quantitatively. Dermal contact with soil may also occur, but due to lack of data for most chemicals on the rate and extent of dermal absorption from soil, as well as the expectation that this pathway is usually minor, this pathway is evaluated qualitatively. Ingestion of soil may also occur along the Ogden River, but these soils are not believed to be impacted by any site-related releases, and so are not evaluated.

Exposure to Surface Water and Sediment

Area residents, especially area children, may play or swim in the waters of the Weber River, the Ogden River, and/or the 21st Street Pond. Individuals engaged in such activities may have contact with both surface water and sediments, and exposure might occur both by incidental ingestion and by dermal contact. Because ingestion exposure is expected to be the most important route for both media, ingestion exposure was evaluated quantitatively while dermal exposure was evaluated qualitatively.

Exposure to Fish

Fishing is a popular recreational activity along the Weber River, the Ogden River, and the 21st Street Pond. Fish from these locations may be contaminated with site-related chemicals which are taken up from water, sediment and/or the diet, and people who catch fish from these locations could be exposed to those chemicals by eating contaminated fish tissue. This pathway may be of concern, especially for chemicals that tend to bioaccumulate in fish tissue, and so this pathway is evaluated quantitatively.

3.2.4 Potential Off-Yard Residential Exposure Scenarios

Inhalation of Dust Released from the Site

Operations on the railyard site can result in the generation of airborne dusts, especially during dry summer months. These airborne dusts may be carried by wind to nearby off-yard residential areas (mainly east of the railyard site), and area residents could be exposed by inhalation. As noted above, inhalation exposure is generally a minor source compared to ingestion exposure, but since off-yard residents are not expected to have regular ingestion exposure to on-yard soils, the inhalation pathway was quantified for off-yard residents.

Exposure to Groundwater

At present, off-site residences are provided with municipal water by the City of Ogden, and there are no known locations where groundwater from the shallow aquifer is used for drinking water by area residents. However, groundwater in the area is classified as a Class II aquifer and is viewed by the State as a potential drinking water source in the future. Therefore, hypothetical future exposure was evaluated both for ingestion of groundwater and for inhalation of VOCs released from groundwater into indoor air. These evaluations provide information on the levels of risk that would exist if shallow groundwater that was contaminated by site releases ever were used for drinking or other indoor uses by area residents.

Inhalation of VOCs from Soil Gas Intrusion

Because the site is currently industrial, no residences are located over plumes of contaminated soil or groundwater that could lead to intrusion of VOCs from soil gas into indoor air. However,

soil gas that is released from on-site sources could migrate to off-site locations through preferential migration channels such as existing sewer lines. Data are not currently available to quantify the magnitude of this potential exposure pathway, but this pathway will be evaluated when such data are collected.

3.2.5 Summary of Pathways of Principal Concern

Based on the evaluations above, the following pathways are judged to be of sufficient potential concern to warrant quantitative risk evaluation:

Exposed Population	Exposure Medium	Exposure Route
On-yard workers	Soil Soil gas Groundwater	Incidental ingestion Inhalation in buildings Ingestion, Inhalation (VOCs)
Recreational visitors	Soil Surface water Sediment Fish	Incidental ingestion Incidental ingestion Incidental ingestion Ingestion
Off-site residents	Groundwater Airborne dust Soil gas[a]	Ingestion, Inhalation (VOCs) Inhalation Inhalation in buildings[a]

[a] To be evaluated after additional data are collected.
VOC = Volatile Organic Compound

Other exposure pathways are judged to be sufficiently minor that further quantitative evaluation is not warranted.

3.3 SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Chemicals of Potential Concern (COPCs) are chemicals which exist in the environment at concentration levels that might be of potential health concern to humans and which are or might be derived, at least in part, from site-related sources.

The procedure used to identify COPCs for soil and groundwater at this site is shown in Figure 3-2. Chemicals that are not likely to contribute significant risks to humans are eliminated, while

chemicals that might be of potential concern are assigned to one of two groups: those that lack the data needed to perform a quantitative evaluation (these are addressed qualitatively), and those that have sufficient data to allow quantitative evaluation. It is important to note that this COPC selection procedure is intended to be conservative; that is, it is expected that some chemicals will be identified as COPCs that are actually of little or no concern, but that no chemicals of authentic concern will be overlooked.

Step 1: Eliminate Essential Nutrients

When a sample of soil, water, or tissue is analyzed for inorganic chemicals, data are reported not only for analytes that might be of potential health concern, but also for a number of chemicals that are normal constituents of the human body and that are required for good health. Many of these beneficial nutrients occur widely in food, water, and soil, and exposure to these chemicals is not considered to be of concern. These chemicals include calcium, potassium, sodium, magnesium, and iron. Accordingly, these chemicals are not considered to be of potential health concern and are not considered further.

Step 2: Eliminate chemicals for which no toxicity values are available

Risks from chemicals for which EPA has not established toxicity values (see Section 4) cannot be evaluated quantitatively, and so these chemicals are assigned to the qualitative COPC category (Type 1).

Step 3: Eliminate chemicals never detected

In accord with USEPA (1989), a chemical may be eliminated from the quantitative risk assessment if it is detected only infrequently (< 5%) in a site medium. In this risk assessment, chemicals were excluded for a medium only if they were never detected in any site sample of that medium. However, if the analytical detection limit for a chemical that was never detected was sufficiently high that the chemical would not have been detected even if it were present at a level of concern, that chemical was assigned to the qualitative COPC category (Type 2).

Step 4: Eliminate chemicals detected, but whose maximum value is below a level of concern

If a chemical is detected at least once, but the maximum detected concentration is well below a level of human health concern, that chemical may be eliminated from further consideration (USEPA 1989). This screening step was performed using Risk-Based Concentration (RBC) values calculated using the same basic approach as used by USEPA Region 3 (USEPA 2002). Target Risk levels were set to an HQ value of 0.1 and a cancer risk level of 1E-06. Appendix C details the derivation of the RBC values used for this step.

Results of COPC Screening

Appendix C presents detailed results of the COPC selection process. Table 3-1 lists the COPCs identified for quantitative evaluation. Table 3-2 lists qualitative Type 1 COPCs (no toxicity value available), and Table 3-3 lists qualitative Type 2 COPCs (never detected, but detection limit was too high to be reliable).

3.4 QUANTIFICATION OF EXPOSURE

3.4.1 Overview

The amount of a chemical which is ingested, inhaled, or taken up across the skin is referred to as "intake" or "dose," and is calculated using an equation of the following general form:

$$DI = C \cdot (IR / BW) \cdot (EF \cdot ED / AT)$$

where:

DI = Daily intake of chemical (mg of chemical per kg of body weight per day).

C = Concentration of the chemical in the contaminated environmental medium (soil, dust, water, food, air, etc.) to which the person is exposed. The units are mg of chemical per unit of environmental medium (e.g., mg/L for water, mg/kg for soil or food, mg/m^3 for air).

IR = Intake rate of the contaminated environmental medium. The units are usually kg/day for solid media (soil, sediment, food), L/day for water, and m^3/day for air.

BW = Body weight of the exposed person (kg).

EF = Exposure frequency (days/year). This describes how often a person is likely to be exposed to the contaminated medium over the course of a typical year.

ED = Exposure duration (years). This describes how long a person is likely to be exposed to the contaminated medium during their lifetime.

AT = Averaging time (days). This term specifies the length of time over which the average dose is calculated. Usually, two different averaging times are considered:

"Chronic" exposure includes averaging times on the scale of years (typically ranging from 7 years to 70 years). This exposure duration is used when assessing the non-cancer risks from chemicals of concern.

"Lifetime" exposure employs an averaging time of 70 years. This exposure interval is selected when evaluating cancer risks.

Note that the last three factors (EF, ED, AT) combine to yield a factor between zero and one. Values near 1.0 indicate that exposure is nearly continuous over the specified averaging period, while values near zero indicate that exposure occurs only rarely.

For mathematical convenience, the general equation for calculating dose can be written as:

$$DI = C \cdot HIF$$

where:

DI = Daily intake of chemical (mg of chemical per kg of body weight per day)

C = Concentration of the chemical in the contaminated environmental medium to which the person is exposed. The units are mg of chemical per unit of environmental medium (e.g., mg/L for water, mg/kg for soil, mg/m^3 for air).

HIF = Human Intake Factor. This term describes the average amount of an environmental medium contacted by the exposed person each day. The value of HIF is typically given by:

$$HIF = (IR / BW) \cdot (EF \cdot ED / AT)$$

The units of HIF depend on the medium being evaluated (kg/kg-day for solid media such as soil or food, L/kg-day for water, and m^3/kg-day for air).

3.4.2 Selection of Exposure Points

An exposure point (also referred to as an exposure unit or exposure area) is an area where a receptor (worker, resident, or recreational visitor) may be exposed to one or more environmental media. Selection of the bounds of an exposure point is based mainly on a consideration of the likely activity patterns of the exposed receptors; that is, an exposure point is an area within which a receptor is likely to spend most of their time and to move about more or less at random.

Exposure Points for On-Yard Workers

Because of the size of the railyard site, it is considered likely that most workers will be exposed mainly in a subsection of the site. Therefore, exposure of on-yard workers was evaluated at each Area of Interest (AOI) established during the on-site investigations (see Figure 2-2).

Exposure Points for Off-Yard Residents

Exposure to Airborne Dusts

The residential area of chief concern for inhalation exposure to airborne dusts from the site is located east of the railyard. No measurements of airborne contaminants were collected in this area because preliminary calculations did not suggest that airborne dust was of concern even at on-yard locations. Therefore, concentrations of contaminants in off-yard air were estimated by mathematical modeling from values measured in on-yard soils, as described in Section 3.4.3 (below). Because of spatial variability in the identity and concentration of contaminants in on-yard soils, the release of dust from the on-yard area was evaluated by stratifying the data into four zones, as follows:

Zone	On-Yard Area Description
A	20th Street to 24th Street
B	24th Street to 33rd Street
C	33rd Street to AOI 9
D	South of AOI 9, near Riverdale

These four zones correspond approximately to off-yard extension of Regions 1, 2, 3, and 4+5, respectively (see Figure 2-2).

Exposure to Groundwater

At present, there are no known off-site residences that are located above an area of groundwater contaminated by the site. One approach for evaluating potential future exposure and risk would be to use groundwater fate and transport models to predict the concentration of contaminants at some time in the future, assuming that one or more groundwater plumes are migrating toward off-site locations north or northwest of the railyard. However, this requires detailed data on groundwater flow, soil characteristics in the saturated zone, and chemical and biological degradation processes operating in the aquifer. At present, existing data are not sufficient to provide these inputs, so quantitative modeling of future groundwater concentration values at off-site locations was not attempted. Rather, as a screening level approach, risks were evaluated based on the conservative assumption that if contaminated groundwater moved off-site, the

concentration would remain the same as has been measured at the various on-site source areas (AOIs). Thus, potential future risks to off-yard residents were estimated based on AOI-specific groundwater measurements, similar to the approach used for on-yard workers.

Exposure Points for Recreational Visitors

Recreational visitors might come into contact with contaminants at a number of different locations along the Weber and the Ogden Rivers. For the purposes of this assessment, a series of 9 areas were identified for use in evaluation of recreational visitor exposures. These are listed below and are shown in Figure 3-3.

River	Designation	Description
Ogden	A	East of Wall Ave; treat as "background"
	B	Wall Ave to 21st Street Pond
	C	Downstream of 21st Street Pond
		21st Street Pond
Weber	A	Upstream (south) of railyard; treat as "background"
	B	From southern end of railyard to 33rd Street
	C	33rd Street to 24th Street
	D	North of 24th Street to confluence with Ogden River
		Buena Ventura Park Pond

3.4.3 Exposure Point Concentrations (EPCs)

Approach for Soil and Groundwater

Because of the assumption of random exposure over an exposure area, risk from a chemical is related to the arithmetic mean concentration of that chemical averaged over the entire exposure area. Since the true arithmetic mean concentration cannot be calculated with certainty from a limited number of measurements, the USEPA recommends that the upper 95th percentile confidence limit (UCL) of the arithmetic mean at each exposure point be used when calculating

exposure and risk at that location (USEPA 1992). If the 95% UCL exceeds the highest detected concentration, the highest detected value is used instead (USEPA 1989).

The equation used to compute the 95% UCL of a data set depends on the distribution (normal, lognormal) of the values (USEPA 1992). Most environmental data sets are found to be right skewed and are usually well approximated by a lognormal distribution, so the UCL equation for lognormal data was used as the default approach. However, in special cases, the formula for calculating the 95% UCL of the mean for a lognormal distribution may return a value lower than the UCL based on a normal distribution. In this case, the 95% UCL based on an assumed normal distribution was used.

When calculating an EPC, samples with concentrations below the detection limit were evaluated by assuming a concentration value equal to one-half of the detection limit (USEPA 1989). If a particular chemical was never detected in a medium at an exposure area, exposure to that chemical in that medium was not quantified for that area. Rejected (R-qualified) data are not used when calculating an EPC.

Approach for PCBs

In the case of PCBs, concentration values in soil, sediment, or fish may be measured and expressed in two different ways. This is because PCBs are a mixture of different chemical forms (congeners). In the first approach, the concentration is expressed as the concentration of an Aroclor mixture that would produce a congener pattern similar to that seen in the sample. This is referred to as the Aroclor-equivalent concentration. In the second approach, the concentration of each congener with significant toxicity is measured and expressed separately. For convenience, when data of this type are available, the data are consolidated into a single toxicity-weighted concentration value. This concentration, referred to as "TEQ" (TCDD equivalent concentration), is equal to the concentration of *2,3,7,8*-tetrachlorodibenzo-*para*-dioxin (TCDD) that would be of equivalent toxicity to humans. This approach is based on the finding that most of the toxicity of a PCB mixture is attributable to a sub-set of 12 PCB congeners that act by a mechanism similar to TCDD.

The relative potency of a PCB congener compared to TCDD is expressed in terms of the Toxicity Equivalency Factor (TEF). Table 3-4 lists current consensus TEF values for mammals (including humans). These TEF values were developed by a panel of experts assembled by the

World Health Organization (Van den Berg et al. 1998). Note that TEFs are often based on limited data, and so they are only approximations of the relative toxicity of each congener, rounded up (in order to be conservative) to the nearest half order of magnitude. Also note that most TEFs are based on relative binding affinity of the congener for the aryl-hydrocarbon (Ah) receptor, and so do not account for potential differences between congeners with regard to absorption and distribution to target tissues.

Based on the TEF values given in Table 3-4, the toxicity of any mixture of PCB congeners in a site medium (soil, sediment, fish tissue, etc.) can be estimated by calculating the TEQ concentration in the medium as the TEF-weighted sum of each of the 12 dioxin-like PCB congeners, as follows:

$$\mathrm{TEQ} = \sum_{i=1}^{12} (C_i \cdot TEF_i)$$

where:

C_i = Concentration of PCB congener "i"
TEF_i = Toxicity equivalency factor for PCB congener "i"

Polychlorinated dioxins and furans were not included in the TEQ value since analysis of several fish tissue samples from the site did not reveal TEQ levels that were higher than in laboratory blanks.

Approach for VOCs in Soil Gas

Exposure point concentrations for volatile chemicals in indoor air in current or future on-yard buildings due to intrusion from soil gas were based on the data collected using flux chambers. At steady state, the rate of flux into the building equals the rate of loss from the building due to ventilation:

Flux In (ug/min) = Flux Out (ug/min)

In order to be conservative, it was assumed that the entire flux of VOCs beneath the building would enter the building (even though a large fraction of the total flux may be diverted from entering the building by a cement floor):

Flux In (ug/min) = Flux rate (ug/min/m^2) · Area of building (m^2)

Flux out is a simple function of steady state concentration and ventilation rate:

Flux Out (ug/min) = Conc in air (ug/m^3) · Ventilation Rate (m^3/min)

Thus:

Conc in air (ug/m^3) = (Flux Rate · Area of Bldg) / Ventilation rate

For residential buildings, the median ventilation rate is about 0.5 air changes per hour (1 volume per 2 hours), and this value is selected as a conservative default for on-yard commercial/industrial buildings. Thus:

Ventilation rate (m^3/min) = Volume (m^3) / (2 hr)
= Area of Bldg (m^2) · Height (m) / (120 min)

Combining yields:

Conc in air = Flux rate · 120 / Height

Assuming a height of about 3 meters (9 feet) for the height of a room yields:

Conc in Indoor Air (ug/m^3) = Flux rate (ug/m^2/min) · 40

Soil gas flux measurements were collected at a number of stations located above known plumes of groundwater or soil contamination. These locations are shown in Figures 3-4a to 3-4c. Exposure was evaluated for any flux chamber where one or more VOCs was detected. In cases where more than one detected value was available, the higher of the two values was used.

Approach for VOCs Released from Water

For release of VOCs to indoor air from indoor groundwater uses, the transfer factor approach was used (USEPA 1991c). The transfer factor (TF) is defined as the average ratio of the concentration of a VOC in indoor air (mg/m^3) divided by the concentration in water (mg/L). That is:

$$TF = C(air)/ C(water)$$

thus:

$$C(air) = C(water) \cdot TF$$

The value of the transfer factor varies from home to home. A conservative default value is 0.5 mg/m^3 per mg/L (USEPA 1991c), and this value was used in this risk assessment.

The concentration value used for C(water) was the EPC for the VOC in water, derived as described above.

Approach for Dust in Air

No data are available on the concentration of chemicals in air that result from release of on-yard dusts to off-yard locations. Therefore, off-site concentrations of contaminants in dust in air were estimated using the following equations:

$$C_{off\text{-}site\ air}\ (mg/m^3) = C_{on\text{-}site\ air}\ (mg/m^3) \cdot AtF$$
$$C_{on\text{-}site\ air}\ (mg/m^3) = C_{on\text{-}site\ soil}\ (mg/kg) \cdot PEF\ (kg/m^3)$$

where:

AtF = Attenuation factor (the decrease in concentration of site-related dust particles in air as a function of distance from the site)
PEF = Particulate emission factor (kg of soil per m^3 of air)

Because some residences are located quite close to the site boundary, a screening level value of 1.0 was assumed for the attenuation factor. This will result in an overestimate of exposure at residences that are relatively far from the site. The PEF was calculated in accord with the approach described in USEPA (1996a) (see Appendix B for detailed equation and inputs). The resulting value is 3.43E-09 kg/m^3 (3.43 ug/m^3).

The concentration values for soil used to estimate contaminant concentrations in air were the EPCs for surface soil, averaged across all AOIs within four on-yard source areas: Region 1, Region 2, Region 3, and Regions 4+5.

Approach for Fish

EPCs for fish were calculated based on all non-forage fish samples from within an exposure point. This included samples of traditional game fish (e.g., trout, bass) along with other "rough" fish (e.g., suckers, carp) that are usually large enough to be consumed by humans. Calculations included whole body as well as fillet samples, as available.

Results

Appendix D presents tables that summarize the EPCs for each COPC in each medium of potential concern at the site (soil, groundwater, indoor air, outdoor air, surface water, sediment, and fish).

3.4.4 Human Exposure Parameters

For every exposure pathway of potential concern, it is expected that there will be differences between different individuals in the level of exposure at a specific location due to differences in intake rates, body weights, exposure frequencies and exposure durations. Thus, there is normally a wide range of average daily intakes between different members of an exposed population. Because of this, all daily intake calculations must specify what part of the range of doses is being estimated. Typically, attention is focused on intakes that are "average" or are otherwise near the central portion of the range, and on intakes that are near the upper end of the range (e.g., the 95th percentile). These two exposure estimates are referred to as Central Tendency Exposure (CTE) and Reasonable Maximum Exposure (RME), respectively.

This variability in exposure between different members of the population should not be confused with the uncertainty that is often encountered in attempting to estimate either CTE or RME daily chemical intake levels. This uncertainty arises because there are usually insufficient data to accurately define the true distribution of key variables and to accurately identify key exposure parameters such as typical and upper bound intake rates, exposure frequencies and exposure durations. Thus, intake calculations should always be viewed as estimates that have an associated degree of uncertainty, both for CTE and RME values. This uncertainty is discussed in Section 6.

The USEPA has collected a wide variety of data and has performed a number of studies to help establish default values for most residential and worker exposure parameters, and some recreational exposure parameters. The chief sources of these standard default values are the following documents:

1. Risk Assessment Guidance for Superfund (RAGS). Volume I. Human Health Evaluation Manual (Part A). USEPA 1989.

2. Human Health Evaluation Manual, Supplemental Guidance: "Standard Default Exposure Factors". USEPA 1991a.

3. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure. Draft. USEPA 1993a.

Tables 3-5, 3-6, and 3-7 list the exposure parameters selected for use at this site for workers, residents, and recreational visitors, respectively. Whenever possible, these parameters were derived from USEPA guidance. In some cases, no data or guidance was available, and these exposure parameters were selected based on professional judgement.

It should be noted that exposure parameters for on-yard workers were assumed to be the same for all on-yard AOIs, even though worker exposure is not actually likely to be equal in all locations. However, data on actual current worker exposure patterns are not sufficient to allow development of AOI-specific exposure factors, and even if such factors were available, worker activity patterns in the future might be different than at present. Thus, the exposure and risk estimates for each AOI should be recognized as generic, and true exposures and risks might be different in some cases.

4.0 TOXICITY ASSESSMENT

4.1 OVERVIEW

The basic objective of a toxicity assessment is to identify what adverse health effects a chemical causes, and how the appearance of these adverse effects depends on exposure level. In addition, the toxic effects of a chemical frequently depend on the route of exposure (oral, inhalation, dermal) and the duration of exposure (subchronic, chronic, or lifetime). Thus, a full description of the toxic effects of a chemical includes a listing of what adverse health effects the chemical may cause, and how the occurrence of these effects depends upon dose, route, and duration of exposure.

The toxicity assessment process is usually divided into two parts: the first characterizes and quantifies the non-cancer effects of the chemical, while the second addresses the cancer effects of the chemical. This two-part approach is employed because there are typically major differences in the time-course of action and the shape of the dose-response curve for cancer and non-cancer effects.

Non-Cancer Effects

Essentially all chemicals can cause adverse health effects if given at a high enough dose. However, when the dose is sufficiently low, typically no adverse effect is observed. Thus, in characterizing the non-cancer effects of a chemical, the key parameter is the threshold dose at which an adverse effect first becomes evident. Doses below the threshold are considered to be safe, while doses above the threshold are likely to cause an effect.

The threshold dose is typically estimated from toxicological data (derived from studies of humans and/or animals) by finding the highest dose that does not produce an observable adverse effect, and the lowest dose which does produce an effect. These are referred to as the "No-observed-adverse-effect-level" (NOAEL) and the "Lowest-observed-adverse-effect-level" (LOAEL), respectively. The threshold is presumed to lie in the interval between the NOAEL and the LOAEL. However, in order to be conservative (protective), non-cancer risk evaluations are not based directly on the threshold exposure level, but on a value referred to as the Reference Dose (RfD). The RfD is an estimate (with uncertainty spanning perhaps an order of magnitude)

of a daily exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.

The RfD is derived from the NOAEL (or the LOAEL if a reliable NOAEL is not available) by dividing by an "uncertainty factor". If the data are from studies in humans, and if the observations are considered to be very reliable, the uncertainty factor may be as small as 1.0. However, the uncertainty factor is normally at least 10, and can be much higher if the data are limited. The effect of dividing the NOAEL or the LOAEL by an uncertainty factor is to ensure that the RfD is not higher than the threshold level for adverse effects. Thus, there is always a "margin of safety" built into an RfD, and doses equal to or less than the RfD are nearly certain to be without any risk of adverse effect. Doses higher than the RfD may carry some risk, but because of the margin of safety, a dose above the RfD does not mean that an effect will necessarily occur.

Cancer Effects

For cancer effects, the toxicity assessment process has two components. The first is a qualitative evaluation of the weight of evidence (WOE) that the chemical does or does not cause cancer in humans. Typically, this evaluation is performed by the USEPA, using the system summarized below:

WOE Group	Meaning	Description
A	Known human carcinogen	Sufficient evidence of cancer in humans.
B1	Probable human carcinogen	Suggestive evidence of cancer incidence in humans.
B2	Probable human carcinogen	Sufficient evidence of cancer in animals, but lack of data or insufficient data in humans.
C	Possible human carcinogen	Suggestive evidence of carcinogenicity in animals.
D	Cannot be evaluated	No evidence or inadequate evidence of cancer in animals or humans.

For chemicals which are classified in Group A, B1, B2, or C, the second part of the toxicity assessment is to describe the carcinogenic potency of the chemical. This is done by quantifying how the number of cancers observed in exposed animals or humans increases as the dose

increases. Typically, it is assumed that the dose response curve for cancer has no threshold, arising from the origin and increasing linearly until high doses are reached. Thus, the most convenient descriptor of cancer potency is the slope of the dose-response curve at low doses (where the slope is still linear). This is referred to as the Slope Factor (SF), which has dimensions of risk of cancer per unit dose.

Estimating the cancer Slope Factor is often complicated by the fact that observable increases in cancer incidence usually occur only at relatively high doses, frequently in the part of the dose-response curve that is no longer linear. Thus, it is necessary to use mathematical models to extrapolate from the observed high dose data to the desired (but unmeasurable) slope at low dose. In order to account for the uncertainty in this extrapolation process, USEPA typically chooses to employ the upper 95th confidence limit of the slope as the Slope Factor. That is, there is a 95 percent probability that the true cancer potency is lower than the value chosen for the Slope Factor. This approach ensures that there is a margin of safety in cancer as well as non-cancer risk estimates.

4.2 TOXICITY VALUES

Toxicity values (RfD and SF values) that have been established by USEPA are listed in an on-line database referred to as "IRIS" (Integrated Risk Information System). Other toxicity values are listed in the Health Effects Assessment Summary Tables (HEAST) (USEPA 1997), or are available as interim recommendations from USEPA's Superfund Technical Assistance Center operated by the National Center for Environmental Assessment (NCEA). These values are all available in a table of toxicity data assembled by USEPA Region 3 (USEPA 2002).

Table 4-1 summarizes the toxicity values used for evaluation of human health risks from quantitative COPCs at this site. Points to note regarding the data in this table are listed below:

- Two oral RfD values are available for cadmium, depending on exposure medium (water, food). The value for food is assumed to apply to soil.

- The RfD for manganese is based on the oral RfD of 1.4E-01 in the diet, divided by a Modifying Factor of 3 for exposure to manganese in non-food materials (soil, water).

- The valence state of chromium in soil and water is not known, so it was conservatively assumed that all chromium is present as the hexavalent form, since this has a lower RfD than the trivalent form and is also considered to be carcinogenic when inhaled.

- Oral RfD values are not available for most PAHs. A value of 2E-02 mg/kg-day was assumed, based on the value for naphthalene. This value was selected because it is the lowest established RfD for a PAH-class compound.

- Cancer risks (both oral and inhalation) for PAH-class compounds were based on the cancer risks for benzo(a)pyrene multiplied by the Estimated Order of Potency (EOP) values established by EPA (USEPA 1993b, 1994):

$$SF(PAH_i) = SF_{BaP} \cdot EOP(PAH_i)$$

PAH	EOP
Benzo(a)pyrene	1.0
Benzo(a)anthracene	0.1
Benzo(b) fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenz(a,h)anthracene	1.0
Indeno(1,2,3-c,d)pyrene	0.1

- All 1,2-dichloroethane (DCE) was evaluated using the RfD for "total" DCE, since that RfD is slightly lower than the RfD for *cis*-1,2-DCE.

- For trichloroethene (TCE), EPA has not identified a consensus oral or inhalation slope factor value, but rather a range of alternative estimates, most of which are between 2E-02 and 4E-01 $(mg/kg\text{-}day)^{-1}$ (USEPA 2001). Because of the uncertainty in these estimates, USEPA Region 8 recommends using slope factors that were previously derived by NCEA. These NCEA slope factors are slightly lower than the low end of the current range of values estimated in USEPA (2001). These uncertainties in the slope factors for TCE should be taken into consideration in interpreting the estimated cancer risks from ingestion and inhalation of this chemical.

When estimating risk from inhalation exposure to soil particles in air or VOCs released to air from water or soil gas, if inhalation toxicity factors were not available, oral values were used as screening-level estimates of the inhalation values.

5.0 RISK CHARACTERIZATION

5.1 BASIC METHODS

Non-Cancer Risk

For most chemicals, the potential for non-cancer effects is evaluated by comparing the estimated daily intake of the chemical over a specific time period with the RfD for that chemical derived for a similar exposed period. This comparison results in a non-cancer Hazard Quotient (HQ), as follows (USEPA 1989):

$$HQ = DI / RfD$$

where:

HQ	=	Hazard Quotient
DI	=	Daily Intake (mg/kg-day)
RfD	=	Reference Dose (mg/kg-day)

If the HQ for a chemical is equal to or less than one (1E+00), it is believed that there is no appreciable risk that non-cancer health effects will occur. If an HQ exceeds 1E+00, there is some possibility that non-cancer effects may occur, although an HQ above 1E+00 does not indicate an effect will definitely occur. This is because of the margin of safety inherent in the derivation of all RfD values (see Section 4.1). However, the larger the HQ value, the more likely it is that an adverse effect may occur.

If an individual is exposed to more than one chemical, a screening-level estimate of the total non-cancer risk is derived simply by summing the HQ values for that individual. This total is referred to as the Hazard Index (HI). If the HI value is less than 1E+00, non-cancer risks are not expected from any chemical, alone or in combination with others. If the screening level HI exceeds 1E+00, it may be appropriate to perform a follow-on evaluation in which HQ values are added only if they affect the same target tissue or organ system (e.g., the liver). This is because chemicals which do not cause toxicity in the same tissues are not likely to cause additive effects.

Risks from Lead

In the case of lead, a somewhat different approach is used to characterize risk. Rather than calculating an HQ for lead, risk is characterized in terms of the probability that an exposed individual will have a blood lead level that exceeds a level of health concern (10 ug/dL)[1]. The methodology that is recommended for assessing risks to adult workers exposed to lead from soil ingestion is detailed in USEPA (1996b). The approach is based on the expectation that pregnant workers may be exposed to lead from ingestion of soil, and that this exposure could pose a risk to the fetus. The basic equation for quantifying the level of exposure in the adult worker is:

$$PbB_{GM,adult} = PbB0_{adult} + BKSF\left(PbS \cdot IR \cdot AF \cdot EF / 365\right)$$

where:

$PbB_{GM,adult}$	=	Geometric mean blood lead value in exposed adults (ug/dL)
$PbB0_{adult}$	=	Geometric mean blood lead value in unexposed adults (ug/dL)
BKSF	=	Biokinetic slope factor (ug/dL increase in PbB per ug/day absorbed)
PbS	=	Mean concentration of lead in soil (ug/g)
IR	=	Ingestion rate of soil (g/day)
AF	=	Absorption fraction (ug absorbed per ug ingested)
EF	=	Exposure frequency (days per year)

The distribution of blood lead values in the exposed population of adult workers is then characterized as a lognormal distribution:

$$PbB_{adult} = LN(PbB_{GM,adult}, GSD)$$

where:

GSD = geometric standard deviation of blood lead values between different individuals

[1] dL = deciliter (0.1 L or 100 mL).

The concentration of lead in the blood of the fetus is approximately 90% of that in the mother (USEPA 1996b), so the distribution of blood lead values in the fetus is:

$$PbB_{fetus} = 0.9 \cdot LN(PbB_{GM,adult}, GSD)$$

The probability that a fetal blood lead value will exceed the level of health concern (10 ug/dL) in the fetus is referred to as "P10", and may be calculated using the LOGNORMDIST function available in Excel, which returns the fraction of the lognormal distribution that is less than some specified value (10 ug/dL):

P10 = 1 - LOGNORMDIST(10, mu, sigma)

where:

mu = $\ln(PbB_{fetus})$
sigma = ln(GSD)

Input parameters used in the calculations are summarized below:

Parameter	Value	Source	Note
$PbB0_{adult}$	2.0 ug/dL	USEPA (1996b)	Value is in central part of range (1.7-2.2 ug/dL)
BKSF	0.4 ug/dL per ug/day	USEPA (1996b)	National default
IR	0.05 g/day	USEPA (1996b)	Same CTE intake rate of soil as used for other chemicals (see Table 3-5)
EF	219 days/year	USEPA (1996b)	Same CTE exposure frequency to soil as used for other chemicals (see Table 3-5)
AF	0.12	USEPA (1996b)	National default
GSD	1.8	USEPA (1996b)	Because exposed population is all from one community, the value for a homogeneous population is used

Excess Cancer Risk

The excess risk of cancer from exposure to a chemical is described in terms of the probability that an exposed individual will develop cancer because of that exposure by age 70. For each

chemical of concern, this value is calculated from the daily intake of the chemical from the site, averaged over a lifetime (DI_L), and the slope factor (SF) for the chemical, as follows (USEPA 1989):

$$\text{Excess Cancer Risk} = 1 - \exp(-DI_L \cdot SF)$$

In most cases (except when the product of $DI_L \cdot SF$ is larger than about 0.01), this equation may be accurately approximated by the following:

$$\text{Excess Cancer Risk} = DI_L \cdot SF$$

Excess cancer risks are summed across all chemicals of concern and all exposure pathways that contribute to exposure of an individual in a given population.

The level of total cancer risk that is of concern is a matter of personal, community, and regulatory judgement. In general, the USEPA considers excess cancer risks that are below about 1E-06 to be so small as to be negligible, and risks above 1E-04 to be sufficiently large that some sort of remediation is desirable. Excess cancer risks that range between 1E-04 and 1E-06 are generally considered to be acceptable (USEPA 1991b), although this is evaluated on a case by case basis, and EPA may determine that risks lower than 1E-04 are not sufficiently protective and warrant remedial action.

The detailed calculations of cancer and non-cancer risks for all receptors are presented in Appendix E, and summaries of the findings are provided below.

5.2 RISK ESTIMATES FOR ON-YARD WORKERS

5.2.1 Risks from Soil

Table 5-1 presents the estimated non-cancer and cancer risks to workers from ingestion of soil. As seen, non-cancer HI values do not exceed a value of 1E+00 at most AOIs for either the CTE or the RME receptor. The exception is for AOI 21, where non-cancer risks for RME workers are 2E+00, mainly from the ingestion of arsenic. Cancer risks are mainly within or below EPA's risk range (1E-04 to 1E-06), except for RME workers at AOI 21 and 27. At AOI 21, RME cancer

risk may reach a level of 2E-04 due mainly to arsenic in soil. At AOI 27, RME cancer risk may reach a level of 7E-04, due mainly to the presence of PAHs (especially benzo(a)pyrene) in soil.

Table 5-2 summarizes the estimated risk to workers from exposure to lead in soil. Although soil lead levels are elevated in some AOIs, the probability that a pregnant worker will have a blood lead value that could be of concern to a fetus is 2.1% or less at all locations, well below EPA's health-based goal (P10 $\leq$ 5%).

5.2.2 Risks from Groundwater

Table 5-3 presents the estimated non-cancer and cancer risks to workers from ingestion of groundwater. As seen, ingestion of groundwater would be of both non-cancer and cancer concern at a number of AOIs, including 13, 21, 22A, 22B, 30, 32, 33, 34, 38, SPRR3, and SPRR5. In most cases the excess cancer risk is due primarily to vinyl chloride, although arsenic and benzo(a)pyrene contribute to the risk in a few cases. Non-cancer risk drivers vary from AOI to AOI, with most of the risk coming from vinyl chloride, arsenic, antimony, naphthalene, benzene, trichloroethene (TCE), or acetone.

Table 5-4 presents estimated risks from inhalation of VOCs that could be released into indoor air from indoor uses of groundwater. As seen, non-cancer and/or cancer risks exceed EPA's usual risk range at a number of AOIs, including 13, 21, 22A, 22B, 30, 32, 33, 34, 37, 38, SPRR3, and SPRR5. Excess cancer risk is attributable to several different chemicals, including vinyl chloride, benzene, ethylbenzene, and 1,2,3-trichloropropane. Non-cancer risks are due mainly to naphthalene and 1,2-DCE, with benzene, vinyl chloride, 2-methylnaphthalene, and acetone contributing risk in some cases.

These results indicate that groundwater beneath several areas of the site would pose a substantial risk to workers from one or both of two pathways (direct ingestion, inhalation of VOCs) if it were ever used for drinking or other indoor purposes.

5.2.3 Risks from Soil Gas Intrusion

Table 5-5 summarizes the estimated risks to workers from inhalation of VOCs intruding into buildings from soil gas. Because these calculations are based on measured rates of VOC flux at the surface, these estimates include the contribution from VOCs in both soil and groundwater.

As noted earlier, calculations were not performed at stations where there were no VOCs detected in the flux chamber sample. As seen, for chambers where one or more VOC was detected, risks do not exceed EPA's target risk range for either cancer or non-cancer effects. These results indicate that soil gas intrusion is not likely to be of concern to workers in on-site buildings.

5.3 RISK ESTIMATES FOR OFF-YARD RESIDENTS

5.3.1 Risks from Dust in Air

Table 5-6 presents the estimated level of risks to current or future off-yard residents from inhalation of dust that is released to air at on-yard locations and moved by wind to off-yard locations. As seen, risks are below EPA's risk range for both cancer and non-cancer effects in all exposure zones. This indicates that dust released to off-site locations is not likely to be of health concern to off-yard residents.

5.3.2 Risks from Groundwater

Table 5-7 presents hypothetical risks to off-site residents from ingestion of contaminated groundwater derived from various on-yard groundwater plumes. Table 5-8 presents the estimated risks from inhalation of VOCs released into indoor air from indoor uses of groundwater. The pattern of risks is similar to that seen previously for workers (see Tables 5-3 and 5-4), except that risks to residents are higher than to workers. This is because water ingestion rates and time spent inside are both higher for residents than workers. These results support the conclusion that groundwater at most on-site locations is not suitable for residential use or consumption.

5.3.3 Risks from Soil Gas Intrusion

Off-site residents might be exposed to soil gas that migrates from on-yard locations via preferential subsurface pathways such as sewer or utility line bedding material. At present, no measurements of off-yard soil gas migration are available, so this pathway has not been evaluated quantitatively. Based on the finding that risks to on-yard workers from soil gas intrusion into current or future on-yard buildings are within or below EPA's risk range (see Section 5.2.3, above), it is considered likely that off-yard risks from soil gas intrusion are also

low. However, further studies are being performed to investigate this exposure pathway, and the results will be presented in a supplement to this risk assessment.

5.4 RISK ESTIMATES FOR OFF-YARD RECREATIONAL VISITORS

5.4.1 Risks from Surface Water and Sediment

Table 5-9 summarizes the estimated risks to recreational visitors (adults and children) from incidental ingestion of surface water and sediment at each of the exposure areas considered. As seen, risks are within or below EPA's risk range for both cancer and non-cancer effects at all exposure areas for all receptor groups. This indicates that risks to recreational visitors from surface water and sediment along the river corridors are not likely to be of concern.

5.4.2 Risks from Soil

Table 5-10 summarizes the estimated risks to recreational visitors (adult and child) from incidental ingestion of soil at exposures locations along the Weber River riparian corridor and at the 21st Street Pond. As seen, risks are within or below EPA's risk range for both cancer and non-cancer effects at all exposure areas for all receptor groups. This indicates that risk to recreational visitors from contact with surface soil is not likely to be of concern.

5.4.3 Risks from Ingestion of Fish

Risks from Non-PCB Chemicals

Estimated cancer and non-cancer risks to area anglers from ingestion of non-PCB COPCs in fish caught from the 21st Street Pond are summarized below:

Estimated Risks from Non-PCBs in Fish from the 21st Street Pond

Recreational Population	Non-Cancer HI		Cancer Risk	
	CTE	RME	CTE	RME
Adult	2E-02	1E-01	7E-07	8E-06
Child	2E-02	1E-01	2E-07	2E-06

As seen, risks from non-PCBs in fish from the 21st Street Pond do not exceed EPA's risk range for cancer or non-cancer effects. Data for non-PCB contaminants are not available for fish from the Weber River or the Ogden River, but there is no known reason to suspect that risks would be higher at these locations than in the 21st Street Pond.

Risks from PCBs

As discussed previously (see Section 3.4.3), two different methods are available for evaluating risks from PCBs. The first approach is based on an estimate of the total amount of PCB present in a medium, expressed as the Aroclor-equivalent concentration (mg/kg). At this site, Aroclor-equivalent data are available for fish caught from the 21st Street Pond. The estimated cancer and non-cancer risks to area anglers from ingestion of these fish are summarized below:

Estimated Risks from PCBs (as Aroclor) in Fish from the 21st Street Pond

Recreational Population	Non-Cancer HQ		Excess Cancer Risk	
	CTE	RME	CTE	RME
Adult	9E-01	6E+00	8E-06	9E-05
Child	8E-01	5E+00	2E-06	3E-05

As seen, this approach indicates that cancer risks do not exceed EPA's risk range for either adults or children, but estimated non-cancer HQ values exceed 1E+00 for the RME adult and RME child. These results suggest that ingestion of fish caught within the 21st Street Pond might be of potential health concern to fishermen because of non-cancer (but not cancer) risks of PCBs.

The second approach for evaluating risks from PCBs is to measure the concentration of each of 12 different congeners with significant TCDD-toxicity, and then to calculate the probability of cancer based on the TEQ approach. The results of this method are shown in Table 5-11. As seen, estimated cancer risks are mainly within or below EPA's risk range, except for a risk estimate of 2E-04 for an RME adult who fishes mainly along the Ogden River in Reach B (just upstream of the 21st Street Pond).

Taken together, these results suggest that cancer risks from PCBs in fish from within and near the 21st Street Pond are likely to be mainly within EPA's acceptable risk range (1E-04 to 1E-06). Potential non-cancer risks based on the Aroclor equivalent method suggest a basis for concern, but these results should be interpreted cautiously. Most importantly, the Aroclor-based approach

is uncertain because the toxicity factor is derived from studies of a commercial Aroclor mixture, while the on-site exposure is to a mixture of congeners that, because of differential fate and transport processes, is generally quite different in congener ratios than the starting commercial Aroclor mixture. However, at present there is no congener-based method for estimating non-cancer-based risks from PCBs. If it is assumed that the ratio of congener-based non-cancer risk compared to Aroclor-based non-cancer risk is the same as was observed for cancer risk (congener-based cancer risk estimates for fish from the 21st Street Pond are about 2-3 fold lower than estimates based on the Aroclor-equivalent method), then noncancer risk estimates would likely be below a level of concern for most people, with the possible exception of RME individuals.

6.0 UNCERTAINTIES

Quantitative evaluation of the risks to humans from environmental contamination is frequently limited by uncertainty regarding a number of key data items, including concentration levels in the environment, the true level of human contact with contaminated media, and the true dose-response curves for non-cancer and cancer effects in humans. This uncertainty is usually addressed by making assumptions or estimates for uncertain parameters based on whatever limited data are available. Because of these assumptions and estimates, the results of risk calculations are themselves uncertain, and it is important for risk managers and the public to keep this in mind when interpreting the results of a risk assessment. The following sections review the main sources of uncertainty in the risk calculations performed at this site.

6.1 UNCERTAINTIES IN EXPOSURE ESTIMATION

As described above, the risk assessment process begins with estimation of human exposure to potentially toxic chemicals in environmental media. There are multiple sources of uncertainty in these exposure estimates, as discussed below.

Uncertainties from Exposure Pathways Not Evaluated

As discussed in Section 3 (see Figure 3-1), humans may be exposed to site-related chemicals by a number of pathways, but not all of these pathways were evaluated quantitatively in this risk assessment. In most cases, this is because the contribution of the pathway omitted is believed to be minor compared to one or more other pathways that were evaluated. In these cases, omission of the minor pathways will result in a small underestimation of exposure and risk, but the magnitude of this underestimation is not expected to be significant. In the case of dermal exposure, the magnitude of the underestimation is generally presumed to be small, but this may vary between different chemicals and different exposure pathways (dermal contact with soil, sediment or water), and might become significant in some cases. If so, that would result in an underestimation of risk.

Uncertainties From Chemicals Not Evaluated

As discussed in Section 3.3, many chemicals were detected in one or more environmental media, but exposure and risk were quantified only for a selected subset (the COPCs) of those chemicals.

In many cases, omission of a chemical is not a significant source of uncertainty, since the chemical is known to have very low toxicity, or because the highest level of the chemical detected does not approach a level of concern. However, some chemicals that were not evaluated are a source of uncertainty and may be associated with an underestimation of risk.

> Qualitative Type 1 COPCs are chemicals that were not evaluated quantitatively because no toxicity data were available. Thus, the magnitude of the risk posed by the chemical cannot be estimated. However, it is often true that absence of a toxicity value is the result of a low level of concern over the chemical. Thus, chemicals that lack toxicity factors may contribute some added risk to exposed humans, but the level of added risk is not expected to be large.
>
> Qualitative Type 2 COPCs are chemicals that were not evaluated quantitatively because they were never detected, but the detection limit was too high to expect that the chemical would have been frequently detected if it were present at a level approaching a concentration of possible health concern. Thus, omission of Type 2 qualitative COPCs could result in an underestimation of exposure and risk. However, in most cases, the magnitude of the underestimation is not likely to be large, since most detection limits were adequate to detect the chemical if it were present at a level of clear health concern.

Uncertainties in Exposure Point Concentrations

In all exposure calculations, the desired input parameter is the true mean concentration of a contaminant within a medium, averaged over the area where random exposure occurs. However, because the true mean cannot be calculated based on a limited set of measurements, the USEPA (1992) recommends that the exposure estimate be based on the 95% upper confidence limit of the mean. This approach helps ensure that exposure and risk estimates are more likely to be high than low.

When data are plentiful and inter-sample variability is not large, the EPC may approach the mean of the data. However, when data are sparse or are highly variable, the EPC may be far greater than the simple mean of the available data. For example, the mean concentration of benzo[a]pyrene in soil from AOI 27 is 27 mg/kg (based on 2 out of 8 detects), while the EPC (based on the maximum detect) is 200 mg/kg. Likewise, the mean concentration of acetone in groundwater at AOI 32 is 0.8 mg/L (based on one detect out of 12), while the EPC is 10 mg/L

(the maximum). Such EPCs (substantially higher than the mean) reflect the substantial uncertainty that exists when data are sparse or highly variable, and in general are likely to result in an overestimate of risk.

In some cases, no direct measures of concentration in a medium were obtained, so the concentration values (and the EPCs) had to be estimated by mathematical modeling. This includes the concentration of VOCs in indoor air due to release from indoor uses of water and intrusion of VOCs from soil gas, and the release of dust particles into air from on-site locations. In general, mathematical modeling of exposure point concentrations is a source of many additional uncertainties, and exposure point estimates derived in this way often have low reliability.

In the case of risks from dust release into air, estimated potential risk levels were so low that despite the uncertainties in estimating airborne concentration levels, there is very little uncertainty in the conclusion that exposure by this pathway is not of concern.

In the case of inhalation exposure to VOCs that intrude into indoor air from soil gas, measurements of soil gas flux (the rate of release of volatile chemicals from soil to air) serve as the starting point for the calculations. While the flux measurements were made following EPA protocol, these types of measurements are somewhat uncertain, since the values may depend on the barometric pressure and temperature of the days when the samples were collected, and long-term average values might be different than the samples collected. In addition, because some areas of the ground surface at the railyard contain coarse ballast (especially near current and former rail lines), there is a theoretical possibility that flux chamber samples at these locations might have been diluted by ambient air drawn in by short-circuiting through the underlying fill. Indoor air levels were estimated from the soil gas flux data using mathematical models that make assumptions about building size, ventilation rates, and soil gas influx rates. In this case, the mathematics of the indoor air model are relatively simple, so the uncertainty associated with the predicted indoor air levels is relatively low, except for assumptions about the fraction of gas entering the building. As noted above, in order to be conservative, all of the gas beneath the building was assumed to enter the building, an approach which is very likely to result in an overestimation of risk.

In the case of release of VOCs from indoor uses of water into indoor air, the concentration in air is a very complex function of water use rate, building size, and ventilation rates. The transfer

factor approach used to estimate concentration is based on a number of studies, mainly involving radon, and is intended to estimate the long term whole-house average concentration attributable to releases from water. The value selected (0.5 mg/m^3 in air per mg/L in water) is at the high end of the values observed for radon, and because radon release from water to air is likely to be as high or higher for radon than most other volatile chemicals, use of this value is likely to overestimate the release of most other volatile chemicals.

In the case of potential future off-site exposure of residents to groundwater, no attempt was made to perform mathematical modeling of future off-site groundwater concentrations, and values were simply assumed to be equal to current on-site concentrations. This assumption does not account for the usual decrease (attenuation) in the concentration of contaminants in a groundwater plume as it migrates away from its source, and consequently exposure and risk estimates from hypothetical future exposure of off-site residents to contaminated groundwater are likely to be too high.

Uncertainties in Human Exposure Parameters

Accurate calculation of risk values requires accurate estimates of the level of human exposure that is occurring. However, because human activity patterns are so variable, data on the average and RME intake rates are limited for some of the pathways considered in this assessment. For example, the CTE and/or RME exposure parameters for the following exposure pathways are judged to have significant uncertainty:

- Ingestion of soil by on-yard workers
- Ingestion of sediment and surface water by recreational visitors
- Ingestion of fish by area anglers

In general, when exposure data were limited or absent, the exposure parameters were chosen in a way that was intended to be conservative. Therefore, the values selected are thought to be more likely to overestimate than underestimate actual exposure and risk.

6.2 UNCERTAINTIES IN TOXICITY VALUES

Toxicity information for many chemicals is often limited. Consequently, there are varying degrees of uncertainty associated with toxicity values (i.e., cancer slope factors, reference doses). For example, uncertainties can arise from the following sources:

- Extrapolation from Animal Studies to Humans. Toxicity results are often derived from studies in animals, and there are substantial uncertainties in the inter-species extrapolation of animal results to humans due to differences in toxicokinetics and toxicodynamics. In general, EPA deals with this uncertainty by application of an uncertainty factor of 10. That is, in cases where humans are either equally sensitive or less sensitive than animals, the toxicity factors will substantially overestimate risk.

- Extrapolation from High Dose to Low Dose. Most animal studies are performed using relatively high exposure levels, and there is often uncertainty in the best way to extrapolate the dose-response curve to the lower exposure levels typically experienced by humans at a Superfund site. In general, EPA deals with this issue by assuming a conservative dose response model, and by using a conservative estimate of the LOAEL and NOAEL.

- Extrapolation from Continuous Exposure to Intermittent Exposure. Most animal studies are performed using a relatively constant exposure design, while most human exposures occur intermittently (especially for recreational visitors). Current risk assessment methods assume that risk is proportional to average dose rather than dose rate, and this could result in either an overestimate or an underestimate of true risk.

- Lack of Adequate Test Results. In some cases, only a few studies are available to characterize the toxicity of a chemical, and uncertainties exist not only in the dose-response curve, but also in the nature and severity of the adverse effects which the chemical may cause. EPA typically deals with this uncertainty by applying an uncertainty factor of 10-100 to account for limitations in the database. Thus, in cases where available data do identify the most sensitive endpoint of toxicity, risk estimates will substantially overestimate true hazard.

- Potentially Sensitive Human Subpopulations. In general, it is assumed that some humans may be more sensitive than others to the adverse effects of a chemical, but data are usually not available to determine if this is true. EPA typically deals with this uncertainty by applying an uncertainty factor of 10. Thus, most people are expected to have a risk 10-times lower than calculated, and even if some people do tend to be most sensitive, the calculated risks may still be larger than actual.

In general, uncertainty in toxicity factors is one of the largest sources of uncertainty in risk estimates at a site. Because of the conservative methods EPA uses in dealing with the uncertainties, it is much more likely that the uncertainty will result in an overestimation rather than an underestimation of risk.

Uncertainty in toxicity factors also arises from lack of knowledge on the potential interactive effects of different chemicals. Most RfD and slope factor values are derived from studies of the adverse effects of pure chemicals. However, human exposure scenarios usually involve multiple chemicals, raising the possibility that synergistic or antagonistic interactions might occur. However, data are not adequate to permit any quantitative adjustment in toxicity values or risk calculations based on inter-chemical interactions. This uncertainty may result in over- or underestimates of risk.

6.3 UNCERTAINTIES IN RISK ESTIMATES

A number of limitations are associated with the risk characterization approach for carcinogens and noncarcinogens.

First, because risk estimates for a chemical are derived by combining uncertain estimates of exposure and toxicity (see above), the risk estimates for each chemical are more uncertain than either the exposure estimate or the toxicity estimate alone. However, even if the risk estimates for individual chemicals were quite certain, there is considerable uncertainty in how to combine risk estimates across different chemicals. In some cases, the effects caused by one chemical do not influence the effects caused by other chemicals. In other cases, the effects of one chemical may interact with effects of other chemicals, causing responses that are approximately additive, greater than additive (synergistic), or less than additive (antagonistic). In most cases, available toxicity data are not sufficient to define what type of interaction is expected, so EPA generally assumes effects are additive for non-carcinogens that act on the same target tissue and for

carcinogens (all target tissues). Because documented cases of synergistic interactions between chemicals are relatively uncommon, this approach is likely to be conservative for most chemicals.

However, it should be noted that risk estimates for different chemicals are based on toxicity values (slope factors and reference doses) that often have differing degrees of confidence and uncertainty (both quantitative and qualitative). Thus, summing HQ values and cancer risk estimates across different chemicals tends to commingle risks that are relatively certain with risks that are highly uncertain, and this makes interpretation of the combined risk estimates more difficult.

For non-carcinogens, summing HQ values across different chemicals is properly applied only to compounds that induce the same effect by the same mechanism of action. Consequently, summation of HQ values for compounds that are not expected to include the same type of effects or that do not act by the same mechanisms could overestimate the potential for effects.

6.4 SUMMARY OF UNCERTAINTIES

Table 6-1 summarizes the main sources of uncertainty discussed above, indicates whether the approach used to deal with the uncertainty is more likely to underestimate or overestimate risk, and provides a rough estimate of the likely magnitude of the under- or over-estimation. As seen, some uncertainties will tend to lead to an underestimate of risk, but these underestimates are thought to be relatively small. A number of uncertainties are likely to lead to an overestimate of risk, and in some cases, these overestimates might be moderate to large. Based on this, the risk estimates derived in this risk assessment are more likely to overestimate than underestimate risk.

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BASELINE HUMAN HEALTH RISK ASSESSMENT FOR THE OGDEN RAILYARD SITE OGDEN, UTAH

Figures

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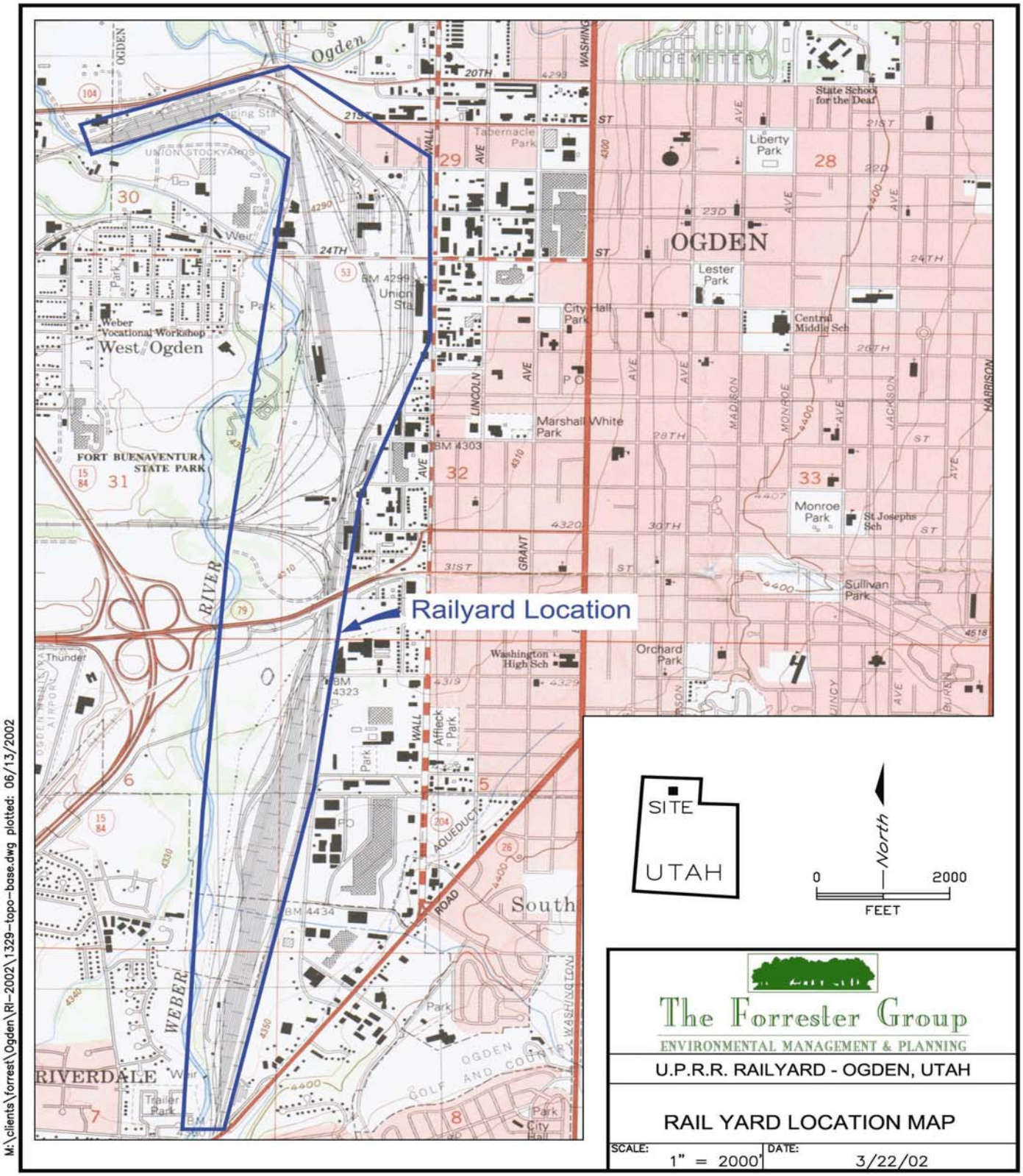

Figure 2-1
Ogden Railyard Location Map

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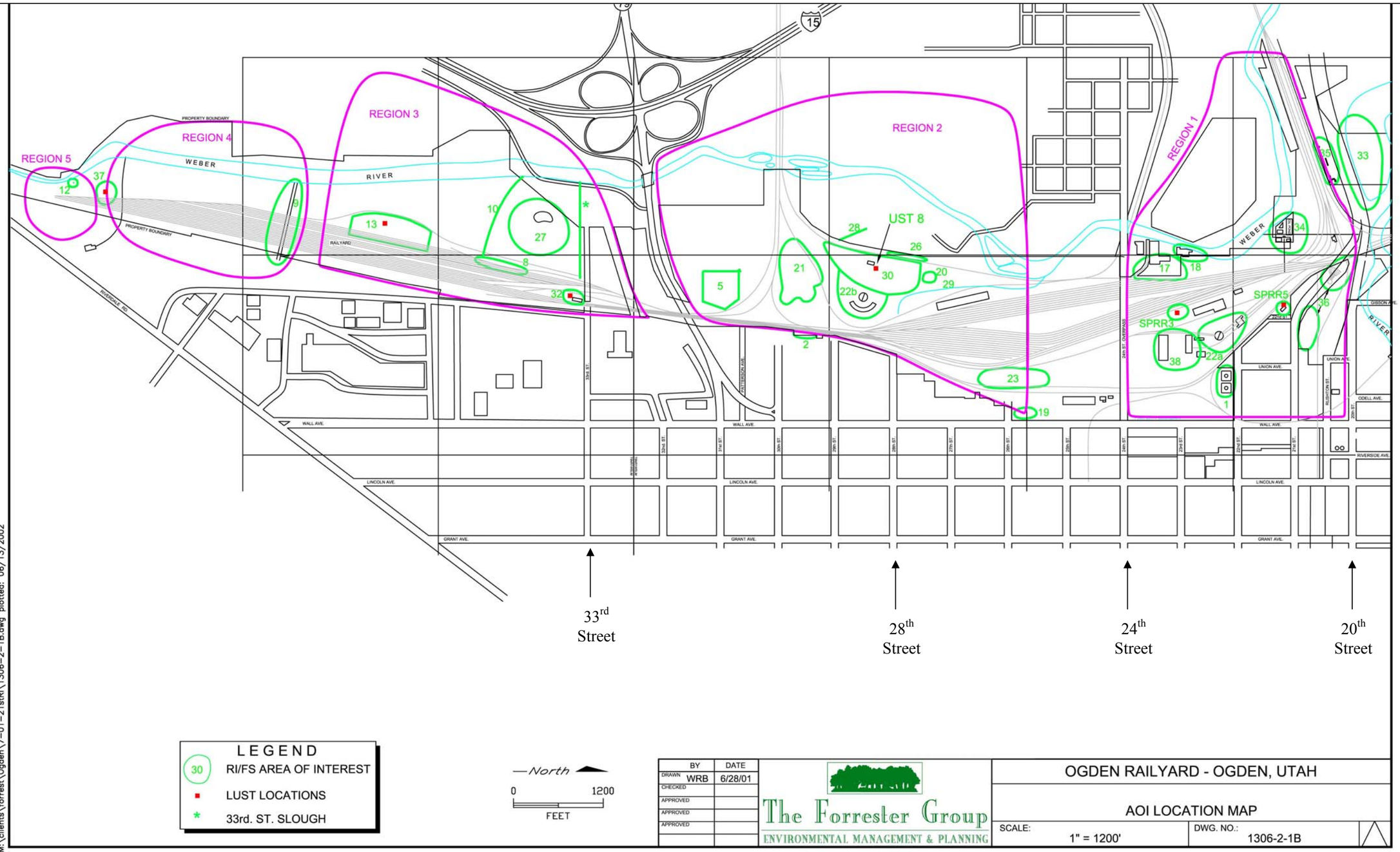
Figure 2-2
Ogden Railyard Areas of Interest (AOIs)



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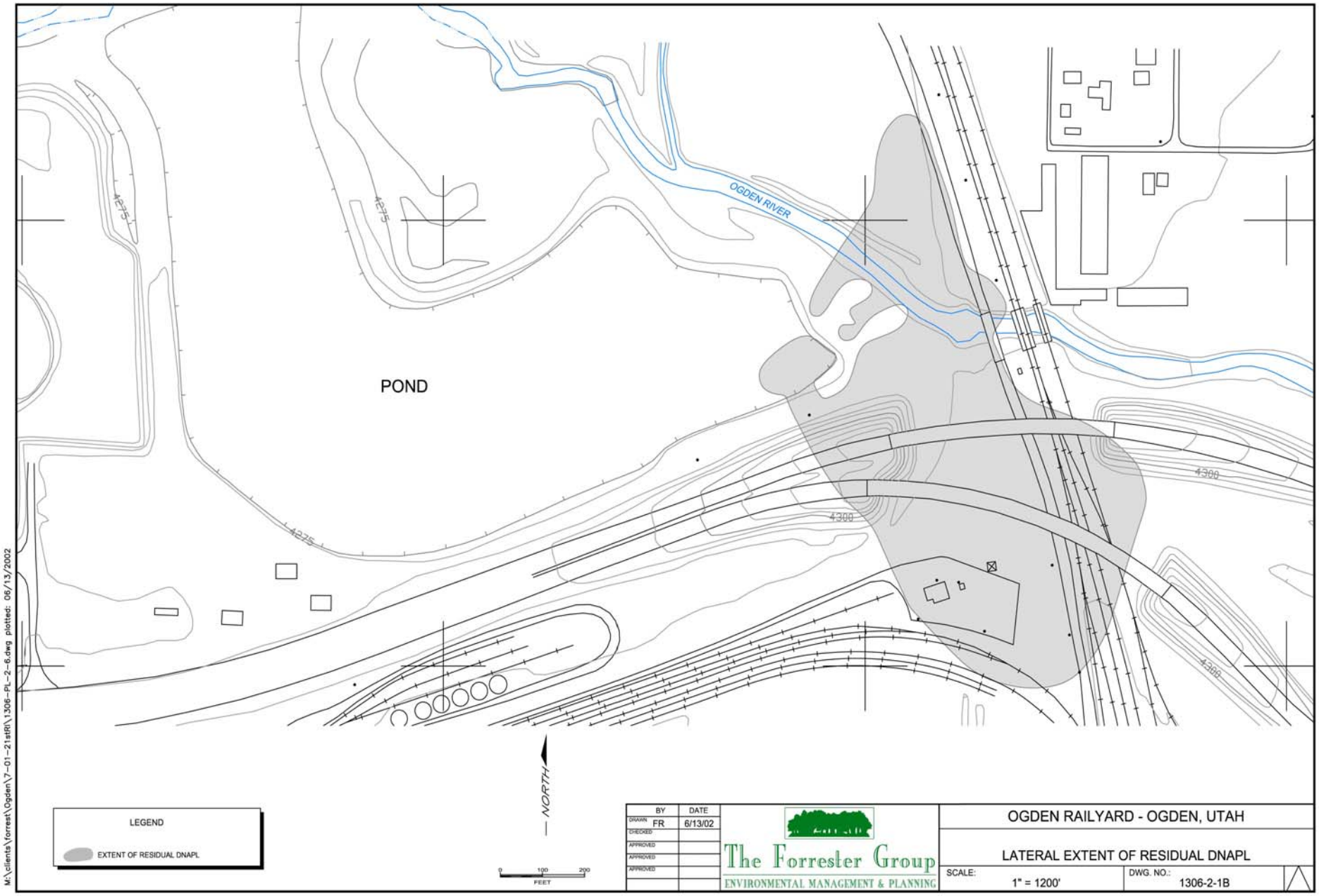

Figure 2-3
Location of the DNAPL Zone

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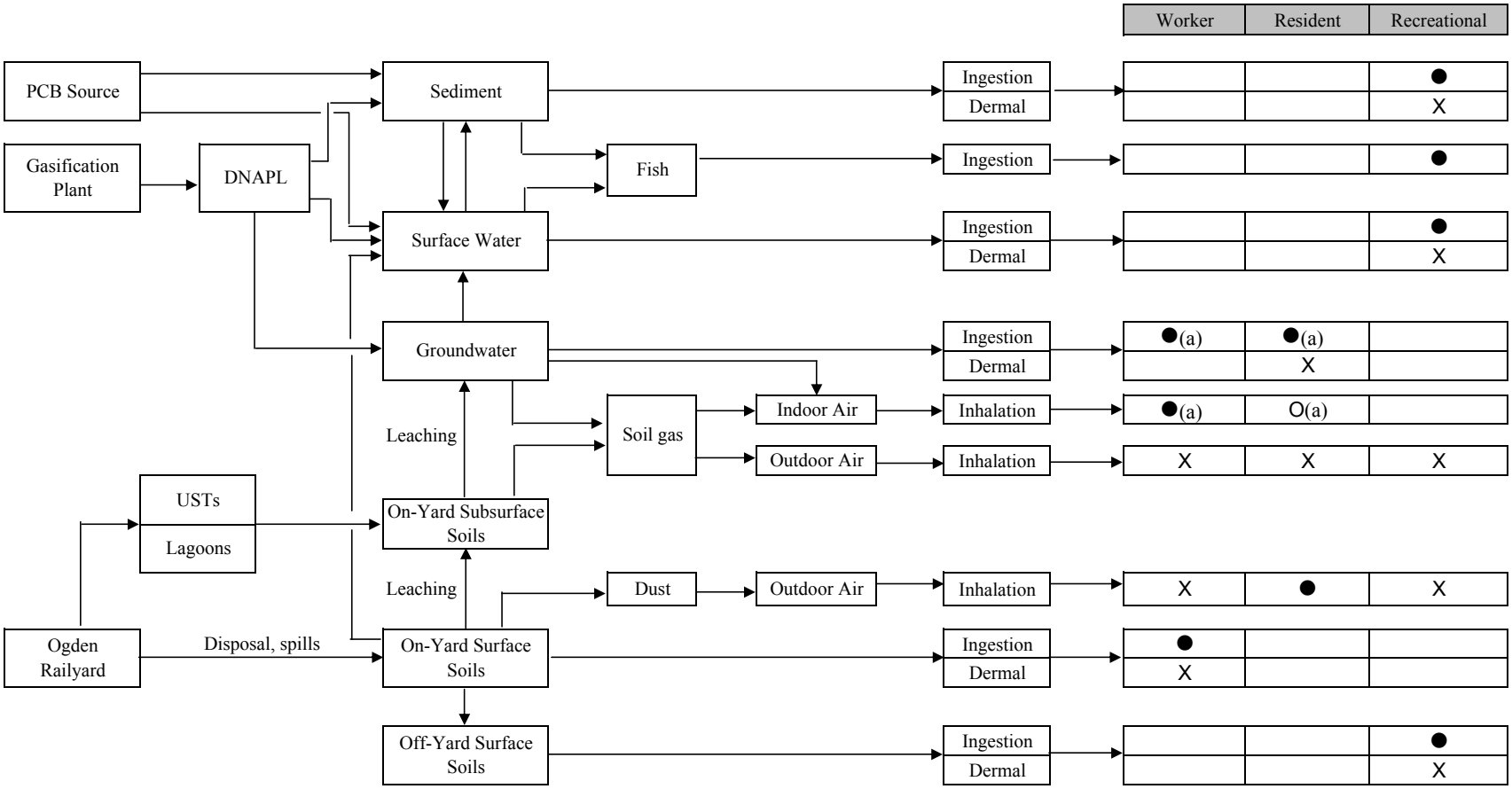
Figure 3-1. Site Conceptual Model for Human Exposure



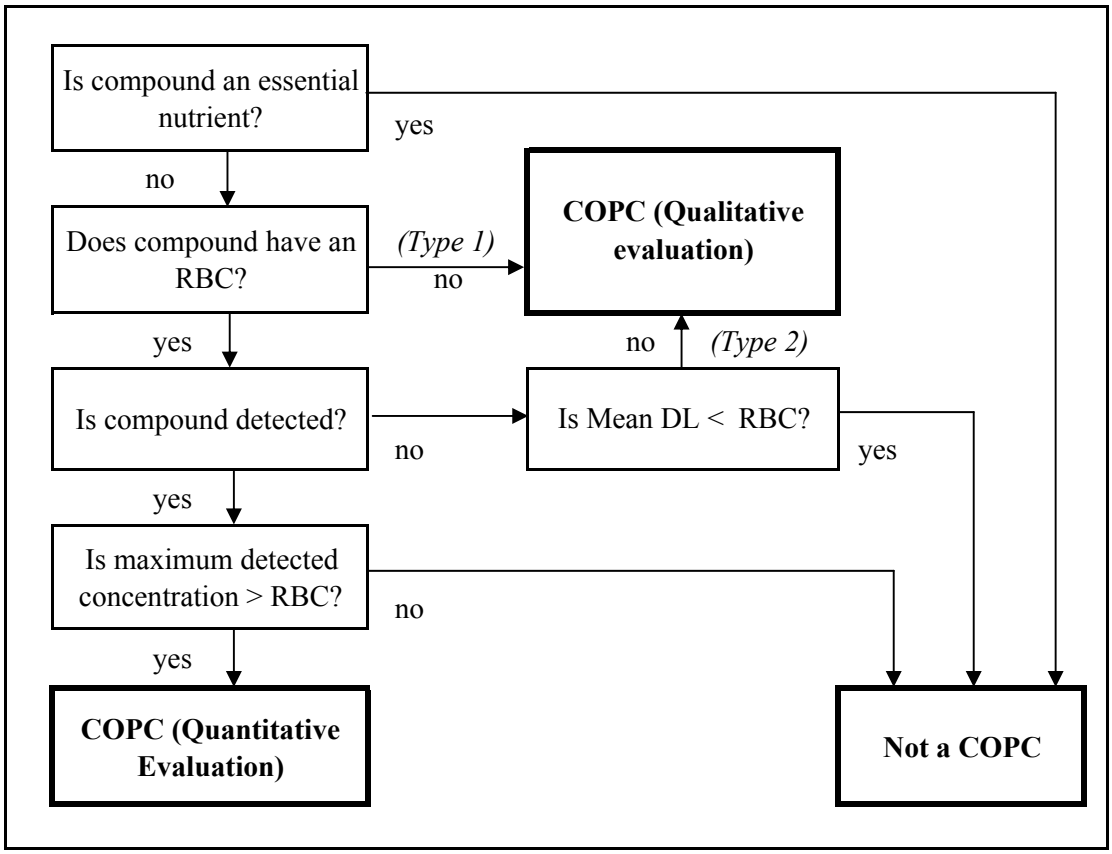
LEGEND

	Pathway is not complete; no evaluation required
X	Pathway is or might be complete, but is judged to be minor; qualitative evaluation
O	Pathway is or might be complete and could be significant, but data are lacking to support quantitative evaluation; qualitative evaluation
●	Pathway is or might be complete and could be significant; quantitative evaluation

(a) Pathway is not currently complete but might be complete in the future

Figure 3-2. COPC Selection Procedure for Human Health

Human Health Risk Assessment for Ogden, Utah



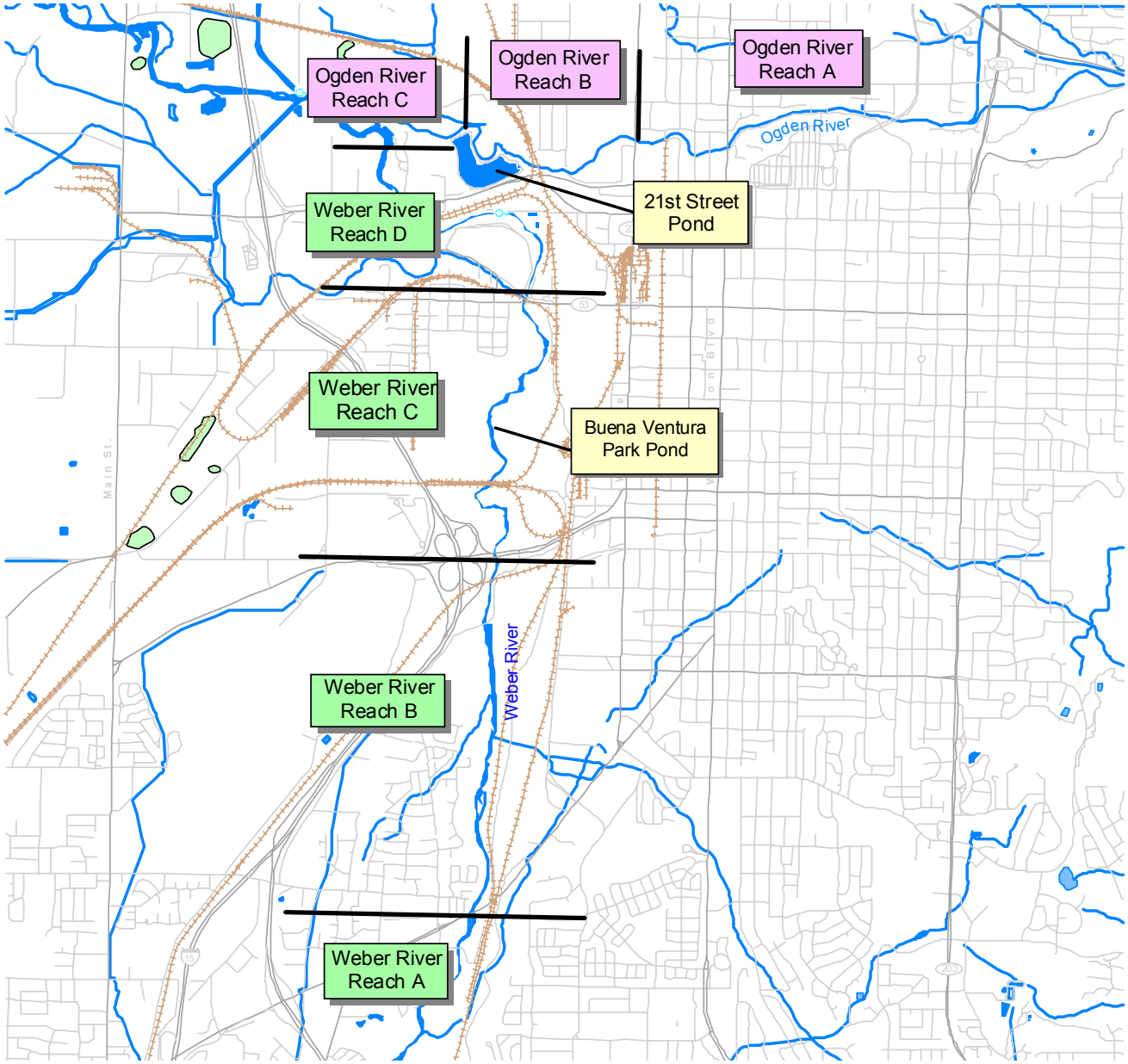
Notes:

RBC = Risk-based concentration (HQ = 0.1, Cancer risk = 1E-06)

COPC = Chemical of potential concern

DL = Detection limit

Figure 3-3
Exposure Locations for Recreational Visitors



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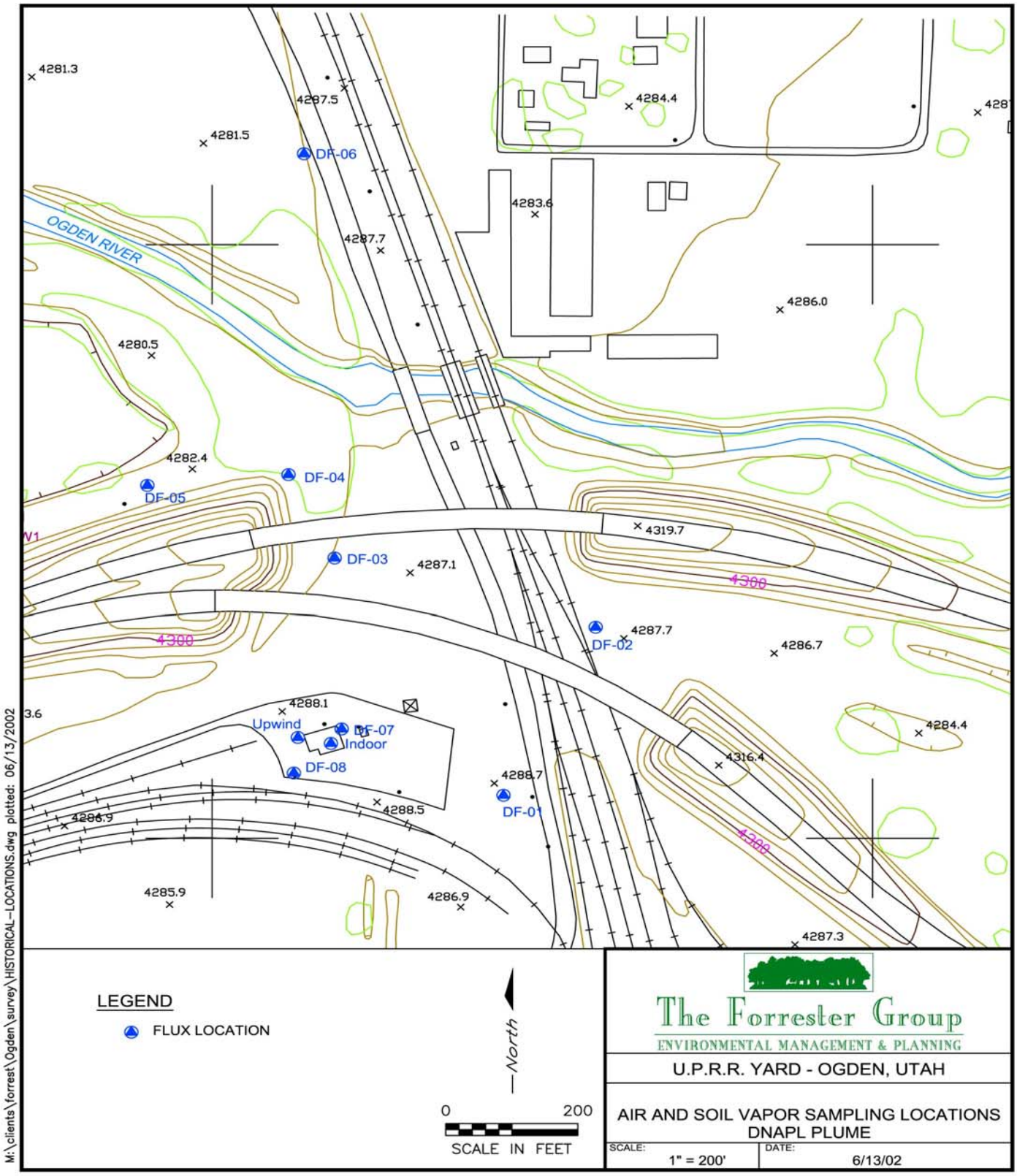

Figure 3-4a
Sampling Locations for Soil Gas Flux Chambers

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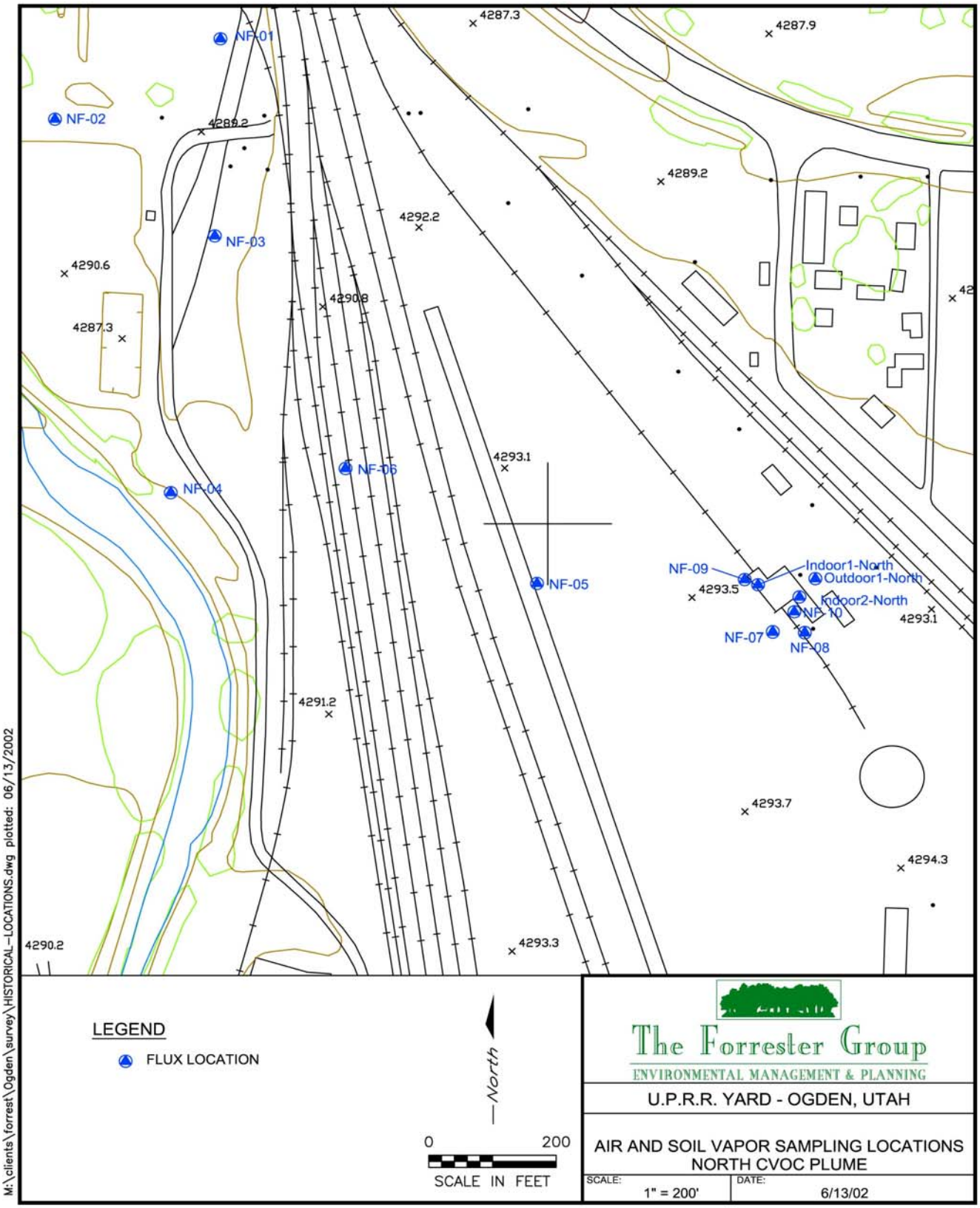

Figure 3-4b
Sampling Locations for Soil Gas Flux Chambers

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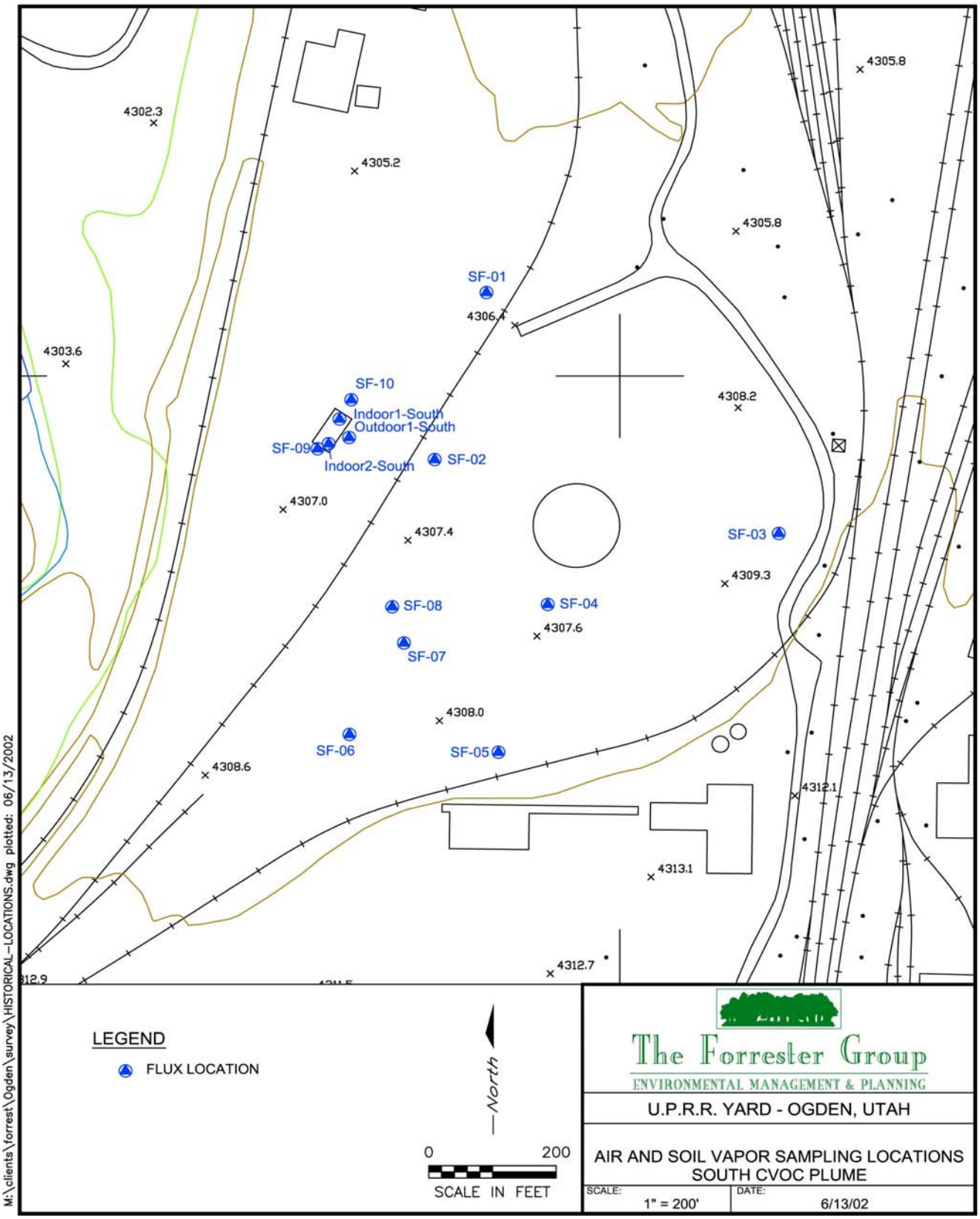

Figure 3-4c
Sampling Locations for Soil Gas Flux Chambers

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BASELINE HUMAN HEALTH RISK ASSESSMENT FOR THE OGDEN RAILYARD SITE OGDEN, UTAH

Tables

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Table 2-1
Summary of Areas of Interest (AOIs)

Area of Interest (AOI)	Name	Description
AOI-1	Former SPRR Diesel ASTs	Former above ground diesel storage tanks
AOI-2	Rail Line to Granary	Granary loading and unloading area
AOI-5	Railroad Tie Storage and Handling	Tie storage facility; several acres; treated ties delivered and stored here for subsequent distribution throughout the railroad system.
AOI-8	Refrigerator Car Maintenance	Refrigerator cars parked for cleaning and maintenance.
AOI-9	Burch Creek	Permanent stream that flows from east to west into Weber River. Diesel spill with subsequent removal.
AOI-10	Storm Drain and Slough	Ephemeral drainage that diverts water under the RR via a culvert that opens under the refrigerator repair tracks at AOI-8. The slough winds across the meadow of the lower terrace floodplain south of the former pond restoration in AOI-27 and becomes poorly defined near the Weber River.
AOI-12	Oil/Water Separator	Within 30 feet of Weber River. Separator was closed and removed in May, 2000.
AOI-13	RIP Tracks	Rail Car Maintenance Area.
AOI-17	Surplus Storage and Salvage	Non-railroad property. Warehousing of old industrial equipment, machinery, scrap metal and wood. The building was previously a slaughter house.
AOI-18	Dyce Chemical Co.	Manufactures and handles organic chemicals and unspecified acids and bases. Tank cars typically parked on RR property. Sampling at siding tracks leading to entry gate.
AOI-19	Former UPRR Laundry	The building housed the former laundry operations that once serviced the entire UPRR passenger rail system. The laundry operated until the 1960s.
AOI 20	Former UPRR Diesel ASTs	Remains of pads for 2 above ground storage tanks removed in 1970's. Aged petroleum present.
AOI-21	Atlas Steel Salvage Yard	Non-railroad; metals salvage yard. Possible drum storage in 1940's just south.
AOI 22A	Former SPRR Roundhouse	Primary engine maintenance for both diesel and steam locomotives. Roundhouse was dismantled in 1954. Remnants of the old fuel dispenser rack exist along the west side of the present soda-ash transfer building.
AOI-22B	Former UPRR Roundhouse	Steam locomotives and early diesel locomotives were serviced in the roundhouse, which was demolished in 1974. Only the concrete foundations remain at ground level and no railroad operations are currently active in this area.
AOI-23	Mucking Lines	Parked rail cars for cold storage refrigeration.
AOI-26	Sludge Reclamation Area	Former pile of sludge from the former UPRR oil reclamation plant. The petroleum based sludge (29,000 tons) was excavated and removed in 1993. Sampling by the State in 1994 indicated that contamination remained.
AOI-27	1996 Pond Closure (Ogden Pond)	Area to the west of the rail tracks formerly used for sludge disposal. Shallow pond formed in a surface depression. Three separate reports characterize the investigations.
AOI-28	Roundhouse Drainage Ditch	Slough on the Fort Buena Ventura Park property that channels water westward from a culvert under the roundabout track to the main diversion canal from the Weber River that supplies the park pond. The drainage comes from an undefined source within the old RR facilities east of the roundabout track. The channel cuts across the lower flood plain terrace.

Table 2-1
Summary of Areas of Interest (AOIs)

Area of Interest (AOI)	Name	Description
AOI-29	Strongs Creek	Emerges from a culvert north of the former UPRR roundhouse and continues as an open drainage discharging north and west to the Weber River.
AOI-30	Current Durbano Salvage Yard and Former UPRR Maintenance Area	Former UPRR rail car maintenance area and oil recycling facility. Includes above-ground storage tanks, process tanks, piping networks, settling ponds and holding ponds.
AOI-32	Oil/Water Separator and Undeground Storage Tank	Oil/water separator facility surrounded by the track network near the current operations office. Underground tank formerly stored the fuel oil for the cabooses and was removed in 1990.
AOI-33	21st Street Pond	Man-made lake that was excavated in 1973 concurrently with the construction of the 21st Street overpass. The pond is a borrow pit for the soil forming the overpass ramps. The site was previously a farm. Concerns about seep of hydrocarbons at the southeast end of the lake.
AOI-34	SPRR Water Treatment Plant	Fenced compound of the SPRR waste water treatment plant. Currently inactive, undergoing remediation.
AOI-35	Former D&RGW Rip Track Area	This small maintenance facility and siding yard, active during the steam and diesel locomotive eras. Operations at the yard ceased in the mid to late 1980s. In 1988, an audit was conducted in addition to site assessment and soil remediation because of a possible transfer of the railroad property.
AOI-36	Former D&RGW Roundhouse and Salvage Yard	Engine maintenance area and auto salvage yard. Nothing remains on the RR facility or the salvage operation.
AOI-37	Underground Storage Tank Release	Two leaking underground storage tanks containing diesel fuel. After cleaup, no-further action letter issued by the State in June 2000.
AOI-38	Former SPRR Engine Maintenance Area and Machine Shop	Includes the machine shop, tin and tank shop, power house and storehouse. Early 1970's rupture of diesel fuel service line. Free phase product plume present.
SPRR3 LUST	SPRR3 LUST site	UPRR removed a 1,000 gasoline underground storage tank in June 1997.
SPRR5 LUST	SPRR5 LUST site	Gasoline released from tank or dispenser pipings. After cleaup, no-further action letter issued by the State in June 2000.
33rd Street Slough	33rd Street Slough	Surface water is gathered in storm sewers in the city of Ogden east of the railyard and is then channeled under the railyard at 33rd Street. A subgrade culvert ends west of the tracks, and the water flow then flows in an open slough most of the time. West of the railyard, the slough passes through a non-railroad landfill in that area before emptying into the Weber River.

Table 3-1 List of Quantitative COPCs

Ogden Railyard Human Health Risk Assessment

Chemical Class	Off-Site Recreational Visitor				On-Yard Worker	Current and Future On-Yard Worker and Future Off-Site Resident
	Soil	Sediment	Surface Water	Fish	Soil	Groundwater
Inorganics	Arsenic	*NONE*	*NONE*	*NONE*	Aluminum Antimony Arsenic Chromium Copper Lead Manganese Mercury Selenium	Antimony Arsenic Barium Cadmium Chromium Lead Manganese Mercury Selenium Silver
Polyaromatic Hydrocarbons (PAHs)	Benzo[a]pyrene	Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Dibenz[a,h]anthracene Indeno[1,2,3-c,d]pyrene	*NONE*	*NONE*	Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Chrysene Dibenz[a,h]anthracene Indeno[1,2,3-c,d]pyrene	2-Methylnaphthalene Acenaphthene Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Chrysene Dibenz[a,h]anthracene Dibenzofuran Fluoranthene Fluorene Indeno[1,2,3-c,d]pyrene Naphthalene Phenanthrene Pyrene
Polychlorinated Biphenyls (PCBs)	*NONE*	PCBs (as Aroclor)	*NONE*	PCBs (as Aroclor) PCBs (as TEQ)	*NONE*	PCBs (as Aroclor)
Pesticides	*NONE*	*NONE*	*NONE*	4,4'-DDE	*NONE*	*NONE*
Semi-Volatile Organic Compounds	*NONE*	*NONE*	*NONE*	bis(2-Ethylhexyl)phthalate	n-Nitrosodipropylamine	1,4-Dichlorobenzene 2,6-Dinitrotoluene 4,6-Dinitro-o-cresol 4-Methylphenol (p-Cresol) bis(2-Chloroethyl)ether bis(2-Ethylhexyl)phthalate Carbazole n-Nitrosodipropylamine Pentachlorophenol
Volatile Organic Compounds	*NONE*	*NONE*	Dichloromethane	*NONE*	*NONE*	1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,2,3-Trichloropropane 1,2-Dichloroethane 1,2-Dichloroethene Acetone Benzene Chlorodibromomethane Ethyl chloride Methyl chloride cis-1,2-Dichloroethene Dichloromethane Ethylbenzene Tetrachloroethene Toluene Trichloroethene Vinyl Chloride Xylenes (Total)

Table 3-2 List of Type 1 Qualitative COPCs

Ogden Railyard Human Health Risk Assessment

Chemical Class	Off-Site Recreational Visitor				On-Yard Worker	On-Yard Worker/ Future Resident
	Soil	Sediment	Surface Water	Fish	Soil	Groundwater
Inorganics	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*
Polyaromatic Hydrocarbons (PAHs)	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*
Polychlorinated Biphenyls (PCBs)	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*
Pesticides	Endrin Aldehyde Endrin ketone Isodrin	Endrin Aldehyde Endrin ketone Isodrin	Endrin Aldehyde Isodrin	Endrin Aldehyde Endrin ketone	Endrin Aldehyde Endrin ketone Isodrin	*NONE*
Petroleum Hydrocarbons	Diesel fuel	TPH	Diesel fuel TPH	*NONE*	Diesel fuel Gasoline Oil and Grease TPH	Diesel fuel Gasoline Oil and Grease
Semi-Volatile Organic Compounds	1-Methylnaphthalene 2-Nitrophenol 4-Bromophenyl-phenylether 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane	1-Methylnaphthalene 2-Nitrophenol 4-Bromophenyl-phenylether 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane	1-Methylnaphthalene 2-Nitrophenol 4-Bromophenyl-phenylether 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane	2-Nitrophenol 4-Bromophenyl-phenylether 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane	1-Methylnaphthalene 2-Nitrophenol 4-Bromophenyl-phenylether 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane	1-Methylnaphthalene 2-Nitrophenol 4-Chloro-3-Methylphenol 4-Chlorophenyl-phenylether bis(2-Chloroethoxy)methane
Volatile Organic Compounds	1,1-Dichloropropene 1,2,3-Trichlorobenzene 1,3-Dichloropropane 2,2-Dichloropropane 2-Chloroethyl vinyl ether 3-Chloropropene (Allyl Chloride) 4-Chlorotoluene Bromobenzene Iodomethane	1,1-Dichloropropene 1,2,3-Trichlorobenzene 1,3-Dichloropropane 2,2-Dichloropropane 2-Chloroethyl vinyl ether 3-Chloropropene (Allyl Chloride) 4-Chlorotoluene Bromobenzene Iodomethane	1,1-Dichloropropene 1,2,3-Trichlorobenzene 1,3-Dichloropropane 2,2-Dichloropropane 2-Chloroethyl vinyl ether 3-Chloropropene (Allyl Chloride) 4-Chlorotoluene Bromobenzene Iodomethane	*NONE*	1,1-Dichloropropene 1,2,3-Trichlorobenzene 1,3-Dichloropropane 2,2-Dichloropropane 2-Chloroethyl vinyl ether 3-Chloropropene (Allyl Chloride) 4-Chlorotoluene Bromobenzene Iodomethane	2-Chloroethyl vinyl ether 3-Chloropropene (Allyl Chloride) Ethane Iodomethane Methane

Type 1 COPC = No Risk-Based Concentration available

Table 3-3 List of Type 2 Qualitative COPCs

Ogden Railyard Human Health Risk Assessment

Chemical Class	Off-Site Recreational Visitor				On-Yard Worker	On-Yard Worker/Future Resident	
	Soil	Sediment	Surface Water	Fish	Soil	Groundwater	
Inorganics	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	
Polyaromatic Hydrocarbons (PAHs)	*NONE*	*NONE*	Dibenz[a,h]anthracene	Benzo[a]anthracene Benzo[a]pyrene Benzo[b]fluoranthene Benzo[k]fluoranthene Dibenz[a,h]anthracene Indeno[1,2,3-c,d]pyrene	*NONE*	*NONE*	
Polychlorinated Biphenyls (PCBs)	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	*NONE*	
Pesticides	*NONE*	*NONE*	*NONE*	Aldrin alpha-BHC Dieldrin Heptachlor Heptachlor Epoxide Toxaphene	*NONE*	*NONE*	
Semi-Volatile Organic Compounds	*NONE*	n-Nitrosodipropylamine	2-Nitroaniline n-Nitrosodipropylamine	1,4-Dichlorobenzene 2,4,6-Trichlorophenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 2-Nitroaniline 3,3'-Dichlorobenzidine 3-Nitroaniline 4,6-Dinitro-o-cresol 4-Nitroaniline bis(2-Chloroethyl)ether bis(2-Chloroisopropyl)ether Carbazole Hexachlorobenzene Hexachlorobutadiene Hexachloroethane Nitrobenzene n-Nitrosodipropylamine Pentachlorophenol (PCP)	4,6-Dinitro-o-cresol bis(2-Chloroethyl)ether Hexachlorobenzene	2,4,6-Trichlorophenol 2,4-Dichlorophenol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2-Chlorophenol 2-Nitroaniline 3,3'-Dichlorobenzidine 3-Nitroaniline 4-Chloroaniline 4-Nitroaniline 4-Nitrophenol bis(2-Chloroisopropyl)ether Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane N-Nitrosodiphenylamine	
Volatile Organic Compounds	*NONE*	*NONE*	Ethylene dibromide (EDB) trans-1,4-Dichloro-2-Butene	*NONE*	*NONE*	1,1,1,2-Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,2-Dibromo-3-chloropropane (DBCP) 1,2-Dichloropropane 1,4-Dioxane Acrolein Acrylonitrile Bromodichloromethane Carbon Tetrachloride cis-1,3-Dichloropropene Ethylene dibromide (EDB) Methacrylonitrile trans-1,3-Dichloropropene trans-1,4-Dichloro-2-Butene	

Type 2 COPC = Never Detected and Mean Detection Limit > Risk-Based Concentration

Table 3-4
Relative Toxicity of Dioxin-Like PCB Congeners

Class	Congener	Toxicity Equivalence Factor (TEF) for Mammals
Co-planar	3,3',4,4'-TCB (77)	0.0001
	3,4,4',5-TCB (81)	0.0001
	3,3',4,4'-5-PeCB (126)	0.1
	3,3',4,4',5,5'-HxCB (169)	0.01
Mono-ortho	2,3,3',4,4'-PeCB (105)	0.0001
	2,3,4,4',5-PeCB (114)	0.0005
	2,3',4,4',5-PeCB (118)	0.0001
	2',3,4,4',5-PeCB (123)	0.0001
	2,3,3',4,4',5-HxCB (156)	0.0005
	2,3,3',4,4',5'-HxCB (157)	0.0005
	2,3',4,4',5,5'-HxCB (167)	0.00001
	2,3,3',4,4',5,5'-HpCB (189)	0.0001

TCB = Tetrachlorobiphenyl
PeCB = Pentachlorobiphenyl
HxCB = Hexachlorobiphenyl
HpCB = Heptachlorobiphenyl

Data source: Van den Berg et al. (1998)

Table 3-5

Exposure Parameters for On-Yard Workers

Ogden Railyard Human Health Risk Assessment

Exposure Input Parameter	Units	CTE		RME	
		Adult	Source	Adult	Source
General					
Averaging Time, Cancer	yr	70	1	70	1
	days	25550		25550	
Averaging Time, Noncancer	yr	5	5	25	1
	days	1825		9125	
Body Weight	kg	70	1	70	1
Ingestion of Groundwater					
Ingestion rate	L/d	0.7	4,5(a)	1	1
Exposure frequency	day/yr	219	5	250	1
Exposure duration	yr	5	5	25	1
HIF(noncancer)	L/kg-d	6.00E-03	6	9.78E-03	6
HIF(cancer)	L/kg-d	4.29E-04	6	3.49E-03	6
Inhalation of Indoor Air					
Inhalation rate (indoors)	m^3/day	10	4(b)	20	1
Exposure frequency	day/yr	219	1	250	1
Exposure duration	yr	5	5	25	1
HIF(noncancer)	m^3/kg-d	8.57E-02	6	1.96E-01	6
HIF(cancer)	m^3/kg-d	6.12E-03	6	6.99E-02	6
Ingestion of Soil					
Ingestion rate	mg/day	50	3,7	100	3,7
Conversion factor	kg/mg	1.00E-06		1.00E-06	
Exposure Frequency	day/yr	219	3,7	250	1
Exposure Duration	yr	5	5	25	1
HIF(noncancer)	kg/kg-d	4.29E-07	6	9.78E-07	6
HIF(cancer)	kg/kg-d	3.06E-08	6	3.49E-07	6

CTE = Central Tendency Exposure
RME = Reasonable Maximum Exposure

Sources:

1 -- USEPA 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. March.

2 -- USEPA. 1997. Exposure Factors Handbook, Volume I, Office of Research and Development, Washington, D.C. EPA/600/P-95/002Fa. August.

3 -- USEPA. 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A). Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002. December.

4 -- Based on professional judgement.

5 -- USEPA 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

6 -- Calculated value based on exposure parameters listed.

7 -- USEPA 1996b. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil.

Notes:

a-- Assumes CTE value for worker is 1/2 CTE value for resident
b-- Assumes CTE is 1/2 RME

Table 3-6

Exposure Parameters for Off-Yard Residents

Ogden Railyard Human Health Risk Assessment

Exposure Input Parameter	Units	CTE		RME	
		Adult	Source	Adult	Source
General					
Averaging Time, Cancer	yr	70	1	70	1
	days	25550		25550	
Averaging Time, Noncancer	yr	9	5	30	1
	days	10950		10950	
Body Weight	kg	70	1	70	1
Ingestion of Groundwater					
Ingestion rate	L/d	1.4	5	2	1
Exposure frequency	day/yr	234	5	350	1
Exposure duration	yr	9	5	30	1
HIF(noncancer)	L/kg-d	1.28E-02	6	2.74E-02	6
HIF(cancer)	L/kg-d	1.65E-03	6	1.17E-02	6
Inhalation of VOCs from Water in Indoor Air					
Inhalation rate (indoors)	m^3/day	13	3	20	1,5
Exposure frequency	day/yr	234	5	350	1,5
Exposure duration	yr	9	5	30	5
HIF(noncancer)	m^3/kg-d	1.19E-01	6	2.74E-01	6
HIF(cancer)	m^3/kg-d	1.53E-02	6	1.17E-01	6
Inhalation of PM10s in Outdoor Air					
Inhalation rate (outdoors)	m^3/hr	1.3	2(a)	3.3	2(b)
Exposure time (outdoors)	hr/day	2	2	2	2
Exposure frequency	day/yr	234	5	350	1
Exposure duration	yr	9	5	30	1
HIF(noncancer)	m^3/kg-d	7.12E-03	6	1.81E-02	6
HIF(cancer)	m^3/kg-d	9.16E-04	6	7.75E-03	6

CTE = Central Tendency Exposure
RME = Reasonable Maximum Exposure

Sources:
1 -- USEPA 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. March.
2 -- USEPA. 1997. Exposure Factors Handbook, Volume I, Office of Research and Development, Washington, D.C. EPA/600/P-95/002Fa. August.
3 -- USEPA. 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A). Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002. December.
4 -- Based on professional judgement.
5 -- USEPA 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.
6 -- Calculated value based on exposure parameters listed.
7 -- USEPA 1996b. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil.

Notes:
a Assumes moderate activity
b Assumes heavy activity

Table 3-7

Exposure Parameters for Off-Yard Recreational Visitors

Ogden Railyard Human Health Risk Assessment

		CTE				RME			
Exposure Input Parameter	**Units**	**Adult**	**Source**	**Child**	**Source**	**Adult**	**Source**	**Child**	**Source**
General									
Averaging Time, Cancer	yr	70	1	70	1	70	1	70	1
	days	25550		25550		25550		25550	
Averaging Time, Noncancer	yr	15	4(a)	5	4(a)	30	4(a)	10	4(a)
	days	5475		1825		10950		3650	
Body Weight	kg	70	1	39	2,4(b)	70	1	39	2,4(b)
Ingestion of Soil									
Ingestion rate	mg/day	50	4(c)	100	4(c)	100	4(c)	200	4(c)
Conversion factor	kg/mg	1E-06		1E-06		1E-06		1E-06	
Exposure Frequency	days/yr	10	4(d)	24	4(d)	20	4(d)	48	4(d)
Exposure Duration	yr	15	4(a)	5	4(a)	30	4(a)	10	4(a)
HIF(noncancer)	kg/kg-d	1.96E-08		1.67E-07	6	7.83E-08		6.67E-07	6
HIF(cancer)	kg/kg-d	4.19E-09		1.19E-08	6	3.35E-08		9.53E-08	6
Ingestion of Fish									
Ingestion rate (total)	g/day	8	2,4(e)	4	2,4(e)	25	2,4(e)	12.5	2,4(e)
Fraction from Weber/Ogden		0.2	4(f)	0.2	4(f)	0.40	4(f)	0.40	4(f)
Conversion factor	kg/g	1E-03		1E-03		1E-03		1E-03	
Exposure Frequency	days/yr	350	2(e)	350	2(e)	350	2(e)	350	2(e)
Exposure Duration	yr	15	4(a)	5	4(a)	30	4(a)	10	4(a)
HIF(noncancer)	kg/kg-d	2.19E-05		1.95E-05	6	1.37E-04		1.22E-04	6
HIF(cancer)	kg/kg-d	4.70E-06		1.39E-06	6	5.87E-05		1.74E-05	6
Ingestion of Sediment									
Ingestion rate	mg/day	50	4(c)	100	4(c)	100	4(c)	200	4(c)
Conversion factor	kg/mg	1E-06		1E-06		1E-06		1E-06	
Exposure Frequency	days/yr	10	4(d)	24	4(d)	20	4(d)	48	4(d)
Exposure Duration	yr	15	4(a)	5	4(a)	30	4(a)	10	4(a)
HIF(noncancer)	kg/kg-d	1.96E-08		1.67E-07	6	7.83E-08		6.67E-07	6
HIF(cancer)	kg/kg-d	4.19E-09		1.19E-08	6	3.35E-08		9.53E-08	6
Ingestion of Surface Water									
Ingestion rate	mL/hour	25	3,4(g)	25	3,4(g)	50	3,4(g)	50	3,4(g)
Exposure Time	hr/day	1		2	4	1		2	4
Conversion factor	L/mL	1E-03		1E-03		1E-03		1E-03	
Exposure Frequency	days/yr	10	4(d)	24	4(d)	20	4(d)	48	4(d)
Exposure Duration	yr	15	4(a)	5	4(a)	30	4(a)	10	4(a)
HIF(noncancer)	L/kg-d	9.78E-06		8.34E-05	6	3.91E-05		3.34E-04	6
HIF(cancer)	L/kg-d	2.10E-06		5.96E-06	6	1.68E-05		4.76E-05	6

CTE = Central Tendency Exposure
RME = Reasonable Maximum Exposure

Sources:

1 -- USEPA 1991. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03. March.

2 -- USEPA. 1997. Exposure Factors Handbook, Volume I, Office of Research and Development, Washington, D.C. EPA/600/P-95/002Fa. August.

3 -- USEPA. 1989. Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A). Office of Emergency and Remedial Response, Washington, D.C. EPA/540/1-89/002. December.

4 -- Based on professional judgement.

5 -- USEPA 1993. Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

6 -- Calculated value based on exposure parameters listed.

7 -- USEPA 1996b. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil.

Notes:

a -- Assumes same exposure duration for adult recreational visitor as for adult area resident (Table 3-6).
Assumes "child" is 6-15 years old (max exp duration = 10 yrs, CTE is 1/2 max).

b -- Body weight for child is mean of males and females age 6-15 (USEPA 1997; Table 7-3).

c-- Assumes ingestion rate of soil and sediment during one visit is the same as occurs during one day at home.

d -- Assumes child visits site 2 days/wk (CTE) to 4 days/wk (RME) for 3 months during summer. Assumes adult visits site about 40% as often as area child.

e -- Fish intake rates provided are long-term averages; RME is equivalent to 58 meals/yr and CTE is equivalent to 19 meals/yr (assuming 150 g/meal). Value for child is assumed to be 1/2 that for adults.

f-- Assumes fishing occurs at multiple locations around Ogden and the mountains, with about 20-40% of time spent at site.

g -- Assumes water ingestion occurs durring swimming scenario. EPA default RME value is 50 mL/hr. CTE assumed to be 1/2 RME.

Table 4-1. Summary of Toxicity Values for COPCs

Ogden Railyard Human Health Risk Assessment

Chemical Class	COPC	CAS Number	Oral					Inhalation				
			oRfD (mg/kg/day)	Source	Cancer WOE	oSF $(mg/kg/day)^{-1}$	Source	iRfD (mg/kg/day)	Source	Cancer WOE	iSF $(mg/kg/day)^{-1}$	Source
Inorganics	Aluminum	7429905	1.0E+00	E				1.0E-03	E			
	Antimony	7440360	4.0E-04	I								
	Arsenic	7440382	3.0E-04	I	A	1.5E+00	I				1.5E+01	I
	Barium	7440393	7.0E-02	I	D			1.4E-04	A			
	Cadmium (water)	7440439_W	5.0E-04	I				5.7E-05	E	B1	6.3E+00	I
	Cadmium (food)	7440439_F	1.0E-03	I				5.7E-05	E	B1	6.3E+00	I
	Chromium (VI)	18540299_VI	3.0E-03	I	D			3.0E-05	I	A	4.1E+01	H
	Copper	7440508	4.0E-02	H	D							
	Manganese (non-food)	7439965_NF	2.0E-02	I	D			1.4E-05	I			
	Mercury	7439976	3.0E-04	I	D			8.6E-05	I (a)			
	Selenium	7782492	5.0E-03	I	D							
	Silver	7440224	5.0E-03	I	D							
Polyaromatic Hydrocarbons (PAHs)	2-Methylnaphthalene	91576	2.0E-02	E								
	Acenaphthene	83329	6.0E-02	I								
	Benzo[a]anthracene	56553	2.0E-02	(b)	B2	7.3E-01	E			B2	3.1E-01	E
	Benzo[a]pyrene	50328	2.0E-02	(b)	B2	7.3E+00	I			B2	3.1E+00	E
	Benzo[b]fluoranthene	205992	2.0E-02	(b)	B2	7.3E-01	E			B2	3.1E-01	E
	Benzo[k]fluoranthene	207089	2.0E-02	(b)	B2	7.3E-02	E			B2	3.1E-02	E
	Chrysene	218019	2.0E-02	(b)	B2	7.3E-03	E			B2	3.1E-03	E
	Dibenz[a,h]anthracene	53703	2.0E-02	(b)	B2	7.3E+00	E			B2	3.1E+00	E
	Dibenzofuran	132649	4.0E-03	E	D							
	Fluoranthene	206440	4.0E-02	I	D							
	Fluorene	86737	4.0E-02	I	D							
	Indeno[1,2,3-c,d]pyrene	193395	2.0E-02	(b)	B2	7.3E-01	E			B2	3.1E-01	E
	Naphthalene	91203	2.0E-02	I	C			9.0E-04	I			
	Phenanthrene	85018	2.0E-02	(b)	D							
	Pyrene	129000	3.0E-02	I	D							
Polychlorinated Biphenyls (PCBs)	PCB as Aroclor	11096825	2.0E-05	I	B2	2.0E+00	I (e)			B2	2.0E+00	I
	PCB Congeners (as TEQ)				B2	1.5E+05	H (c)					
Pesticides	4,4'-DDE	72559	5.0E-04	(d)	B2	3.4E-01	I					
Semi-Volatile Organic Compounds	bis(2-Ethylhexyl)phthalate	117817	2.0E-02	I	B2	1.4E-02	I			B2	1.4E-02	E
	1,4-Dichlorobenzene	106467	3.0E-02	E	C	2.4E-02	H	2.3E-01	I	C	2.2E-02	E
	2,6-Dinitrotoluene	606202	1.0E-03	H	B2	6.8E-01	I					
	4,6-Dinitro-o-cresol	534521	1.0E-04	E								
	4-Methylphenol (p-Cresol)	106445	5.0E-03	H	C							
	bis(2-Chloroethyl)ether	111444			B2	1.1E+00	I			B2	1.1E+00	I
	n-Nitrosodipropylamine	621647			B2	7.0E+00	I					
	Pentachlorophenol (PCP)	87865	3.0E-02	I	B2	1.2E-01	I					
	Carbazole	86748			B2	2.0E-02	H					
Volatile Organic Compounds	1,1,1-Trichloroethane	71556	2.8E-01	E	C			6.3E-01	E			
	1,1-Dichloroethane	75343	1.0E-01	H	C			1.4E-01	A			
	1,2-Dichloroethane	107062	3.0E-02	E	B2	9.1E-02	I	1.4E-03	E	B2	9.1E-02	I
	1,2-Dichloroethene (cis)	156592	1.0E-02	H	C							
	1,2-Dichloroethene (total)	540590	9.0E-03	H	C							
	1,1,2-Trichloroethane	79005	4.0E-03	I	C	5.7E-02	I			C	5.6E-02	I
	1,2,3-Trichloropropane	96184	6.0E-03	I		2.0E+00	E	1.4E-03	E			
	Chlorodibromomethane	124481	2.0E-02	I	C	8.4E-02	I					
	Chloromethane (Methyl chloride)	74873				1.3E-02	H	2.6E-02	I	D	3.5E-03	E
	Tetrachloroethene	127184	1.0E-02	I		5.2E-02	E	1.4E-01	E		1.0E-02	E
	Acetone	67641	1.0E-01	I	D							
	Benzene	71432	3.0E-03	E	A	5.5E-02	I	1.7E-03	E	A	2.9E-02	I
	Chloroethane (Ethyl chloride)	75003	4.0E-01	E		2.9E-03	E	2.9E+00	I			
	Dichloromethane	75092	6.0E-02	I	B2	7.5E-03	I	8.6E-01	H	B2	1.7E-03	I
	Ethylbenzene	100414	1.0E-01	I	D			2.9E-01	I		3.9E-03	E
	Toluene	108883	2.0E-01	I	D			1.1E-01	I			
	Trichloroethene	79016	3.0E-04	(f)		1.1E-02	E	1E-02	(f)		6.0E-03	E
	Vinyl Chloride (adult)	75014_A	3.0E-03	I	A	7.2E-01	I	2.8E-02	I	A	1.5E-02	I
	Xylenes (Total)	1330207	2.0E+00	I	D							

Sources:
I = IRIS
H = HEAST
A = HEAST Alternate
W = Withdrawn from IRIS or HEAST
E = EPA-NCEA provisional value
N = NCEA download
O = other

Notes:
(a) Value shown is based on elemental mercury
(b) No EPA-verified RfD is available; value shown is based on naphthalene
(c) Value shown is for TCDD (source = HEAST)
(d) No EPA-verified RfD is available; value shown is based on DDT
(e) USEPA 1996c
(f) USEPA 2001. Inhalation RfD is calculated from Inhalation RfC.

Table 5-1
Estimated Risks to On-Yard Workers from
Incidental Ingestion of Surface Soil

PART A: Non-Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 01	4E-02	9E-02	na
AOI 02	3E-02	6E-02	na
AOI 05	1E-02	3E-02	na
AOI 08	2E-02	5E-02	na
AOI 09	1E-02	2E-02	na
AOI 12	9E-03	2E-02	na
AOI 13	2E-03	5E-03	na
AOI 17	2E-02	4E-02	na
AOI 18	1E-02	3E-02	na
AOI 19	1E-02	3E-02	na
AOI 20	2E-02	4E-02	na
AOI 21	9E-01	**2E+00**	70% - Arsenic
AOI 22A	7E-02	2E-01	na
AOI 22B	5E-02	1E-01	na
AOI 23	4E-02	9E-02	na
AOI 26	9E-03	2E-02	na
AOI 27	6E-02	1E-01	na
AOI 30	4E-01	9E-01	na
AOI 32	2E-02	6E-02	na
AOI 33	3E-02	6E-02	na
AOI 34	4E-01	9E-01	na
AOI 35	6E-02	1E-01	na
AOI 36	5E-01	1E+00	na
AOI 37	8E-03	2E-02	na
AOI 38	2E-02	3E-02	na
AOI SPRR5	2E-02	4E-02	na
Other - Onyard	1E-01	2E-01	na

PART B: Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 01	1E-06	1E-05	na
AOI 02	9E-07	1E-05	na
AOI 05	5E-07	5E-06	na
AOI 08	6E-07	7E-06	na
AOI 09	3E-07	3E-06	na
AOI 12	3E-07	3E-06	na
AOI 13	--	--	na
AOI 17	6E-07	7E-06	na
AOI 18	5E-07	6E-06	na
AOI 19	6E-06	7E-05	na
AOI 20	4E-07	5E-06	na
AOI 21	2E-05	**2E-04**	97% - Arsenic
AOI 22A	9E-07	1E-05	na
AOI 22B	1E-06	1E-05	na
AOI 23	5E-07	6E-06	na
AOI 26	3E-07	3E-06	na
AOI 27	6E-05	**7E-04**	76% - Benzo[a]pyrene
AOI 30	4E-06	5E-05	na
AOI 32	7E-07	8E-06	na
AOI 33	7E-07	8E-06	na
AOI 34	1E-06	1E-05	na
AOI 35	2E-06	2E-05	na
AOI 36	8E-06	9E-05	na
AOI 37	2E-07	2E-06	na
AOI 38	4E-07	5E-06	na
AOI SPRR5	7E-07	8E-06	na
Other - Onyard	3E-06	4E-05	na

na = not applicable; risks are below a level of concern
-- = COPCs not detected at this AOI

Surface soil samples not collected at AOI 10, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-2
Estimated Risks to On-Yard Workers from Incidental Ingestion of Lead in Surface Soil

AOI	Conc. in Soil ppm	Ingested Dose (ug/day)	GM PbB (adult) (ug/dL)	P10 (fetus) (%)
AOI 1	203	6.09	2.3	0.6%
AOI 2	91	2.7	2.1	0.4%
AOI 5	102	3.1	2.1	0.4%
AOI 8	56	1.7	2.1	0.4%
AOI 9	89	2.7	2.1	0.4%
AOI 12	50	1.5	2.1	0.4%
AOI 13	36	1.1	2.1	0.4%
AOI 17	203	6.1	2.3	0.6%
AOI 18	216	6.5	2.3	0.6%
AOI 19	115	3.4	2.2	0.5%
AOI 20	100	3.0	2.1	0.4%
AOI 21	634	19.0	2.9	1.8%
AOI 22A	278	8.4	2.4	0.8%
AOI 22B	167	5.0	2.2	0.5%
AOI 23	702	21.1	3.0	2.1%
AOI 26	378	11.3	2.5	1.0%
AOI 27	609	18.3	2.9	1.7%
AOI 30	358	10.7	2.5	0.9%
AOI 32	67	2.0	2.1	0.4%
AOI 33	68	2.0	2.1	0.4%
AOI 34	298	9.0	2.4	0.8%
AOI 35	82	2.5	2.1	0.4%
AOI 36	710	21.3	3.0	2.1%
AOI 37	137	4.1	2.2	0.5%
AOI 38	221	6.6	2.3	0.6%
AOI SPRR5	140	4.2	2.2	0.5%
Other - Onyard	238	7.1	2.3	0.7%

GM = Geometric mean
PbB = Blood lead concentration (ug/dL)
P10 = Probability of exceeding a blood lead value of 10 ug/dL (%)

Surface soil samples not collected at AOI 10, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-3
Estimated Risk to On-Yard Workers from Ingestion of Groundwater

PART A: Non-Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total - COPC
AOI 1	2E-03	3E-03	na
AOI 12	3E-01	5E-01	na
AOI 13	3E+00	4E+00	48% - Arsenic
AOI 18	1E-01	2E-01	na
AOI 19	7E-02	1E-01	na
AOI 20	4E-01	7E-01	na
AOI 21	1E+00	2E+00	29% - Arsenic
AOI 22A	1E+01	2E+01	45% - Vinyl Chloride
AOI 22B	1E+00	2E+00	60% - Vinyl Chloride
AOI 26	4E-01	7E-01	na
AOI 27	5E-01	8E-01	na
AOI 30	2E+00	3E+00	32% - Vinyl Chloride
AOI 32	1E+00	2E+00	46% - Acetone
AOI 33	2E+00	4E+00	76% - Naphthalene
AOI 34	2E+00	4E+00	31% - Antimony
AOI 35	5E-01	7E-01	na
AOI 36	3E-01	5E-01	na
AOI 37	1E-01	2E-01	na
AOI 38	3E+00	4E+00	26% - Trichloroethene
AOI SPRR3	1E+00	2E+00	52% - Vinyl Chloride
AOI SPRR5	2E+00	3E+00	71% - Benzene

PART B: Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total - COPC
AOI 1	1E-08	1E-07	na
AOI 12	6E-06	5E-05	na
AOI 13	5E-05	4E-04	87% - Arsenic
AOI 18	2E-06	2E-05	na
AOI 19	2E-09	1E-08	na
AOI 20	1E-05	8E-05	na
AOI 21	3E-05	2E-04	57% - Vinyl Chloride
AOI 22A	7E-04	6E-03	97% - Vinyl Chloride
AOI 22B	1E-04	9E-04	95% - Vinyl Chloride
AOI 26	2E-05	1E-04	na
AOI 27	5E-06	4E-05	na
AOI 30	2E-04	2E-03	41% - Vinyl Chloride
AOI 32	2E-05	2E-04	52% - Arsenic
AOI 33	2E-05	2E-04	33% - Benzo[a]pyrene
AOI 34	7E-05	6E-04	80% - Vinyl Chloride
AOI 35	7E-06	6E-05	na
AOI 36	6E-06	5E-05	na
AOI 37	2E-07	1E-06	na
AOI 38	6E-05	5E-04	36% - Vinyl Chloride
AOI SPRR3	1E-04	8E-04	99% - Vinyl Chloride
AOI SPRR5	5E-05	4E-04	64% - Vinyl Chloride

na = not applicable; risks are below a level of concern

Groundwater samples not collected at AOI 2, AOI 5, AOI 8, AOI 9, AOI 10, AOI 17, AOI 23, AOI 26, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-4
Estimated Risk to On-Yard Workers from Inhalation of VOCs Released to Indoor Air from Indoor Uses of Groundwater

PART A: Non-Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	1E-02	2E-02	na
AOI 12	1E-02	2E-02	na
AOI 13	**7E+00**	**2E+01**	51% - Naphthalene
AOI 18	2E-02	4E-02	na
AOI 19	6E-03	1E-02	na
AOI 20	1E-01	2E-01	na
AOI 21	1E+00	**3E+00**	42% - 1,2-Dichloroethene
AOI 22A	**4E+01**	**9E+01**	45% - 1,2-Dichloroethene
AOI 22B	1E+00	**3E+00**	45% - 1,2-Dichloroethene
AOI 26	5E-01	1E+00	na
AOI 27	7E-02	2E-01	na
AOI 30	**7E+00**	**2E+01**	47% - Naphthalene
AOI 32	**5E+00**	**1E+01**	91% - Acetone
AOI 33	**3E+02**	**6E+02**	99% - Naphthalene
AOI 34	9E-01	**2E+00**	33% - Vinyl Chloride
AOI 35	1E-01	2E-01	na
AOI 36	3E-02	6E-02	na
AOI 37	9E-01	**2E+00**	42% - 2-Methylnaphthalene
AOI 38	**1E+01**	**3E+01**	31% - Naphthalene
AOI SPRR3	**2E+01**	**5E+01**	79% - Naphthalene
AOI SPRR5	**2E+01**	**4E+01**	98% - Benzene

PART B: Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	2E-08	2E-07	na
AOI 12	2E-07	2E-06	na
AOI 13	3E-06	3E-05	na
AOI 18	5E-09	6E-08	na
AOI 19	--	--	na
AOI 20	1E-07	1E-06	na
AOI 21	3E-06	3E-05	na
AOI 22A	**2E-04**	**2E-03**	52% - Vinyl Chloride
AOI 22B	2E-05	**2E-04**	97% - Vinyl Chloride
AOI 26	4E-07	4E-06	na
AOI 27	4E-06	4E-05	na
AOI 30	7E-05	**8E-04**	79% - 1,2,3-Trichloropropane
AOI 32	9E-06	1E-04	na
AOI 33	3E-05	**3E-04**	76% - Ethylbenzene
AOI 34	1E-05	1E-04	na
AOI 35	2E-07	3E-06	na
AOI 36	2E-07	2E-06	na
AOI 37	8E-08	9E-07	na
AOI 38	7E-06	8E-05	na
AOI SPRR3	2E-05	**3E-04**	64% - Vinyl Chloride
AOI SPRR5	5E-05	**6E-04**	100% - Benzene

na = not applicable; risks are below a level of concern

-- = No carcinogenic COPCs present above detection limits or toxicity values unavailable; risk not calculated

Groundwater samples not collected at AOI 2, AOI 5, AOI 8, AOI 9, AOI 10, AOI 17, AOI 23, AOI 26, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-5. Estimated Risks to Workers from Inhalation of VOCs from Soil Gas Intrusion

Location	Station	VOC Detection Frequency (a)	Non-Cancer HI		Total Cancer Risks	
			CTE	RME	CTE	RME
North VC Plume	NF-03	1/3	1E-04	3E-04	4E-09	4E-08
	NF-05	1/3	2E-04	4E-04	nc	nc
	NF-07	4/40	1E-01	3E-01	3E-06	4E-05
	NF-09	6/40	1E-01	3E-01	4E-07	5E-06
South VC Plume	SF-01	8/40	2E-01	5E-01	6E-07	7E-06
	SF-02	2/3	7E-02	2E-01	3E-07	3E-06
	SF-07	12/40	6E-01	1E+00	6E-06	7E-05
	SF-08	1/3	9E-02	2E-01	3E-07	4E-06
DNAPL Plume	DF-03	2/40	3E-02	7E-02	1E-08	1E-07
	DF-07	4/40	9E-02	2E-01	4E-07	4E-06
Background	BKGD-01	2/40	1E-02	3E-02	5E-08	6E-07
	BKGD-02	4/40	2E-02	5E-02	6E-08	6E-07

(a) Number of VOCs detected divided by number of VOCs analyzed for

nc = not calculated; no cancer toxicity data for detected chemical.

Table 5-6
Estimated Risks to Off-Site Residents from Inhalation of Dust Particles in Air

PART A: Non-Cancer

Region	Total Risk	
	CTE	RME
Zone A	2E-03	5E-03
Zone B	3E-04	7E-04
Zone C	1E-05	4E-05
Zone D	1E-05	3E-05

PART B: Cancer

Region	Total Risk	
	CTE	RME
Zone A	8E-09	7E-08
Zone B	4E-08	4E-07
Zone C	3E-09	3E-08
Zone D	2E-09	2E-08

Table 5-7
Estimated Risks to Residents from Ingestion of Groundwater

PART A: Non-Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	4E-03	8E-03	na
AOI 12	7E-01	1E+00	na
AOI 13	6E+00	1E+01	48% - Arsenic
AOI 18	3E-01	6E-01	na
AOI 19	2E-01	3E-01	na
AOI 20	9E-01	2E+00	66% - Arsenic
AOI 21	3E+00	6E+00	29% - Arsenic
AOI 22A	2E+01	5E+01	45% - Vinyl Chloride
AOI 22B	2E+00	5E+00	60% - Vinyl Chloride
AOI 26	9E-01	2E+00	55% - Arsenic
AOI 27	1E+00	2E+00	38% - Chromium
AOI 30	4E+00	8E+00	32% - Vinyl Chloride
AOI 32	3E+00	6E+00	46% - Acetone
AOI 33	5E+00	1E+01	76% - Naphthalene
AOI 34	5E+00	1E+01	31% - Antimony
AOI 35	1E+00	2E+00	42% - Arsenic
AOI 36	7E-01	1E+00	na
AOI 37	3E-01	6E-01	na
AOI 38	6E+00	1E+01	26% - Trichloroethene
AOI SPRR3	3E+00	6E+00	52% - Vinyl Chloride
AOI SPRR5	4E+00	8E+00	71% - Benzene

PART B: Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	5E-08	3E-07	na
AOI 12	2E-05	2E-04	92% - Arsenic
AOI 13	2E-04	1E-03	87% - Arsenic
AOI 18	1E-05	7E-05	na
AOI 19	7E-09	5E-08	na
AOI 20	4E-05	3E-04	95% - Arsenic
AOI 21	1E-04	8E-04	57% - Vinyl Chloride
AOI 22A	3E-03	2E-02	97% - Vinyl Chloride
AOI 22B	4E-04	3E-03	95% - Vinyl Chloride
AOI 26	6E-05	4E-04	48% - Arsenic
AOI 27	2E-05	1E-04	na
AOI 30	8E-04	6E-03	41% - Vinyl Chloride
AOI 32	8E-05	6E-04	52% - Arsenic
AOI 33	8E-05	6E-04	33% - Benzo[a]pyrene
AOI 34	3E-04	2E-03	80% - Vinyl Chloride
AOI 35	3E-05	2E-04	82% - Arsenic
AOI 36	2E-05	2E-04	80% - Arsenic
AOI 37	6E-07	4E-06	na
AOI 38	2E-04	2E-03	36% - Vinyl Chloride
AOI SPRR3	4E-04	3E-03	99% - Vinyl Chloride
AOI SPRR5	2E-04	1E-03	64% - Vinyl Chloride

na = not applicable; risks are below EPA's default level of concern

Groundwater samples not collected at AOI 2, AOI 5, AOI 8, AOI 9, AOI 10, AOI 17, AOI 23, AOI 26, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-8
Estimated Risk to Residents from Inhalation of VOCs
Released to Indoor Air from Indoor Uses of Groundwater

PART A: Non-Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	1E-02	3E-02	na
AOI 12	2E-02	3E-02	na
AOI 13	1E+01	2E+01	51% - Naphthalene
AOI 18	3E-02	6E-02	na
AOI 19	8E-03	2E-02	na
AOI 20	1E-01	3E-01	na
AOI 21	2E+00	4E+00	42% - 1,2-Dichloroethene
AOI 22A	5E+01	1E+02	45% - 1,2-Dichloroethene
AOI 22B	2E+00	4E+00	45% - 1,2-Dichloroethene
AOI 26	7E-01	2E+00	69% - Naphthalene
AOI 27	1E-01	2E-01	na
AOI 30	9E+00	2E+01	47% - Naphthalene
AOI 32	7E+00	2E+01	91% - Acetone
AOI 33	4E+02	8E+02	99% - Naphthalene
AOI 34	1E+00	3E+00	33% - Vinyl Chloride
AOI 35	1E-01	3E-01	na
AOI 36	4E-02	9E-02	na
AOI 37	1E+00	3E+00	42% - 2-Methylnaphthalene
AOI 38	2E+01	4E+01	31% - Naphthalene
AOI SPRR3	3E+01	7E+01	79% - Naphthalene
AOI SPRR5	2E+01	5E+01	98% - Benzene

PART B: Cancer

Area of Interest	Total Risk		Risk Drivers
	CTE	RME	% of total risk - COPC
AOI 1	5E-08	4E-07	na
AOI 12	4E-07	3E-06	na
AOI 13	7E-06	5E-05	na
AOI 18	1E-08	1E-07	na
AOI 19	--	--	na
AOI 20	3E-07	2E-06	na
AOI 21	7E-06	5E-05	na
AOI 22A	5E-04	4E-03	52% - Vinyl Chloride
AOI 22B	4E-05	3E-04	97% - Vinyl Chloride
AOI 26	1E-06	7E-06	na
AOI 27	9E-06	7E-05	na
AOI 30	2E-04	1E-03	79% - 1,2,3-Trichloropropane
AOI 32	2E-05	2E-04	95% - Dichloromethane
AOI 33	7E-05	5E-04	76% - Ethylbenzene
AOI 34	2E-05	2E-04	90% - Vinyl Chloride
AOI 35	6E-07	4E-06	na
AOI 36	5E-07	3E-06	na
AOI 37	2E-07	2E-06	na
AOI 38	2E-05	1E-04	na
AOI SPRR3	6E-05	5E-04	64% - Vinyl Chloride
AOI SPRR5	1E-04	1E-03	100% - Benzene

na = not applicable; risks are below a level of concern
-- = No carcinogenic COPCs present above detection limits or toxicity values unavailable; risk not calculated

Groundwater samples not collected at AOI 2, AOI 5, AOI 8, AOI 9, AOI 10, AOI 17, AOI 23, AOI 26, AOI 28, AOI 29, or 33rd Street Slough.

Table 5-9
Estimated Risks for Recreational Visitors from
Incidental Ingestion of Surface Water and Sediment

PART A: Non-Cancer

Receptor	Area of Interest	Surface Water Risks (a)		Sediment Risks		Total Risks	
		CTE	RME	CTE	RME	CTE	RME
Adult	21st Street Pond	2E-07	6E-07	2E-04	9E-04	2E-04	9E-04
	Buena Ventura Park Pond	--	--	2E-07	7E-07	2E-07	7E-07
	Ogden River - Reach A	nc	nc	5E-07	2E-06	5E-07	2E-06
	Ogden River - Reach B	2E-07	9E-07	4E-03	2E-02	4E-03	2E-02
	Ogden River - Reach C	nc	nc	2E-04	9E-04	2E-04	9E-04
	Weber River - Reach A	--	--	--	--		
	Weber River - Reach B	9E-04	4E-03	--	--	9E-04	4E-03
	Weber River - Reach C	3E-07	1E-06	3E-07	1E-06	6E-07	2E-06
	Weber River - Reach D	3E-04	1E-03	2E-07	8E-07	3E-04	1E-03
Child	21st Street Pond	1E-06	5E-06	2E-03	7E-03	2E-03	7E-03
	Buena Ventura Park Pond	--	--	2E-06	6E-06	2E-06	6E-06
	Ogden River - Reach A	nc	nc	5E-06	2E-05	5E-06	2E-05
	Ogden River - Reach B	2E-06	8E-06	4E-02	1E-01	4E-02	1E-01
	Ogden River - Reach C	nc	nc	2E-03	8E-03	2E-03	8E-03
	Weber River - Reach A	--	--	--	--		
	Weber River - Reach B	8E-03	3E-02	--	--	8E-03	3E-02
	Weber River - Reach C	2E-06	9E-06	3E-06	1E-05	5E-06	2E-05
	Weber River - Reach D	3E-03	1E-02	2E-06	7E-06	3E-03	1E-02

PART B: Cancer

Receptor	Area of Interest	Surface Water Risks (a)		Sediment Risks		Total Risks	
		CTE	RME	CTE	RME	CTE	RME
Adult	21st Street Pond	2E-11	1E-10	1E-06	9E-06	1E-06	9E-06
	Buena Ventura Park Pond	--	--	2E-09	1E-08	2E-09	1E-08
	Ogden River - Reach A	nc	nc	6E-09	5E-08	6E-09	5E-08
	Ogden River - Reach B	2E-11	2E-10	5E-08	4E-07	5E-08	4E-07
	Ogden River - Reach C	nc	nc	7E-09	6E-08	7E-09	6E-08
	Weber River - Reach A	--	--	--	--		
	Weber River - Reach B	9E-08	7E-07	--	--	9E-08	7E-07
	Weber River - Reach C	3E-11	2E-10	3E-09	2E-08	3E-09	2E-08
	Weber River - Reach D	3E-08	3E-07	2E-09	2E-08	3E-08	3E-07
Child	21st Street Pond	4E-11	4E-10	3E-06	2E-05	3E-06	2E-05
	Buena Ventura Park Pond	--	--	4E-09	4E-08	4E-09	4E-08
	Ogden River - Reach A	nc	nc	2E-08	1E-07	2E-08	1E-07
	Ogden River - Reach B	6E-11	5E-10	1E-07	1E-06	1E-07	1E-06
	Ogden River - Reach C	nc	nc	2E-08	2E-07	2E-08	2E-07
	Weber River - Reach A	--	--	--	--		
	Weber River - Reach B	3E-07	2E-06	--	--	3E-07	2E-06
	Weber River - Reach C	7E-11	6E-10	8E-09	7E-08	8E-09	7E-08
	Weber River - Reach D	9E-08	7E-07	6E-09	5E-08	1E-07	8E-07

(a) Dichloromethane is the only COPC in surface water. This may be due to lab contamination.

nc = not calculated; no surface water data for COPCs in these reaches
-- = COPCs not detected in these reaches

Table 5-10
Estimated Risks for Recreational Visitors From Incidental Ingestion of Surface Soil

PART A: Non-Cancer

Receptor	Area of Interest	Total Risk	
		CTE	RME
Adult	21st Street Pond	6E-04	2E-03
	Weber River - Reach A	1E-03	6E-03
	Weber River - Reach B	2E-04	1E-03
	Weber River - Reach C	5E-04	2E-03
	Weber River - Reach D	3E-04	1E-03
Child	21st Street Pond	5E-03	2E-02
	Weber River - Reach A	1E-02	5E-02
	Weber River - Reach B	2E-03	8E-03
	Weber River - Reach C	4E-03	2E-02
	Weber River - Reach D	2E-03	9E-03

PART B: Cancer

Receptor	Area of Interest	Total Risk	
		CTE	RME
Adult	21st Street Pond	9E-08	7E-07
	Weber River - Reach A	1E-07	1E-06
	Weber River - Reach B	4E-08	3E-07
	Weber River - Reach C	5E-08	4E-07
	Weber River - Reach D	3E-08	2E-07
Child	21st Street Pond	2E-07	2E-06
	Weber River - Reach A	4E-07	3E-06
	Weber River - Reach B	1E-07	8E-07
	Weber River - Reach C	1E-07	1E-06
	Weber River - Reach D	9E-08	7E-07

Table 5-11
Estimated Cancer Risk to Recreational Visitors from Ingestion of PCBs (as Congeners) in Fish

Receptor	Location	CTE	RME
Adult	21st Street Pond	2E-06	3E-05
	Buena Ventura Park Pond	6E-07	7E-06
	Ogden River - Reach A	8E-07	1E-05
	Ogden River - Reach B	1E-05	**2E-04**
	Ogden River - Reach C	5E-06	7E-05
	Weber River - Reach D	3E-06	3E-05
Child	21st Street Pond	7E-07	8E-06
	Buena Ventura Park Pond	2E-07	2E-06
	Ogden River - Reach A	2E-07	3E-06
	Ogden River - Reach B	4E-06	5E-05
	Ogden River - Reach C	2E-06	2E-05
	Weber River - Reach D	8E-07	1E-05

Table 6-1. Sources and Estimated Direction and Magnitude of Uncertainties in Risk Estimates

Risk Assessment Step	Source of Uncertainty	Probable Direction (a)	Estimated Magnitude (a)
Exposure Assessment	Exposure pathways not evaluated	Underestimate	Small
	Chemicals not evaluated	Underestimate	Probably Small
	Calculation of exposure point concentrations from measurements	Overestimate	Moderate
	Mathematical modeling of exposure when data are not available	Overestimate	Moderate
	Human exposure parameters	Overestimate	Moderate
Toxicity Assessment	Adjustments to account for limited toxicity data	Overestimate	Moderate-Large
	Extrapolation from animals to humans	Overestimate	Moderate-Large
	Extrapolation from high dose to low dose	Overestimate	Moderate-Large
	Extrapolation across exposure frequency and duration	Overestimate	Small
	Accounting for sensitive human subpopulations	Overestimate	Moderate
Risk Characterization	Effects of combined exposures to multiple chemicals	Unknown	Probably small

(a) See text for discussion

BASELINE HUMAN HEALTH RISK ASSESSMENT FOR THE OGDEN RAILYARD SITE OGDEN, UTAH

Appendices

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APPENDIX A
DATA USED IN RISK ASSESSMENT (ELECTRONIC DATABASE)

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APPENDIX B
RELATIVE RISK OF INHALATION OF SOIL

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APPENDIX B

SCREENING EVALUATION OF RELATIVE EXPOSURE FROM INHALATION OF SOIL PARTICLES IN AIR

Calculation of Soil Concentration in Air

Evaluation of inhalation exposure to chemicals on soil particles in air requires an estimate of the concentration of respirable soil particles in air. This value is given by the Particulate Emission Factor (PEF) (kg/m^3). The value of PEF is calculated using the following equation (USEPA 1996):

$$PEF(kg/m^3) = \frac{0.036 \cdot (1-V) \cdot (U_m / U_t)^3 \cdot F(x)}{Q/C \cdot 3600\, s/hr}$$

where:

Q/C = Inverse of mean airborne concentration (kg/m^3) per unit emission rate (g/m^2-sec) at the center of the source area (g/m^2-sec per kg/m^3)
V = Fraction of vegetative cover (unitless)
U_m = Mean annual windspeed (m/sec)
U_t = Equivalent threshold value of windspeed (m/sec) at 7 m above the ground
F(x) = Function dependent on U_m/U_t derived using Cowherd et al. (1985) (unitless)

Default and site-specific inputs used for this site are summarized below:

Parameter	Value	Note
Q/C (g/m^2-sec per kg/m^3)	40.20	Value for 30 acre source in the Salt Lake City area (USEPA 1996 Table 3)
V (unitless)	0	Site-specific; based on absence of vegetation in on-yard locations
U_m (m/sec)	4.69	Default (USEPA 1996)
U_t (m/sec)	11.32	Default (USEPA 1996)
F(x) (unitless)	0.194	Default (USEPA 1996)

Based on these input values, the value of PEF is 3.43E-09 kg/m^3.

Calculation of Relative Exposure from Inhalation and Oral Pathways

The basic equations recommended by USEPA (1989, 1996) for evaluation of exposure from inhalation exposure of soil particles in air and for incidental ingestion of soil are as follows:

<u>Inhalation Exposure</u>

$$DI_{air} = C_{air} \cdot BR_a \cdot EF \cdot ED/(BW \cdot AT)$$
$$C_{air} = C_{soil} \cdot PEF$$

<u>Ingestion Exposure</u>

$$DI_{soil} = C_{soil} \cdot IR_{soil} \cdot EF \cdot ED/(BW \cdot AT)$$

where:

C	=	Concentration of contaminant in air (C_{air}, mg/m^3) or soil (C_{soil}, mg/kg)
BR	=	Breathing rate (m^3/day)
IR_{soil}	=	Ingestion rate for soil (kg/day)
EF	=	Exposure frequency (days/yr)
ED	=	Exposure duration (years)
BW	=	Body weight (kg)
AT	=	Averaging time (days)
PEF	=	Particulate (PM10) emission factor (kg/m^{3}of soil particles in air)

Assuming that the values of BW, EF, ED, and AT are all the same for inhalation and oral exposure, the ratio of the risk from inhalation of particulates in air to that from ingestion of soil is then:

Relative exposure (inhalation/oral) = PEF · BR / IR

- PEF = 3.43E-09 kg/m^3 (3.43 ug/m^3) (see above)
- BR = 20 m^3/day (USEPA 1989)
- IR = 1E-04 kg/day (USEPA 1989)

Based on these values, the ratio of the exposure from inhalation exposure to airborne soil particles compared to that from ingestion exposure is:

Relative exposure = (3.43E-09)(20)/(1E-04) = 0.00069 (0.069%)

As seen, the dose from inhaled particulate matter in air is expected to be very small (< 0.07%) compared to that from ingested soil. Indeed, even if release of soil particles to air were 100-times higher than the default PEF (e.g., due to very heavy vehicular or mechanical disturbance of soil), inhalation exposure would still be less than 7% of the oral exposure. Based on this, inhalation of particulate matter released from soil to air is considered to be sufficiently minor that quantitative evaluation is not required if the oral exposure pathway is evaluated.

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APPENDIX C
RBC DERIVATION AND COPC SCREENING RESULTS

C1 - USEPA REGION III TOXICITY VALUES
C2 - SUMMARY OF RISK-BASED CONCENTRATIONS (RBCS)
C3 - DERIVATION OF LEAD RBCS
C4 - DERIVATION OF PCB (AS TEQ) RBCS
C5 - SUMMARY OF COPC SCREENING

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APPENDIX C1
USEPA REGION III TOXICITY VALUES

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Sources: I = IRIS; H = HEAST; A = HEAST Alternate; W = Withdrawn from IRIS or HEAST; E = EPA-NCEA provisional value; O = other; NA= not available
*** = changed since previous version*

		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
**1,1-DICHLOROETHENE	75354	5.00E-02	I	NA	NA	6.00E-02	I	NA	NA	y
**1,2,4-TRICHLOROBENZENE	120821	1.00E-02	I	NA	NA	1.00E-03	E	NA	NA	y
**3-NITROANILINE	99092	3.00E-04	E	2.00E-02	E	3.00E-04	E	NA	NA	NA
**4,6-DINITRO-2-METHYLPHENOL	534521	1.00E-04	E	NA	NA	NA	NA	NA	NA	NA
**4-NITROANILINE	100016	3.00E-03	E	2.00E-02	E	1.00E-03	E	NA	NA	NA
**KEPONE	143500	3.00E-04	E	8.00E+00	E	NA	NA	NA	NA	NA
**PHENOL	108952	3.00E-01	I	NA	NA	NA	NA	NA	NA	NA
1,1,1,2-TETRACHLOROETHANE	630206	3.00E-02	I	2.60E-02	I	NA	NA	2.60E-02	I	y
1,1,1,2-TETRAFLUOROETHANE	811972	NA	NA	NA	NA	2.29E+01	I	NA	NA	y
1,1,1-TRICHLOROETHANE	71556	2.80E-01	E	NA	NA	6.30E-01	E	NA	NA	y
1,1,2,2-TETRACHLOROETHANE	79345	6.00E-02	E	2.00E-01	I	NA	NA	2.00E-01	I	y
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76131	3.00E+01	I	NA	NA	8.60E+00	H	NA	NA	y
1,1,2-TRICHLOROETHANE	79005	4.00E-03	I	5.70E-02	I	NA	NA	5.60E-02	I	y
1,1,2-TRICHLOROPROPANE	598776	5.00E-03	I	NA	NA	NA	NA	NA	NA	y
1,1-DICHLOROETHANE	75343	1.00E-01	H	NA	NA	1.40E-01	A	NA	NA	y
1,1-DIFLUOROETHANE	75376	NA	NA	NA	NA	1.10E+01	I	NA	NA	y
1,1-DIMETHYLHYDRAZINE	57147	NA	NA	2.60E+00	W	NA	NA	3.50E+00	W	NA
1,2,3-TRICHLOROPROPANE	96184	6.00E-03	I	2.00E+00	E	1.4E-03	E	NA	NA	y
1,2,3-TRICHLOROPROPENE	96195	5.00E-03	H	NA	NA	NA	NA	NA	NA	y
1,2,4,5-TETRACHLOROBENZENE	95943	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIBROMOBENZENE	615543	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
1,2,4-TRIMETHYLBENZENE	95636	5.00E-02	E	NA	NA	1.70E-03	E	NA	NA	y
1,2-DIBROMO-3-CHLOROPROPANE	96128	NA	NA	1.40E+00	H	5.70E-05	I	2.40E-03	H	y
1,2-DIBROMOETHANE	106934	NA	NA	8.50E+01	I	5.70E-05	H	7.60E-01	I	y
1,2-DICHLOROBENZENE	95501	9.00E-02	I	NA	NA	4.00E-02	H	NA	NA	y
1,2-DICHLOROETHANE	107062	3.00E-02	E	9.10E-02	I	1.40E-03	E	9.10E-02	I	y
1,2-DICHLOROPROPANE	78875	NA	NA	6.80E-02	H	1.14E-03	I	NA	NA	y
1,2-DIMETHYLHYDRAZINE	540738	NA	NA	3.70E+01	W	NA	NA	3.70E+01	W	NA
1,2-DINITROBENZENE	528290	4.00E-04	H	NA	NA	NA	NA	NA	NA	NA
1,2-DIPHENYLHYDRAZINE	122667	NA	NA	8.00E-01	I	NA	NA	8.00E-01	I	NA
1,3,5-TRIMETHYLBENZENE	108678	5.00E-02	E	NA	NA	1.70E-03	E	NA	NA	y
1,3,5-TRINITROBENZENE	99354	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
1,3-BUTADIENE	106990	NA	NA	NA	NA	NA	NA	1.80E+00	H	y
1,3-DICHLOROBENZENE	541731	3.00E-02	E	NA	NA	NA	NA	NA	NA	y
1,3-DICHLOROPROPENE	542756	3.00E-02	I	1.00E-01	I	5.71E-03	I	1.00E-02	I	y
1,3-DINITROBENZENE	99650	1.00E-04	I	NA	NA	NA	NA	NA	NA	NA
1,4-DIBROMOBENZENE	106376	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
1,4-DICHLORO-2-BUTENE	764410	NA	NA	NA	NA	NA	NA	9.30E+00	H	y
1,4-DICHLOROBENZENE	106467	3.00E-02	E	2.40E-02	H	2.29E-01	I	2.2E-02	E	y
1,4-DINITROBENZENE	100254	4.00E-04	H	NA	NA	NA	NA	NA	NA	NA
1,4-DIOXANE	123911	NA	NA	1.10E-02	I	NA	NA	NA	NA	NA
1,4-DITHIANE	505293	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
1,6-HEXAMETHYLENE DIISOCYANATE	822060	NA	NA	NA	NA	2.90E-06	I	NA	NA	NA
1-BUTANOL	71363	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
1-CHLORO-1,1-DIFLUOROETHANE	75683	NA	NA	NA	NA	1.40E+01	I	NA	NA	y
1-CHLOROBUTANE	109693	4.00E-01	H	NA	NA	NA	NA	NA	NA	y
2-(2,4,5-TRICHLOROPHENOXY)PROPIONIC ACID	93721	8.00E-03	I	NA	NA	NA	NA	NA	NA	NA
2-(2-METHYL-4-CHLOROPHENOXY)PROPIONIC ACID (MCPP)	93652	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
2,3,4,6-TETRACHLOROPHENOL	58902	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
2,3,7,8-TETRACHLORODIBENZODIOXIN	1746016	NA	NA	1.50E+05	H	NA	NA	1.50E+05	H	NA
2,3-DICHLOROPROPANOL	616239	3.00E-03	I	NA	NA	NA	NA	NA	NA	NA
2,4,5-T	93765	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
2,4,5-TRICHLOROPHENOL	95954	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
2,4,6-TRICHLOROANILINE	634935	NA	NA	3.40E-02	H	NA	NA	NA	NA	NA
2,4,6-TRICHLOROPHENOL	88062	NA	NA	1.10E-02	I	NA	NA	1.00E-02	I	NA
2,4,6-TRINITROTOLUENE	118967	5.00E-04	I	3.00E-02	I	NA	NA	NA	NA	NA
2,4-D	94757	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
2,4-DICHLOROPHENOL	120832	3.00E-03	I	NA	NA	NA	NA	NA	NA	NA
2,4-DIMETHYLANILINE	95681	NA	NA	7.50E-01	H	NA	NA	NA	NA	NA
2,4-DIMETHYLANILINE HYDROCHLORIDE	21436964	NA	NA	5.80E-01	H	NA	NA	NA	NA	NA
2,4-DIMETHYLPHENOL	105679	2.00E-02	I	NA	NA	NA	NA	NA	NA	NA
2,4-DINITROPHENOL	51285	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA

Sources: I = IRIS; H = HEAST; A = HEAST Alternate; W = Withdrawn from IRIS or HEAST; E = EPA-NCEA provisional value; O = other; NA= not available
*** = changed since previous version*

		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
2,4-DINITROTOLUENE	121142	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
2,6-DIMETHYLPHENOL	576261	6.00E-04	I	NA	NA	NA	NA	NA	NA	NA
2,6-DINITROTOLUENE	606202	1.00E-03	H	NA	NA	NA	NA	NA	NA	NA
2-CHLORO-1,3-BUTADIENE	126998	2.00E-02	A	NA	NA	2.00E-03	H	NA	NA	y
2-CHLOROPHENOL	95578	5.00E-03	I	NA	NA	NA	NA	NA	NA	y
2-CHLOROPROPANE	75296	NA	NA	NA	NA	2.90E-02	H	NA	NA	y
2-ETHOXYETHANOL	110805	4.00E-01	H	NA	NA	5.70E-02	I	NA	NA	NA
2-HEXANONE	591786	4.00E-02	E	NA	NA	1.4E-03	E	NA	NA	NA
2-METHYL-4-CHLOROPHENOXYACETIC ACID (MCPA)	94746	5.00E-04	I	NA	NA	NA	NA	NA	NA	NA
2-METHYL-5-NITROANILINE	99558	NA	NA	3.30E-02	H	NA	NA	NA	NA	NA
2-METHYLANILINE	95534	NA	NA	2.40E-01	H	NA	NA	NA	NA	NA
2-METHYLNAPHTHALENE	91576	2.00E-02	E	NA	NA	NA	NA	NA	NA	y
2-METHYLPHENOL	95487	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
2-NITROANILINE	88744	5.70E-05	(a)	NA	NA	5.70E-05	H	NA	NA	NA
2-NITROPROPANE	79469	NA	NA	NA	NA	5.70E-03	I	9.40E+00	H	y
2-PHENYLPHENOL	90437	NA	NA	1.90E-03	H	NA	NA	NA	NA	NA
3,3'-DICHLOROBENZIDINE	91941	NA	NA	4.50E-01	I	NA	NA	NA	NA	NA
3,3'-DIMETHOXYBENZIDINE	119904	NA	NA	1.40E-02	H	NA	NA	NA	NA	NA
3,3'-DIMETHYLBENZIDINE	119937	NA	NA	9.20E+00	H	NA	NA	NA	NA	NA
3,4-DIMETHYLPHENOL	95658	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
3-METHYLPHENOL	108394	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
4-(2,4-DICHLOROPHENOXY)BUTYRIC ACID	94826	8E-03	I	NA	NA	NA	NA	NA	NA	NA
4-(2-METHYL-4-CHLOROPHENOXY) BUTYRIC ACID	94815	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
4,4'-METHYLENE BIS(2-CHLOROANILINE)	101144	7.00E-04	H	1.30E-01	H	NA	NA	1.30E-01	H	NA
4,4'-METHYLENE BIS(N,N'-DIMETHYL)ANILINE	101611	NA	NA	4.60E-02	I	NA	NA	NA	NA	NA
4,4'-METHYLENEDIPHENYL ISOCYANATE	101688	NA	NA	NA	NA	1.7E-04	I	NA	NA	NA
4,6-DINITRO-O-CYCLOHEXYL PHENOL	131895	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
4-AMINOPYRIDINE	504245	2.00E-05	H	NA	NA	NA	NA	NA	NA	NA
4-CHLORO-2-METHYLANILINE	95692	NA	NA	5.80E-01	H	NA	NA	NA	NA	NA
4-CHLOROANILINE	106478	4.00E-03	I	NA	NA	NA	NA	NA	NA	NA
4-METHYLPHENOL	106445	5.00E-03	H	NA	NA	NA	NA	NA	NA	NA
4-NITROPHENOL	100027	8.00E-03	E	NA	NA	NA	NA	NA	NA	NA
ACENAPHTHENE	83329	6.00E-02	I	NA	NA	NA	NA	NA	NA	y
Acenaphthylene	208968	2.00E-02	(b)	NA	NA	NA	NA	NA	NA	NA
ACETALDEHYDE	75070	NA	NA	NA	NA	2.57E-03	I	7.7E-03	I	y
ACETOCHLOR	34256821	2E-02	I	NA	NA	NA	NA	NA	NA	NA
ACETONE	67641	1.00E-01	I	NA	NA	NA	NA	NA	NA	y
ACETONITRILE	75058	1.7E-02	(a)	NA	NA	1.7E-02	I	NA	NA	y
ACETOPHENONE	98862	1.00E-01	I	NA	NA	5.70E-06	W	NA	NA	y
ACROLEIN	107028	2.00E-02	H	NA	NA	5.70E-06	I	NA	NA	y
ACRYLAMIDE	79061	2.00E-04	I	4.50E+00	I	NA	NA	4.50E+00	I	NA
ACRYLONITRILE	107131	1.00E-03	H	5.40E-01	I	5.70E-04	I	2.40E-01	I	y
ALACHLOR	15972608	1.00E-02	I	8.00E-02	H	NA	NA	NA	NA	NA
ALAR	1596845	1.50E-01	I	NA	NA	NA	NA	NA	NA	NA
ALDICARB	116063	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
ALDICARB SULFONE	1646884	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
ALDRIN	309002	3.00E-05	I	1.70E+01	I	NA	NA	1.70E+01	I	NA
alpha-Chlordane	5103719	5.00E-04	(c)	3.5E-01	(c)	2.00E-04	(c)	3.5E-01	(c)	NA
ALPHA-HCH	319846	NA	NA	6.30E+00	I	NA	NA	6.30E+00	I	NA
ALPHA-METHYLSTYRENE	98839	7.00E-02	A	NA	NA	NA	NA	NA	NA	y
ALUMINUM	7429905	1.00E+00	E	NA	NA	1.00E-03	E	NA	NA	NA
AMINODINITROTOLUENES	35572782	6.00E-05	E	NA	NA	NA	NA	NA	NA	NA
AMMONIA	7664417	NA	NA	NA	NA	2.86E-02	I	NA	NA	y
ANILINE	62533	7.00E-03	E	5.70E-03	I	2.90E-04	I	NA	NA	NA
ANTHRACENE	120127	3.00E-01	I	NA	NA	NA	NA	NA	NA	y
ANTIMONY	7440360	4.00E-04	I	NA	NA	NA	NA	NA	NA	NA
ANTIMONY PENTOXIDE	1314609	5.00E-04	H	NA	NA	NA	NA	NA	NA	NA
ANTIMONY TETROXIDE	1332816	4.00E-04	H	NA	NA	NA	NA	NA	NA	NA
ANTIMONY TRIOXIDE	1309644	4.00E-04	H	NA	NA	5.70E-05	I	NA	NA	NA
AROCLOR-1016	12674112	7.00E-05	I	7.00E-02	I	na	na	7.00E-02	I	na
AROCLOR-1221	11104282	2.00E-05	(d)	2.00E+00	(e)	na	na	2.00E+00	(e)	na
AROCLOR-1232	11141165	2.00E-05	(d)	2.00E+00	(e)	na	na	2.00E+00	(e)	na

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		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
AROCLOR-1242	53469219	2.00E-05	(d)	2.00E+00	(e)	na	na	2.00E+00	(e)	na
AROCLOR-1248	12672296	2.00E-05	(d)	2.00E+00	(e)	na	na	2.00E+00	(e)	na
AROCLOR-1254	11097691	2.00E-05	I	2.00E+00	I	na	na	2.00E+00	I	na
AROCLOR-1260	11096825	2.00E-05	(d)	2.00E+00	(e)	na	na	2.00E+00	(e)	na
Aroclor-1262	37324235	2.00E-05	(d)	2.00E+00	(e)	NA	NA	2.00E+00	(e)	NA
Aroclor-1268	11100144	2.00E-05	(d)	2.00E+00	(e)	NA	NA	2.00E+00	(e)	NA
ARSENIC	7440382	3.00E-04	I	1.50E+00	I	NA	NA	1.51E+01	I	NA
ARSINE	7784421	NA	NA	NA	NA	1.40E-05	I	NA	NA	y
ASSURE	76578148	9.00E-03	I	NA	NA	NA	NA	NA	NA	NA
ATRAZINE	1912249	3.50E-02	I	2.20E-01	H	NA	NA	NA	NA	NA
AZOBENZENE	103333	NA	NA	1.10E-01	I	NA	NA	1.10E-01	I	NA
BARIUM	7440393	7.00E-02	I	NA	NA	1.40E-04	A	NA	NA	NA
BAYGON	114261	4.00E-03	I	NA	NA	NA	NA	NA	NA	NA
BAYTHROID	68359375	2.50E-02	I	NA	NA	NA	NA	NA	NA	NA
BENTAZON	25057890	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
BENZ[A]ANTHRACENE	56553	2.00E-02	(b)	7.30E-01	E	NA	NA	3.10E-01	(f)	NA
BENZALDEHYDE	100527	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
BENZENE	71432	3.00E-03	E	5.5E-02	I	1.70E-03	E	2.90E-02	I	y
BENZENETHIOL	108985	1.00E-05	H	NA	NA	NA	NA	NA	NA	y
BENZIDINE	92875	3.00E-03	I	2.30E+02	I	NA	NA	2.30E+02	I	NA
BENZO[A]PYRENE	50328	2.00E-02	(b)	7.30E+00	I	NA	NA	3.10E+00	E	NA
BENZO[B]FLUORANTHENE	205992	2.00E-02	(b)	7.30E-01	E	NA	NA	3.10E-01	(f)	NA
Benzo[g,h,i]Perylene	191242	2.00E-02	(b)	NA	NA	NA	NA	NA	NA	NA
BENZO[K]FLUORANTHENE	207089	2.00E-02	(b)	7.30E-02	E	NA	NA	3.10E-02	(f)	NA
BENZOIC ACID	65850	4.00E+00	I	NA	NA	NA	NA	NA	NA	NA
BENZYL ALCOHOL	100516	3.00E-01	H	NA	NA	NA	NA	NA	NA	NA
BENZYL CHLORIDE	100447	NA	NA	0.17	I	NA	NA	NA	NA	y
BERYLLIUM	7440417	2.00E-03	I	NA	NA	5.7E-06	I	8.40E+00	I	NA
BETA-CHLORONAPHTHALENE	91587	8.00E-02	I	NA	NA	NA	NA	NA	NA	y
BETA-HCH	319857	NA	NA	1.80E+00	I	NA	NA	1.80E+00	I	NA
BIPHENYL	92524	5.00E-02	I	NA	NA	NA	NA	NA	NA	y
BIS(2-CHLOROETHYL)ETHER	111444	NA	NA	1.10E+00	I	NA	NA	1.10E+00	I	y
BIS(2-CHLOROISOPROPYL)ETHER	108601	4.00E-02	I	7.00E-02	H	NA	NA	3.50E-02	H	y
BIS(2-ETHYLHEXYL)PHTHALATE	117817	2.00E-02	I	1.40E-02	I	NA	NA	1.40E-02	E	NA
BIS(CHLOROMETHYL)ETHER	542881	NA	NA	2.20E+02	I	NA	NA	2.20E+02	I	y
BORON	7440428	9.00E-02	I	NA	NA	5.70E-03	H	NA	NA	NA
BROMODICHLOROMETHANE	75274	2.00E-02	I	6.20E-02	I	NA	NA	NA	NA	y
BROMOETHENE	593602	NA	NA	NA	NA	8.6E-04	I	1.10E-01	H	y
BROMOFORM	75252	2.00E-02	I	7.90E-03	I	NA	NA	3.90E-03	I	NA
BROMOMETHANE	74839	1.40E-03	I	NA	NA	1.40E-03	I	NA	NA	y
BROMOPHOS	2104963	5.00E-03	H	NA	NA	NA	NA	NA	NA	NA
BUTYLATE	2008415	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
BUTYLBENZYLPHTHALATE	85687	2.00E-01	I	NA	NA	NA	NA	NA	NA	NA
CADMIUM	7440439	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
CADMIUM-FOOD	7440439_F	1.00E-03	I	NA	NA	5.7E-05	E	6.30E+00	I	NA
CADMIUM-WATER	7440439_W	5.00E-04	I	NA	NA	5.7E-05	E	6.30E+00	I	NA
CALCIUM CYANIDE	592018	4E-02	I	NA	NA	NA	NA	NA	NA	NA
CAPROLACTAM	105602	5.00E-01	I	NA	NA	NA	NA	NA	NA	NA
CARBARYL	63252	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
CARBAZOLE	86748	NA	NA	2.00E-02	H	NA	NA	NA	NA	NA
CARBON DISULFIDE	75150	1.00E-01	I	NA	NA	2.00E-01	I	NA	NA	y
CARBON TETRACHLORIDE	56235	7.00E-04	I	1.30E-01	I	5.71E-04	E	5.30E-02	I	y
CARBOSULFAN	55285148	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
CHLORAL HYDRATE	302170	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
CHLORANIL	118752	NA	NA	4.00E-01	H	NA	NA	NA	NA	NA
CHLORDANE	57749	5.00E-04	I	3.5E-01	I	2.00E-04	I	3.5E-01	I	NA
CHLORINE	7782505	1.00E-01	I	NA	NA	5.7E-05	E	NA	NA	y
CHLORINE DIOXIDE	10049044	3.00E-02	I	NA	NA	5.70E-05	I	NA	NA	y
CHLOROACETIC ACID	79118	2.00E-03	H	NA	NA	NA	NA	NA	NA	NA
CHLOROBENZENE	108907	2.00E-02	I	NA	NA	1.7E-02	E	NA	NA	y
CHLOROBENZILATE	510156	2.00E-02	I	2.70E-01	H	NA	NA	2.70E-01	H	NA
CHLORODIFLUOROMETHANE	75456	NA	NA	NA	NA	1.40E+01	I	NA	NA	y

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		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
CHLOROETHANE	75003	4.00E-01	E	2.90E-03	E	2.90E+00	I	NA	NA	y
CHLOROFORM	67663	1.00E-02	I	NA	NA	8.6E-05	E	8.10E-02	I	y
CHLOROMETHANE	74873	NA	NA	1.30E-02	H	2.6E-02	I	3.5E-03	E	y
CHLORPYRIFOS	2921882	3.00E-03	I	NA	NA	NA	NA	NA	NA	NA
CHLORPYRIFOS-METHYL	5598130	1.00E-02	H	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	7440473	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
CHROMIUM III	16065831_III	1.50E+00	I	NA	NA	NA	NA	NA	NA	NA
CHROMIUM VI	18540299_VI	3.00E-03	I	NA	NA	3.00E-05	I	4.10E+01	H	NA
CHRYSENE	218019	2.00E-02	(b)	7.30E-03	E	NA	NA	3.10E-03	(f)	NA
CIS-1,2-DICHLOROETHENE	156592	1.00E-02	H	NA	NA	NA	NA	na	NA	y
cis-1,3-Dichloropropene	10061015	3.00E-02	(m)	1.00E-01	(m)	5.71E-03	(m)	1.00E-02	(m)	y
COBALT	7440484	2.00E-02	E	NA	NA	5.7E-06	E	NA	NA	NA
COKE OVEN EMISSIONS (COAL TAR)	8007452	NA	NA	NA	NA	NA	NA	2.2	I	NA
COPPER	7440508	4.00E-02	H	NA	NA	NA	NA	NA	NA	NA
COPPER CYANIDE	544923	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
CROTONALDEHYDE	123739	NA	NA	1.90E+00	H	NA	NA	NA	NA	y
CUMENE	98828	1.00E-01	I	NA	NA	1.10E-01	I	NA	NA	y
CYANAZINE	21725462	2.00E-03	H	8.40E-01	H	NA	NA	NA	NA	NA
CYANIDE (FREE)	57125	2.00E-02	I	NA	NA	NA	NA	NA	NA	NA
CYANOGEN	460195	4.00E-02	I	NA	NA	NA	NA	NA	NA	y
CYANOGEN BROMIDE	506683	9.00E-02	I	NA	NA	NA	NA	NA	NA	NA
CYANOGEN CHLORIDE	506774	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
CYCLOHEXANONE	108941	5.00E+00	I	NA	NA	NA	NA	NA	NA	NA
CYHALOTHRIN/KARATE	68085858	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
CYPERMETHRIN	52315078	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DACTHAL	1861321	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DALAPON	75990	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DDD	72548	5.00E-04	(h)	2.40E-01	I	NA	NA	NA	NA	NA
DDE	72559	5.00E-04	(h)	3.40E-01	I	NA	NA	NA	NA	NA
DDT	50293	5.00E-04	I	3.40E-01	I	NA	NA	3.40E-01	I	NA
delta-BHC	319868	3.00E-04	(i)	1.30E+00	(i)	NA	NA	NA	NA	NA
DI(2-ETHYLHEXYL)ADIPATE	103231	6.00E-01	I	1.20E-03	I	NA	NA	NA	NA	NA
DIAZINON	333415	9.00E-04	H	NA	NA	NA	NA	NA	NA	NA
DIBENZ[A,H]ANTHRACENE	53703	2.00E-02	(b)	7.30E+00	E	NA	NA	3.10E+00	(f)	NA
DIBENZOFURAN	132649	4.00E-03	E	NA	NA	NA	NA	NA	NA	y
DIBENZOFURAN	132649	4.00E-03	E	NA	NA	NA	NA	NA	NA	y
DIBROMOCHLOROMETHANE	124481	2.00E-02	I	8.40E-02	I	NA	NA	NA	NA	y
DIBUTYLPHTHALATE	84742	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
DICAMBA	1918009	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DICHLORODIFLUOROMETHANE	75718	2.00E-01	I	NA	NA	5.00E-02	A	NA	NA	y
Dichloroethene (all isomers)	25323302	9.00E-03	(j)	NA	NA	NA	NA	NA	NA	y
DICHLORVOS	62737	5E-04	I	0.29	I	1.43E-04	I	NA	NA	NA
DICOFOL	115322	NA	NA	4.4E-01	W	NA	NA	NA	NA	NA
DICYCLOPENTADIENE	77736	3E-02	H	NA	NA	6.00E-05	A	NA	NA	y
DIELDRIN	60571	5.00E-05	I	1.60E+01	I	NA	NA	1.60E+01	I	NA
DIESEL EMISSIONS	Diesel	NA	NA	NA	NA	1.40E-03	I	NA	NA	NA
DIETHYLENE GLYCOL, MONOBUTYL ETHER	112345	NA	NA	NA	NA	5.70E-03	H	NA	NA	NA
DIETHYLENE GLYCOL, MONOETHYL ETHER	111900	2.00E+00	H	NA	NA	NA	NA	NA	NA	NA
DIETHYLPHTHALATE	84662	8.00E-01	I	NA	NA	NA	NA	NA	NA	NA
DIETHYLSTILBESTROL	56531	NA	NA	4.70E+03	H	NA	NA	NA	NA	NA
DIFENZOQUAT (AVENGE)	43222486	8.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DIISOPROPYL METHYLPHOSPHONATE (DIMP)	1445756	8.00E-02	I	NA	NA	NA	NA	NA	NA	NA
DIMETHYLAMINE	124403	NA	NA	NA	NA	5.70E-06	W	NA	NA	y
DIMETHYLPHTHALATE	131113	1.00E+01	W	NA	NA	NA	NA	NA	NA	NA
DINITROTOLUENE MIX	25321146	NA	NA	6.80E-01	I	NA	NA	NA	NA	NA
DINOSEB	88857	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
DIOCTYLPHTHALATE	117840	2.00E-02	H	NA	NA	NA	NA	NA	NA	NA
DIPHENYLAMINE	122394	2.50E-02	I	NA	NA	NA	NA	NA	NA	NA
DIQUAT	85007	2.20E-03	I	NA	NA	NA	NA	NA	NA	NA
DISULFOTON	298044	4.00E-05	I	NA	NA	NA	NA	NA	NA	NA
DIURON	330541	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
ENDOSULFAN	115297	6.00E-03	I	NA	NA	NA	NA	NA	NA	NA

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		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
Endosulfan I	959988	6.00E-03	(k)	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	33213659	6.00E-03	(k)	NA	NA	NA	NA	NA	NA	NA
Endosulfan Sulfate	1031078	6.00E-03	(k)	NA	NA	NA	NA	NA	NA	NA
ENDRIN	72208	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
EPICHLOROHYDRIN	106898	2.00E-03	H	9.90E-03	I	2.86E-04	I	4.20E-03	I	y
ETHION	563122	5.00E-04	I	NA	NA	NA	NA	NA	NA	NA
ETHYL ACETATE	141786	9.00E-01	I	NA	NA	NA	NA	NA	NA	y
ETHYL ETHER	60297	2.00E-01	I	NA	NA	NA	NA	NA	NA	y
ETHYL METHACRYLATE	97632	9.00E-02	H	NA	NA	NA	NA	NA	NA	y
ETHYLBENZENE	100414	1.00E-01	I	NA	NA	2.90E-01	I	3.85E-03	E	y
ETHYLENE DIAMINE	107153	2.00E-02	H	NA	NA	NA	NA	NA	NA	NA
ETHYLENE GLYCOL	107211	2.00E+00	I	NA	NA	NA	NA	NA	NA	NA
ETHYLENE GLYCOL, MONOBUTYL ETHER	111762	5.00E-01	I	NA	NA	3.70E+00	I	NA	NA	NA
ETHYLENE OXIDE	75218	NA	NA	1.00E+00	H	NA	NA	3.50E-01	H	y
ETHYLENE THIOUREA	96457	8.00E-05	I	1.1E-01	H	NA	NA	NA	NA	NA
FENAMIPHOS	22224926	2.50E-04	I	NA	NA	NA	NA	NA	NA	NA
FLUOMETURON	2164172	1.30E-02	I	NA	NA	NA	NA	NA	NA	NA
FLUORANTHENE	206440	4.00E-02	I	NA	NA	NA	NA	NA	NA	NA
FLUORENE	86737	4.00E-02	I	NA	NA	NA	NA	NA	NA	y
FLUORINE	7782414	6.00E-02	I	NA	NA	NA	NA	NA	NA	NA
FOMESAFEN	72178020	NA	NA	1.90E-01	I	NA	NA	NA	NA	NA
FONOFOS	944229	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
FORMALDEHYDE	50000	2.00E-01	I	NA	NA	NA	NA	4.50E-02	I	NA
FORMIC ACID	64186	2.00E+00	H	NA	NA	NA	NA	NA	NA	NA
FURAN	110009	1.00E-03	I	NA	NA	NA	NA	NA	NA	y
FURAZOLIDONE	67458	NA	NA	3.80E+00	H	NA	NA	NA	NA	NA
FURFURAL	98011	3.00E-03	I	NA	NA	1.00E-02	A	NA	NA	NA
gamma-Chlordane	5566347	5.00E-04	(c)	3.5E-01	(c)	2.00E-04	(c)	3.5E-01	(c)	NA
GAMMA-HCH (LINDANE)	58899	3.00E-04	I	1.30E+00	H	NA	NA	NA	NA	NA
GLYCIDALDEHYDE	765344	4.00E-04	I	NA	NA	2.90E-04	H	NA	NA	NA
GLYPHOSATE	1071836	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOR	76448	5.00E-04	I	4.50E+00	I	NA	NA	4.50E+00	I	NA
HEPTACHLOR EPOXIDE	1024573	1.30E-05	I	9.10E+00	I	NA	NA	9.10E+00	I	NA
HEXABROMOBENZENE	87821	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBENZENE	118741	8.00E-04	I	1.60E+00	I	NA	NA	1.60E+00	I	NA
HEXACHLOROBUTADIENE	87683	2.00E-04	H	7.80E-02	I	NA	NA	7.80E-02	I	NA
HEXACHLOROCYCLOPENTADIENE	77474	6.00E-03	I	NA	NA	5.7E-05	I	NA	NA	NA
HEXACHLORODIBENZODIOXIN MIX	19408743	NA	NA	6.20E+03	I	NA	NA	4.55E+03	I	NA
HEXACHLOROETHANE	67721	1.00E-03	I	1.40E-02	I	NA	NA	1.40E-02	I	NA
HEXACHLOROPHENE	70304	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
HEXANE	110543	6.00E-02	H	NA	NA	5.71E-02	I	NA	NA	y
HEXAZINONE	51235042	3.30E-02	I	NA	NA	NA	NA	NA	NA	NA
HMX	2691410	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
HYDRAZINE	302012	NA	NA	3.00E+00	I	NA	NA	1.70E+01	I	NA
HYDROGEN CHLORIDE	7647010	NA	NA	NA	NA	5.70E-03	I	NA	NA	NA
HYDROGEN CYANIDE	74908	2.00E-02	I	NA	NA	8.60E-04	I	NA	NA	y
HYDROGEN SULFIDE	7783064	3.00E-03	I	NA	NA	2.85E-04	I	NA	NA	NA
HYDROQUINONE	123319	4.00E-02	H	NA	NA	NA	NA	NA	NA	NA
INDENO[1,2,3-C,D]PYRENE	193395	2.00E-02	(b)	7.30E-01	E	NA	NA	3.10E-01	(f)	NA
IRON	7439896	3.00E-01	E	NA	NA	NA	NA	NA	NA	NA
ISOBUTANOL	78831	3.00E-01	I	NA	NA	NA	NA	NA	NA	y
ISOPHORONE	78591	2.00E-01	I	9.50E-04	I	NA	NA	NA	NA	NA
ISOPROPALIN	33820530	1.50E-02	I	NA	NA	NA	NA	NA	NA	NA
ISOPROPYL METHYL PHOSPHONIC ACID	1832548	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
LITHIUM	7439932	2.00E-02	E	NA	NA	NA	NA	NA	NA	NA
MALATHION	121755	2.00E-02	I	NA	NA	NA	NA	NA	NA	NA
MALEIC ANHYDRIDE	108316	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
MANGANESE	7439965	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
MANGANESE-FOOD	7439965_F	1.40E-01	I	NA	NA	1.43E-05	I	NA	NA	NA
MANGANESE-NONFOOD	7439965_NF	2.00E-02	I	NA	NA	1.43E-05	I	NA	NA	NA
MEPHOSFOLAN	950107	9.00E-05	H	NA	NA	NA	NA	NA	NA	NA
MEPIQUAT CHLORIDE	24307264	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA

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*** = changed since previous version*

		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
MERCURIC CHLORIDE	7487947	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
MERCURY (INORGANIC)	7439976	3.00E-04	(l)	NA	NA	8.60E-05	I	NA	NA	NA
METHACRYLONITRILE	126987	1.00E-04	I	NA	NA	2.00E-04	A	NA	NA	y
METHANOL	67561	5.00E-01	I	NA	NA	NA	NA	NA	NA	NA
METHIDATHION	950378	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
METHOXYCHLOR	72435	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
METHYL ACETATE	79209	1.00E+00	H	NA	NA	NA	NA	NA	NA	y
METHYL ACRYLATE	96333	3.00E-02	A	NA	NA	NA	NA	NA	NA	y
METHYL ETHYL KETONE (2-BUTANONE)	78933	6.00E-01	I	NA	NA	2.86E-01	I	NA	NA	y
METHYL HYDRAZINE	60344	NA	NA	1.10E+00	W	NA	NA	NA	NA	NA
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	108101	8.00E-02	H	NA	NA	2.00E-02	A	NA	NA	y
METHYL METHACRYLATE	80626	1.40E+00	I	NA	NA	2.00E-01	I	NA	NA	y
METHYL PARATHION	298000	2.50E-04	I	NA	NA	NA	NA	NA	NA	NA
METHYL TERT-BUTYL ETHER	1634044	8.57E-01	(a)	4.00E-03	O	8.57E-01	I	NA	NA	y
METHYLCYCLOHEXANE	108872	NA	NA	NA	NA	8.60E-01	H	NA	NA	y
METHYLENE BROMIDE	74953	1.00E-02	A	NA	NA	NA	NA	NA	NA	y
METHYLENE CHLORIDE	75092	6.00E-02	I	7.50E-03	I	8.60E-01	H	1.65E-03	I	y
METHYLMERCURY	22967926	1.00E-04	I	NA	NA	NA	NA	NA	NA	NA
METHYLSTYRENE MIX	25013154	6.00E-03	A	NA	NA	1.00E-02	A	NA	NA	y
METOLACHLOR (DUAL)	51218452	1.50E-01	I	NA	NA	NA	NA	NA	NA	NA
MIREX	2385855	2.00E-04	I	NA	NA	NA	NA	NA	NA	NA
M-NITROTOLUENE	99081	2.00E-02	E	NA	NA	NA	NA	NA	NA	y
MOLYBDENUM	7439987	5E-03	I	NA	NA	NA	NA	NA	NA	NA
MONOCHLORAMINE	10599903	1E-01	I	NA	NA	1.00E-01	H	NA	NA	NA
M-PHENYLENEDIAMINE	108452	6.00E-03	I	NA	NA	NA	NA	NA	NA	NA
M-XYLENE	108383	2.00E+00	H	NA	NA	NA	NA	NA	NA	y
N,N-DIMETHYLANILINE	121697	2.00E-03	I	NA	NA	NA	NA	NA	NA	NA
NALED	300765	2E-03	I	NA	NA	NA	NA	NA	NA	NA
NAPHTHALENE	91203	2.00E-02	I	NA	NA	9.00E-04	I	NA	NA	y
N-BUTYLBENZENE	104518	4.00E-02	E	NA	NA	NA	NA	NA	NA	y
NICKEL	7440020	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
NICKEL	7440020_M	2.00E-02	I	NA	NA	NA	NA	NA	NA	NA
NICKEL REFINERY DUST	7440020_D	NA	NA	NA	NA	NA	NA	8.4E-01	I	NA
NITRATE	14797558	1.60E+00	I	NA	NA	NA	NA	NA	NA	NA
NITRIC OXIDE	10102439	1.00E-01	W	NA	NA	NA	NA	NA	NA	y
NITRITE	14797650	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
NITROBENZENE	98953	5.00E-04	I	NA	NA	6.00E-04	A	NA	NA	y
NITROFURANTOIN	67209	7.00E-02	H	NA	NA	NA	NA	NA	NA	NA
NITROFURAZONE	59870	NA	NA	1.50E+00	H	NA	NA	NA	NA	NA
NITROGEN DIOXIDE	10102440	1.00E+00	W	NA	NA	NA	NA	NA	NA	y
NITROGLYCERIN	55630	NA	NA	1.4E-02	E	NA	NA	NA	NA	NA
N-NITROSODIETHANOLAMINE	1116547	NA	NA	2.80E+00	I	NA	NA	NA	NA	NA
N-NITROSODIETHYLAMINE	55185	NA	NA	1.50E+02	I	NA	NA	1.50E+02	I	NA
N-NITROSODIMETHYLAMINE	62759	NA	NA	5.10E+01	I	NA	NA	5.10E+01	I	NA
N-NITROSO-DI-N-BUTYLAMINE	924163	NA	NA	5.40E+00	I	NA	NA	5.60E+00	I	y
N-NITROSODIPHENYLAMINE	86306	NA	NA	4.90E-03	I	NA	NA	NA	NA	NA
N-NITROSODIPROPYLAMINE	621647	NA	NA	7.00E+00	I	NA	NA	NA	NA	NA
N-NITROSO-N-ETHYLUREA	759739	NA	NA	1.40E+02	H	NA	NA	NA	NA	NA
N-NITROSO-N-METHYLETHYLAMINE	10595956	NA	NA	2.20E+01	I	NA	NA	NA	NA	NA
N-NITROSOPYRROLIDINE	930552	NA	NA	2.10E+00	I	NA	NA	2.10E+00	I	NA
N-PROPYLBENZENE	103651	4.00E-02	E	NA	NA	NA	NA	NA	NA	y
NUSTAR	85509199	7.00E-04	I	NA	NA	NA	NA	NA	NA	NA
O-CHLORONITROBENZENE	88733	NA	NA	2.50E-02	H	NA	NA	NA	NA	y
O-CHLOROTOLUENE	95498	2.00E-02	I	NA	NA	NA	NA	NA	NA	y
O-NITROTOLUENE	88722	1.00E-02	H	NA	NA	NA	NA	NA	NA	y
O-PHENYLENEDIAMINE	95545	NA	NA	4.70E-02	H	NA	NA	NA	NA	NA
ORYZALIN	19044883	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
OXADIAZON	19666309	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
OXAMYL	23135220	2.50E-02	I	NA	NA	NA	NA	NA	NA	NA
OXYFLUORFEN	42874033	3.00E-03	I	NA	NA	NA	NA	NA	NA	NA
O-XYLENE	95476	2.00E+00	H	NA	NA	NA	NA	NA	NA	y
P,A,A,A-TETRACHLOROTOLUENE	5216251	NA	NA	2.00E+01	H	NA	NA	NA	NA	NA

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		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
PARAQUAT DICHLORIDE	1910425	4.50E-03	I	NA	NA	NA	NA	NA	NA	NA
PARATHION	56382	6.00E-03	H	NA	NA	NA	NA	NA	NA	NA
P-CHLOROBENZOIC ACID	74113	2.00E-01	H	NA	NA	NA	NA	NA	NA	NA
P-CHLORONITROBENZENE	100005	NA	NA	1.80E-02	H	NA	NA	NA	NA	y
PENTACHLOROBENZENE	608935	8.00E-04	I	NA	NA	NA	NA	NA	NA	NA
PENTACHLORONITROBENZENE	82688	3.00E-03	I	2.60E-01	H	NA	NA	NA	NA	NA
PENTACHLOROPHENOL	87865	3.00E-02	I	1.20E-01	I	NA	NA	NA	NA	NA
PERMETHRIN	52645531	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	85018	2.00E-02	(b)	NA	NA	NA	NA	NA	NA	NA
PHOSPHINE	7803512	3.00E-04	I	NA	NA	8.60E-05	I	NA	NA	NA
PHOSPHORIC ACID	7664382	NA	NA	NA	NA	2.90E-03	I	NA	NA	NA
PHOSPHORUS (WHITE)	7723140	2.00E-05	I	NA	NA	NA	NA	NA	NA	NA
PHTHALIC ANHYDRIDE	85449	2.00E+00	I	NA	NA	3.43E-02	H	NA	NA	NA
P-NITROTOLUENE	99990	1.00E-02	H	NA	NA	NA	NA	NA	NA	y
POLYBROMINATED BIPHENYLS	NA	7.00E-06	H	8.90E+00	H	NA	NA	NA	NA	NA
POLYCHLORINATED BIPHENYLS	1336363	NA	NA	2.00E+00	I	NA	NA	2.00E+00	I	NA
POLYCHLORINATED TERPHENYLS	61788338	NA	NA	4.50E+00	E	NA	NA	NA	NA	NA
POTASSIUM CYANIDE	151508	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
POTASSIUM SILVER CYANIDE	506616	2.00E-01	I	NA	NA	NA	NA	NA	NA	NA
P-PHENYLENEDIAMINE	106503	1.90E-01	H	NA	NA	NA	NA	NA	NA	NA
P-PHTHALIC ACID	100210	1.00E+00	H	NA	NA	NA	NA	NA	NA	NA
PROMETON	1610180	1.50E-02	I	NA	NA	NA	NA	NA	NA	NA
PROMETRYN	7287196	4.00E-03	I	NA	NA	NA	NA	NA	NA	NA
PROPACHLOR	1918167	1.30E-02	I	NA	NA	NA	NA	NA	NA	NA
PROPANIL	709988	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
PROPARGITE	2312358	2.00E-02	I	NA	NA	NA	NA	NA	NA	NA
PROPYLENE GLYCOL	57556	2.00E+01	H	NA	NA	NA	NA	NA	NA	NA
PROPYLENE GLYCOL, MONOETHYL ETHER	52125538	7.00E-01	H	NA	NA	NA	NA	NA	NA	NA
PROPYLENE GLYCOL, MONOMETHYL ETHER	107982	7.00E-01	H	NA	NA	5.70E-01	I	NA	NA	NA
P-TOLUIDINE	106490	NA	NA	1.90E-01	H	NA	NA	NA	NA	NA
PURSUIT	81335775	2.50E-01	I	NA	NA	NA	NA	NA	NA	NA
P-XYLENE	106423	NA	NA	NA	NA	NA	NA	NA	NA	y
PYRENE	129000	3.00E-02	I	NA	NA	NA	NA	NA	NA	y
PYRIDINE	110861	1.00E-03	I	NA	NA	NA	NA	NA	NA	NA
QUINOLINE	91225	NA	NA	3.00E+00	I	NA	NA	NA	NA	NA
RDX	121824	3.00E-03	I	1.10E-01	I	NA	NA	NA	NA	NA
RESMETHRIN	10453868	3.00E-02	I	NA	NA	NA	NA	NA	NA	NA
RONNEL	299843	5.00E-02	H	NA	NA	NA	NA	NA	NA	NA
ROTENONE	83794	4.00E-03	I	NA	NA	NA	NA	NA	NA	NA
SEC-BUTYLBENZENE	135988	4.00E-02	E	NA	NA	NA	NA	NA	NA	y
SELENIOUS ACID	7783008	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
SELENIUM	7782492	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
SILVER	7440224	5.00E-03	I	NA	NA	NA	NA	NA	NA	NA
SILVER CYANIDE	506649	1.00E-01	I	NA	NA	NA	NA	NA	NA	NA
SIMAZINE	122349	5.00E-03	I	1.20E-01	H	NA	NA	NA	NA	NA
SODIUM AZIDE	26628228	4.00E-03	I	NA	NA	NA	NA	NA	NA	NA
SODIUM CYANIDE	143339	4.00E-02	I	NA	NA	NA	NA	NA	NA	NA
SODIUM DIETHYLDITHIOCARBAMATE	148185	3.00E-02	I	2.70E-01	H	NA	NA	NA	NA	NA
STRONTIUM, STABLE	7440246	6.00E-01	I	NA	NA	NA	NA	NA	NA	NA
STRYCHNINE	57249	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
STYRENE	100425	2.00E-01	I	NA	NA	2.86E-01	I	NA	NA	y
TECHNICAL HCH	608731	NA	NA	1.80E+00	I	NA	NA	1.80E+00	I	NA
TERT-BUTYLBENZENE	98066	4.00E-02	E	NA	NA	NA	NA	NA	NA	y
TETRACHLOROETHENE	127184	1.00E-02	I	5.2E-02	E	1.4E-01	E	1.00E-02	E	y
TETRAETHYLLEAD	78002	1.00E-07	I	NA	NA	NA	NA	NA	NA	NA
TETRAHYDROFURAN	109999	2.00E-01	E	7.6E-03	E	8.6E-02	E	6.8E-03	E	NA
TETRYL	479458	1.00E-02	H	NA	NA	NA	NA	NA	NA	NA
THALLIC OXIDE	1314325	7.00E-05	W	NA	NA	NA	NA	NA	NA	NA
THALLIUM	7440280	7.00E-05	O	NA	NA	NA	NA	NA	NA	NA
THALLIUM ACETATE	563688	9.00E-05	I	NA	NA	NA	NA	NA	NA	NA
THALLIUM CARBONATE	6533739	8.00E-05	I	NA	NA	NA	NA	NA	NA	NA
THALLIUM CHLORIDE	7791120	8.00E-05	I	NA	NA	NA	NA	NA	NA	NA

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		Toxicity Values for Human Health								
		Oral				Inhalation				
		RfDo		CSFo		RfDi		CSFi		
Chemical	CAS	mg/kg/d	Source	1/mg/kg/d	Source	mg/kg/d	Source	1/mg/kg/d	Source	VOC
THALLIUM NITRATE	10102451	9.00E-05	I	NA	NA	NA	NA	NA	NA	NA
THALLIUM SULFATE (2:1)	7446186	8.00E-05	I	NA	NA	NA	NA	NA	NA	NA
THIOBENCARB	28249776	1.00E-02	I	NA	NA	NA	NA	NA	NA	NA
THIOCYANATE	463569	5.00E-02	E	NA	NA	NA	NA	NA	NA	NA
TIN	7440315	6.00E-01	H	NA	NA	NA	NA	NA	NA	NA
TITANIUM	7440326	4.00E+00	E	NA	NA	8.60E-03	E	NA	NA	NA
TITANIUM DIOXIDE	13463677	4.00E+00	E	NA	NA	8.60E-03	E	NA	NA	NA
TOLUENE	108883	2.00E-01	I	NA	NA	1.14E-01	I	NA	NA	y
TOLUENE-2,4-DIAMINE	95807	NA	NA	3.20E+00	H	NA	NA	NA	NA	NA
TOLUENE-2,5-DIAMINE	95705	6.00E-01	H	NA	NA	NA	NA	NA	NA	NA
TOLUENE-2,6-DIAMINE	823405	2.00E-01	H	NA	NA	NA	NA	NA	NA	NA
TOTAL 1,2-DICHLOROETHENE	540590	9.00E-03	H	NA	NA	NA	NA	NA	NA	y
TOXAPHENE	8001352	NA	NA	1.10E+00	I	NA	NA	1.10E+00	I	NA
TRANS-1,2-DICHLOROETHENE	156605	2.00E-02	I	NA	NA	NA	NA	NA	NA	y
trans-1,3-Dichloropropene	10061026	3.00E-02	(m)	1.00E-01	(m)	5.71E-03	(m)	1.00E-02	(m)	y
trans-1,4-Dichloro-2-butene	110576	NA	NA	9.30E+00	(a)	NA	NA	9.30E+00	(n)	y
TRIBUTYLTIN OXIDE	56359	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
TRICHLOROETHENE	79016_new	3.00E-04	(p)	4.00E-01	(p,q)	1.00E-02	(p)	4.00E-01	(p,q)	y
TRICHLOROETHENE	79016_old	6.00E-03	E	1.10E-02	E			6.00E-03	E	y
TRICHLOROETHENE	79016	3.00E-04	(p)	1.10E-02	E	1.00E-02	(p)	6.00E-03	E	y
TRICHLOROFLUOROMETHANE	75694	3.00E-01	I	NA	NA	2.00E-01	A	NA	NA	y
TRIMETHYL PHOSPHATE	512561	NA	NA	3.70E-02	H	NA	NA	NA	NA	NA
URANIUM	7440611	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
URANIUM (SOLUBLE SALTS; from IRIS)	7440611_I	3.00E-03	I	NA	NA	NA	NA	NA	NA	NA
URANIUM (SOLUBLE SALTS; provisioNAl)	7440611_P	2.00E-04	E	NA	NA	NA	NA	NA	NA	NA
VANADIUM	7440622	7.00E-03	H	NA	NA	NA	NA	NA	NA	NA
VANADIUM PENTOXIDE	1314621	9.00E-03	I	NA	NA	NA	NA	NA	NA	NA
VANADIUM SULFATE	16785812	2.00E-02	H	NA	NA	NA	NA	NA	NA	NA
VINCLOZOLIN	50471448	2.50E-02	I	NA	NA	NA	NA	NA	NA	NA
VINYL ACETATE	108054	1.00E+00	H	NA	NA	5.71E-02	I	NA	NA	y
VINYL CHLORIDE	75014	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table	**see table
VINYL CHLORIDE inc earlylife(see cover memos)	75014_EL	3.00E-03	I	1.40E+00	I	2.8E-02	I	3.00E-02	I	y
VINYL CHLORIDE: adult (see cover memos)	75014_A	3.00E-03	I	7.20E-01	I	2.8E-02	I	1.5E-02	I	y
WARFARIN	81812	3.00E-04	I	NA	NA	NA	NA	NA	NA	NA
Xylene-m&p	179601231	2.00E+00	(o)	NA	NA	NA	NA	NA	NA	NA
XYLENES	1330207	2.00E+00	I	NA	NA	NA	NA	NA	NA	y
ZINC	7440666	3.00E-01	I	NA	NA	NA	NA	NA	NA	NA
ZINC CYANIDE	557211	5.00E-02	I	NA	NA	NA	NA	NA	NA	NA
ZINC PHOSPHIDE	1314847	3E-04	I	NA	NA	NA	NA	NA	NA	NA
ZINEB	12122677	5E-02	I	NA	NA	NA	NA	NA	NA	NA

NOTES:
(a) oRfD set to equal iRfD.
(b) oRfD assumed based on naphthalene (lowest RfD).
(c) Toxicity values assumed to be equal to chlordane.
(d) oRfD assumed based on Aroclor-1254 (lowest RfD).
(e) oSF and iSF assumed based on Aroclor-1254 (lowest SF).
(f) Inhalation Slope Factor = Toxicity Equivalence Factor * CSFi for BAP.
(g) Toxicity values assumed to be equal to 1,3-Dichloropropene.
(h) oRfD assumed based on DDT.
(i) Toxicity values assumed to be equal to gamma (Lindane).
(j) Toxicity values assumed to be equal to 1,2-Dichloroethene (total).
(k) oRfD based on Endosulfan.
(l) oRfD based on Mercuric Chloride.
(m) Toxicity values assumed to be equal to 1,3-Dichloropropene.
(n) Toxicity values assumed to be equal to 1,4-Dichloro-2-butene (mixture).
(o) oRfD based on Total Xylene.
(p) Based on TCE report (USEPA 2001)
(q) Slope factor based on upper bound of reported range

APPENDIX C2
SUMMARY OF RISK-BASED CONCENTRATIONS (RBCS)

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RISK-BASED CONCENTRATIONS (RBCs) FOR INGESTION OF SURFACE WATER, FISH, SEDIMENT, SOIL & GROUNDWATER

Ogden Railyard Human Health Risk Assessment

		Recreational Visitor				Resident	Worker
		Surface Water	Fish Tissue	Soil	Sediment	Groundwater	Soil
Analyte	CAS #	mg/L	mg/kg	mg/kg	mg/kg	mg/L	mg/kg
Aluminum	7429-90-5	3.0E+02	7.3E+02	1.5E+05	1.5E+05	3.7E+00	1.0E+05
Antimony	7440-36-0	1.2E-01	2.9E-01	6.0E+01	6.0E+01	1.5E-03	4.1E+01
Arsenic	7440-38-2	1.4E-02	1.1E-02	7.0E+00	7.0E+00	5.7E-05	1.9E+00
Barium	7440-39-3	2.1E+01	5.1E+01	1.0E+04	1.0E+04	2.6E-01	7.2E+03
Beryllium	7440-41-7	6.0E-01	1.5E+00	3.0E+02	3.0E+02	7.3E-03	2.0E+02
Cadmium	7440-43-9	1.5E-01	7.3E-01	1.5E+02	1.5E+02	1.8E-03	1.0E+02
Calcium	7440-70-2	--	--	--	--	--	--
Chromium	7440-47-3	9.0E-01	2.2E+00	4.5E+02	4.5E+02	1.1E-02	3.1E+02
Cobalt	7440-48-4	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Copper	7440-50-8	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
Iron	7439-89-6	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
Lead*	7439-92-1	8.5E-01	1.9E+00	1.8E+03	1.8E+03	1.5E-02	6.8E+02
Magnesium	7439-95-4	--	--	--	--	--	--
Manganese	7439-96-5	6.0E+00	1.0E+02	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Mercury	7439-97-6	9.0E-02	2.2E-01	4.5E+01	4.5E+01	1.1E-03	3.1E+01
Nickel	7440-02-0	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Potassium	7440-09-7	--	--	--	--	--	--
Selenium	7782-49-2	1.5E+00	3.7E+00	7.5E+02	7.5E+02	1.8E-02	5.1E+02
Silver	7440-22-4	1.5E+00	3.7E+00	7.5E+02	7.5E+02	1.8E-02	5.1E+02
Sodium	7440-23-5	--	--	--	--	--	--
Thallium	7440-28-0	2.1E-02	5.1E-02	1.0E+01	1.0E+01	2.6E-04	7.2E+00
Vanadium	7440-62-2	2.1E+00	5.1E+00	1.0E+03	1.0E+03	2.6E-02	7.2E+02
Zinc	7440-66-6	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
4,4'-DDD	72-54-8	8.7E-02	7.1E-02	4.4E+01	4.4E+01	3.5E-04	1.2E+01
4,4'-DDE	72-55-9	6.2E-02	5.0E-02	3.1E+01	3.1E+01	2.5E-04	8.4E+00
4,4'-DDT	50-29-3	6.2E-02	5.0E-02	3.1E+01	3.1E+01	2.5E-04	8.4E+00
Aldrin	309-00-2	1.2E-03	1.0E-03	6.2E-01	6.2E-01	5.0E-06	1.7E-01
alpha-BHC	319-84-6	3.3E-03	2.7E-03	1.7E+00	1.7E+00	1.4E-05	4.5E-01
alpha-Chlordane	5103-71-9	6.0E-02	4.9E-02	3.0E+01	3.0E+01	2.4E-04	8.2E+00
Atrazine	1912-24-9	9.5E-02	7.7E-02	4.8E+01	4.8E+01	3.9E-04	1.3E+01
beta-BHC	319-85-7	1.2E-02	9.5E-03	5.8E+00	5.8E+00	4.7E-05	1.6E+00
Caprolactam	105-60-2	1.5E+02	3.7E+02	7.5E+04	7.5E+04	1.8E+00	5.1E+04
Chlordane	57-74-9	6.0E-02	4.9E-02	3.0E+01	3.0E+01	2.4E-04	8.2E+00
delta-BHC	319-86-8	1.6E-02	1.3E-02	8.1E+00	8.1E+00	6.6E-05	2.2E+00
Dieldrin	60-57-1	1.3E-03	1.1E-03	6.6E-01	6.6E-01	5.3E-06	1.8E-01
Endosulfan I	959-98-8	1.8E+00	4.4E+00	9.0E+02	9.0E+02	2.2E-02	6.1E+02
Endosulfan II	33213-65-9	1.8E+00	4.4E+00	9.0E+02	9.0E+02	2.2E-02	6.1E+02
Endosulfan Sulfate	1031-07-8	1.8E+00	4.4E+00	9.0E+02	9.0E+02	2.2E-02	6.1E+02
Endrin	72-20-8	9.0E-02	2.2E-01	4.5E+01	4.5E+01	1.1E-03	3.1E+01
Endrin Aldehyde	7421-93-4	--	--	--	--	--	--
Endrin ketone	53494-70-5	--	--	--	--	--	--
gamma-BHC (Lindane)	58-89-9	1.6E-02	1.3E-02	8.1E+00	8.1E+00	6.6E-05	2.2E+00
gamma-Chlordane	5566-34-7	6.0E-02	4.9E-02	3.0E+01	3.0E+01	2.4E-04	8.2E+00
Heptachlor	76-44-8	4.7E-03	3.8E-03	2.3E+00	2.3E+00	1.9E-05	6.4E-01
Heptachlor Epoxide	1024-57-3	2.3E-03	1.9E-03	1.2E+00	1.2E+00	9.4E-06	3.1E-01
Isodrin	465-73-6	--	--	--	--	--	--
Kepone	143-50-0	2.6E-03	2.1E-03	1.3E+00	1.3E+00	1.1E-05	3.6E-01
Methoxychlor	72-43-5	1.5E+00	3.7E+00	7.5E+02	7.5E+02	1.8E-02	5.1E+02
Toxaphene	8001-35-2	1.9E-02	1.5E-02	9.5E+00	9.5E+00	7.7E-05	2.6E+00
2-Chloronaphthalene	91-58-7	2.4E+01	5.8E+01	1.2E+04	1.2E+04	2.9E-01	8.2E+03
2-Methylnaphthalene	91-57-6	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Acenaphthene	83-32-9	1.8E+01	4.4E+01	9.0E+03	9.0E+03	2.2E-01	6.1E+03
Acenaphthylene	208-96-8	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Aniline	62-53-3	2.1E+00	3.0E+00	1.0E+03	1.0E+03	1.5E-02	5.0E+02
Anthracene	120-12-7	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
Benzo[a]anthracene	56-55-3	2.9E-02	2.3E-02	1.4E+01	1.4E+01	1.2E-04	3.9E+00
Benzo[a]pyrene	50-32-8	2.9E-03	2.3E-03	1.4E+00	1.4E+00	1.2E-05	3.9E-01
Benzo[b]fluoranthene	205-99-2	2.9E-02	2.3E-02	1.4E+01	1.4E+01	1.2E-04	3.9E+00
Benzo[g,h,i]perylene	191-24-2	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Benzo[k]fluoranthene	207-08-9	2.9E-01	2.3E-01	1.4E+02	1.4E+02	1.2E-03	3.9E+01
Chrysene	218-01-9	2.9E+00	2.3E+00	1.4E+03	1.4E+03	1.2E-02	3.9E+02
Dibenz[a,h]anthracene	53-70-3	2.9E-03	2.3E-03	1.4E+00	1.4E+00	1.2E-05	3.9E-01
Dibenzofuran	132-64-9	1.2E+00	2.9E+00	6.0E+02	6.0E+02	1.5E-02	4.1E+02
Fluoranthene	206-44-0	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
Fluorene	86-73-7	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
Indeno[1,2,3-c,d]pyrene	193-39-5	2.9E-02	2.3E-02	1.4E+01	1.4E+01	1.2E-04	3.9E+00
Naphthalene	91-20-3	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Phenanthrene	85-01-8	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Pyrene	129-00-0	9.0E+00	2.2E+01	4.5E+03	4.5E+03	1.1E-01	3.1E+03
Aroclor-1016	12674-11-2	2.1E-02	5.1E-02	1.0E+01	1.0E+01	2.6E-04	7.2E+00
Aroclor-1221	11104-28-2	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
Aroclor-1232	11141-16-5	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
Aroclor-1242	53469-21-9	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
Aroclor-1248	12672-29-6	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
Aroclor-1254	11097-69-1	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00

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		Recreational Visitor				Resident	Worker
		Surface Water	Fish Tissue	Soil	Sediment	Groundwater	Soil
Analyte	CAS #	mg/L	mg/kg	mg/kg	mg/kg	mg/L	mg/kg
Aroclor-1260	11096-82-5	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
Aroclor-1268	11100-14-4	6.0E-03	8.5E-03	3.0E+00	3.0E+00	4.3E-05	1.4E+00
1,1'-Biphenyl	92-52-4	1.5E+01	3.7E+01	7.5E+03	7.5E+03	1.8E-01	5.1E+03
1,2,4-Trichlorobenzene	120-82-1	3.0E+00	7.3E+00	1.5E+03	1.5E+03	3.7E-02	1.0E+03
1,2-Dichlorobenzene	95-50-1	2.7E+01	6.6E+01	1.3E+04	1.3E+04	3.3E-01	9.2E+03
1,3-Dichlorobenzene	541-73-1	9.0E+00	2.2E+01	4.5E+03	4.5E+03	1.1E-01	3.1E+03
1,4-Dichlorobenzene	106-46-7	8.7E-01	7.1E-01	4.4E+02	4.4E+02	3.5E-03	1.2E+02
1-Methylnaphthalene	90-12-0	--	--	--	--	--	--
2,4,5-Trichlorophenol	95-95-4	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
2,4,6-Trichlorophenol	88-06-2	1.9E+00	1.5E+00	9.5E+02	9.5E+02	7.7E-03	2.6E+02
2,4-Dichlorophenol	120-83-2	9.0E-01	2.2E+00	4.5E+02	4.5E+02	1.1E-02	3.1E+02
2,4-Dimethylphenol	105-67-9	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
2,4-Dinitrophenol	51-28-5	6.0E-01	1.5E+00	3.0E+02	3.0E+02	7.3E-03	2.0E+02
2,4-Dinitrotoluene	121-14-2	6.0E-01	1.5E+00	3.0E+02	3.0E+02	7.3E-03	2.0E+02
2,6-Dinitrotoluene	606-20-2	3.0E-01	7.3E-01	1.5E+02	1.5E+02	3.7E-03	1.0E+02
2-Chlorophenol	95-57-8	1.5E+00	3.7E+00	7.5E+02	7.5E+02	1.8E-02	5.1E+02
2-Methylphenol (o-Cresol)	95-48-7	1.5E+01	3.7E+01	7.5E+03	7.5E+03	1.8E-01	5.1E+03
2-Nitroaniline	88-74-4	1.7E-02	4.2E-02	8.5E+00	8.5E+00	2.1E-04	5.8E+00
2-Nitrophenol	88-75-5	--	--	--	--	--	--
3,3'-Dichlorobenzidine	91-94-1	4.7E-02	3.8E-02	2.3E+01	2.3E+01	1.9E-04	6.4E+00
3-Nitroaniline	99-09-2	9.0E-02	2.2E-01	4.5E+01	4.5E+01	1.1E-03	3.1E+01
4,6-Dichloro-2-methylphenol	2432-12-4	--	--	--	--	--	--
4,6-Dinitro-o-cresol	534-52-1	3.0E-02	7.3E-02	1.5E+01	1.5E+01	3.7E-04	1.0E+01
4-Bromophenyl-phenylether	101-55-3	--	--	--	--	--	--
4-Chloro-3-Methylphenol	59-50-7	--	--	--	--	--	--
4-Chloroaniline	106-47-8	1.2E+00	2.9E+00	6.0E+02	6.0E+02	1.5E-02	4.1E+02
4-Chlorophenyl-phenylether	7005-72-3	--	--	--	--	--	--
4-Methylphenol (p-Cresol)	106-44-5	1.5E+00	3.7E+00	7.5E+02	7.5E+02	1.8E-02	5.1E+02
4-Nitroaniline	100-01-6	9.0E-01	8.5E-01	4.5E+02	4.5E+02	4.3E-03	1.4E+02
4-Nitrophenol	100-02-7	2.4E+00	5.8E+00	1.2E+03	1.2E+03	2.9E-02	8.2E+02
Benzyl alcohol	100-51-6	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
bis(2-Chloroethoxy)methane	111-91-1	--	--	--	--	--	--
bis(2-Chloroethyl)ether	111-44-4	1.9E-02	1.5E-02	9.5E+00	9.5E+00	7.7E-05	2.6E+00
bis(2-Chloroisopropyl)ether	108-60-1	3.0E-01	2.4E-01	1.5E+02	1.5E+02	1.2E-03	4.1E+01
bis(2-Ethylhexyl)phthalate	117-81-7	1.5E+00	1.2E+00	7.5E+02	7.5E+02	6.1E-03	2.0E+02
bis(n-octyl)phthalate	117-84-0	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Butylbenzylphthalate	85-68-7	6.0E+01	1.5E+02	3.0E+04	3.0E+04	7.3E-01	2.0E+04
Carbazole	86-74-8	1.0E+00	8.5E-01	5.2E+02	5.2E+02	4.3E-03	1.4E+02
Dibutylphthalate	84-74-2	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Diethylphthalate	84-66-2	2.4E+02	5.8E+02	1.2E+05	1.2E+05	2.9E+00	8.2E+04
Dimethylphthalate	131-11-3	3.0E+03	7.3E+03	1.5E+06	1.5E+06	3.7E+01	1.0E+06
Hexachlorobenzene	118-74-1	1.3E-02	1.1E-02	6.6E+00	6.6E+00	5.3E-05	1.8E+00
Hexachlorobutadiene	87-68-3	6.0E-02	1.5E-01	3.0E+01	3.0E+01	7.3E-04	2.0E+01
Hexachlorocyclopentadiene	77-47-4	1.8E+00	4.4E+00	9.0E+02	9.0E+02	2.2E-02	6.1E+02
Hexachloroethane	67-72-1	3.0E-01	7.3E-01	1.5E+02	1.5E+02	3.7E-03	1.0E+02
Isophorone	78-59-1	2.2E+01	1.8E+01	1.1E+04	1.1E+04	9.0E-02	3.0E+03
Nitrobenzene	98-95-3	1.5E-01	3.7E-01	7.5E+01	7.5E+01	1.8E-03	5.1E+01
N-Nitrosodiphenylamine	86-30-6	4.3E+00	3.5E+00	2.1E+03	2.1E+03	1.7E-02	5.8E+02
n-Nitrosodipropylamine	621-64-7	3.0E-03	2.4E-03	1.5E+00	1.5E+00	1.2E-05	4.1E-01
Pentachlorophenol (PCP)	87-86-5	1.7E-01	1.4E-01	8.7E+01	8.7E+01	7.1E-04	2.4E+01
Phenol	108-95-2	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
Pyridine	110-86-1	3.0E-01	7.3E-01	1.5E+02	1.5E+02	3.7E-03	1.0E+02
1,1,1,2-Tetrachloroethane	630-20-6	8.1E-01	6.6E-01	4.0E+02	4.0E+02	3.3E-03	1.1E+02
1,1,1-Trichloroethane	71-55-6	8.4E+01	2.0E+02	4.2E+04	4.2E+04	1.0E+00	2.9E+04
1,1,2,2-Tetrachloroethane	79-34-5	1.0E-01	8.5E-02	5.2E+01	5.2E+01	4.3E-04	1.4E+01
1,1,2-Trichloroethane	79-00-5	3.7E-01	3.0E-01	1.8E+02	1.8E+02	1.5E-03	5.0E+01
1,1-Dichloroethane	75-34-3	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
1,1-Dichloroethene	75-35-4	1.5E+01	3.7E+01	7.5E+03	7.5E+03	1.8E-01	5.1E+03
1,1-Dichloropropene	563-58-6	--	--	--	--	--	--
1,2,3-Trichlorobenzene	87-61-6	--	--	--	--	--	--
1,2,3-Trichloropropane	96-18-4	1.0E-02	8.5E-03	5.2E+00	5.2E+00	4.3E-05	1.4E+00
1,2,4-Trimethylbenzene	95-63-6	1.5E+01	3.7E+01	7.5E+03	7.5E+03	1.8E-01	5.1E+03
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	1.5E-02	1.2E-02	7.5E+00	7.5E+00	6.1E-05	2.0E+00
1,2-Dichloroethane	107-06-2	2.3E-01	1.9E-01	1.2E+02	1.2E+02	9.4E-04	3.1E+01
1,2-Dichloroethene	540-59-0	2.7E+00	6.6E+00	1.3E+03	1.3E+03	3.3E-02	9.2E+02
1,2-Dichloroethene (Total)	540-59-0	2.7E+00	6.6E+00	1.3E+03	1.3E+03	3.3E-02	9.2E+02
1,2-Dichloropropane	78-87-5	3.1E-01	2.5E-01	1.5E+02	1.5E+02	1.3E-03	4.2E+01
1,3,5-Trimethylbenzene	108-67-8	1.5E+01	3.7E+01	7.5E+03	7.5E+03	1.8E-01	5.1E+03
1,3-Dichloropropane	142-28-9	--	--	--	--	--	--
1,4-Dioxane	123-91-1	1.9E+00	1.5E+00	9.5E+02	9.5E+02	7.7E-03	2.6E+02
2,2-Dichloropropane	594-20-7	--	--	--	--	--	--
2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
2-Chloroethyl vinyl ether	110-75-8	--	--	--	--	--	--
2-Chlorotoluene	95-49-8	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
2-Hexanone	591-78-6	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03

RISK-BASED CONCENTRATIONS (RBCs) FOR INGESTION OF SURFACE WATER, FISH, SEDIMENT, SOIL & GROUNDWATER

Ogden Railyard Human Health Risk Assessment

		Recreational Visitor				Resident	Worker
		Surface Water	Fish Tissue	Soil	Sediment	Groundwater	Soil
Analyte	CAS #	mg/L	mg/kg	mg/kg	mg/kg	mg/L	mg/kg
3-Chloropropene (Allyl Chloride)	107-05-1	--	--	--	--	--	--
4-Chlorotoluene	106-43-4	--	--	--	--	--	--
Acetone	67-64-1	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Acetonitrile	75-05-8	5.1E+00	1.2E+01	2.5E+03	2.5E+03	6.2E-02	1.7E+03
Acetophenone	98-86-2	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Acrolein	107-02-8	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Acrylonitrile	107-13-1	3.9E-02	3.2E-02	1.9E+01	1.9E+01	1.6E-04	5.3E+00
Benzaldehyde	100-52-7	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Benzene	71-43-2	3.8E-01	3.1E-01	1.9E+02	1.9E+02	1.5E-03	5.2E+01
Bromobenzene	108-86-1	--	--	--	--	--	--
Bromodichloromethane	75-27-4	3.4E-01	2.7E-01	1.7E+02	1.7E+02	1.4E-03	4.6E+01
Bromoform	75-25-2	2.7E+00	2.2E+00	1.3E+03	1.3E+03	1.1E-02	3.6E+02
Bromomethane (Methyl bromide)	74-83-9	4.2E-01	1.0E+00	2.1E+02	2.1E+02	5.1E-03	1.4E+02
Carbon Disulfide	75-15-0	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Carbon Tetrachloride	56-23-5	1.6E-01	1.3E-01	8.1E+01	8.1E+01	6.6E-04	2.2E+01
Chlorobenzene	108-90-7	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
Chlorodibromomethane	124-48-1	2.5E-01	2.0E-01	1.2E+02	1.2E+02	1.0E-03	3.4E+01
Chloroethane (Ethyl chloride)	75-00-3	7.2E+00	5.9E+00	3.6E+03	3.6E+03	2.9E-02	9.9E+02
Chloroform	67-66-3	3.0E+00	7.3E+00	1.5E+03	1.5E+03	3.7E-02	1.0E+03
Chloromethane (Methyl chloride)	74-87-3	1.6E+00	1.3E+00	8.1E+02	8.1E+02	6.6E-03	2.2E+02
cis-1,2-Dichloroethene	156-59-2	3.0E+00	7.3E+00	1.5E+03	1.5E+03	3.7E-02	1.0E+03
cis-1,3-Dichloropropene	10061-01-5	2.1E-01	1.7E-01	1.0E+02	1.0E+02	8.5E-04	2.9E+01
Dibromomethane	74-95-3	3.0E+00	7.3E+00	1.5E+03	1.5E+03	3.7E-02	1.0E+03
Dichlorodifluoromethane	75-71-8	6.0E+01	1.5E+02	3.0E+04	3.0E+04	7.3E-01	2.0E+04
Dichloroethene (all isomers)	25323-30-2	2.7E+00	6.6E+00	1.3E+03	1.3E+03	3.3E-02	9.2E+02
Dichloromethane	75-09-2	2.8E+00	2.3E+00	1.4E+03	1.4E+03	1.1E-02	3.8E+02
Ethane	74-84-0	--	--	--	--	--	--
Ethyl Methacrylate	97-63-2	2.7E+01	6.6E+01	1.3E+04	1.3E+04	3.3E-01	9.2E+03
Ethylbenzene	100-41-4	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Ethylene dibromide (EDB)	106-93-4	2.5E-04	2.0E-04	1.2E-01	1.2E-01	1.0E-06	3.4E-02
Hexane	110-54-3	1.8E+01	4.4E+01	9.0E+03	9.0E+03	2.2E-01	6.1E+03
Iodomethane	74-88-4	--	--	--	--	--	--
Isobutyl Alcohol	78-83-1	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
Isopropylbenzene	98-82-8	3.0E+01	7.3E+01	1.5E+04	1.5E+04	3.7E-01	1.0E+04
Methacrylonitrile	126-98-7	3.0E-02	7.3E-02	1.5E+01	1.5E+01	3.7E-04	1.0E+01
Methane	74-82-8	--	--	--	--	--	--
Methyl ethyl ketone (MEK)	78-93-3	1.8E+02	4.4E+02	9.0E+04	9.0E+04	2.2E+00	6.1E+04
Methyl isobutyl ketone (MIBK)	108-10-1	2.4E+01	5.8E+01	1.2E+04	1.2E+04	2.9E-01	8.2E+03
Methyl Metharcylate	80-62-6	4.2E+02	1.0E+03	2.1E+05	2.1E+05	5.1E+00	1.4E+05
Methyl-t-butyl ether	1634-04-4	5.2E+00	4.3E+00	2.6E+03	2.6E+03	2.1E-02	7.2E+02
n-Butylbenzene	104-51-8	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
n-Propylbenzene	103-65-1	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
o-Xylene	95-47-6	6.0E+02	1.5E+03	3.0E+05	3.0E+05	7.3E+00	2.0E+05
p-Isopropyltoluene	99-87-6	--	--	--	--	--	--
Propionitrile	107-12-0	--	--	--	--	--	--
sec-Butylbenzene	135-98-8	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
Styrene	100-42-5	6.0E+01	1.5E+02	3.0E+04	3.0E+04	7.3E-01	2.0E+04
tert-Butylbenzene	98-06-6	1.2E+01	2.9E+01	6.0E+03	6.0E+03	1.5E-01	4.1E+03
Tetrachloroethene	127-18-4	4.0E-01	3.3E-01	2.0E+02	2.0E+02	1.6E-03	5.5E+01
Toluene	108-88-3	6.0E+01	1.5E+02	3.0E+04	3.0E+04	7.3E-01	2.0E+04
trans-1,2-Dichloroethene	156-60-5	6.0E+00	1.5E+01	3.0E+03	3.0E+03	7.3E-02	2.0E+03
trans-1,3-Dichloropropene	10061-02-6	2.1E-01	1.7E-01	1.0E+02	1.0E+02	8.5E-04	2.9E+01
trans-1,4-Dichloro-2-Butene	110-57-6	2.3E-03	1.8E-03	1.1E+00	1.1E+00	9.2E-06	3.1E-01
Trichloroethene	79-01-6	9.0E-02	2.2E-01	4.5E+01	4.5E+01	1.1E-03	3.1E+01
Trichlorofluoromethane	75-69-4	9.0E+01	2.2E+02	4.5E+04	4.5E+04	1.1E+00	3.1E+04
Vinyl Acetate	108-05-4	3.0E+02	7.3E+02	1.5E+05	1.5E+05	3.7E+00	1.0E+05
Vinyl Chloride	75-01-4	1.5E-02	1.2E-02	7.5E+00	7.5E+00	6.1E-05	2.0E+00
Xylenes (Total)	1330-20-7	6.0E+02	1.5E+03	3.0E+05	3.0E+05	7.3E+00	2.0E+05
Xylenes-p,m	179601-23-1	6.0E+02	1.5E+03	3.0E+05	3.0E+05	7.3E+00	2.0E+05

-- = Not Available
*Derived separately in Lead RBCs.xls

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APPENDIX C3
DERIVATION OF LEAD RBCS

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Calculation of Soil & Sediment RBC for Lead for a Recreational and Worker Scenario

Based on USEPA 1996a adult lead guidance

EQUATIONS

GM = PbB0 + BKSF*Absorbed dose(ug/d)
95th = GM*GSD^1.645
Target 95th fetal = 10 ug/dL
95th(maternal) = 95th(fetal) / R

Absorbed dose = C * IR * EF/365 * AF

where:
GM = Geometric mean blood lead level (ug/dL) in exposed population
GSD = Geometric standard deviation in blood lead values in exposed population
PbB0 = Baseline geometric mean blood lead level (ug/dL) in exposed population
BKSF = Biokinetic slope factor (ug/dL increase in PbB per ug/day absorbed)
AF = Absorption Fraction
C = Concentration of lead in soil or sediment (ug/g)
IR = Intake rate of soil or sediment (grams/day)
EF = Exposure frequency (days per year)
R = Ratio of fetal to maternal PbB concentration

			Recreational Visitor		On-Yard	
	Variable	Units	Adult	Child*	Worker	Source
INPUTS	PbB0	ug/dL	2.0	2.0	2.0	a
	BKSF	ug/dL per ug/day	0.4	0.4	0.4	a
	GSD	--	1.8	1.8	1.8	a
	R	ug/dL per ug/dL	0.9	0.9	0.9	a
	IR	g/day	0.10	0.20	0.1	b
	EF	days/yr	20	48	250	b
	AF	ug abs. per ug ing.	0.12	0.12	0.12	a
CALCS	Target maternal 95th	ug/dL	11.1	11.1	11.1	
	Target maternal GM	ug/dL	4.23	4.23	4.23	
	Target Absorbed dose	ug/day	5.56	5.56	5.56	
	Target Conc (RBC)	ug/g	8460	1762	677	
	Most stringent	ug/g	1762			

a = Default value from USEPA (1996b)
b = RME exposure input parameters for Ogden Railyard site (see Tables 3-5 to 3-7)

* applicable to individuals of reproductive age

Calculation of Surface Water RBC for Lead for a Recreational Scenario

Based on USEPA 1996s adult lead guidance

EQUATIONS

GM = PbB0 + BKSF*Absorbed dose(ug/d)
95th = GM*GSD^1.645
Target 95th fetal = 10 ug/dL
95th(maternal) = 95th(fetal) / R

Absorbed dose = C * IR * EF/365 * AF

where:
GM = Geometric mean blood lead level (ug/dL) in exposed population
GSD = Geometric standard deviation in blood lead values in exposed population
PbB0 = Baseline geometric mean blood lead level (ug/dL) in exposed population
BKSF = Biokinetic slope factor (ug/dL increase in PbB per ug/day absorbed)
AF = Absorption Fraction
C = Concentration of lead in water (ug/L)
IR = Intake rate of water (L/event)
EF = Exposure frequency (events per year)
R = Ratio of fetal to maternal PbB concentration

			Recreational Visitor		
	Variable	Units	Adult	Child*	Source
INPUTS	PbB0	ug/dL	2.0	2.0	a
	BKSF	ug/dL per ug/day	0.4	0.4	a
	GSD	--	1.8	1.8	a
	R	ug/dL per ug/dL	0.9	0.9	a
	IR	L/event	0.1	0.1	b
	EF	events/yr	20	48	b
	AF	ug abs. per ug ing.	0.5	0.5	a
CALCS	Target maternal 95th	ug/dL	11.1	11.1	
	Target maternal GM	ug/dL	4.23	4.23	
	Target Absorbed dose	ug/day	5.56	5.56	
	Target Conc (RBC)	ug/L	4061	846	
		mg/L	4.06	0.85	
	Most stringent	mg/L	0.85		

a = Default value from USEPA (1996b)
b = RME exposure input parameters for Ogden Railyard site (see Tables 3-5 to 3-7)

* applicable to individuals of reproductive age

Calculation of Fish Tissue RBC for Lead for a Recreational Scenario

Based on USEPA 1996b adult lead guidance

EQUATIONS

GM = PbB0 + BKSF*Absorbed dose(ug/d)
95th = GM*GSD^1.645
Target 95th fetal = 10 ug/dL
95th(maternal) = 95th(fetal) / R

Absorbed dose = C * IR * EF/365 * AF

where:
GM = Geometric mean blood lead level (ug/dL) in exposed population
GSD = Geometric standard deviation in blood lead values in exposed population
PbB0 = Baseline geometric mean blood lead level (ug/dL) in exposed population
BKSF = Biokinetic slope factor (ug/dL increase in PbB per ug/day absorbed)
AF = Absorption Fraction
C = Concentration of lead in fish tissue (ug/g)
IR = Intake rate of fish (grams/day)
EF = Exposure frequency (days per year)
R = Ratio of fetal to maternal PbB concentration

			Recreational Visitor		
	Variable	Units	Adult	Child*	Source
INPUTS	PbB0	ug/dL	2.0	2.0	a
	BKSF	ug/dL per ug/day	0.4	0.4	a
	GSD	--	1.8	1.8	a
	R	ug/dL per ug/dL	0.9	0.9	a
	IR	g/day	25	12.5	b
	EF	days/yr	350	350	b
	AF	ug abs. per ug ing.	0.12	0.12	a
CALCS	Target maternal 95th	ug/dL	11.1	11.1	
	Target maternal GM	ug/dL	4.23	4.23	
	Target Absorbed dose	ug/day	5.56	5.56	
	Target Conc (RBC)	ug/g (mg/kg)	1.9	3.9	
			1.9		

a = Default value from USEPA (1996b)
b = RME exposure input parameters for Ogden Railyard site (see Tables 3-5 to 3-7)

* applicable to individuals of reproductive age

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APPENDIX C4
DERIVATION OF PCB (AS TEQ) RBCS

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RBC for PCB Congeners (as TEQ) in Sediments

RME Exposure Assumptions for the Ogden Railyard site (see Table 3-7)

Exposure Input Parameter	Units	Recreational Visitor	
		Adult	Child
HIF(noncancer)	*kg/kg-d*	*7.83E-08*	*6.67E-07*
HIF(cancer)	*kg/kg-d*	*3.35E-08*	*9.53E-08*

Basic Equations

Risk = TEQ * HIF * SFtcdd

RBC(TEQ) = Target Risk / (HIF * SFtcdd)

where:

TCDD = 2,3,7,8-tetrachlorodibenzodioxin

TEQ = TCDD-Toxicity Equivalency

SFtcdd = Cancer Slope Factor for TCDD

HIF = Human Intake Factor

		Adult	Child	
Inputs				
	Target Risk	1.00E-06	1.00E-06	
	HIF	3.35E-08	9.53E-08	
	SFtcdd	1.50E+05	1.50E+05	
Results				
	RBC(TEQ)	2.0E-04	7.0E-05	mg/kg
		199	70	ppt

Screening Level RBC = 70 ppt

RBC for PCB Congeners (as TEQ) in Soils

RME Exposure Assumptions for the Ogden Railyard site (see Table 3-7)

Exposure Input Parameter	Units	Recreational Visitor	
		Adult	Child
HIF(noncancer)	*kg/kg-d*	*7.83E-08*	*6.67E-07*
HIF(cancer)	*kg/kg-d*	*3.35E-08*	*9.53E-08*

Basic Equations

Risk = TEQ * HIF * SFtcdd

RBC(TEQ) = Target Risk / (HIF * SFtcdd)

where:

TCDD = 2,3,7,8-tetrachlorodibenzodioxin

TEQ = TCDD-Toxicity Equivalency

SFtcdd = Cancer Slope Factor for TCDD

HIF = Human Intake Factor

		Adult	Child	
Inputs				
	Target Risk	1.00E-06	1.00E-06	
	HIF	3.35E-08	9.53E-08	
	SFtcdd	1.50E+05	1.50E+05	
Results				
	RBC(TEQ)	2.0E-04	7.0E-05	mg/kg
		199	70	ppt

Screening Level RBC = 70 ppt

RBC for PCB Congeners (as TEQ) in Fish

RME Exposure Assumptions for the Ogden Railyard site (see Table 3-7)

Exposure Input Parameter	Units	Recreational Visitor	
		Adult	Child
HIF(noncancer)	*kg/kg-d*	*1.37E-04*	*1.22E-04*
HIF(cancer)	*kg/kg-d*	*5.87E-05*	*1.74E-05*

Basic Equations

Risk = TEQ * HIF * SFtcdd

RBC(TEQ) = Target Risk / (HIF * SFtcdd)

where:

TCDD = 2,3,7,8-tetrachlorodibenzodioxin

TEQ = TCDD-Toxicity Equivalency

SFtcdd = Cancer Slope Factor for TCDD

HIF = Human Intake Factor

		Adult	Child	
Inputs				
	Target Risk	1.00E-06	1.00E-06	
	HIF	5.87E-05	1.74E-05	
	SFtcdd	1.50E+05	1.50E+05	
Results				
	RBC(TEQ)	1.1E-07	3.8E-07	mg/kg
		0.11	0.38	ppt

Screening Level RBC = 0.11 ppt

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APPENDIX C5
SUMMARY OF COPC SCREENING

C5.1 - SURFACE WATER
C5.2 - SEDIMENT
C5.3 - SEDIMENT PCBS (AS TEQ)
C5.4 - GROUNDWATER
C5.5 - FISH TISSUE
C5.6 - FISH TISSUE PCBS (AS TEQ)
C5.7 - OFF-YARD SURFACE SOILS
C5.8 - ON-YARD SURFACE SOILS

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Appendix C5.1 COPC Screen for Surface Water

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Surface Water RBC (mg/L)	COPC SELECTION STEPS					Surface Water COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Inorganics	Aluminum	7429-90-5	33	50	66%	4.2E-01	1.9E+00	3.0E+02	No	Yes	Yes		No				X
	Antimony	7440-36-0	1	50	2%	2.2E-02	3.4E-03	1.2E-01	No	Yes	Yes		No				X
	Arsenic	7440-38-2	10	67	15%	1.1E-02	3.1E-03	1.4E-02	No	Yes	Yes		No				X
	Barium	7440-39-3	67	67	100%	NA	1.3E-01	2.1E+01	No	Yes	Yes		No				X
	Beryllium	7440-41-7	0	50	0%	2.4E-03	NA	6.0E-01	No	Yes	No	Yes					X
	Cadmium	7440-43-9	19	67	28%	3.4E-03	2.9E-03	1.5E-01	No	Yes	Yes		No				X
	Calcium	7440-70-2	50	50	100%	NA	7.1E+01	--	Yes								X
	Chromium	7440-47-3	19	67	28%	8.7E-03	7.4E-03	9.0E-01	No	Yes	Yes		No				X
	Cobalt	7440-48-4	0	50	0%	6.3E-03	NA	6.0E+00	No	Yes	No	Yes					X
	Copper	7440-50-8	21	50	42%	1.0E-02	7.4E-03	1.2E+01	No	Yes	Yes		No				X
	Iron	7439-89-6	35	50	70%	4.0E-01	2.1E+00	9.0E+01	Yes								X
	Lead	7439-92-1	22	67	33%	5.5E-03	2.7E-02	8.5E-01	No	Yes	Yes		No				X
	Magnesium	7439-95-4	50	50	100%	NA	1.9E+01	--	Yes								X
	Manganese	7439-96-5	49	50	98%	3.0E-02	1.1E-01	6.0E+00	No	Yes	Yes		No				X
	Mercury	7439-97-6	2	67	3%	1.5E-03	9.7E-04	9.0E-02	No	Yes	Yes		No				X
	Nickel	7440-02-0	21	50	42%	1.7E-02	2.0E-01	6.0E+00	No	Yes	Yes		No				X
	Potassium	7440-09-7	49	50	98%	2.0E+00	2.3E+04	--	Yes								X
	Selenium	7782-49-2	3	67	4%	1.5E-02	5.2E-03	1.5E+00	No	Yes	Yes		No				X
	Silver	7440-22-4	11	57	19%	7.1E-03	1.4E-03	1.5E+00	No	Yes	Yes		No				X
	Sodium	7440-23-5	50	50	100%	NA	5.6E+01	--	Yes								X
	Thallium	7440-28-0	0	50	0%	1.6E-02	NA	2.1E-02	No	Yes	No	Yes					X
	Vanadium	7440-62-2	1	50	2%	7.7E-03	5.1E-03	2.1E+00	No	Yes	Yes		No				X
	Zinc	7440-66-6	5	50	10%	1.9E-02	2.8E+00	9.0E+01	No	Yes	Yes		No				X
Pesticides	4,4'-DDD	72-54-8	0	17	0%	1.0E-04	NA	8.7E-02	No	Yes	No	Yes					X
	4,4'-DDE	72-55-9	0	17	0%	1.0E-04	NA	6.2E-02	No	Yes	No	Yes					X
	4,4'-DDT	50-29-3	0	17	0%	1.0E-04	NA	6.2E-02	No	Yes	No	Yes					X
	Aldrin	309-00-2	0	17	0%	5.0E-05	NA	1.2E-03	No	Yes	No	Yes					X
	alpha-BHC	319-84-6	0	17	0%	5.0E-05	NA	3.3E-03	No	Yes	No	Yes					X
	beta-BHC	319-85-7	0	17	0%	5.0E-05	NA	1.2E-02	No	Yes	No	Yes					X
	Chlordane	57-74-9	0	17	0%	5.0E-04	NA	6.0E-02	No	Yes	No	Yes					X
	delta-BHC	319-86-8	0	17	0%	5.0E-05	NA	1.6E-02	No	Yes	No	Yes					X
	Dieldrin	60-57-1	0	17	0%	1.0E-04	NA	1.3E-03	No	Yes	No	Yes					X
	Endosulfan I	959-98-8	0	17	0%	5.0E-05	NA	1.8E+00	No	Yes	No	Yes					X
	Endosulfan II	33213-65-9	0	17	0%	1.0E-04	NA	1.8E+00	No	Yes	No	Yes					X
	Endosulfan Sulfate	1031-07-8	0	17	0%	1.0E-04	NA	1.8E+00	No	Yes	No	Yes					X
	Endrin	72-20-8	0	17	0%	1.0E-04	NA	9.0E-02	No	Yes	No	Yes					X
	Endrin Aldehyde	7421-93-4	0	17	0%	1.0E-04	NA	--	No	No					X		
	gamma-BHC (Lindane)	58-89-9	0	17	0%	5.0E-05	NA	1.6E-02	No	Yes	No	Yes					X
	Heptachlor	76-44-8	0	17	0%	5.0E-05	NA	4.7E-03	No	Yes	No	Yes					X
	Heptachlor Epoxide	1024-57-3	0	17	0%	5.0E-05	NA	2.3E-03	No	Yes	No	Yes					X
	Isodrin	465-73-6	0	17	0%	5.0E-05	NA	--	No	No					X		
	Kepone	143-50-0	0	17	0%	1.0E-04	NA	2.6E-03	No	Yes	No	Yes					X
	Methoxychlor	72-43-5	0	17	0%	5.0E-04	NA	1.5E+00	No	Yes	No	Yes					X
	Toxaphene	8001-35-2	0	17	0%	1.0E-03	NA	1.9E-02	No	Yes	No	Yes					X
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	0	24	0%	3.5E-04	NA	2.1E-02	No	Yes	No	Yes					X
	Aroclor-1221	11104-28-2	0	17	0%	5.0E-04	NA	6.0E-03	No	Yes	No	Yes					X
	Aroclor-1232	11141-16-5	0	17	0%	5.0E-04	NA	6.0E-03	No	Yes	No	Yes					X
	Aroclor-1242	53469-21-9	0	17	0%	5.0E-04	NA	6.0E-03	No	Yes	No	Yes					X
	Aroclor-1248	12672-29-6	0	17	0%	5.0E-04	NA	6.0E-03	No	Yes	No	Yes					X
	Aroclor-1254	11097-69-1	0	17	0%	5.0E-04	NA	6.0E-03	No	Yes	No	Yes					X
	Aroclor-1260	11096-82-5	1	24	4%	3.7E-04	1.5E-06	6.0E-03	No	Yes	Yes		No				X
Petroleum Hydro-carbons	Diesel fuel	68476-34-6	0	2	0%	5.0E-01	NA	--	No	No					X		
	Total Petroleum Hydrocarbons (TPH)	TPH	0	6	0%	1.0E+00	NA	--	No	No					X		

Appendix C5.1 COPC Screen for Surface Water

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Surface Water RBC (mg/L)	COPC SELECTION STEPS					Surface Water COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	38	0%	1.0E-02	NA	2.4E+01	No	Yes	No	Yes					X
	2-Methylnaphthalene	91-57-6	2	74	3%	6.2E-03	2.1E-01	6.0E+00	No	Yes	Yes		No				X
	Acenaphthene	83-32-9	8	77	10%	6.2E-03	1.6E-01	1.8E+01	No	Yes	Yes		No				X
	Acenaphthylene	208-96-8	3	77	4%	5.6E-03	1.0E-02	6.0E+00	No	Yes	Yes		No				X
	Aniline	62-53-3	0	36	0%	1.9E-03	NA	2.1E+00	No	Yes	No	Yes					X
	Anthracene	120-12-7	2	77	3%	6.1E-03	1.6E-02	9.0E+01	No	Yes	Yes		No				X
	Benzo[a]anthracene	56-55-3	2	77	3%	6.1E-03	4.0E-04	2.9E-02	No	Yes	Yes		No				X
	Benzo[a]pyrene	50-32-8	2	77	3%	6.0E-03	1.0E-04	2.9E-03	No	Yes	Yes		No				X
	Benzo[b]fluoranthene	205-99-2	1	77	1%	6.0E-03	1.0E-04	2.9E-02	No	Yes	Yes		No				X
	Benzo[g,h,i]perylene	191-24-2	0	77	0%	6.0E-03	NA	6.0E+00	No	Yes	No	Yes					X
	Benzo[k]fluoranthene	207-08-9	2	77	3%	6.1E-03	2.0E-04	2.9E-01	No	Yes	Yes		No				X
	Chrysene	218-01-9	2	77	3%	6.0E-03	7.0E-04	2.9E+00	No	Yes	Yes		No				X
	Dibenz[a,h]anthracene	53-70-3	0	77	0%	6.0E-03	NA	2.9E-03	No	Yes	No	No				X	
	Dibenzofuran	132-64-9	0	38	0%	1.0E-02	NA	1.2E+00	No	Yes	No	Yes					X
	Fluoranthene	206-44-0	6	77	8%	6.3E-03	6.0E-03	1.2E+01	No	Yes	Yes		No				X
	Fluorene	86-73-7	2	77	3%	6.0E-03	6.2E-02	1.2E+01	No	Yes	Yes		No				X
	Indeno[1,2,3-c,d]pyrene	193-39-5	1	77	1%	6.0E-03	1.0E-03	2.9E-02	No	Yes	Yes		No				X
	Naphthalene	91-20-3	4	86	5%	5.6E-03	5.2E-01	6.0E+00	No	Yes	Yes		No				X
	Phenanthrene	85-01-8	4	77	5%	6.1E-03	8.4E-02	6.0E+00	No	Yes	Yes		No				X
	Pyrene	129-00-0	5	77	6%	6.2E-03	1.0E-02	9.0E+00	No	Yes	Yes		No				X
Semi-Volatile Organic Compounds (SVOCs)	1,2,4-Trichlorobenzene	120-82-1	0	83	0%	5.6E-03	NA	3.0E+00	No	Yes	No	Yes					X
	1,2-Dichlorobenzene	95-50-1	0	83	0%	5.5E-03	NA	2.7E+01	No	Yes	No	Yes					X
	1,3-Dichlorobenzene	541-73-1	0	47	0%	8.3E-03	NA	9.0E+00	No	Yes	No	Yes					X
	1,4-Dichlorobenzene	106-46-7	0	83	0%	5.6E-03	NA	8.7E-01	No	Yes	No	Yes					X
	1-Methylnaphthalene	90-12-0	0	21	0%	2.0E-03	NA	--	No	No					X		
	2,4,5-Trichlorophenol	95-95-4	0	38	0%	1.8E-02	NA	3.0E+01	No	Yes	No	Yes					X
	2,4,6-Trichlorophenol	88-06-2	0	38	0%	1.0E-02	NA	1.9E+00	No	Yes	No	Yes					X
	2,4-Dichlorophenol	120-83-2	0	38	0%	1.0E-02	NA	9.0E-01	No	Yes	No	Yes					X
	2,4-Dimethylphenol	105-67-9	1	63	2%	6.5E-03	5.0E-04	6.0E+00	No	Yes	Yes		No				X
	2,4-Dinitrophenol	51-28-5	0	38	0%	1.8E-02	NA	6.0E-01	No	Yes	No	Yes					X
	2,4-Dinitrotoluene	121-14-2	0	74	0%	6.0E-03	NA	6.0E-01	No	Yes	No	Yes					X
	2,6-Dinitrotoluene	606-20-2	1	74	1%	5.6E-03	1.7E-02	3.0E-01	No	Yes	Yes		No				X
	2-Chlorophenol	95-57-8	0	38	0%	1.0E-02	NA	1.5E+00	No	Yes	No	Yes					X
	2-Methylphenol (o-Cresol)	95-48-7	0	74	0%	6.0E-03	NA	1.5E+01	No	Yes	No	Yes					X
	2-Nitroaniline	88-74-4	0	38	0%	1.8E-02	NA	1.7E-02	No	Yes	No	No				X	
	2-Nitrophenol	88-75-5	0	38	0%	1.0E-02	NA	--	No	No					X		
	3,3'-Dichlorobenzidine	91-94-1	0	63	0%	6.9E-03	NA	4.7E-02	No	Yes	No	Yes					X
	3-Nitroaniline	99-09-2	0	38	0%	1.8E-02	NA	9.0E-02	No	Yes	No	Yes					X
	4,6-Dinitro-o-cresol	534-52-1	0	74	0%	1.4E-02	NA	3.0E-02	No	Yes	No	Yes					X
	4-Bromophenyl-phenylether	101-55-3	0	18	0%	1.0E-02	NA	--	No	No					X		
	4-Chloro-3-Methylphenol	59-50-7	0	38	0%	1.0E-02	NA	--	No	No					X		
	4-Chloroaniline	106-47-8	0	38	0%	1.0E-02	NA	1.2E+00	No	Yes	No	Yes					X
	4-Chlorophenyl-phenylether	7005-72-3	0	38	0%	1.0E-02	NA	--	No	No					X		
	4-Methylphenol (p-Cresol)	106-44-5	0	74	0%	5.6E-03	NA	1.5E+00	No	Yes	No	Yes					X
	4-Nitroaniline	100-01-6	0	38	0%	1.8E-02	NA	9.0E-01	No	Yes	No	Yes					X
	4-Nitrophenol	100-02-7	0	38	0%	1.8E-02	NA	2.4E+00	No	Yes	No	Yes					X
	Benzyl alcohol	100-51-6	0	18	0%	1.0E-02	NA	9.0E+01	No	Yes	No	Yes					X
	bis(2-Chloroethoxy)methane	111-91-1	0	38	0%	1.0E-02	NA	--	No	No					X		
	bis(2-Chloroethyl)ether	111-44-4	0	74	0%	6.0E-03	NA	1.9E-02	No	Yes	No	Yes					X
	bis(2-Chloroisopropyl)ether	108-60-1	0	42	0%	9.2E-03	NA	3.0E-01	No	Yes	No	Yes					X
	bis(2-Ethylhexyl)phthalate	117-81-7	4	74	5%	5.1E-03	4.7E-03	1.5E+00	No	Yes	Yes		No				X
	bis(n-octyl)phthalate	117-84-0	1	74	1%	6.2E-03	2.0E-04	6.0E+00	No	Yes	Yes		No				X
	Butylbenzylphthalate	85-68-7	1	74	1%	5.8E-03	1.0E-04	6.0E+01	No	Yes	Yes		No				X
	Carbazole	86-74-8	2	74	3%	8.1E-03	7.0E-03	1.0E+00	No	Yes	Yes		No				X
	Dibutylphthalate	84-74-2	4	74	5%	5.4E-03	5.7E-03	3.0E+01	No	Yes	Yes		No				X
	Diethylphthalate	84-66-2	0	74	0%	5.5E-03	NA	2.4E+02	No	Yes	No	Yes					X
	Dimethylphthalate	131-11-3	0	38	0%	1.0E-02	NA	3.0E+03	No	Yes	No	Yes					X
	Hexachlorobenzene	118-74-1	0	74	0%	6.0E-03	NA	1.3E-02	No	Yes	No	Yes					X
	Hexachlorobutadiene	87-68-3	0	83	0%	5.6E-03	NA	6.0E-02	No	Yes	No	Yes					X
	Hexachlorocyclopentadiene	77-47-4	0	38	0%	1.0E-02	NA	1.8E+00	No	Yes	No	Yes					X
	Hexachloroethane	67-72-1	0	74	0%	6.1E-03	NA	3.0E-01	No	Yes	No	Yes					X
	Isophorone	78-59-1	0	38	0%	1.0E-02	NA	2.2E+01	No	Yes	No	Yes					X
	Nitrobenzene	98-95-3	0	74	0%	6.0E-03	NA	1.5E-01	No	Yes	No	Yes					X
	N-Nitrosodiphenylamine	86-30-6	0	38	0%	1.0E-02	NA	4.3E+00	No	Yes	No	Yes					X
	n-Nitrosodipropylamine	621-64-7	0	74	0%	6.0E-03	NA	3.0E-03	No	Yes	No	No				X	
	Pentachlorophenol (PCP)	87-86-5	3	74	4%	1.0E-02	1.0E-03	1.7E-01	No	Yes	Yes		No				X
	Phenol	108-95-2	5	74	7%	5.6E-03	5.0E-03	9.0E+01	No	Yes	Yes		No				X

Appendix C5.1 COPC Screen for Surface Water

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Surface Water RBC (mg/L)	COPC SELECTION STEPS					Surface Water COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Volatile Organic Compounds (VOCs)	1,1,1,2-Tetrachloroethane	630-20-6	0	40	0%	8.0E-03	NA	8.1E-01	No	Yes	No	Yes					X
	1,1,1-Trichloroethane	71-55-6	0	84	0%	2.5E-03	NA	8.4E+01	No	Yes	No	Yes					X
	1,1,2,2-Tetrachloroethane	79-34-5	0	84	0%	2.5E-03	NA	1.0E-01	No	Yes	No	Yes					X
	1,1,2-Trichloroethane	79-00-5	0	84	0%	2.5E-03	NA	3.7E-01	No	Yes	No	Yes					X
	1,1-Dichloroethane	75-34-3	0	84	0%	2.5E-03	NA	3.0E+01	No	Yes	No	Yes					X
	1,1-Dichloroethene	75-35-4	0	9	0%	1.0E-03	NA	1.5E+01	No	Yes	No	Yes					X
	1,1-Dichloropropene	563-58-6	0	9	0%	1.0E-03	NA	--	No	No					X		
	1,2,3-Trichlorobenzene	87-61-6	0	9	0%	1.0E-03	NA	--	No	No					X		
	1,2,3-Trichloropropane	96-18-4	0	84	0%	5.3E-03	NA	1.0E-02	No	Yes	No	Yes					X
	1,2,4-Trimethylbenzene	95-63-6	0	9	0%	1.0E-03	NA	1.5E+01	No	Yes	No	Yes					X
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	1	43	2%	7.4E-03	1.7E-03	1.5E-02	No	Yes	Yes		No				X
	1,2-Dichloroethane	107-06-2	0	84	0%	2.5E-03	NA	2.3E-01	No	Yes	No	Yes					X
	1,2-Dichloroethene	540-59-0	0	75	0%	3.2E-03	NA	2.7E+00	No	Yes	No	Yes					X
	1,2-Dichloropropane	78-87-5	0	84	0%	2.5E-03	NA	3.1E-01	No	Yes	No	Yes					X
	1,3,5-Trimethylbenzene	108-67-8	0	9	0%	1.0E-03	NA	1.5E+01	No	Yes	No	Yes					X
	1,3-Dichloropropane	142-28-9	0	9	0%	1.0E-03	NA	--	No	No					X		
	1,4-Dioxane	123-91-1	0	31	0%	3.0E-01	NA	1.9E+00	No	Yes	No	Yes					X
	2,2-Dichloropropane	594-20-7	0	9	0%	1.0E-03	NA	--	No	No					X		
	2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	0	31	0%	1.0E-02	NA	6.0E+00	No	Yes	No	Yes					X
	2-Chloroethyl vinyl ether	110-75-8	0	55	0%	6.6E-03	NA	--	No	No					X		
	2-Chlorotoluene	95-49-8	0	9	0%	1.0E-03	NA	6.0E+00	No	Yes	No	Yes					X
	2-Hexanone	591-78-6	0	67	0%	6.7E-03	NA	1.2E+01	No	Yes	No	Yes					X
	3-Chloropropene (Allyl Chloride)	107-05-1	0	31	0%	1.0E-02	NA	--	No	No					X		
	4-Chlorotoluene	106-43-4	0	9	0%	1.0E-03	NA	--	No	No					X		
	Acetone	67-64-1	13	61	21%	7.8E-03	4.0E+00	3.0E+01	No	Yes	Yes		No				X
	Acetonitrile	75-05-8	0	75	0%	2.4E-02	NA	5.1E+00	No	Yes	No	Yes					X
	Acrolein	107-02-8	0	31	0%	1.0E-01	NA	6.0E+00	No	Yes	No	Yes					X
	Acrylonitrile	107-13-1	0	55	0%	3.0E-02	NA	3.9E-02	No	Yes	No	Yes					X
	Benzene	71-43-2	1	84	1%	2.4E-03	2.0E-03	3.8E-01	No	Yes	Yes		No				X
	Bromobenzene	108-86-1	0	9	0%	1.0E-03	NA	--	No	No					X		
	Bromodichloromethane	75-27-4	0	84	0%	2.5E-03	NA	3.4E-01	No	Yes	No	Yes					X
	Bromoform	75-25-2	0	84	0%	2.5E-03	NA	2.7E+00	No	Yes	No	Yes					X
	Bromomethane (Methyl bromide)	74-83-9	0	84	0%	4.4E-03	NA	4.2E-01	No	Yes	No	Yes					X
	Carbon Disulfide	75-15-0	1	84	1%	2.4E-03	1.2E-03	3.0E+01	No	Yes	Yes		No				X
	Carbon Tetrachloride	56-23-5	0	84	0%	2.5E-03	NA	1.6E-01	No	Yes	No	Yes					X
	Chlorobenzene	108-90-7	0	84	0%	2.5E-03	NA	6.0E+00	No	Yes	No	Yes					X
	Chlorodibromomethane	124-48-1	0	84	0%	2.5E-03	NA	2.5E-01	No	Yes	No	Yes					X
	Chloroethane (Ethyl chloride)	75-00-3	0	84	0%	4.3E-03	NA	7.2E+00	No	Yes	No	Yes					X
	Chloroform	67-66-3	0	84	0%	2.5E-03	NA	3.0E+00	No	Yes	No	Yes					X
	Chloromethane (Methyl chloride)	74-87-3	0	84	0%	4.5E-03	NA	1.6E+00	No	Yes	No	Yes					X
	cis-1,2-Dichloroethene	156-59-2	0	44	0%	1.0E-03	NA	3.0E+00	No	Yes	No	Yes					X
	cis-1,3-Dichloropropene	10061-01-5	0	93	0%	2.3E-03	NA	2.1E-01	No	Yes	No	Yes					X
	Dibromomethane	74-95-3	0	40	0%	8.0E-03	NA	3.0E+00	No	Yes	No	Yes					X
	Dichlorodifluoromethane	75-71-8	1	40	3%	7.9E-03	3.6E-03	6.0E+01	No	Yes	Yes		No				X
	Dichloromethane	75-09-2	26	84	31%	1.3E-03	5.8E+00	2.8E+00	No	Yes	Yes		Yes	X			
	Ethyl Methacrylate	97-63-2	0	31	0%	5.0E-02	NA	2.7E+01	No	Yes	No	Yes					X
	Ethylbenzene	100-41-4	2	84	2%	2.4E-03	8.1E-03	3.0E+01	No	Yes	Yes		No				X
	Ethylene dibromide (EDB)	106-93-4	0	84	0%	4.3E-03	NA	2.5E-04	No	Yes	No	No				X	
	Hexane	110-54-3	0	44	0%	1.0E-03	NA	1.8E+01	No	Yes	No	Yes					X
	Iodomethane	74-88-4	0	31	0%	1.0E-02	NA	--	No	No					X		
	Isobutyl Alcohol	78-83-1	0	31	0%	1.0E-01	NA	9.0E+01	No	Yes	No	Yes					X
	Isopropylbenzene	98-82-8	0	18	0%	1.0E-03	NA	3.0E+01	No	Yes	No	Yes					X
	Methacrylonitrile	126-98-7	0	75	0%	5.6E-03	NA	3.0E-02	No	Yes	No	Yes					X
	Methyl ethyl ketone (MEK)	78-93-3	1	63	2%	7.1E-03	2.2E-03	1.8E+02	No	Yes	Yes		No				X
	Methyl isobutyl ketone (MIBK)	108-10-1	1	84	1%	6.4E-03	1.5E-03	2.4E+01	No	Yes	Yes		No				X
	Methyl Metharcylate	80-62-6	0	31	0%	1.0E-02	NA	4.2E+02	No	Yes	No	Yes					X
	Methyl-t-butyl ether	1634-04-4	0	9	0%	1.0E-03	NA	5.2E+00	No	Yes	No	Yes					X
	n-Butylbenzene	104-51-8	0	9	0%	1.0E-03	NA	1.2E+01	No	Yes	No	Yes					X
	n-Propylbenzene	103-65-1	0	9	0%	1.0E-03	NA	1.2E+01	No	Yes	No	Yes					X
	o-Xylene	95-47-6	0	9	0%	1.0E-03	NA	6.0E+02	No	Yes	No	Yes					X
	sec-Butylbenzene	135-98-8	0	9	0%	1.0E-03	NA	1.2E+01	No	Yes	No	Yes					X
	Styrene	100-42-5	0	84	0%	2.5E-03	NA	6.0E+01	No	Yes	No	Yes					X
	tert-Butylbenzene	98-06-6	0	9	0%	1.0E-03	NA	1.2E+01	No	Yes	No	Yes					X
	Tetrachloroethene	127-18-4	0	84	0%	2.5E-03	NA	4.0E-01	No	Yes	No	Yes					X
	Toluene	108-88-3	0	84	0%	2.5E-03	NA	6.0E+01	No	Yes	No	Yes					X
	trans-1,2-Dichloroethene	156-60-5	0	53	0%	1.0E-03	NA	6.0E+00	No	Yes	No	Yes					X
	trans-1,3-Dichloropropene	10061-02-6	0	84	0%	2.5E-03	NA	2.1E-01	No	Yes	No	Yes					X

Appendix C5.1 COPC Screen for Surface Water

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Surface Water RBC (mg/L)	COPC SELECTION STEPS					Surface Water COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
VOCs (cont.)	trans-1,4-Dichloro-2-Butene	110-57-6	0	31	0%	1.0E-02	NA	2.3E-03	No	Yes	No	No				**X**	
	Trichloroethene	79-01-6	0	84	0%	2.5E-03	NA	9.0E-02	No	Yes	No	Yes					**X**
	Trichlorofluoromethane	75-69-4	0	84	0%	4.3E-03	NA	9.0E+01	No	Yes	No	Yes					**X**
	Vinyl Acetate	108-05-4	0	75	0%	4.7E-03	NA	3.0E+02	No	Yes	No	Yes					**X**
	Vinyl Chloride	75-01-4	0	84	0%	4.3E-03	NA	1.5E-02	No	Yes	No	Yes					**X**
	Xylenes (Total)	1330-20-7	1	75	1%	3.7E-03	4.8E-03	6.0E+02	No	Yes	Yes		No				**X**
	Xylenes-p,m	179601-23-1	0	9	0%	1.0E-03	NA	6.0E+02	No	Yes	No	Yes					**X**
													TOTAL	**1**	**19**	**5**	**169**

Appendix C5.2 COPC Screen for Sediment

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Sediment RBC (mg/kg)	COPC SELECTION STEPS					Sediment COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Inorganics	Aluminum	7429-90-5	32	32	100%	NA	1.7E+04	1.5E+05	No	Yes	Yes		No				X
	Antimony	7440-36-0	2	32	6%	4.2E+00	1.4E+00	6.0E+01	No	Yes	Yes		No				X
	Arsenic	7440-38-2	30	50	60%	4.7E+00	5.4E+00	7.0E+00	No	Yes	Yes		No				X
	Barium	7440-39-3	45	50	90%	5.4E+01	2.5E+02	1.0E+04	No	Yes	Yes		No				X
	Beryllium	7440-41-7	16	32	50%	5.9E-01	6.3E-01	3.0E+02	No	Yes	Yes		No				X
	Cadmium	7440-43-9	14	50	28%	3.5E-01	9.6E-01	1.5E+02	No	Yes	Yes		No				X
	Calcium	7440-70-2	32	32	100%	NA	1.1E+05	--	Yes								X
	Chromium	7440-47-3	49	50	98%	1.0E+00	2.2E+01	4.5E+02	No	Yes	Yes		No				X
	Cobalt	7440-48-4	32	32	100%	NA	7.7E+00	3.0E+03	No	Yes	Yes		No				X
	Copper	7440-50-8	32	32	100%	NA	3.8E+01	6.0E+03	No	Yes	Yes		No				X
	Iron	7439-89-6	32	32	100%	NA	2.1E+04	4.5E+04	Yes								X
	Lead	7439-92-1	49	50	98%	2.0E+00	1.2E+02	1.8E+03	No	Yes	Yes		No				X
	Magnesium	7439-95-4	32	32	100%	NA	1.1E+04	--	Yes								X
	Manganese	7439-96-5	32	32	100%	NA	9.6E+02	3.0E+03	No	Yes	Yes		No				X
	Mercury	7439-97-6	28	50	56%	4.1E-02	5.3E-01	4.5E+01	No	Yes	Yes		No				X
	Nickel	7440-02-0	32	32	100%	NA	2.0E+01	3.0E+03	No	Yes	Yes		No				X
	Potassium	7440-09-7	32	32	100%	NA	4.7E+03	--	Yes								X
	Selenium	7782-49-2	8	50	16%	2.4E+00	5.8E+00	7.5E+02	No	Yes	Yes		No				X
	Silver	7440-22-4	10	50	20%	4.8E-01	1.2E+00	7.5E+02	No	Yes	Yes		No				X
	Sodium	7440-23-5	32	32	100%	NA	3.8E+02	--	Yes								X
	Thallium	7440-28-0	3	32	9%	1.5E+00	1.3E+00	1.0E+01	No	Yes	Yes		No				X
	Vanadium	7440-62-2	32	32	100%	NA	3.2E+01	1.0E+03	No	Yes	Yes		No				X
	Zinc	7440-66-6	32	32	100%	NA	1.8E+02	4.5E+04	No	Yes	Yes		No				X
Pesticides	4,4'-DDD	72-54-8	0	65	0%	8.9E-03	NA	4.4E+01	No	Yes	No	Yes					X
	4,4'-DDE	72-55-9	7	65	11%	9.0E-03	1.2E-02	3.1E+01	No	Yes	Yes		No				X
	4,4'-DDT	50-29-3	2	65	3%	9.0E-03	6.1E-03	3.1E+01	No	Yes	Yes		No				X
	Aldrin	309-00-2	0	65	0%	5.3E-03	NA	6.2E-01	No	Yes	No	Yes					X
	alpha-BHC	319-84-6	0	65	0%	5.3E-03	NA	1.7E+00	No	Yes	No	Yes					X
	alpha-Chlordane	5103-71-9	2	47	4%	4.3E-03	1.3E-02	3.0E+01	No	Yes	Yes		No				X
	Atrazine	1912-24-9	0	21	0%	2.9E+00	NA	4.8E+01	No	Yes	No	Yes					X
	beta-BHC	319-85-7	0	65	0%	5.3E-03	NA	5.8E+00	No	Yes	No	Yes					X
	Chlordane	57-74-9	0	18	0%	8.0E-02	NA	3.0E+01	No	Yes	No	Yes					X
	Caprolactam	105-60-2	0	20	0%	2.3E+00	NA	7.5E+04	No	Yes	No	Yes					X
	delta-BHC	319-86-8	0	65	0%	5.3E-03	NA	8.1E+00	No	Yes	No	Yes					X
	Dieldrin	60-57-1	1	65	2%	8.9E-03	5.4E-03	6.6E-01	No	Yes	Yes		No				X
	Endosulfan I	959-98-8	0	65	0%	5.3E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endosulfan II	33213-65-9	0	65	0%	8.9E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endosulfan Sulfate	1031-07-8	0	65	0%	8.9E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endrin	72-20-8	0	65	0%	8.9E-03	NA	4.5E+01	No	Yes	No	Yes					X
	Endrin Aldehyde	7421-93-4	3	65	5%	9.0E-03	8.1E-03	--	No	No					X		
	Endrin ketone	53494-70-5	0	47	0%	6.1E-03	NA	--	No	No					X		
	gamma-BHC (Lindane)	58-89-9	0	65	0%	5.3E-03	NA	8.1E+00	No	Yes	No	Yes					X
	gamma-Chlordane	5566-34-7	2	47	4%	4.3E-03	1.7E-02	3.0E+01	No	Yes	Yes		No				X
	Heptachlor	76-44-8	0	65	0%	5.3E-03	NA	2.3E+00	No	Yes	No	Yes					X
	Heptachlor Epoxide	1024-57-3	0	65	0%	5.3E-03	NA	1.2E+00	No	Yes	No	Yes					X
	Isodrin	465-73-6	0	18	0%	8.0E-03	NA	--	No	No					X		
	Kepone	143-50-0	0	18	0%	1.6E-02	NA	1.3E+00	No	Yes	No	Yes					X
	Methoxychlor	72-43-5	0	65	0%	3.8E-02	NA	7.5E+02	No	Yes	No	Yes					X
	Toxaphene	8001-35-2	0	65	0%	2.3E-01	NA	9.5E+00	No	Yes	No	Yes					X
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	0	86	0%	1.2E-01	NA	1.0E+01	No	Yes	No	Yes					X
	Aroclor-1221	11104-28-2	0	86	0%	1.5E-01	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1232	11141-16-5	0	86	0%	1.2E-01	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1242	53469-21-9	0	86	0%	1.2E-01	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1248	12672-29-6	0	86	0%	1.2E-01	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1254	11097-69-1	2	85	2%	1.2E-01	1.4E-01	3.0E+00	No	Yes	Yes		No				X
	Aroclor-1260	11096-82-5	20	86	23%	8.6E-02	4.2E+00	3.0E+00	No	Yes	Yes		Yes	X			
	Aroclor-1268	11100-14-4	0	15	0%	8.8E-02	NA	3.0E+00	No	Yes	No	Yes					X
TPH	Total Petroleum Hydrocarbons (TPH)	TPH	11	11	100%	NA	2.2E+03	--	No	No					X		

Appendix C5.2 COPC Screen for Sediment

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Sediment RBC (mg/kg)	COPC SELECTION STEPS					Sediment COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	74	0%	1.7E+00	NA	1.2E+04	No	Yes	No	Yes					X
	2-Methylnaphthalene	91-57-6	12	100	12%	1.3E+00	1.4E+03	3.0E+03	No	Yes	Yes		No				X
	Acenaphthene	83-32-9	24	114	21%	1.2E+00	8.5E+02	9.0E+03	No	Yes	Yes		No				X
	Acenaphthylene	208-96-8	22	114	19%	1.2E+00	1.3E+02	3.0E+03	No	Yes	Yes		No				X
	Aniline	62-53-3	0	28	0%	1.3E+00	NA	1.0E+03	No	Yes	No	Yes					X
	Anthracene	120-12-7	36	114	32%	1.4E+00	5.2E+02	4.5E+04	No	Yes	Yes		No				X
	Benzo[a]anthracene	56-55-3	54	114	47%	1.7E+00	3.4E+02	1.4E+01	No	Yes	Yes		Yes	X			
	Benzo[a]pyrene	50-32-8	59	114	52%	1.7E+00	3.5E+02	1.4E+00	No	Yes	Yes		Yes	X			
	Benzo[b]fluoranthene	205-99-2	57	114	50%	1.7E+00	1.6E+02	1.4E+01	No	Yes	Yes		Yes	X			
	Benzo[g,h,i]perylene	191-24-2	50	114	44%	1.6E+00	2.0E+02	3.0E+03	No	Yes	Yes		No				X
	Benzo[k]fluoranthene	207-08-9	54	114	47%	1.7E+00	1.7E+02	1.4E+02	No	Yes	Yes		Yes	X			
	Chrysene	218-01-9	63	114	55%	1.8E+00	3.6E+02	1.4E+03	No	Yes	Yes		No				X
	Dibenz[a,h]anthracene	53-70-3	28	114	25%	1.3E+00	7.2E+01	1.4E+00	No	Yes	Yes		Yes	X			
	Dibenzofuran	132-64-9	4	74	5%	1.7E+00	4.1E+00	6.0E+02	No	Yes	Yes		No				X
	Fluoranthene	206-44-0	65	114	57%	1.9E+00	6.4E+02	6.0E+03	No	Yes	Yes		No				X
	Fluorene	86-73-7	20	114	18%	1.2E+00	4.2E+02	6.0E+03	No	Yes	Yes		No				X
	Indeno[1,2,3-c,d]pyrene	193-39-5	51	114	45%	1.6E+00	1.6E+02	1.4E+01	No	Yes	Yes		Yes	X			
	Naphthalene	91-20-3	21	129	16%	1.1E+00	1.9E+03	3.0E+03	No	Yes	Yes		No				X
	Phenanthrene	85-01-8	51	114	45%	1.6E+00	1.9E+03	3.0E+03	No	Yes	Yes		No				X
	Pyrene	129-00-0	76	114	67%	2.1E+00	1.2E+03	4.5E+03	No	Yes	Yes		No				X
Semi-Volatile Organic Compounds (SVOCs)	1,1'-Biphenyl	92-52-4	1	1	100%	2.2E+00	7.9E+00	7.5E+03	No	Yes	Yes		No				X
	1,2,4-Trichlorobenzene	120-82-1	0	76	0%	1.2E+00	NA	1.5E+03	No	Yes	No	Yes					X
	1,2-Dichlorobenzene	95-50-1	0	76	0%	1.2E+00	NA	1.3E+04	No	Yes	No	Yes					X
	1,3-Dichlorobenzene	541-73-1	0	69	0%	1.1E+00	NA	4.5E+03	No	Yes	No	Yes					X
	1,4-Dichlorobenzene	106-46-7	0	76	0%	1.2E+00	NA	4.4E+02	No	Yes	No	Yes					X
	1-Methylnaphthalene	90-12-0	2	21	10%	9.3E-01	2.1E+02	--	No	No					X		
	2,2'-oxybis(1-Chloropropane)	108-60-1	0	1	0%	4.3E+00	NA	1.5E+02	No	Yes	No	Yes					X
	2,4,5-Trichlorophenol	95-95-4	0	74	0%	2.7E+00	NA	1.5E+04	No	Yes	No	Yes					X
	2,4,6-Trichlorophenol	88-06-2	0	74	0%	1.7E+00	NA	9.5E+02	No	Yes	No	Yes					X
	2,4-Dichlorophenol	120-83-2	0	74	0%	1.7E+00	NA	4.5E+02	No	Yes	No	Yes					X
	2,4-Dimethylphenol	105-67-9	0	81	0%	1.7E+00	NA	3.0E+03	No	Yes	No	Yes					X
	2,4-Dinitrophenol	51-28-5	0	74	0%	3.7E+00	NA	3.0E+02	No	Yes	No	Yes					X
	2,4-Dinitrotoluene	121-14-2	0	81	0%	1.7E+00	NA	3.0E+02	No	Yes	No	Yes					X
	2,6-Dinitrotoluene	606-20-2	0	81	0%	1.7E+00	NA	1.5E+02	No	Yes	No	Yes					X
	2-Chlorophenol	95-57-8	0	74	0%	1.7E+00	NA	7.5E+02	No	Yes	No	Yes					X
	2-Methylphenol (o-Cresol)	95-48-7	0	81	0%	1.7E+00	NA	7.5E+03	No	Yes	No	Yes					X
	2-Nitroaniline	88-74-4	0	74	0%	3.7E+00	NA	8.5E+00	No	Yes	No	Yes					X
	2-Nitrophenol	88-75-5	0	74	0%	1.7E+00	NA	--	No	No					X		
	3,3'-Dichlorobenzidine	91-94-1	1	81	1%	1.9E+00	3.7E-02	2.3E+01	No	Yes	Yes		No				X
	3-Nitroaniline	99-09-2	0	74	0%	3.7E+00	NA	4.5E+01	No	Yes	No	Yes					X
	4,6-Dinitro-o-cresol	534-52-1	0	81	0%	4.4E+00	NA	1.5E+01	No	Yes	No	Yes					X
	4-Bromophenyl-phenylether	101-55-3	0	35	0%	2.8E+00	NA	--	No	No					X		
	4-Chloro-3-Methylphenol	59-50-7	0	74	0%	1.7E+00	NA	--	No	No					X		
	4-Chloroaniline	106-47-8	0	74	0%	1.7E+00	NA	6.0E+02	No	Yes	No	Yes					X
	4-Chlorophenyl-phenylether	7005-72-3	0	74	0%	1.7E+00	NA	--	No	No					X		
	4-Methylphenol (p-Cresol)	106-44-5	15	81	19%	1.6E+00	4.8E+00	7.5E+02	No	Yes	Yes		No				X
	4-Nitroaniline	100-01-6	0	74	0%	3.7E+00	NA	4.5E+02	No	Yes	No	Yes					X
	4-Nitrophenol	100-02-7	0	74	0%	3.7E+00	NA	1.2E+03	No	Yes	No	Yes					X
	Acetophenone	98-86-2	0	20	0%	2.3E+00	NA	1.5E+04	No	Yes	No	Yes					X
	Benzaldehyde	100-52-7	0	21	0%	2.9E+00	NA	1.5E+04	No	Yes	No	Yes					X
	Benzyl alcohol	100-51-6	0	15	0%	3.4E+00	NA	4.5E+04	No	Yes	No	Yes					X
	Biphenyl	92-52-4	1	1	100%	2.2E+00	7.9E+00	7.5E+03	No	Yes	Yes		No				X
	bis(2-Chloroethoxy)methane	111-91-1	0	74	0%	1.7E+00	NA	--	No	No					X		
	bis-(2-Chloroethyl)ether	111-44-4	0	1	0%	4.3E+00	NA	9.5E+00	No	Yes	No	Yes					X
	bis(2-Chloroethyl)ether	111-44-4	0	1	0%	4.3E+00	NA	9.5E+00	No	Yes	No	Yes					X
	bis(2-Chloroisopropyl)ether	108-60-1	0	1	0%	4.3E+00	NA	1.5E+02	No	Yes	No	Yes					X
	bis(2-Ethylhexyl)phthalate	117-81-7	46	82	56%	2.6E+00	4.0E+00	7.5E+02	No	Yes	Yes		No				X
	bis(n-octyl)phthalate	117-84-0	1	81	1%	1.7E+00	5.2E-01	3.0E+03	No	Yes	Yes		No				X
	Butylbenzylphthalate	85-68-7	5	81	6%	1.8E+00	6.7E-01	3.0E+04	No	Yes	Yes		No				X
	Carbazole	86-74-8	6	81	7%	1.6E+00	6.9E+00	5.2E+02	No	Yes	Yes		No				X
	Dibutylphthalate	84-74-2	5	81	6%	1.8E+00	9.9E-02	1.5E+04	No	Yes	Yes		No				X

Appendix C5.2 COPC Screen for Sediment

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Sediment RBC (mg/kg)	COPC SELECTION STEPS					Sediment COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Semi-Volatile Organic Compounds (SVOCs)	Diethylphthalate	84-66-2	1	81	1%	1.7E+00	4.4E-02	1.2E+05	No	Yes	Yes		No				X
	Dimethylphthalate	131-11-3	0	74	0%	1.7E+00	NA	1.5E+06	No	Yes	No	Yes					X
	Hexachlorobenzene	118-74-1	0	81	0%	1.7E+00	NA	6.6E+00	No	Yes	No	Yes					X
	Hexachlorobutadiene	87-68-3	0	96	0%	1.4E+00	NA	3.0E+01	No	Yes	No	Yes					X
	Hexachlorocyclopentadiene	77-47-4	0	74	0%	1.7E+00	NA	9.0E+02	No	Yes	No	Yes					X
	Hexachloroethane	67-72-1	0	81	0%	1.7E+00	NA	1.5E+02	No	Yes	No	Yes					X
	Isophorone	78-59-1	0	74	0%	1.7E+00	NA	1.1E+04	No	Yes	No	Yes					X
	Nitrobenzene	98-95-3	0	81	0%	1.7E+00	NA	7.5E+01	No	Yes	No	Yes					X
	N-Nitrosodiphenylamine	86-30-6	0	74	0%	1.7E+00	NA	2.1E+03	No	Yes	No	Yes					X
	n-Nitrosodipropylamine	621-64-7	0	81	0%	1.7E+00	NA	1.5E+00	No	Yes	No	No				X	
	Pentachlorophenol (PCP)	87-86-5	0	81	0%	4.4E+00	NA	8.7E+01	No	Yes	No	Yes					X
	Phenol	108-95-2	2	81	2%	1.7E+00	1.1E-01	4.5E+04	No	Yes	Yes		No				X
Volatile Organic Compounds (VOCs)	1,1,1,2-Tetrachloroethane	630-20-6	0	35	0%	6.6E-03	NA	4.0E+02	No	Yes	No	Yes					X
	1,1,1-Trichloroethane	71-55-6	0	68	0%	6.1E-03	NA	4.2E+04	No	Yes	No	Yes					X
	1,1,2,2-Tetrachloroethane	79-34-5	0	68	0%	6.1E-03	NA	5.2E+01	No	Yes	No	Yes					X
	1,1,2-Trichloroethane	79-00-5	1	68	1%	6.1E-03	4.0E-03	1.8E+02	No	Yes	Yes		No				X
	1,1-Dichloroethane	75-34-3	1	68	1%	6.1E-03	5.2E-03	1.5E+04	No	Yes	Yes		No				X
	1,1-Dichloroethene	75-35-4	0	15	0%	2.0E-03	NA	7.5E+03	No	Yes	No	Yes					X
	1,1-Dichloropropene	563-58-6	0	15	0%	2.0E-03	NA	--	No	No					X		
	1,2,3-Trichlorobenzene	87-61-6	0	15	0%	2.0E-03	NA	--	No	No					X		
	1,2,3-Trichloropropane	96-18-4	0	68	0%	7.6E-03	NA	5.2E+00	No	Yes	No	Yes					X
	1,2,4-Trimethylbenzene	95-63-6	1	15	7%	2.0E-03	1.2E-01	7.5E+03	No	Yes	Yes		No				X
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0	56	0%	8.4E-03	NA	7.5E+00	No	Yes	No	Yes					X
	1,2-Dichloroethane	107-06-2	0	68	0%	6.1E-03	NA	1.2E+02	No	Yes	No	Yes					X
	1,2-Dichloroethene	540-59-0	0	53	0%	1.3E-02	NA	1.3E+03	No	Yes	No	Yes					X
	1,2-Dichloropropane	78-87-5	0	68	0%	6.1E-03	NA	1.5E+02	No	Yes	No	Yes					X
	1,3,5-Trimethylbenzene	108-67-8	1	15	7%	2.0E-03	1.2E-01	7.5E+03	No	Yes	Yes		No				X
	1,3-Dichloropropane	142-28-9	0	15	0%	2.0E-03	NA	--	No	No					X		
	1,4-Dioxane	123-91-1	0	20	0%	3.0E-01	NA	9.5E+02	No	Yes	No	Yes					X
	2,2-Dichloropropane	594-20-7	0	15	0%	2.0E-03	NA	--	No	No					X		
	2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	0	20	0%	1.0E-02	NA	3.0E+03	No	Yes	No	Yes					X
	2-Chloroethyl vinyl ether	110-75-8	0	53	0%	9.5E-03	NA	--	No	No					X		
	2-Chlorotoluene	95-49-8	0	15	0%	2.0E-03	NA	3.0E+03	No	Yes	No	Yes					X
	2-Hexanone	591-78-6	0	68	0%	1.2E-02	NA	6.0E+03	No	Yes	No	Yes					X
	3-Chloropropene (Allyl Chloride)	107-05-1	0	20	0%	1.0E-02	NA	--	No	No					X		
	4-Chlorotoluene	106-43-4	0	15	0%	2.0E-03	NA	--	No	No					X		
	Acetone	67-64-1	38	68	56%	1.6E-02	3.9E-01	1.5E+04	No	Yes	Yes		No				X
	Acetonitrile	75-05-8	0	53	0%	4.0E-02	NA	2.5E+03	No	Yes	No	Yes					X
	Acrolein	107-02-8	1	53	2%	6.3E-02	4.5E-03	3.0E+03	No	Yes	Yes		No				X
	Acrylonitrile	107-13-1	1	53	2%	4.0E-02	1.0E-02	1.9E+01	No	Yes	Yes		No				X
	Benzene	71-43-2	3	68	4%	6.0E-03	4.8E-02	1.9E+02	No	Yes	Yes		No				X
	Bromobenzene	108-86-1	0	15	0%	2.0E-03	NA	--	No	No					X		
	Bromodichloromethane	75-27-4	0	68	0%	6.1E-03	NA	1.7E+02	No	Yes	No	Yes					X
	Bromoform	75-25-2	0	68	0%	6.1E-03	NA	1.3E+03	No	Yes	No	Yes					X
	Bromomethane (Methyl bromide)	74-83-9	4	68	6%	1.2E-02	1.0E-02	2.1E+02	No	Yes	Yes		No				X
	Carbon Disulfide	75-15-0	12	68	18%	6.3E-03	7.0E-03	1.5E+04	No	Yes	Yes		No				X
	Carbon Tetrachloride	56-23-5	0	68	0%	6.1E-03	NA	8.1E+01	No	Yes	No	Yes					X
	Chlorobenzene	108-90-7	1	68	1%	6.1E-03	1.9E-03	3.0E+03	No	Yes	Yes		No				X
	Chlorodibromomethane	124-48-1	0	68	0%	6.1E-03	NA	1.2E+02	No	Yes	No	Yes					X
	Chloroethane (Ethyl chloride)	75-00-3	0	68	0%	1.1E-02	NA	3.6E+03	No	Yes	No	Yes					X
	Chloroform	67-66-3	0	68	0%	6.1E-03	NA	1.5E+03	No	Yes	No	Yes					X
	Chloromethane (Methyl chloride)	74-87-3	1	68	1%	1.1E-02	5.0E-03	8.1E+02	No	Yes	Yes		No				X
	cis-1,2-Dichloroethene	156-59-2	0	33	0%	1.0E-02	NA	1.5E+03	No	Yes	No	Yes					X
	cis-1,3-Dichloropropene	10061-01-5	0	83	0%	5.4E-03	NA	1.0E+02	No	Yes	No	Yes					X
	Dibromomethane	74-95-3	0	35	0%	6.6E-03	NA	1.5E+03	No	Yes	No	Yes					X
	Dichlorodifluoromethane	75-71-8	14	35	40%	9.7E-03	1.6E-02	3.0E+04	No	Yes	Yes		No				X
	Dichloromethane	75-09-2	34	68	50%	4.9E-03	1.3E-02	1.4E+03	No	Yes	Yes		No				X
	Ethyl Methacrylate	97-63-2	0	20	0%	5.0E-02	NA	1.3E+04	No	Yes	No	Yes					X
	Ethylbenzene	100-41-4	4	68	6%	6.0E-03	2.7E-01	1.5E+04	No	Yes	Yes		No				X
	Ethylene dibromide (EDB)	106-93-4	0	68	0%	7.8E-03	NA	1.2E-01	No	Yes	No	Yes					X
	Hexane	110-54-3	0	33	0%	8.6E-03	NA	9.0E+03	No	Yes	No	Yes					X

Appendix C5.2 COPC Screen for Sediment

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Sediment RBC (mg/kg)	COPC SELECTION STEPS					Sediment COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
Volatile Organic Compounds (VOCs)	Iodomethane	74-88-4	0	20	0%	1.0E-02	NA	--	No	No					**X**		
	Isobutyl Alcohol	78-83-1	0	22	0%	9.8E-02	NA	4.5E+04	No	Yes	No	Yes					**X**
	Isopropylbenzene	98-82-8	4	30	13%	2.0E-03	4.0E-02	1.5E+04	No	Yes	Yes		No				**X**
	Methacrylonitrile	126-98-7	0	53	0%	1.4E-02	NA	1.5E+01	No	Yes	No	Yes					**X**
	Methyl ethyl ketone (MEK)	78-93-3	20	49	41%	1.0E-02	6.0E-02	9.0E+04	No	Yes	Yes		No				**X**
	Methyl isobutyl ketone (MIBK)	108-10-1	1	68	1%	1.2E-02	6.4E-03	1.2E+04	No	Yes	Yes		No				**X**
	Methyl Metharcylate	80-62-6	0	20	0%	1.0E-02	NA	2.1E+05	No	Yes	No	Yes					**X**
	Methyl-t-butyl ether	1634-04-4	1	15	7%	2.1E-03	2.1E-03	2.6E+03	No	Yes	Yes		No				**X**
	n-Butylbenzene	104-51-8	0	15	0%	2.0E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	n-Propylbenzene	103-65-1	1	15	7%	2.0E-03	2.4E-02	6.0E+03	No	Yes	Yes		No				**X**
	o-Xylene	95-47-6	1	15	7%	2.0E-03	8.1E-02	3.0E+05	No	Yes	Yes		No				**X**
	sec-Butylbenzene	135-98-8	1	15	7%	2.0E-03	3.3E-03	6.0E+03	No	Yes	Yes		No				**X**
	Styrene	100-42-5	0	68	0%	6.1E-03	NA	3.0E+04	No	Yes	No	Yes					**X**
	tert-Butylbenzene	98-06-6	0	15	0%	2.0E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	Tetrachloroethene	127-18-4	0	68	0%	6.1E-03	NA	2.0E+02	No	Yes	No	Yes					**X**
	Toluene	108-88-3	29	68	43%	7.2E-03	1.9E+00	3.0E+04	No	Yes	Yes		No				**X**
	trans-1,2-Dichloroethene	156-60-5	0	48	0%	7.6E-03	NA	3.0E+03	No	Yes	No	Yes					**X**
	trans-1,3-Dichloropropene	10061-02-6	0	68	0%	6.1E-03	NA	1.0E+02	No	Yes	No	Yes					**X**
	trans-1,4-Dichloro-2-Butene	110-57-6	0	20	0%	1.0E-02	NA	1.1E+00	No	Yes	No	Yes					**X**
	Trichloroethene	79-01-6	0	68	0%	6.1E-03	NA	4.5E+01	No	Yes	No	Yes					**X**
	Trichlorofluoromethane	75-69-4	0	68	0%	1.0E-02	NA	4.5E+04	No	Yes	No	Yes					**X**
	Vinyl Acetate	108-05-4	0	53	0%	9.5E-03	NA	1.5E+05	No	Yes	No	Yes					**X**
	Vinyl Chloride	75-01-4	0	68	0%	1.2E-02	NA	7.5E+00	No	Yes	No	Yes					**X**
	Xylenes (Total)	1330-20-7	5	53	9%	1.9E-02	1.3E-01	3.0E+05	No	Yes	Yes		No				**X**
	Xylenes-p,m	179601-23-1	1	15	7%	2.0E-03	5.1E-02	3.0E+05	No	Yes	Yes		No				**X**
													TOTAL	**7**	**19**	**1**	**178**

Appendix C5.3 COPC Screen for PCB Congeners in Sediment

Human Health Risk Assessment for Ogden, Utah

AOI	StationID	ActivityType	Medium	AnalyteName	Units	Conc	TEF-Mammal	TEQ	Sample TEQ	RBC	COPC?
AOI 33	21SP-04R	Sample	Sediment	PCB-81	ppt	5.85	0.0001	0.000585			
AOI 33	21SP-04R	Sample	Sediment	PCB-169	ppt	9.8	0.01	0.098			
AOI 33	21SP-04R	Sample	Sediment	PCB-123	ppt	13.8	0.0001	0.00138			
AOI 33	21SP-04R	Sample	Sediment	PCB-126	ppt	44.8	0.1	4.48			
AOI 33	21SP-04R	Sample	Sediment	PCB-77	ppt	155	0.0001	0.0155			
AOI 33	21SP-04R	Sample	Sediment	PCB-114	ppt	173	0.0005	0.0865			
AOI 33	21SP-04R	Sample	Sediment	PCB-157	ppt	307	0.0005	0.1535			
AOI 33	21SP-04R	Sample	Sediment	PCB-189	ppt	454	0.0001	0.0454			
AOI 33	21SP-04R	Sample	Sediment	PCB-167	ppt	902	0.00001	0.00902			
AOI 33	21SP-04R	Sample	Sediment	PCB-156	ppt	2320	0.0005	1.16			
AOI 33	21SP-04R	Sample	Sediment	PCB-105	ppt	2560	0.0001	0.256			
AOI 33	21SP-04R	Sample	Sediment	PCB-118	ppt	7240	0.0001	0.724	7.03	69.96	NO
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-81	ppt	0.965	0.0001	0.0000965			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-77	ppt	29.9	0.0001	0.00299			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-123	ppt	4.835	0.0001	0.0004835			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-118	ppt	304	0.0001	0.0304			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-114	ppt	4.835	0.0005	0.0024175			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-105	ppt	135	0.0001	0.0135			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-126	ppt	4.835	0.1	0.4835			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-167	ppt	9.65	0.00001	0.0000965			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-156	ppt	43.1	0.0005	0.02155			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-157	ppt	9.65	0.0005	0.004825			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-169	ppt	9.65	0.01	0.0965			
Buena Ventura Park Pond	BVPP-08B	Sample	Sediment	PCB-189	ppt	9.65	0.0001	0.000965	0.66	69.96	NO
Ogden River	OGR-01B	Sample	Sediment	PCB-81	ppt	0.95	0.0001	0.000095			
Ogden River	OGR-01B	Sample	Sediment	PCB-77	ppt	32.1	0.0001	0.00321			
Ogden River	OGR-01B	Sample	Sediment	PCB-123	ppt	4.74	0.0001	0.000474			
Ogden River	OGR-01B	Sample	Sediment	PCB-118	ppt	272	0.0001	0.0272			
Ogden River	OGR-01B	Sample	Sediment	PCB-114	ppt	4.74	0.0005	0.00237			
Ogden River	OGR-01B	Sample	Sediment	PCB-105	ppt	117	0.0001	0.0117			
Ogden River	OGR-01B	Sample	Sediment	PCB-126	ppt	4.74	0.1	0.474			
Ogden River	OGR-01B	Sample	Sediment	PCB-167	ppt	9.5	0.00001	0.000095			
Ogden River	OGR-01B	Sample	Sediment	PCB-156	ppt	25.2	0.0005	0.0126			
Ogden River	OGR-01B	Sample	Sediment	PCB-157	ppt	9.5	0.0005	0.00475			
Ogden River	OGR-01B	Sample	Sediment	PCB-169	ppt	9.5	0.01	0.095			
Ogden River	OGR-01B	Sample	Sediment	PCB-189	ppt	9.5	0.0001	0.00095	0.63	69.96	NO
Ogden River	OGR-02B	Sample	Sediment	PCB-81	ppt	0.985	0.0001	0.0000985			
Ogden River	OGR-02B	Sample	Sediment	PCB-77	ppt	133	0.0001	0.0133			
Ogden River	OGR-02B	Sample	Sediment	PCB-123	ppt	4.93	0.0001	0.000493			
Ogden River	OGR-02B	Sample	Sediment	PCB-118	ppt	5420	0.0001	0.542			
Ogden River	OGR-02B	Sample	Sediment	PCB-114	ppt	173	0.0005	0.0865			
Ogden River	OGR-02B	Sample	Sediment	PCB-105	ppt	2060	0.0001	0.206			
Ogden River	OGR-02B	Sample	Sediment	PCB-126	ppt	4.93	0.1	0.493			
Ogden River	OGR-02B	Sample	Sediment	PCB-167	ppt	129	0.00001	0.00129			
Ogden River	OGR-02B	Sample	Sediment	PCB-156	ppt	340	0.0005	0.17			
Ogden River	OGR-02B	Sample	Sediment	PCB-157	ppt	79.1	0.0005	0.03955			
Ogden River	OGR-02B	Sample	Sediment	PCB-169	ppt	9.85	0.01	0.0985			
Ogden River	OGR-02B	Sample	Sediment	PCB-189	ppt	9.85	0.0001	0.000985	1.65	69.96	NO
Ogden River	OGR-03B	Sample	Sediment	PCB-81	ppt	0.915	0.0001	0.0000915			
Ogden River	OGR-03B	Sample	Sediment	PCB-77	ppt	65.2	0.0001	0.00652			
Ogden River	OGR-03B	Sample	Sediment	PCB-123	ppt	24.05	0.0001	0.002405			
Ogden River	OGR-03B	Sample	Sediment	PCB-118	ppt	2990	0.0001	0.299			
Ogden River	OGR-03B	Sample	Sediment	PCB-114	ppt	47.9	0.0005	0.02395			
Ogden River	OGR-03B	Sample	Sediment	PCB-105	ppt	673	0.0001	0.0673			
Ogden River	OGR-03B	Sample	Sediment	PCB-126	ppt	10.6	0.1	1.06			
Ogden River	OGR-03B	Sample	Sediment	PCB-167	ppt	975	0.00001	0.00975			
Ogden River	OGR-03B	Sample	Sediment	PCB-156	ppt	2060	0.0005	1.03			
Ogden River	OGR-03B	Sample	Sediment	PCB-157	ppt	163	0.0005	0.0815			
Ogden River	OGR-03B	Sample	Sediment	PCB-169	ppt	9.15	0.01	0.0915			
Ogden River	OGR-03B	Sample	Sediment	PCB-189	ppt	504	0.0001	0.0504	2.72	69.96	NO

Appendix C5.3 COPC Screen for PCB Congeners in Sediment

Human Health Risk Assessment for Ogden, Utah

AOI	StationID	ActivityType	Medium	AnalyteName	Units	Conc	TEF-Mammal	TEQ	Sample TEQ	RBC	COPC?
Ogden River	OGR-03Ca	Sample	Sediment	PCB-81	ppt	0.97	0.0001	0.000097			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-123	ppt	4.86	0.0001	0.000486			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-126	ppt	4.96	0.1	0.496			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-77	ppt	5.45	0.0001	0.000545			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-114	ppt	8.45	0.0005	0.004225			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-169	ppt	9.7	0.01	0.097			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-157	ppt	116	0.0005	0.058			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-105	ppt	217	0.0001	0.0217			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-189	ppt	618	0.0001	0.0618			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-167	ppt	861	0.00001	0.00861			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-156	ppt	1960	0.0005	0.98			
Ogden River	OGR-03Ca	Sample	Sediment	PCB-118	ppt	3090	0.0001	0.309	2.04	69.96	NO
Ogden River	OGR-05B	Sample	Sediment	PCB-81	ppt	0.98	0.0001	0.000098			
Ogden River	OGR-05B	Sample	Sediment	PCB-123	ppt	4.91	0.0001	0.000491			
Ogden River	OGR-05B	Sample	Sediment	PCB-126	ppt	4.91	0.1	0.491			
Ogden River	OGR-05B	Sample	Sediment	PCB-114	ppt	14.9	0.0005	0.00745			
Ogden River	OGR-05B	Sample	Sediment	PCB-77	ppt	8.1	0.0001	0.00081			
Ogden River	OGR-05B	Sample	Sediment	PCB-169	ppt	9.8	0.01	0.098			
Ogden River	OGR-05B	Sample	Sediment	PCB-157	ppt	44.1	0.0005	0.02205			
Ogden River	OGR-05B	Sample	Sediment	PCB-189	ppt	151	0.0001	0.0151			
Ogden River	OGR-05B	Sample	Sediment	PCB-105	ppt	194	0.0001	0.0194			
Ogden River	OGR-05B	Sample	Sediment	PCB-167	ppt	263	0.00001	0.00263			
Ogden River	OGR-05B	Sample	Sediment	PCB-156	ppt	532	0.0005	0.266			
Ogden River	OGR-05B	Sample	Sediment	PCB-118	ppt	922	0.0001	0.0922	1.02	69.96	NO

Appendix C5.4 COPC Screen for Groundwater

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Residential Groundwater RBC (mg/L)	COPC SELECTION STEPS					Groundwater COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Inorganics	Aluminum	7429-90-5	1	1	100%	NA	7.0E-02	3.7E+00	No	Yes	Yes		No				X
	Antimony	7440-36-0	1	1	100%	NA	5.0E-02	1.5E-03	No	Yes	Yes		Yes	X			
	Arsenic	7440-38-2	197	435	45%	6.9E-03	1.4E-01	5.7E-05	No	Yes	Yes		Yes	X			
	Barium	7440-39-3	434	435	100%	3.4E-01	2.3E+00	2.6E-01	No	Yes	Yes		Yes	X			
	Cadmium	7440-43-9	96	430	22%	9.8E-04	1.7E-02	1.8E-03	No	Yes	Yes		Yes	X			
	Calcium	7440-70-2	44	44	100%	NA	1.8E+02	--	Yes								X
	Chromium	7440-47-3	147	431	34%	3.5E-03	9.4E-01	1.1E-02	No	Yes	Yes		Yes	X			
	Copper	7440-50-8	3	3	100%	NA	1.2E-02	1.5E-01	No	Yes	Yes		No				X
	Iron	7439-89-6	5	5	100%	NA	4.4E+00	1.1E+00	Yes								X
	Lead	7439-92-1	142	434	33%	6.2E-03	1.6E+00	1.5E-02	No	Yes	Yes		Yes	X			
	Magnesium	7439-95-4	44	44	100%	NA	5.0E+01	--	Yes								X
	Manganese	7439-96-5	44	44	100%	NA	2.4E+00	7.3E-02	No	Yes	Yes		Yes	X			
	Mercury	7439-97-6	70	421	17%	1.3E-03	1.9E-03	1.1E-03	No	Yes	Yes		Yes	X			
	Nickel	7440-02-0	4	4	100%	NA	5.7E-02	7.3E-02	No	Yes	Yes		No				X
	Potassium	7440-09-7	45	45	100%	NA	6.7E+01	--	Yes								X
	Selenium	7782-49-2	140	430	33%	1.4E-02	4.6E-02	1.8E-02	No	Yes	Yes		Yes	X			
	Silver	7440-22-4	97	431	23%	5.1E-03	6.0E-01	1.8E-02	No	Yes	Yes		Yes	X			
	Sodium	7440-23-5	45	45	100%	NA	2.6E+02	--	Yes								X
	Vanadium	7440-62-2	1	1	100%	NA	8.2E-03	2.6E-02	No	Yes	Yes		No				X
	Zinc	7440-66-6	5	5	100%	NA	1.8E-01	1.1E+00	No	Yes	Yes		No				X
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	112	0%	2.7E-02	NA	2.9E-01	No	Yes	No	Yes					X
	2-Methylnaphthalene	91-57-6	103	441	23%	3.9E-03	6.9E+00	7.3E-02	No	Yes	Yes		Yes	X			
	Acenaphthene	83-32-9	249	492	51%	5.0E-03	1.1E+00	2.2E-01	No	Yes	Yes		Yes	X			
	Acenaphthylene	208-96-8	81	491	16%	8.5E-03	2.7E-02	7.3E-02	No	Yes	Yes		No				X
	Aniline	62-53-3	0	321	0%	1.8E-03	NA	1.5E-02	No	Yes	No	Yes					X
	Anthracene	120-12-7	137	487	28%	6.9E-03	9.4E-02	1.1E+00	No	Yes	Yes		No				X
	Benzo[a]anthracene	56-55-3	44	489	9%	6.6E-03	1.3E-01	1.2E-04	No	Yes	Yes		Yes	X			
	Benzo[a]pyrene	50-32-8	25	489	5%	7.2E-03	7.3E-02	1.2E-05	No	Yes	Yes		Yes	X			
	Benzo[b]fluoranthene	205-99-2	24	489	5%	7.5E-03	8.3E-02	1.2E-04	No	Yes	Yes		Yes	X			
	Benzo[g,h,i]perylene	191-24-2	21	489	4%	8.0E-03	1.0E-02	7.3E-02	No	Yes	Yes		No				X
	Benzo[k]fluoranthene	207-08-9	22	489	4%	7.5E-03	3.8E-02	1.2E-03	No	Yes	Yes		Yes	X			
	Chrysene	218-01-9	47	489	10%	6.3E-03	1.5E-01	1.2E-02	No	Yes	Yes		Yes	X			
	Dibenz[a,h]anthracene	53-70-3	10	489	2%	7.7E-03	2.0E-03	1.2E-05	No	Yes	Yes		Yes	X			
	Dibenzofuran	132-64-9	18	112	16%	2.3E-02	1.3E-01	1.5E-02	No	Yes	Yes		Yes	X			
	Fluoranthene	206-44-0	116	488	24%	6.4E-03	3.1E-01	1.5E-01	No	Yes	Yes		Yes	X			
	Fluorene	86-73-7	214	491	44%	4.1E-03	1.3E+00	1.5E-01	No	Yes	Yes		Yes	X			
	Indeno[1,2,3-c,d]pyrene	193-39-5	15	489	3%	7.8E-03	9.0E-03	1.2E-04	No	Yes	Yes		Yes	X			
	Naphthalene	91-20-3	136	504	27%	6.2E-03	6.9E+00	7.3E-02	No	Yes	Yes		Yes	X			
	Phenanthrene	85-01-8	157	487	32%	3.4E-03	2.3E+00	7.3E-02	No	Yes	Yes		Yes	X			
	Pyrene	129-00-0	139	490	28%	5.1E-03	4.2E-01	1.1E-01	No	Yes	Yes		Yes	X			
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	1	34	3%	8.2E-02	4.2E-05	2.6E-04	No	Yes	Yes		No				X
	Aroclor-1221	11104-28-2	0	30	0%	9.0E-02	NA	4.3E-05	No	Yes	No	No				X	
	Aroclor-1232	11141-16-5	0	30	0%	9.0E-02	NA	4.3E-05	No	Yes	No	No				X	
	Aroclor-1242	53469-21-9	0	30	0%	9.0E-02	NA	4.3E-05	No	Yes	No	No				X	
	Aroclor-1248	12672-29-6	0	30	0%	9.0E-02	NA	4.3E-05	No	Yes	No	No				X	
	Aroclor-1254	11097-69-1	0	30	0%	9.0E-02	NA	4.3E-05	No	Yes	No	No				X	
	Aroclor-1260	11096-82-5	1	34	3%	8.2E-02	1.0E-04	4.3E-05	No	Yes	Yes		Yes	X			
Petroleum Hydro-carbons	Diesel fuel	68476-34-6	101	236	43%	3.8E-01	4.3E+02	--	No	No					X		
	Gasoline	8006-61-9	9	11	82%	5.0E-02	4.1E+01	--	No	No					X		
	Oil and Grease	Oil/Grease	2	2	100%	NA	1.1E+01	NA	No	No					X		

Appendix C5.4 COPC Screen for Groundwater

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Residential Groundwater RBC (mg/L)	COPC SELECTION STEPS					Groundwater COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Semi-Volatile Organic Compounds (SVOCs)	1,2,4-Trichlorobenzene	120-82-1	0	433	0%	8.4E-03	NA	3.7E-02	No	Yes	No	Yes					X
	1,2-Dichlorobenzene	95-50-1	32	434	7%	8.6E-03	4.8E-02	3.3E-01	No	Yes	Yes		No				X
	1,3-Dichlorobenzene	541-73-1	0	112	0%	2.7E-02	NA	1.1E-01	No	Yes	No	Yes					X
	1,4-Dichlorobenzene	106-46-7	24	433	6%	8.5E-03	1.4E-02	3.5E-03	No	Yes	Yes		Yes	X			
	1-Methylnaphthalene	90-12-0	4	8	50%	2.0E-03	4.3E-02	--	No	No					X		
	2,4,5-Trichlorophenol	95-95-4	0	112	0%	6.6E-02	NA	3.7E-01	No	Yes	No	Yes					X
	2,4,6-Trichlorophenol	88-06-2	0	112	0%	2.7E-02	NA	7.7E-03	No	Yes	No	No				X	
	2,4-Dichlorophenol	120-83-2	0	112	0%	2.7E-02	NA	1.1E-02	No	Yes	No	No				X	
	2,4-Dimethylphenol	105-67-9	16	434	4%	8.2E-03	2.5E-02	7.3E-02	No	Yes	Yes		No				X
	2,4-Dinitrophenol	51-28-5	0	112	0%	6.6E-02	NA	7.3E-03	No	Yes	No	No				X	
	2,4-Dinitrotoluene	121-14-2	0	433	0%	8.1E-03	NA	7.3E-03	No	Yes	No	No				X	
	2,6-Dinitrotoluene	606-20-2	1	436	0%	7.6E-03	7.4E-03	3.7E-03	No	Yes	Yes		Yes	X			
	2-Chlorophenol	95-57-8	0	112	0%	2.7E-02	NA	1.8E-02	No	Yes	No	No				X	
	2-Methylphenol (o-Cresol)	95-48-7	5	434	1%	8.2E-03	1.1E-03	1.8E-01	No	Yes	Yes		No				X
	2-Nitroaniline	88-74-4	0	112	0%	6.6E-02	NA	2.1E-04	No	Yes	No	No				X	
	2-Nitrophenol	88-75-5	0	112	0%	2.7E-02	NA	--	No	No					X		
	3,3'-Dichlorobenzidine	91-94-1	0	427	0%	8.6E-03	NA	1.9E-04	No	Yes	No	No				X	
	3-Nitroaniline	99-09-2	0	112	0%	6.6E-02	NA	1.1E-03	No	Yes	No	No				X	
	4,6-Dinitro-o-cresol	534-52-1	3	431	1%	2.5E-02	5.0E-03	3.7E-04	No	Yes	Yes		Yes	X			
	4-Chloro-3-Methylphenol	59-50-7	0	112	0%	2.7E-02	NA	--	No	No					X		
	4-Chloroaniline	106-47-8	0	112	0%	2.7E-02	NA	1.5E-02	No	Yes	No	No				X	
	4-Chlorophenyl-phenylether	7005-72-3	0	112	0%	2.7E-02	NA	--	No	No					X		
	4-Methylphenol (p-Cresol)	106-44-5	15	433	3%	8.3E-03	2.3E-02	1.8E-02	No	Yes	Yes		Yes	X			
	4-Nitroaniline	100-01-6	0	112	0%	6.6E-02	NA	4.3E-03	No	Yes	No	No				X	
	4-Nitrophenol	100-02-7	0	112	0%	6.6E-02	NA	2.9E-02	No	Yes	No	No				X	
	bis(2-Chloroethoxy)methane	111-91-1	0	112	0%	2.7E-02	NA	--	No	No					X		
	bis(2-Chloroethyl)ether	111-44-4	3	433	1%	8.2E-03	1.0E-03	7.7E-05	No	Yes	Yes		Yes	X			
	bis(2-Chloroisopropyl)ether	108-60-1	0	416	0%	8.7E-03	NA	1.2E-03	No	Yes	No	No				X	
	bis(2-Ethylhexyl)phthalate	117-81-7	146	438	33%	5.3E-03	5.1E-01	6.1E-03	No	Yes	Yes		Yes	X			
	bis(n-octyl)phthalate	117-84-0	3	432	1%	8.1E-03	2.5E-02	7.3E-02	No	Yes	Yes		No				X
	Butylbenzylphthalate	85-68-7	64	433	15%	9.2E-03	1.0E-03	7.3E-01	No	Yes	Yes		No				X
	Carbazole	86-74-8	68	432	16%	1.1E-02	5.1E-02	4.3E-03	No	Yes	Yes		Yes	X			
	Dibutylphthalate	84-74-2	83	435	19%	8.1E-03	2.6E-02	3.7E-01	No	Yes	Yes		No				X
	Diethylphthalate	84-66-2	49	435	11%	8.7E-03	1.5E-02	2.9E+00	No	Yes	Yes		No				X
	Dimethylphthalate	131-11-3	0	112	0%	2.7E-02	NA	3.7E+01	No	Yes	No	Yes					X
	Hexachlorobenzene	118-74-1	0	431	0%	8.2E-03	NA	5.3E-05	No	Yes	No	No				X	
	Hexachlorobutadiene	87-68-3	0	433	0%	8.4E-03	NA	7.3E-04	No	Yes	No	No				X	
	Hexachlorocyclopentadiene	77-47-4	0	112	0%	2.7E-02	NA	2.2E-02	No	Yes	No	No				X	
	Hexachloroethane	67-72-1	0	434	0%	8.4E-03	NA	3.7E-03	No	Yes	No	No				X	
	Isophorone	78-59-1	0	112	0%	2.7E-02	NA	9.0E-02	No	Yes	No	Yes					X
	Nitrobenzene	98-95-3	1	433	0%	8.1E-03	2.0E-05	1.8E-03	No	Yes	Yes		No				X
	N-Nitrosodiphenylamine	86-30-6	0	112	0%	2.7E-02	NA	1.7E-02	No	Yes	No	No				X	
	n-Nitrosodipropylamine	621-64-7	1	436	0%	8.1E-03	1.0E-03	1.2E-05	No	Yes	Yes		Yes	X			
	Pentachlorophenol (PCP)	87-86-5	25	433	6%	1.9E-02	7.0E-03	7.1E-04	No	Yes	Yes		Yes	X			
	Phenol	108-95-2	62	428	14%	8.8E-03	8.8E-03	1.1E+00	No	Yes	Yes		No				X
Volatile Organic Compounds (VOCs)	1,1,1,2-Tetrachloroethane	630-20-6	0	141	0%	2.9E-02	NA	3.3E-03	No	Yes	No	No				X	
	1,1,1-Trichloroethane	71-55-6	49	502	10%	5.0E-03	4.1E+00	1.0E+00	No	Yes	Yes		Yes	X			
	1,1,2,2-Tetrachloroethane	79-34-5	0	499	0%	5.4E-03	NA	4.3E-04	No	Yes	No	No				X	
	1,1,2-Trichloroethane	79-00-5	11	489	2%	5.6E-03	4.0E-03	1.5E-03	No	Yes	Yes		Yes	X			
	1,1-Dichloroethane	75-34-3	173	504	34%	5.2E-03	2.0E+00	3.7E-01	No	Yes	Yes		Yes	X			
	1,2,3-Trichloropropane	96-18-4	2	499	0%	9.7E-03	1.5E-02	4.3E-05	No	Yes	Yes		Yes	X			
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0	316	0%	1.4E-02	NA	6.1E-05	No	Yes	No	No				X	
	1,2-Dichloroethane	107-06-2	5	499	1%	5.5E-03	2.0E-03	9.4E-04	No	Yes	Yes		Yes	X			
	1,2-Dichloroethene	540-59-0	168	502	33%	6.0E-03	5.3E+00	3.3E-02	No	Yes	Yes		Yes	X			
	1,2-Dichloropropane	78-87-5	0	500	0%	5.4E-03	NA	1.3E-03	No	Yes	No	No				X	
	1,4-Dioxane	123-91-1	0	166	0%	7.6E-01	NA	7.7E-03	No	Yes	No	No				X	
	2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	0	141	0%	2.9E-02	NA	7.3E-02	No	Yes	No	Yes					X
	2-Chloroethyl vinyl ether	110-75-8	0	312	0%	1.6E-02	NA	--	No	No					X		
	2-Hexanone	591-78-6	2	490	0%	1.1E-02	3.0E-03	1.5E-01	No	Yes	Yes		No				X
	3-Chloropropene (Allyl Chloride)	107-05-1	0	141	0%	2.9E-02	NA	--	No	No					X		

Appendix C5.4 COPC Screen for Groundwater

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Residential Groundwater RBC (mg/L)	COPC SELECTION STEPS					Groundwater COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/L)	Maximum Detected Conc (mg/L)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
Volatile Organic Compounds (VOCs)	Acetone	67-64-1	54	413	13%	1.1E-02	1.0E+01	3.7E-01	No	Yes	Yes		Yes	**X**			
	Acetonitrile	75-05-8	0	500	0%	4.9E-02	NA	6.2E-02	No	Yes	No	Yes					**X**
	Acrolein	107-02-8	0	240	0%	1.2E-01	NA	7.3E-02	No	Yes	No	No				**X**	
	Acrylonitrile	107-13-1	0	474	0%	4.7E-02	NA	1.6E-04	No	Yes	No	No				**X**	
	Benzene	71-43-2	203	527	39%	5.1E-03	1.3E+00	1.5E-03	No	Yes	Yes		Yes	**X**			
	Bromodichloromethane	75-27-4	0	499	0%	5.4E-03	NA	1.4E-03	No	Yes	No	No				**X**	
	Bromoform	75-25-2	0	500	0%	5.4E-03	NA	1.1E-02	No	Yes	No	Yes					**X**
	Bromomethane (Methyl bromide)	74-83-9	3	500	1%	7.2E-03	5.0E-03	5.1E-03	No	Yes	Yes		No				**X**
	Carbon Disulfide	75-15-0	10	499	2%	5.5E-03	6.8E-03	3.7E-01	No	Yes	Yes		No				**X**
	Carbon Tetrachloride	56-23-5	0	493	0%	5.5E-03	NA	6.6E-04	No	Yes	No	No				**X**	
	Chlorobenzene	108-90-7	27	499	5%	5.6E-03	2.6E-02	7.3E-02	No	Yes	Yes		No				**X**
	Chlorodibromomethane	124-48-1	1	499	0%	5.5E-03	3.0E-03	1.0E-03	No	Yes	Yes		Yes	**X**			
	Chloroethane (Ethyl chloride)	75-00-3	93	501	19%	7.4E-03	2.3E-01	2.9E-02	No	Yes	Yes		Yes	**X**			
	Chloroform	67-66-3	2	500	0%	5.4E-03	7.7E-03	3.7E-02	No	Yes	Yes		No				**X**
	Chloromethane (Methyl chloride)	74-87-3	3	499	1%	7.7E-03	1.0E-02	6.6E-03	No	Yes	Yes		Yes	**X**			
	cis-1,2-Dichloroethene	156-59-2	111	357	31%	2.0E-03	5.2E+00	3.7E-02	No	Yes	Yes		Yes	**X**			
	cis-1,3-Dichloropropene	10061-01-5	0	499	0%	5.4E-03	NA	8.5E-04	No	Yes	No	No				**X**	
	Dibromomethane	74-95-3	0	141	0%	2.9E-02	NA	3.7E-02	No	Yes	No	Yes					**X**
	Dichlorodifluoromethane	75-71-8	0	141	0%	2.9E-02	NA	7.3E-01	No	Yes	No	Yes					**X**
	Dichloromethane	75-09-2	101	505	20%	3.8E-03	8.7E+00	1.1E-02	No	Yes	Yes		Yes	**X**			
	Ethane	74-84-0	0	39	0%	3.0E+00	NA	--	No	No					**X**		
	Ethyl Methacrylate	97-63-2	0	141	0%	1.5E-01	NA	3.3E-01	No	Yes	No	Yes					**X**
	Ethylbenzene	100-41-4	97	522	19%	4.4E-03	2.2E+00	3.7E-01	No	Yes	Yes		Yes	**X**			
	Ethylene dibromide (EDB)	106-93-4	0	493	0%	9.7E-03	NA	1.0E-06	No	Yes	No	No				**X**	
	Hexane	110-54-3	5	359	1%	1.8E-03	2.0E-03	2.2E-01	No	Yes	Yes		No				**X**
	Iodomethane	74-88-4	0	141	0%	2.9E-02	NA	--	No	No					**X**		
	Isobutyl Alcohol	78-83-1	0	173	0%	2.5E-01	NA	1.1E+00	No	Yes	No	Yes					**X**
	Methacrylonitrile	126-98-7	0	421	0%	1.6E-02	NA	3.7E-04	No	Yes	No	No				**X**	
	Methane	74-82-8	0	39	0%	2.0E+00	NA	--	No	No					**X**		
	Methyl ethyl ketone (MEK)	78-93-3	2	499	0%	1.1E-02	2.5E-03	2.2E+00	No	Yes	Yes		No				**X**
	Methyl isobutyl ketone (MIBK)	108-10-1	7	500	1%	1.1E-02	2.3E-02	2.9E-01	No	Yes	Yes		No				**X**
	Methyl Metharcylate	80-62-6	0	141	0%	2.9E-02	NA	5.1E+00	No	Yes	No	Yes					**X**
	Methyl-t-butyl ether (MTBE)	1634-04-4	0	3	0%	1.2E-02	NA	2.1E-02	No	Yes	No	Yes					**X**
	Styrene	100-42-5	14	498	3%	5.6E-03	7.0E-03	7.3E-01	No	Yes	Yes		No				**X**
	Tetrachloroethene	127-18-4	21	501	4%	5.6E-03	1.0E-02	1.6E-03	No	Yes	Yes		Yes	**X**			
	Toluene	108-88-3	96	524	18%	4.4E-03	2.8E+00	7.3E-01	No	Yes	Yes		Yes	**X**			
	trans-1,2-Dichloroethene	156-60-5	27	356	8%	1.9E-03	5.0E-02	7.3E-02	No	Yes	Yes		No				**X**
	trans-1,3-Dichloropropene	10061-02-6	0	500	0%	5.4E-03	NA	8.5E-04	No	Yes	No	No				**X**	
	trans-1,4-Dichloro-2-Butene	110-57-6	0	141	0%	2.9E-02	NA	9.2E-06	No	Yes	No	No				**X**	
	Trichloroethene	79-01-6	42	500	8%	5.7E-03	4.3E-01	1.1E-03	No	Yes	Yes		Yes	**X**			
	Trichlorofluoromethane	75-69-4	0	499	0%	7.1E-03	NA	1.1E+00	No	Yes	No	Yes					**X**
	Vinyl Acetate	108-05-4	0	500	0%	1.0E-02	NA	3.7E+00	No	Yes	No	Yes					**X**
	Vinyl Chloride	75-01-4	234	575	41%	6.4E-03	3.1E+00	6.1E-05	No	Yes	Yes		Yes	**X**			
	Xylenes (Total)	1330-20-7	128	523	24%	6.3E-03	7.9E+00	7.3E+00	No	Yes	Yes		Yes	**X**			
													TOTAL	**54**	**13**	**36**	**51**

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Appendix C5.5 COPC Screen for Fish Tissue

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Fish RBC (mg/kg ww)	COPC SELECTION STEPS					Fish Tissue COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg ww)	Maximum Detected Conc (mg/kg ww)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	29	0%	2.0E+00	NA	5.8E+01	No	Yes	No	Yes					**X**
	2-Methylnaphthalene	91-57-6	0	29	0%	2.0E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Acenaphthene	83-32-9	1	34	3%	1.8E+00	5.6E-01	4.4E+01	No	Yes	Yes		No				**X**
	Acenaphthylene	208-96-8	0	34	0%	1.8E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Anthracene	120-12-7	0	34	0%	1.8E+00	NA	2.2E+02	No	Yes	No	Yes					**X**
	Benzo[a]anthracene	56-55-3	0	34	0%	1.8E+00	NA	2.3E-02	No	Yes	No	No				**X**	
	Benzo[a]pyrene	50-32-8	0	34	0%	1.8E+00	NA	2.3E-03	No	Yes	No	No				**X**	
	Benzo[b]fluoranthene	205-99-2	0	34	0%	1.8E+00	NA	2.3E-02	No	Yes	No	No				**X**	
	Benzo[g,h,i]perylene	191-24-2	0	34	0%	1.8E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Benzo[k]fluoranthene	207-08-9	0	34	0%	1.8E+00	NA	2.3E-01	No	Yes	No	No				**X**	
	Chrysene	218-01-9	0	34	0%	1.8E+00	NA	2.3E+00	No	Yes	No	Yes					**X**
	Dibenz[a,h]anthracene	53-70-3	0	34	0%	1.8E+00	NA	2.3E-03	No	Yes	No	No				**X**	
	Dibenzofuran	132-64-9	0	29	0%	2.0E+00	NA	2.9E+00	No	Yes	No	Yes					**X**
	Fluoranthene	206-44-0	0	34	0%	1.8E+00	NA	2.9E+01	No	Yes	No	Yes					**X**
	Fluorene	86-73-7	0	34	0%	1.8E+00	NA	2.9E+01	No	Yes	No	Yes					**X**
	Indeno[1,2,3-c,d]pyrene	193-39-5	0	34	0%	1.8E+00	NA	2.3E-02	No	Yes	No	No				**X**	
	Naphthalene	91-20-3	0	34	0%	1.8E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Phenanthrene	85-01-8	0	34	0%	1.8E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Pyrene	129-00-0	0	34	0%	1.8E+00	NA	2.2E+01	No	Yes	No	Yes					**X**
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	0	29	0%	4.0E-02	NA	5.1E-02	No	Yes	No	Yes					**X**
	Aroclor-1221	11104-28-2	0	29	0%	8.4E-02	NA	8.5E-03	No	Yes	No	No				**X**	
	Aroclor-1232	11141-16-5	0	29	0%	4.0E-02	NA	8.5E-03	No	Yes	No	No				**X**	
	Aroclor-1242	53469-21-9	0	29	0%	4.0E-02	NA	8.5E-03	No	Yes	No	No				**X**	
	Aroclor-1248	12672-29-6	0	29	0%	4.0E-02	NA	8.5E-03	No	Yes	No	No				**X**	
	Aroclor-1254	11097-69-1	0	29	0%	4.0E-02	NA	8.5E-03	No	Yes	No	No				**X**	
	Aroclor-1260	11096-82-5	28	29	97%	6.2E-02	1.9E+00	8.5E-03	No	Yes	Yes		Yes	**X**			
	Aroclor-1268	11100-14-4	0	28	0%	4.0E-02	NA	8.5E-03	No	Yes	No	No				**X**	
Pesticides	4,4'-DDD	72-54-8	18	29	62%	4.1E-03	1.6E-02	7.1E-02	No	Yes	Yes		No				**X**
	4,4'-DDE	72-55-9	29	29	100%	NA	5.9E-01	5.0E-02	No	Yes	Yes		Yes	**X**			
	4,4'-DDT	50-29-3	1	29	3%	4.1E-03	2.7E-03	5.0E-02	No	Yes	Yes		No				**X**
	Aldrin	309-00-2	0	29	0%	4.1E-03	NA	1.0E-03	No	Yes	No	No				**X**	
	alpha-BHC	319-84-6	0	29	0%	4.1E-03	NA	2.7E-03	No	Yes	No	No				**X**	
	alpha-Chlordane	5103-71-9	0	29	0%	4.1E-03	NA	4.9E-02	No	Yes	No	Yes					**X**
	beta-BHC	319-85-7	0	29	0%	4.1E-03	NA	9.5E-03	No	Yes	No	Yes					**X**
	delta-BHC	319-86-8	0	29	0%	4.1E-03	NA	1.3E-02	No	Yes	No	Yes					**X**
	Dieldrin	60-57-1	0	29	0%	4.1E-03	NA	1.1E-03	No	Yes	No	No				**X**	
	Endosulfan I	959-98-8	0	29	0%	4.1E-03	NA	4.4E+00	No	Yes	No	Yes					**X**
	Endosulfan II	33213-65-9	0	29	0%	4.1E-03	NA	4.4E+00	No	Yes	No	Yes					**X**
	Endosulfan Sulfate	1031-07-8	0	29	0%	4.1E-03	NA	4.4E+00	No	Yes	No	Yes					**X**
	Endrin	72-20-8	0	29	0%	4.1E-03	NA	2.2E-01	No	Yes	No	Yes					**X**
	Endrin Aldehyde	7421-93-4	0	29	0%	4.1E-03	NA	--	No	No					**X**		
	Endrin ketone	53494-70-5	0	29	0%	4.1E-03	NA	--	No	No					**X**		
	gamma-BHC	58-89-9	0	29	0%	4.1E-03	NA	1.3E-02	No	Yes	No	Yes					**X**
	gamma-Chlordane	5566-34-7	2	29	7%	4.1E-03	2.0E-02	4.9E-02	No	Yes	Yes		No				**X**
	Heptachlor	76-44-8	0	29	0%	4.1E-03	NA	3.8E-03	No	Yes	No	No				**X**	
	Heptachlor Epoxide	1024-57-3	0	29	0%	4.1E-03	NA	1.9E-03	No	Yes	No	No				**X**	
	Methoxychlor	72-43-5	0	29	0%	4.1E-03	NA	3.7E+00	No	Yes	No	Yes					**X**
	Toxaphene	8001-35-2	0	29	0%	8.4E-02	NA	1.5E-02	No	Yes	No	No				**X**	

Appendix C5.5 COPC Screen for Fish Tissue

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	DATA					Recreational Visitor Fish RBC (mg/kg ww)	COPC SELECTION STEPS					Fish Tissue COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg ww)	Maximum Detected Conc (mg/kg ww)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
Semi-Volatile Organic Compounds (SVOCs)	1,2,4-Trichlorobenzene	120-82-1	0	29	0%	2.0E+00	NA	7.3E+00	No	Yes	No	Yes					**X**
	1,2-Dichlorobenzene	95-50-1	0	29	0%	2.0E+00	NA	6.6E+01	No	Yes	No	Yes					**X**
	1,3-Dichlorobenzene	541-73-1	0	29	0%	2.0E+00	NA	2.2E+01	No	Yes	No	Yes					**X**
	1,4-Dichlorobenzene	106-46-7	0	29	0%	2.0E+00	NA	7.1E-01	No	Yes	No	No				**X**	
	2,4,5-Trichlorophenol	95-95-4	0	29	0%	2.0E+00	NA	7.3E+01	No	Yes	No	Yes					**X**
	2,4,6-Trichlorophenol	88-06-2	0	29	0%	2.0E+00	NA	1.5E+00	No	Yes	No	No				**X**	
	2,4-Dichlorophenol	120-83-2	0	29	0%	2.0E+00	NA	2.2E+00	No	Yes	No	Yes					**X**
	2,4-Dimethylphenol	105-67-9	0	29	0%	2.0E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	2,4-Dinitrophenol	51-28-5	0	29	0%	2.0E+00	NA	1.5E+00	No	Yes	No	No				**X**	
	2,4-Dinitrotoluene	121-14-2	0	29	0%	2.0E+00	NA	1.5E+00	No	Yes	No	No				**X**	
	2,6-Dinitrotoluene	606-20-2	0	29	0%	2.0E+00	NA	7.3E-01	No	Yes	No	No				**X**	
	2-Chlorophenol	95-57-8	0	29	0%	2.0E+00	NA	3.7E+00	No	Yes	No	Yes					**X**
	2-Methylphenol (o-Cresol)	95-48-7	0	29	0%	2.0E+00	NA	3.7E+01	No	Yes	No	Yes					**X**
	2-Nitroaniline	88-74-4	0	29	0%	2.0E+00	NA	4.2E-02	No	Yes	No	No				**X**	
	2-Nitrophenol	88-75-5	0	29	0%	2.0E+00	NA	--	No	No					**X**		
	3,3'-Dichlorobenzidine	91-94-1	0	29	0%	2.0E+00	NA	3.8E-02	No	Yes	No	No				**X**	
	3-Nitroaniline	99-09-2	0	29	0%	2.0E+00	NA	2.2E-01	No	Yes	No	No				**X**	
	4,6-Dinitro-o-cresol	534-52-1	0	29	0%	2.0E+00	NA	7.3E-02	No	Yes	No	No				**X**	
	4-Bromophenyl-phenylether	101-55-3	0	29	0%	2.0E+00	NA	--	No	No					**X**		
	4-Chloro-3-Methylphenol	59-50-7	0	29	0%	2.0E+00	NA	--	No	No					**X**		
	4-Chloroaniline	106-47-8	0	29	0%	2.0E+00	NA	2.9E+00	No	Yes	No	Yes					**X**
	4-Chlorophenyl-phenylether	7005-72-3	0	29	0%	2.0E+00	NA	--	No	No					**X**		
	4-Methylphenol (p-Cresol)	106-44-5	0	29	0%	2.0E+00	NA	3.7E+00	No	Yes	No	Yes					**X**
	4-Nitroaniline	100-01-6	0	29	0%	2.0E+00	NA	8.5E-01	No	Yes	No	No				**X**	
	4-Nitrophenol	100-02-7	0	29	0%	2.0E+00	NA	5.8E+00	No	Yes	No	Yes					**X**
	Benzyl alcohol	100-51-6	0	29	0%	2.0E+00	NA	2.2E+02	No	Yes	No	Yes					**X**
	bis(2-Chloroethoxy)methane	111-91-1	0	29	0%	2.0E+00	NA	--	No	No					**X**		
	bis(2-Chloroethyl)ether	111-44-4	0	29	0%	2.0E+00	NA	1.5E-02	No	Yes	No	No				**X**	
	bis(2-Chloroisopropyl)ether	108-60-1	0	29	0%	2.0E+00	NA	2.4E-01	No	Yes	No	No				**X**	
	bis(2-Ethylhexyl)phthalate	117-81-7	22	29	76%	2.0E+00	2.7E+00	1.2E+00	No	Yes	Yes		Yes	**X**			
	bis(n-octyl)phthalate	117-84-0	0	29	0%	2.0E+00	NA	1.5E+01	No	Yes	No	Yes					**X**
	Butylbenzylphthalate	85-68-7	0	29	0%	2.0E+00	NA	1.5E+02	No	Yes	No	Yes					**X**
	Carbazole	86-74-8	0	29	0%	2.0E+00	NA	8.5E-01	No	Yes	No	No				**X**	
	Dibutylphthalate	84-74-2	1	29	3%	2.0E+00	1.1E+00	7.3E+01	No	Yes	Yes		No				**X**
	Diethylphthalate	84-66-2	1	29	3%	2.0E+00	1.7E+00	5.8E+02	No	Yes	Yes		No				**X**
	Dimethylphthalate	131-11-3	0	29	0%	2.0E+00	NA	7.3E+03	No	Yes	No	Yes					**X**
	Hexachlorobenzene	118-74-1	0	29	0%	2.0E+00	NA	1.1E-02	No	Yes	No	No				**X**	
	Hexachlorobutadiene	87-68-3	0	29	0%	2.0E+00	NA	1.5E-01	No	Yes	No	No				**X**	
	Hexachlorocyclopentadiene	77-47-4	0	29	0%	2.0E+00	NA	4.4E+00	No	Yes	No	Yes					**X**
	Hexachloroethane	67-72-1	0	29	0%	2.0E+00	NA	7.3E-01	No	Yes	No	No				**X**	
	Isophorone	78-59-1	0	29	0%	2.0E+00	NA	1.8E+01	No	Yes	No	Yes					**X**
	Nitrobenzene	98-95-3	0	29	0%	2.0E+00	NA	3.7E-01	No	Yes	No	No				**X**	
	N-Nitrosodiphenylamine	86-30-6	0	29	0%	2.0E+00	NA	3.5E+00	No	Yes	No	Yes					**X**
	n-Nitrosodipropylamine	621-64-7	0	29	0%	2.0E+00	NA	2.4E-03	No	Yes	No	No				**X**	
	Pentachlorophenol (PCP)	87-86-5	0	29	0%	2.0E+00	NA	1.4E-01	No	Yes	No	No				**X**	
	Phenol	108-95-2	0	30	0%	2.0E+00	NA	2.2E+02	No	Yes	No	Yes					**X**
													TOTAL	**3**	**7**	**37**	**47**

Appendix C5.6 COPC Screen for PCB Congeners in Fish Tissue

Human Health Risk Assessment for Ogden, Utah

AOI	Location	Sample ID	Media	Matrix	Species Type	Parameter	Units	Conc ww	TEF-Mammal	TEQ	Sample TEQ	RBC	COPC?
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-105	ppt	570	0.0001	0.057			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-114	ppt	44.1	0.0005	0.02205			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-118	ppt	2310	0.0001	0.231			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-123	ppt	10.95	0.0001	0.001095			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-126	ppt	23.3	0.1	2.33			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-156	ppt	718	0.0005	0.359			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-157	ppt	84.2	0.0005	0.0421			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-167	ppt	429	0.00001	0.00429			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-169	ppt	9.65	0.01	0.0965			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-189	ppt	156	0.0001	0.0156			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-77	ppt	33.9	0.0001	0.00339			
21st Street Pond	21SP-04T	3-OG-03120	Fish Tissue	fillet	Game	PCB-81	ppt	0.965	0.0001	0.0000965	3.16	0.1	**YES**
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-105	ppt	446	0.0001	0.0446			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-114	ppt	35.3	0.0005	0.01765			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-118	ppt	1210	0.0001	0.121			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-123	ppt	4.755	0.0001	0.0004755			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-126	ppt	4.755	0.1	0.4755			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-156	ppt	138	0.0005	0.069			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-157	ppt	29.4	0.0005	0.0147			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-167	ppt	72.5	0.00001	0.000725			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-169	ppt	9.5	0.01	0.095			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-189	ppt	9.5	0.0001	0.00095			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-77	ppt	34.2	0.0001	0.00342			
Buena Ventura Park Pond	BVPP-08B	3-OG-03084	Fish Tissue	fillet	Game	PCB-81	ppt	0.95	0.0001	0.000095	0.84	0.1	**YES**
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-105	ppt	863	0.0001	0.0863			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-114	ppt	55.2	0.0005	0.0276			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-118	ppt	2360	0.0001	0.236			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-123	ppt	42.4	0.0001	0.00424			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-126	ppt	5.35	0.1	0.535			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-156	ppt	293	0.0005	0.1465			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-157	ppt	64.5	0.0005	0.03225			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-167	ppt	136	0.00001	0.00136			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-169	ppt	10.7	0.01	0.107			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-189	ppt	10.7	0.0001	0.00107			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-77	ppt	43	0.0001	0.0043			
Ogden River	OGR-01B	3-OG-03042	Fish Tissue	fillet	Game	PCB-81	ppt	1.07	0.0001	0.000107	1.18	0.1	**YES**
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-105	ppt	1650	0.0001	0.165			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-114	ppt	98.8	0.0005	0.0494			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-118	ppt	6210	0.0001	0.621			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-123	ppt	9.9	0.0001	0.00099			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-126	ppt	25.7	0.1	2.57			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-156	ppt	3970	0.0005	1.985			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-157	ppt	353	0.0005	0.1765			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-167	ppt	1410	0.00001	0.0141			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-169	ppt	9.65	0.01	0.0965			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-189	ppt	719	0.0001	0.0719			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-77	ppt	37.9	0.0001	0.00379			
Ogden River	OGR-03B	3-OG-03060	Fish Tissue	fillet	Game	PCB-81	ppt	0.965	0.0001	0.0000965	5.75	0.1	**YES**
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-105	ppt	1200	0.0001	0.12			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-114	ppt	73.5	0.0005	0.03675			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-118	ppt	4490	0.0001	0.449			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-123	ppt	15.7	0.0001	0.00157			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-126	ppt	24.4	0.1	2.44			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-156	ppt	1650	0.0005	0.825			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-157	ppt	163	0.0005	0.0815			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-167	ppt	681	0.00001	0.00681			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-169	ppt	9.75	0.01	0.0975			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-189	ppt	269	0.0001	0.0269			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-77	ppt	56	0.0001	0.0056			
Ogden River	OGR-05B	3-OG-03195	Fish Tissue	fillet	Game	PCB-81	ppt	0.975	0.0001	0.0000975	4.09	0.1	**YES**
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-105	ppt	376	0.0001	0.0376			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-114	ppt	30.2	0.0005	0.0151			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-118	ppt	1510	0.0001	0.151			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-123	ppt	10.65	0.0001	0.001065			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-126	ppt	13.7	0.1	1.37			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-156	ppt	475	0.0005	0.2375			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-157	ppt	54.5	0.0005	0.02725			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-167	ppt	250	0.00001	0.0025			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-169	ppt	9.7	0.01	0.097			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-189	ppt	95.3	0.0001	0.00953			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-77	ppt	26.2	0.0001	0.00262			
21st Street Pond	21SP-04T	3-OG-03121	Fish Tissue	fillet	Game	PCB-81	ppt	0.97	0.0001	0.000097	1.95	0.1	**YES**

Appendix C5.6 COPC Screen for PCB Congeners in Fish Tissue

Human Health Risk Assessment for Ogden, Utah

AOI	Location	Sample ID	Media	Matrix	Species Type	Parameter	Units	Conc ww	TEF-Mammal	TEQ	Sample TEQ	RBC	COPC?
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-105	ppt	699	0.0001	0.0699			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-114	ppt	44.9	0.0005	0.02245			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-118	ppt	1830	0.0001	0.183			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-123	ppt	4.88	0.0001	0.000488			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-126	ppt	4.88	0.1	0.488			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-156	ppt	223	0.0005	0.1115			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-157	ppt	51.9	0.0005	0.02595			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-167	ppt	94	0.00001	0.00094			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-169	ppt	9.75	0.01	0.0975			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-189	ppt	9.75	0.0001	0.000975			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-77	ppt	21.6	0.0001	0.00216			
Ogden River	OGR-02B	3-OG-03246	Fish Tissue	fillet	Game	PCB-81	ppt	0.975	0.0001	0.0000975	1.00	0.1	**YES**
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-105	ppt	6710	0.0001	0.671			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-114	ppt	694	0.0005	0.347			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-118	ppt	33900	0.0001	3.39			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-123	ppt	422	0.0001	0.0422			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-126	ppt	73.5	0.1	7.35			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-156	ppt	9380	0.0005	4.69			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-157	ppt	994	0.0005	0.497			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-167	ppt	6350	0.00001	0.0635			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-169	ppt	26	0.01	0.26			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-189	ppt	1890	0.0001	0.189			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-77	ppt	2.18	0.0001	0.000218			
Ogden River	OGR-03B	3-OG-03053	Fish Tissue	whole body	Other	PCB-81	ppt	2.24	0.0001	0.000224	17.50	0.1	**YES**
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-105	ppt	1680	0.0001	0.168			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-114	ppt	104	0.0005	0.052			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-118	ppt	6370	0.0001	0.637			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-123	ppt	15.4	0.0001	0.00154			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-126	ppt	30	0.1	3			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-156	ppt	2280	0.0005	1.14			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-157	ppt	228	0.0005	0.114			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-167	ppt	994	0.00001	0.00994			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-169	ppt	250	0.01	2.5			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-189	ppt	428	0.0001	0.0428			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-77	ppt	76.6	0.0001	0.00766			
Ogden River	OGR-05B	3-OG-03196	Fish Tissue	fillet	Game	PCB-81	ppt	1	0.0001	0.0001	7.67	0.1	**YES**
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-105	ppt	2530	0.0001	0.253			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-114	ppt	161	0.0005	0.0805			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-118	ppt	7250	0.0001	0.725			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-123	ppt	15.15	0.0001	0.001515			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-126	ppt	18	0.1	1.8			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-156	ppt	970	0.0005	0.485			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-157	ppt	235	0.0005	0.1175			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-167	ppt	495	0.00001	0.00495			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-169	ppt	16.35	0.01	0.1635			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-189	ppt	106	0.0001	0.0106			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-77	ppt	109	0.0001	0.0109			
Weber River	WBR-09B	3-OG-03156	Fish Tissue	fillet	Game	PCB-81	ppt	0.95	0.0001	0.000095	3.65	0.1	**YES**
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-105	ppt	586	0.0001	0.0586			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-114	ppt	38	0.0005	0.019			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-118	ppt	1670	0.0001	0.167			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-123	ppt	8.1	0.0001	0.00081			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-126	ppt	11.3	0.1	1.13			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-156	ppt	496	0.0005	0.248			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-157	ppt	61.3	0.0005	0.03065			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-167	ppt	136	0.00001	0.00136			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-169	ppt	9.8	0.01	0.098			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-189	ppt	45.5	0.0001	0.00455			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-77	ppt	48.8	0.0001	0.00488			
Weber River	WBR-14B	3-OG-03133	Fish Tissue	fillet	Game	PCB-81	ppt	0.98	0.0001	0.000098	1.76	0.1	**YES**

Appendix C5.7 COPC Screen for Off-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	OFF-SITE DATA					Recreational Visitor Soil RBC (mg/kg)	COPC SELECTION STEPS					Off-Site Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Inorganics	Aluminum	7429-90-5	44	44	100%	NA	1.3E+04	1.5E+05	No	Yes	Yes		No				X
	Antimony	7440-36-0	9	44	20%	2.2E+00	8.0E+00	6.0E+01	No	Yes	Yes		No				X
	Arsenic	7440-38-2	48	60	80%	6.4E+00	2.4E+01	7.0E+00	No	Yes	Yes		Yes	X			
	Barium	7440-39-3	54	60	90%	7.6E+01	2.6E+02	1.0E+04	No	Yes	Yes		No				X
	Beryllium	7440-41-7	37	44	84%	4.8E-01	9.3E-01	3.0E+02	No	Yes	Yes		No				X
	Cadmium	7440-43-9	47	60	78%	1.6E-01	7.7E+00	1.5E+02	No	Yes	Yes		No				X
	Calcium	7440-70-2	44	44	100%	NA	3.8E+04	--	Yes								X
	Chromium	7440-47-3	60	60	100%	NA	2.0E+01	4.5E+02	No	Yes	Yes		No				X
	Cobalt	7440-48-4	43	44	98%	2.7E+00	7.5E+00	3.0E+03	No	Yes	Yes		No				X
	Copper	7440-50-8	44	44	100%	NA	1.0E+02	6.0E+03	No	Yes	Yes		No				X
	Iron	7439-89-6	44	44	100%	NA	1.6E+04	4.5E+04	Yes								X
	Lead	7439-92-1	60	60	100%	NA	9.4E+02	1.8E+03	No	Yes	Yes		No				X
	Magnesium	7439-95-4	44	44	100%	NA	1.0E+04	--	Yes								X
	Manganese	7439-96-5	44	44	100%	NA	6.3E+02	3.0E+03	No	Yes	Yes		No				X
	Mercury	7439-97-6	58	65	89%	3.8E-02	3.6E+00	4.5E+01	No	Yes	Yes		No				X
	Nickel	7440-02-0	44	44	100%	NA	1.9E+01	3.0E+03	No	Yes	Yes		No				X
	Potassium	7440-09-7	44	44	100%	NA	3.3E+03	--	Yes								X
	Selenium	7782-49-2	15	60	25%	2.0E+00	1.1E+00	7.5E+02	No	Yes	Yes		No				X
	Silver	7440-22-4	18	60	30%	2.9E-01	4.3E+00	7.5E+02	No	Yes	Yes		No				X
	Sodium	7440-23-5	44	44	100%	NA	9.3E+02	--	Yes								X
	Thallium	7440-28-0	0	44	0%	1.5E+00	NA	1.0E+01	No	Yes	No	Yes					X
	Vanadium	7440-62-2	44	44	100%	NA	2.3E+01	1.0E+03	No	Yes	Yes		No				X
	Zinc	7440-66-6	44	44	100%	NA	9.4E+02	4.5E+04	No	Yes	Yes		No				X
Pesticides	4,4'-DDD	72-54-8	0	22	0%	7.3E-03	NA	4.4E+01	No	Yes	No	Yes					X
	4,4'-DDE	72-55-9	1	22	5%	7.4E-03	1.8E-03	3.1E+01	No	Yes	Yes		No				X
	4,4'-DDT	50-29-3	4	22	18%	8.0E-03	1.5E-02	3.1E+01	No	Yes	Yes		No				X
	Aldrin	309-00-2	0	22	0%	4.6E-03	NA	6.2E-01	No	Yes	No	Yes					X
	alpha-BHC	319-84-6	0	22	0%	4.6E-03	NA	1.7E+00	No	Yes	No	Yes					X
	alpha-Chlordane	5103-71-9	0	16	0%	3.3E-03	NA	3.0E+01	No	Yes	No	Yes					X
	beta-BHC	319-85-7	0	22	0%	4.6E-03	NA	5.8E+00	No	Yes	No	Yes					X
	Chlordane	57-74-9	0	6	0%	8.0E-02	NA	3.0E+01	No	Yes	No	Yes					X
	delta-BHC	319-86-8	0	22	0%	4.6E-03	NA	8.1E+00	No	Yes	No	Yes					X
	Dieldrin	60-57-1	0	22	0%	7.3E-03	NA	6.6E-01	No	Yes	No	Yes					X
	Endosulfan I	959-98-8	0	22	0%	4.6E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endosulfan II	33213-65-9	0	22	0%	7.3E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endosulfan Sulfate	1031-07-8	0	22	0%	7.3E-03	NA	9.0E+02	No	Yes	No	Yes					X
	Endrin	72-20-8	0	22	0%	7.3E-03	NA	4.5E+01	No	Yes	No	Yes					X
	Endrin Aldehyde	7421-93-4	3	22	14%	7.7E-03	9.8E-03	--	No	No					X		
	Endrin ketone	53494-70-5	0	16	0%	4.0E-03	NA	--	No	No					X		
	gamma-BHC (Lindane)	58-89-9	0	22	0%	4.6E-03	NA	8.1E+00	No	Yes	No	Yes					X
	gamma-Chlordane	5566-34-7	3	16	19%	3.5E-03	5.1E-03	3.0E+01	No	Yes	Yes		No				X
	Heptachlor	76-44-8	0	22	0%	4.6E-03	NA	2.3E+00	No	Yes	No	Yes					X
	Heptachlor Epoxide	1024-57-3	0	22	0%	4.6E-03	NA	1.2E+00	No	Yes	No	Yes					X
	Isodrin	465-73-6	0	6	0%	8.0E-03	NA	--	No	No					X		
	Kepone	143-50-0	0	6	0%	1.6E-02	NA	1.3E+00	No	Yes	No	Yes					X
	Methoxychlor	72-43-5	0	22	0%	2.9E-02	NA	7.5E+02	No	Yes	No	Yes					X
	Toxaphene	8001-35-2	0	22	0%	1.4E-01	NA	9.5E+00	No	Yes	No	Yes					X
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	0	22	0%	5.5E-02	NA	1.0E+01	No	Yes	No	Yes					X
	Aroclor-1221	11104-28-2	0	22	0%	8.9E-02	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1232	11141-16-5	0	22	0%	5.5E-02	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1242	53469-21-9	0	22	0%	5.5E-02	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1248	12672-29-6	0	22	0%	5.5E-02	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1254	11097-69-1	0	22	0%	5.5E-02	NA	3.0E+00	No	Yes	No	Yes					X
	Aroclor-1260	11096-82-5	6	22	27%	6.0E-02	5.5E-01	3.0E+00	No	Yes	Yes		No				X
	Aroclor-1268	11100-14-4	0	10	0%	5.0E-02	NA	3.0E+00	No	Yes	No	Yes					X
TPH	Diesel fuel	68476-34-6	4	7	57%	6.1E+00	9.7E+00	--	No	No					X		

Appendix C5.7 COPC Screen for Off-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	OFF-SITE DATA					Recreational Visitor Soil RBC (mg/kg)	COPC SELECTION STEPS					Off-Site Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	72	0%	6.3E-01	NA	1.2E+04	No	Yes	No	Yes					X
	2-Methylnaphthalene	91-57-6	9	73	12%	6.4E-01	2.0E-01	3.0E+03	No	Yes	Yes		No				X
	Acenaphthene	83-32-9	2	73	3%	6.1E-01	3.1E-01	9.0E+03	No	Yes	Yes		No				X
	Acenaphthylene	208-96-8	2	73	3%	6.1E-01	4.0E-01	3.0E+03	No	Yes	Yes		No				X
	Aniline	62-53-3	0	48	0%	4.3E-01	NA	1.0E+03	No	Yes	No	Yes					X
	Anthracene	120-12-7	5	73	7%	6.3E-01	7.1E-01	4.5E+04	No	Yes	Yes		No				X
	Benzo[a]anthracene	56-55-3	8	73	11%	6.4E-01	1.4E+00	1.4E+01	No	Yes	Yes		No				X
	Benzo[a]pyrene	50-32-8	7	73	10%	6.3E-01	1.6E+00	1.4E+00	No	Yes	Yes		Yes	X			
	Benzo[b]fluoranthene	205-99-2	11	73	15%	6.5E-01	1.2E+00	1.4E+01	No	Yes	Yes		No				X
	Benzo[g,h,i]perylene	191-24-2	14	73	19%	6.2E-01	1.6E+00	3.0E+03	No	Yes	Yes		No				X
	Benzo[k]fluoranthene	207-08-9	6	73	8%	6.3E-01	1.6E+00	1.4E+02	No	Yes	Yes		No				X
	Chrysene	218-01-9	13	73	18%	6.6E-01	2.1E+00	1.4E+03	No	Yes	Yes		No				X
	Dibenz[a,h]anthracene	53-70-3	3	73	4%	6.4E-01	9.6E-02	1.4E+00	No	Yes	Yes		No				X
	Dibenzofuran	132-64-9	1	72	1%	6.3E-01	4.5E-02	6.0E+02	No	Yes	Yes		No				X
	Fluoranthene	206-44-0	15	73	21%	6.7E-01	2.3E+00	6.0E+03	No	Yes	Yes		No				X
	Fluorene	86-73-7	2	73	3%	6.1E-01	2.2E-01	6.0E+03	No	Yes	Yes		No				X
	Indeno[1,2,3-c,d]pyrene	193-39-5	9	73	12%	6.4E-01	1.5E+00	1.4E+01	No	Yes	Yes		No				X
	Naphthalene	91-20-3	14	83	17%	5.7E-01	2.7E-01	3.0E+03	No	Yes	Yes		No				X
	Phenanthrene	85-01-8	17	73	23%	6.8E-01	2.3E+00	3.0E+03	No	Yes	Yes		No				X
	Pyrene	129-00-0	27	73	37%	7.4E-01	3.7E+00	4.5E+03	No	Yes	Yes		No				X
Semi-Volatile Organic Compounds (SVOCs)	1,2,4-Trichlorobenzene	120-82-1	0	83	0%	5.5E-01	NA	1.5E+03	No	Yes	No	Yes					X
	1,2-Dichlorobenzene	95-50-1	0	83	0%	5.5E-01	NA	1.3E+04	No	Yes	No	Yes					X
	1,3-Dichlorobenzene	541-73-1	0	82	0%	5.5E-01	NA	4.5E+03	No	Yes	No	Yes					X
	1,4-Dichlorobenzene	106-46-7	0	83	0%	5.5E-01	NA	4.4E+02	No	Yes	No	Yes					X
	1-Methylnaphthalene	90-12-0	5	47	11%	4.1E-01	2.3E-01	--	No	No					X		
	2,4,5-Trichlorophenol	95-95-4	0	72	0%	7.3E-01	NA	1.5E+04	No	Yes	No	Yes					X
	2,4,6-Trichlorophenol	88-06-2	0	72	0%	6.3E-01	NA	9.5E+02	No	Yes	No	Yes					X
	2,4-Dichlorophenol	120-83-2	0	72	0%	6.3E-01	NA	4.5E+02	No	Yes	No	Yes					X
	2,4-Dimethylphenol	105-67-9	0	72	0%	6.3E-01	NA	3.0E+03	No	Yes	No	Yes					X
	2,4-Dinitrophenol	51-28-5	0	72	0%	1.8E+00	NA	3.0E+02	No	Yes	No	Yes					X
	2,4-Dinitrotoluene	121-14-2	0	73	0%	6.3E-01	NA	3.0E+02	No	Yes	No	Yes					X
	2,6-Dinitrotoluene	606-20-2	0	73	0%	6.3E-01	NA	1.5E+02	No	Yes	No	Yes					X
	2-Chlorophenol	95-57-8	0	72	0%	6.3E-01	NA	7.5E+02	No	Yes	No	Yes					X
	2-Methylphenol (o-Cresol)	95-48-7	0	72	0%	6.3E-01	NA	7.5E+03	No	Yes	No	Yes					X
	2-Nitroaniline	88-74-4	0	72	0%	1.8E+00	NA	8.5E+00	No	Yes	No	Yes					X
	2-Nitrophenol	88-75-5	0	72	0%	6.3E-01	NA	--	No	No					X		
	3,3'-Dichlorobenzidine	91-94-1	1	73	1%	6.4E-01	4.3E-02	2.3E+01	No	Yes	Yes		No				X
	3-Nitroaniline	99-09-2	0	72	0%	1.8E+00	NA	4.5E+01	No	Yes	No	Yes					X
	4,6-Dinitro-o-cresol	534-52-1	0	72	0%	1.8E+00	NA	1.5E+01	No	Yes	No	Yes					X
	4-Bromophenyl-phenylether	101-55-3	0	10	0%	2.0E+00	NA	--	No	No					X		
	4-Chloro-3-Methylphenol	59-50-7	0	72	0%	6.3E-01	NA	--	No	No					X		
	4-Chloroaniline	106-47-8	0	72	0%	6.3E-01	NA	6.0E+02	No	Yes	No	Yes					X
	4-Chlorophenyl-phenylether	7005-72-3	0	72	0%	6.3E-01	NA	--	No	No					X		
	4-Methylphenol (p-Cresol)	106-44-5	1	72	1%	6.3E-01	1.1E-01	7.5E+02	No	Yes	Yes		No				X
	4-Nitroaniline	100-01-6	0	72	0%	1.8E+00	NA	4.5E+02	No	Yes	No	Yes					X
	4-Nitrophenol	100-02-7	0	72	0%	1.8E+00	NA	1.2E+03	No	Yes	No	Yes					X
	Benzyl alcohol	100-51-6	0	10	0%	2.0E+00	NA	4.5E+04	No	Yes	No	Yes					X
	bis(2-Chloroethoxy)methane	111-91-1	0	72	0%	6.3E-01	NA	--	No	No					X		
	bis(2-Chloroethyl)ether	111-44-4	0	73	0%	6.3E-01	NA	9.5E+00	No	Yes	No	Yes					X
	bis(2-Chloroisopropyl)ether	108-60-1	0	26	0%	9.8E-01	NA	1.5E+02	No	Yes	No	Yes					X
	bis(2-Ethylhexyl)phthalate	117-81-7	32	73	44%	5.9E-01	1.5E+00	7.5E+02	No	Yes	Yes		No				X
	bis(n-octyl)phthalate	117-84-0	1	73	1%	6.3E-01	5.1E-02	3.0E+03	No	Yes	Yes		No				X
	Butylbenzylphthalate	85-68-7	9	73	12%	6.6E-01	2.8E-01	3.0E+04	No	Yes	Yes		No				X
	Carbazole	86-74-8	3	73	4%	6.2E-01	2.6E-01	5.2E+02	No	Yes	Yes		No				X
	Dibutylphthalate	84-74-2	20	73	27%	6.4E-01	2.2E-01	1.5E+04	No	Yes	Yes		No				X
	Diethylphthalate	84-66-2	0	73	0%	6.3E-01	NA	1.2E+05	No	Yes	No	Yes					X
	Dimethylphthalate	131-11-3	0	72	0%	6.3E-01	NA	1.5E+06	No	Yes	No	Yes					X
	Hexachlorobenzene	118-74-1	0	73	0%	6.3E-01	NA	6.6E+00	No	Yes	No	Yes					X

Appendix C5.7 COPC Screen for Off-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	OFF-SITE DATA					Recreational Visitor Soil RBC (mg/kg)	COPC SELECTION STEPS					Off-Site Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
SVOCs (cont.)	Hexachlorobutadiene	87-68-3	0	83	0%	5.5E-01	NA	3.0E+01	No	Yes	No	Yes					X
	Hexachlorocyclopentadiene	77-47-4	0	72	0%	6.3E-01	NA	9.0E+02	No	Yes	No	Yes					X
	Hexachloroethane	67-72-1	0	73	0%	6.3E-01	NA	1.5E+02	No	Yes	No	Yes					X
	Isophorone	78-59-1	0	72	0%	6.3E-01	NA	1.1E+04	No	Yes	No	Yes					X
	Nitrobenzene	98-95-3	0	73	0%	6.3E-01	NA	7.5E+01	No	Yes	No	Yes					X
	N-Nitrosodiphenylamine	86-30-6	0	72	0%	6.3E-01	NA	2.1E+03	No	Yes	No	Yes					X
	n-Nitrosodipropylamine	621-64-7	0	73	0%	6.3E-01	NA	1.5E+00	No	Yes	No	Yes					X
	Pentachlorophenol (PCP)	87-86-5	0	72	0%	1.8E+00	NA	8.7E+01	No	Yes	No	Yes					X
	Phenol	108-95-2	0	72	0%	6.3E-01	NA	4.5E+04	No	Yes	No	Yes					X
Volatile Organic Compounds (VOCs)	1,1,1,2-Tetrachloroethane	630-20-6	0	25	0%	6.7E-03	NA	4.0E+02	No	Yes	No	Yes					X
	1,1,1-Trichloroethane	71-55-6	0	70	0%	5.6E-03	NA	4.2E+04	No	Yes	No	Yes					X
	1,1,2,2-Tetrachloroethane	79-34-5	1	70	1%	5.6E-03	1.2E-03	5.2E+01	No	Yes	Yes		No				X
	1,1,2-Trichloroethane	79-00-5	0	70	0%	5.6E-03	NA	1.8E+02	No	Yes	No	Yes					X
	1,1-Dichloroethane	75-34-3	1	70	1%	5.6E-03	6.4E-03	1.5E+04	No	Yes	Yes		No				X
	1,1-Dichloroethene	75-35-4	0	10	0%	1.7E-03	NA	7.5E+03	No	Yes	No	Yes					X
	1,1-Dichloropropene	563-58-6	0	10	0%	1.7E-03	NA	--	No	No					X		
	1,2,3-Trichlorobenzene	87-61-6	0	10	0%	1.7E-03	NA	--	No	No					X		
	1,2,3-Trichloropropane	96-18-4	0	70	0%	6.7E-03	NA	5.2E+00	No	Yes	No	Yes					X
	1,2,4-Trimethylbenzene	95-63-6	0	10	0%	1.7E-03	NA	7.5E+03	No	Yes	No	Yes					X
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	0	70	0%	6.7E-03	NA	7.5E+00	No	Yes	No	Yes					X
	1,2-Dichloroethane	107-06-2	0	70	0%	5.6E-03	NA	1.2E+02	No	Yes	No	Yes					X
	1,2-Dichloroethene	540-59-0	0	60	0%	1.1E-02	NA	1.3E+03	No	Yes	No	Yes					X
	1,2-Dichloropropane	78-87-5	0	70	0%	5.6E-03	NA	1.5E+02	No	Yes	No	Yes					X
	1,3,5-Trimethylbenzene	108-67-8	0	10	0%	1.7E-03	NA	7.5E+03	No	Yes	No	Yes					X
	1,3-Dichloropropane	142-28-9	0	10	0%	1.7E-03	NA	--	No	No					X		
	1,4-Dioxane	123-91-1	0	15	0%	3.0E-01	NA	9.5E+02	No	Yes	No	Yes					X
	2,2-Dichloropropane	594-20-7	0	10	0%	1.7E-03	NA	--	No	No					X		
	2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	0	15	0%	1.0E-02	NA	3.0E+03	No	Yes	No	Yes					X
	2-Chloroethyl vinyl ether	110-75-8	0	60	0%	7.6E-03	NA	--	No	No					X		
	2-Chlorotoluene	95-49-8	0	10	0%	1.7E-03	NA	3.0E+03	No	Yes	No	Yes					X
	2-Hexanone	591-78-6	0	70	0%	1.1E-02	NA	6.0E+03	No	Yes	No	Yes					X
	3-Chloropropene (Allyl Chloride)	107-05-1	0	15	0%	1.0E-02	NA	--	No	No					X		
	4-Chlorotoluene	106-43-4	0	10	0%	1.7E-03	NA	--	No	No					X		
	Acetone	67-64-1	4	70	6%	1.3E-02	2.8E-02	1.5E+04	No	Yes	Yes		No				X
	Acetonitrile	75-05-8	0	60	0%	3.3E-02	NA	2.5E+03	No	Yes	No	Yes					X
	Acrolein	107-02-8	0	46	0%	5.1E-02	NA	3.0E+03	No	Yes	No	Yes					X
	Acrylonitrile	107-13-1	0	60	0%	3.3E-02	NA	1.9E+01	No	Yes	No	Yes					X
	Benzene	71-43-2	2	70	3%	5.6E-03	1.2E-03	1.9E+02	No	Yes	Yes		No				X
	Bromobenzene	108-86-1	0	10	0%	1.7E-03	NA	--	No	No					X		
	Bromodichloromethane	75-27-4	0	70	0%	5.6E-03	NA	1.7E+02	No	Yes	No	Yes					X
	Bromoform	75-25-2	0	70	0%	5.6E-03	NA	1.3E+03	No	Yes	No	Yes					X
	Bromomethane (Methyl bromide)	74-83-9	0	70	0%	1.1E-02	NA	2.1E+02	No	Yes	No	Yes					X
	Carbon Disulfide	75-15-0	0	70	0%	5.6E-03	NA	1.5E+04	No	Yes	No	Yes					X
	Carbon Tetrachloride	56-23-5	0	70	0%	5.6E-03	NA	8.1E+01	No	Yes	No	Yes					X
	Chlorobenzene	108-90-7	0	70	0%	5.6E-03	NA	3.0E+03	No	Yes	No	Yes					X
	Chlorodibromomethane	124-48-1	0	70	0%	5.6E-03	NA	1.2E+02	No	Yes	No	Yes					X
	Chloroethane (Ethyl chloride)	75-00-3	0	70	0%	1.1E-02	NA	3.6E+03	No	Yes	No	Yes					X
	Chloroform	67-66-3	1	70	1%	5.7E-03	1.0E-03	1.5E+03	No	Yes	Yes		No				X
	Chloromethane (Methyl chloride)	74-87-3	0	70	0%	1.1E-02	NA	8.1E+02	No	Yes	No	Yes					X
	cis-1,2-Dichloroethene	156-59-2	0	45	0%	6.8E-03	NA	1.5E+03	No	Yes	No	Yes					X
	cis-1,3-Dichloropropene	10061-01-5	0	80	0%	5.1E-03	NA	1.0E+02	No	Yes	No	Yes					X
	Dibromomethane	74-95-3	0	25	0%	6.7E-03	NA	1.5E+03	No	Yes	No	Yes					X
	Dichlorodifluoromethane	75-71-8	1	25	4%	6.9E-03	2.2E-03	3.0E+04	No	Yes	Yes		No				X
	Dichloromethane	75-09-2	22	70	31%	4.3E-03	7.8E-03	1.4E+03	No	Yes	Yes		No				X
	Ethyl Methacrylate	97-63-2	0	15	0%	5.0E-02	NA	1.3E+04	No	Yes	No	Yes					X
	Ethylbenzene	100-41-4	1	70	1%	5.6E-03	2.4E-03	1.5E+04	No	Yes	Yes		No				X
	Ethylene dibromide (EDB)	106-93-4	0	70	0%	6.7E-03	NA	1.2E-01	No	Yes	No	Yes					X
	Hexane	110-54-3	0	45	0%	6.6E-03	NA	9.0E+03	No	Yes	No	Yes					X

Appendix C5.7 COPC Screen for Off-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	OFF-SITE DATA					Recreational Visitor Soil RBC (mg/kg)	COPC SELECTION STEPS					Off-Site Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is Mean DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
Volatile Organic Compounds (VOCs)	Iodomethane	74-88-4	0	15	0%	1.0E-02	NA	--	No	No					**X**		
	Isobutyl Alcohol	78-83-1	0	15	0%	1.0E-01	NA	4.5E+04	No	Yes	No	Yes					**X**
	Isopropylbenzene	98-82-8	0	20	0%	1.7E-03	NA	1.5E+04	No	Yes	No	Yes					**X**
	Methacrylonitrile	126-98-7	0	60	0%	1.3E-02	NA	1.5E+01	No	Yes	No	Yes					**X**
	Methyl ethyl ketone (MEK)	78-93-3	0	27	0%	8.8E-03	NA	9.0E+04	No	Yes	No	Yes					**X**
	Methyl isobutyl ketone (MIBK)	108-10-1	0	70	0%	1.1E-02	NA	1.2E+04	No	Yes	No	Yes					**X**
	Methyl Metharcylate	80-62-6	0	15	0%	1.0E-02	NA	2.1E+05	No	Yes	No	Yes					**X**
	Methyl-t-butyl ether	1634-04-4	0	10	0%	1.7E-03	NA	2.6E+03	No	Yes	No	Yes					**X**
	n-Butylbenzene	104-51-8	0	10	0%	1.7E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	n-Propylbenzene	103-65-1	0	10	0%	1.7E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	o-Xylene	95-47-6	0	10	0%	1.7E-03	NA	3.0E+05	No	Yes	No	Yes					**X**
	sec-Butylbenzene	135-98-8	0	10	0%	1.7E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	Styrene	100-42-5	0	70	0%	5.6E-03	NA	3.0E+04	No	Yes	No	Yes					**X**
	tert-Butylbenzene	98-06-6	0	10	0%	1.7E-03	NA	6.0E+03	No	Yes	No	Yes					**X**
	Tetrachloroethene	127-18-4	2	70	3%	5.6E-03	6.8E-03	2.0E+02	No	Yes	Yes		No				**X**
	Toluene	108-88-3	2	70	3%	5.6E-03	2.0E-03	3.0E+04	No	Yes	Yes		No				**X**
	trans-1,2-Dichloroethene	156-60-5	0	55	0%	6.0E-03	NA	3.0E+03	No	Yes	No	Yes					**X**
	trans-1,3-Dichloropropene	10061-02-6	0	70	0%	5.6E-03	NA	1.0E+02	No	Yes	No	Yes					**X**
	trans-1,4-Dichloro-2-Butene	110-57-6	0	15	0%	1.0E-02	NA	1.1E+00	No	Yes	No	Yes					**X**
	Trichloroethene	79-01-6	0	70	0%	5.6E-03	NA	4.5E+01	No	Yes	No	Yes					**X**
	Trichlorofluoromethane	75-69-4	1	70	1%	1.0E-02	3.0E-03	4.5E+04	No	Yes	Yes		No				**X**
	Vinyl Acetate	108-05-4	0	60	0%	7.6E-03	NA	1.5E+05	No	Yes	No	Yes					**X**
	Vinyl Chloride	75-01-4	0	70	0%	1.1E-02	NA	7.5E+00	No	Yes	No	Yes					**X**
	Xylenes (Total)	1330-20-7	1	60	2%	1.7E-02	1.3E-02	3.0E+05	No	Yes	Yes		No				**X**
	Xylenes-p,m	179601-23-1	0	10	0%	1.7E-03	NA	3.0E+05	No	Yes	No	Yes					**X**
													TOTAL	**2**	**19**	**0**	**176**

Appendix C5.8 COPC Screen for On-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	ON-YARD DATA					Worker Soil RBC (mg/kg)	COPC SELECTION STEPS					On-Yard Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Inorganics	Aluminum	7429-90-5	28	28	100%	NA	1.5E+05	1.0E+05	No	Yes	Yes		Yes	X			
	Antimony	7440-36-0	5	27	19%	3.0E+00	4.4E+01	4.1E+01	No	Yes	Yes		Yes	X			
	Arsenic	7440-38-2	131	151	87%	1.1E+01	8.0E+02	1.9E+00	No	Yes	Yes		Yes	X			
	Barium	7440-39-3	145	152	95%	6.5E+01	4.5E+03	7.2E+03	No	Yes	Yes		No				X
	Beryllium	7440-41-7	25	28	89%	1.5E-01	1.1E+00	2.0E+02	No	Yes	Yes		No				X
	Cadmium	7440-43-9	119	152	78%	6.0E-01	9.1E+01	1.0E+02	No	Yes	Yes		No				X
	Calcium	7440-70-2	28	28	100%	NA	9.5E+04	--	Yes								X
	Chromium	7440-47-3	151	152	99%	1.0E+00	1.7E+03	3.1E+02	No	Yes	Yes		Yes	X			
	Cobalt	7440-48-4	27	28	96%	2.7E+00	2.6E+01	2.0E+03	No	Yes	Yes		No				X
	Copper	7440-50-8	28	28	100%	NA	2.3E+04	4.1E+03	No	Yes	Yes		Yes	X			
	Iron	7439-89-6	28	28	100%	NA	1.3E+05	3.1E+04	Yes								X
	Lead	7439-92-1	151	152	99%	2.0E+00	3.0E+03	6.8E+02	No	Yes	Yes		Yes	X			
	Magnesium	7439-95-4	28	28	100%	NA	1.6E+04	--	Yes								X
	Manganese	7439-96-5	28	28	100%	NA	4.0E+03	2.0E+03	No	Yes	Yes		Yes	X			
	Mercury	7439-97-6	128	150	85%	5.4E-02	1.6E+02	3.1E+01	No	Yes	Yes		Yes	X			
	Nickel	7440-02-0	22	28	79%	1.2E+01	3.2E+02	2.0E+03	No	Yes	Yes		No				X
	Potassium	7440-09-7	28	28	100%	NA	3.3E+03	--	Yes								X
	Selenium	7782-49-2	56	150	37%	7.1E+00	7.7E+02	5.1E+02	No	Yes	Yes		Yes	X			
	Silver	7440-22-4	85	149	57%	6.2E-01	5.3E+01	5.1E+02	No	Yes	Yes		No				X
	Sodium	7440-23-5	28	28	100%	NA	1.8E+03	--	Yes								X
	Thallium	7440-28-0	4	25	16%	1.7E+00	7.8E-01	7.2E+00	No	Yes	Yes		No				X
	Vanadium	7440-62-2	27	28	96%	4.0E-01	4.5E+01	7.2E+02	No	Yes	Yes		No				X
	Zinc	7440-66-6	28	28	100%	NA	4.2E+03	3.1E+04	No	Yes	Yes		No				X
Pesticides	4,4'-DDD	72-54-8	0	11	0%	8.3E-03	NA	1.2E+01	No	Yes	No	Yes					X
	4,4'-DDE	72-55-9	1	11	9%	7.6E-03	2.7E-01	8.4E+00	No	Yes	Yes		No				X
	4,4'-DDT	50-29-3	4	11	36%	1.1E-02	1.5E-02	8.4E+00	No	Yes	Yes		No				X
	Aldrin	309-00-2	0	11	0%	4.4E-03	NA	1.7E-01	No	Yes	No	Yes					X
	alpha-BHC	319-84-6	0	11	0%	4.4E-03	NA	4.5E-01	No	Yes	No	Yes					X
	alpha-Chlordane	5103-71-9	0	7	0%	2.3E-03	NA	8.2E+00	No	Yes	No	Yes					X
	beta-BHC	319-85-7	0	11	0%	4.4E-03	NA	1.6E+00	No	Yes	No	Yes					X
	Chlordane	57-74-9	0	4	0%	8.0E-02	NA	8.2E+00	No	Yes	No	Yes					X
	delta-BHC	319-86-8	0	11	0%	4.4E-03	NA	2.2E+00	No	Yes	No	Yes					X
	Dieldrin	60-57-1	0	11	0%	8.3E-03	NA	1.8E-01	No	Yes	No	Yes					X
	Endosulfan I	959-98-8	0	11	0%	4.4E-03	NA	6.1E+02	No	Yes	No	Yes					X
	Endosulfan II	33213-65-9	0	11	0%	8.3E-03	NA	6.1E+02	No	Yes	No	Yes					X
	Endosulfan Sulfate	1031-07-8	0	11	0%	8.3E-03	NA	6.1E+02	No	Yes	No	Yes					X
	Endrin	72-20-8	0	11	0%	8.3E-03	NA	3.1E+01	No	Yes	No	Yes					X
	Endrin Aldehyde	7421-93-4	3	11	27%	9.8E-03	9.8E-03	--	No	No					X		
	Endrin ketone	53494-70-5	0	7	0%	3.9E-03	NA	--	No	No					X		
	gamma-BHC (Lindane)	58-89-9	0	11	0%	4.4E-03	NA	2.2E+00	No	Yes	No	Yes					X
	gamma-Chlordane	5566-34-7	3	7	43%	2.4E-03	5.1E-03	8.2E+00	No	Yes	Yes		No				X
	Heptachlor	76-44-8	0	11	0%	4.4E-03	NA	6.4E-01	No	Yes	No	Yes					X
	Heptachlor Epoxide	1024-57-3	0	11	0%	4.4E-03	NA	3.1E-01	No	Yes	No	Yes					X
	Isodrin	465-73-6	0	4	0%	8.0E-03	NA	--	No	No					X		
	Kepone	143-50-0	0	4	0%	1.6E-02	NA	3.6E-01	No	Yes	No	Yes					X
	Methoxychlor	72-43-5	0	11	0%	4.0E-02	NA	5.1E+02	No	Yes	No	Yes					X
	Toxaphene	8001-35-2	0	11	0%	1.8E-01	NA	2.6E+00	No	Yes	No	Yes					X
Polychlorinated Biphenyls (PCBs)	Aroclor-1016	12674-11-2	0	37	0%	2.2E-01	NA	7.2E+00	No	Yes	No	Yes					X
	Aroclor-1221	11104-28-2	0	37	0%	2.3E-01	NA	1.4E+00	No	Yes	No	Yes					X
	Aroclor-1232	11141-16-5	1	37	3%	2.3E-01	2.4E-01	1.4E+00	No	Yes	Yes		No				X
	Aroclor-1242	53469-21-9	0	37	0%	2.2E-01	NA	1.4E+00	No	Yes	No	Yes					X
	Aroclor-1248	12672-29-6	0	37	0%	2.2E-01	NA	1.4E+00	No	Yes	No	Yes					X
	Aroclor-1254	11097-69-1	1	37	3%	2.3E-01	2.9E-01	1.4E+00	No	Yes	Yes		No				X
	Aroclor-1260	11096-82-5	6	37	16%	2.6E-01	5.5E-01	1.4E+00	No	Yes	Yes		No				X
	Aroclor-1268	11100-14-4	0	1	0%	4.8E-02	NA	1.4E+00	No	Yes	No	Yes					X
Petroleum Hydrocarbons	Diesel fuel	68476-34-6	60	109	55%	7.1E+00	1.6E+05	--	No	No					X		
	Gasoline	8006-61-9	1	2	50%	2.5E+00	1.2E+01	--	No	No					X		
	Oil and Grease	Oil/Grease	19	35	54%	2.5E+02	1.8E+04	NA	No	No					X		
	Total Petroleum Hydrocarbons (TPH)	TPH	27	30	90%	2.0E+01	6.1E+03	--	No	No					X		

Appendix C5.8 COPC Screen for On-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	ON-YARD DATA					Worker Soil RBC (mg/kg)	COPC SELECTION STEPS					On-Yard Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Polyaromatic Hydrocarbons (PAHs)	2-Chloronaphthalene	91-58-7	0	97	0%	9.3E-01	NA	8.2E+03	No	Yes	No	Yes					X
	2-Methylnaphthalene	91-57-6	77	148	52%	1.6E+00	6.6E+02	2.0E+03	No	Yes	Yes		No				X
	Acenaphthene	83-32-9	20	133	15%	2.4E+00	6.4E+01	6.1E+03	No	Yes	Yes		No				X
	Acenaphthylene	208-96-8	30	148	20%	3.1E+00	8.0E+00	2.0E+03	No	Yes	Yes		No				X
	Aniline	62-53-3	0	41	0%	6.6E+00	NA	5.0E+02	No	Yes	No	Yes					X
	Anthracene	120-12-7	80	149	54%	3.7E+00	9.3E+01	3.1E+04	No	Yes	Yes		No				X
	Benzo[a]anthracene	56-55-3	92	149	62%	4.0E+00	3.0E+02	3.9E+00	No	Yes	Yes		Yes	X			
	Benzo[a]pyrene	50-32-8	92	149	62%	4.5E+00	2.0E+02	3.9E-01	No	Yes	Yes		Yes	X			
	Benzo[b]fluoranthene	205-99-2	106	150	71%	5.7E+00	2.6E+02	3.9E+00	No	Yes	Yes		Yes	X			
	Benzo[g,h,i]perylene	191-24-2	94	150	63%	4.0E+00	7.8E+01	2.0E+03	No	Yes	Yes		No				X
	Benzo[k]fluoranthene	207-08-9	82	149	55%	3.9E+00	1.9E+02	3.9E+01	No	Yes	Yes		Yes	X			
	Chrysene	218-01-9	109	151	72%	5.0E+00	9.0E+02	3.9E+02	No	Yes	Yes		Yes	X			
	Dibenz[a,h]anthracene	53-70-3	43	148	29%	3.5E+00	4.2E+00	3.9E-01	No	Yes	Yes		Yes	X			
	Dibenzofuran	132-64-9	35	114	31%	1.0E+00	1.5E+00	4.1E+02	No	Yes	Yes		No				X
	Fluoranthene	206-44-0	106	150	71%	6.6E+00	3.9E+01	4.1E+03	No	Yes	Yes		No				X
	Fluorene	86-73-7	22	133	17%	1.6E+00	1.1E+02	4.1E+03	No	Yes	Yes		No				X
	Indeno[1,2,3-c,d]pyrene	193-39-5	83	149	56%	5.1E+00	1.8E+01	3.9E+00	No	Yes	Yes		Yes	X			
	Naphthalene	91-20-3	68	150	45%	2.5E+00	1.3E+02	2.0E+03	No	Yes	Yes		No				X
	Phenanthrene	85-01-8	110	150	73%	2.5E+00	9.8E+02	2.0E+03	No	Yes	Yes		No				X
	Pyrene	129-00-0	120	151	79%	4.3E+00	7.3E+02	3.1E+03	No	Yes	Yes		No				X
Semi-Volatile Organic Compunds (SVOCs)	1,2,4-Trichlorobenzene	120-82-1	3	134	2%	2.7E+00	1.2E+00	1.0E+03	No	Yes	Yes		No				X
	1,2-Dichlorobenzene	95-50-1	0	133	0%	2.7E+00	NA	9.2E+03	No	Yes	No	Yes					X
	1,3-Dichlorobenzene	541-73-1	0	98	0%	9.2E-01	NA	3.1E+03	No	Yes	No	Yes					X
	1,4-Dichlorobenzene	106-46-7	1	134	1%	2.7E+00	1.1E+00	1.2E+02	No	Yes	Yes		No				X
	1-Methylnaphthalene	90-12-0	1	7	14%	3.8E-01	2.3E-01	--	No	No					X		
	2,4,5-Trichlorophenol	95-95-4	0	97	0%	2.2E+00	NA	1.0E+04	No	Yes	No	Yes					X
	2,4,6-Trichlorophenol	88-06-2	0	97	0%	9.3E-01	NA	2.6E+02	No	Yes	No	Yes					X
	2,4-Dichlorophenol	120-83-2	0	97	0%	9.3E-01	NA	3.1E+02	No	Yes	No	Yes					X
	2,4-Dimethylphenol	105-67-9	0	130	0%	2.8E+00	NA	2.0E+03	No	Yes	No	Yes					X
	2,4-Dinitrophenol	51-28-5	0	97	0%	2.4E+00	NA	2.0E+02	No	Yes	No	Yes					X
	2,4-Dinitrotoluene	121-14-2	0	132	0%	2.7E+00	NA	2.0E+02	No	Yes	No	Yes					X
	2,6-Dinitrotoluene	606-20-2	0	132	0%	2.7E+00	NA	1.0E+02	No	Yes	No	Yes					X
	2-Chlorophenol	95-57-8	1	98	1%	9.3E-01	1.9E+00	5.1E+02	No	Yes	Yes		No				X
	2-Methylphenol (o-Cresol)	95-48-7	0	130	0%	2.8E+00	NA	5.1E+03	No	Yes	No	Yes					X
	2-Nitroaniline	88-74-4	0	97	0%	2.4E+00	NA	5.8E+00	No	Yes	No	Yes					X
	2-Nitrophenol	88-75-5	0	97	0%	9.3E-01	NA	--	No	No					X		
	3,3'-Dichlorobenzidine	91-94-1	1	132	1%	2.9E+00	8.0E-03	6.4E+00	No	Yes	Yes		No				X
	3-Nitroaniline	99-09-2	0	97	0%	2.4E+00	NA	3.1E+01	No	Yes	No	Yes					X
	4,6-Dinitro-o-cresol	534-52-1	0	130	0%	1.2E+01	NA	1.0E+01	No	Yes	No	No				X	
	4-Bromophenyl-phenylether	101-55-3	0	1	0%	1.9E+00	NA	--	No	No					X		
	4-Chloro-3-Methylphenol	59-50-7	2	98	2%	9.3E-01	1.3E+00	--	No	No					X		
	4-Chloroaniline	106-47-8	0	97	0%	9.3E-01	NA	4.1E+02	No	Yes	No	Yes					X
	4-Chlorophenyl-phenylether	7005-72-3	0	97	0%	9.3E-01	NA	--	No	No					X		
	4-Methylphenol (p-Cresol)	106-44-5	3	130	2%	2.8E+00	3.0E-01	5.1E+02	No	Yes	Yes		No				X
	4-Nitroaniline	100-01-6	0	97	0%	2.4E+00	NA	1.4E+02	No	Yes	No	Yes					X
	4-Nitrophenol	100-02-7	0	97	0%	2.4E+00	NA	8.2E+02	No	Yes	No	Yes					X
	bis(2-Chloroethoxy)methane	111-91-1	0	97	0%	9.3E-01	NA	--	No	No					X		
	bis(2-Chloroethyl)ether	111-44-4	0	132	0%	2.7E+00	NA	2.6E+00	No	Yes	No	No				X	
	bis(2-Chloroisopropyl)ether	108-60-1	0	125	0%	2.9E+00	NA	4.1E+01	No	Yes	No	Yes					X
	bis(2-Ethylhexyl)phthalate	117-81-7	100	151	66%	3.5E+00	2.1E+01	2.0E+02	No	Yes	Yes		No				X
	bis(n-octyl)phthalate	117-84-0	8	148	5%	2.8E+00	6.2E-01	2.0E+03	No	Yes	Yes		No				X
	Butylbenzylphthalate	85-68-7	42	148	28%	3.4E+00	2.6E+01	2.0E+04	No	Yes	Yes		No				X
	Carbazole	86-74-8	54	148	36%	3.8E+00	1.8E+00	1.4E+02	No	Yes	Yes		No				X
	Dibutylphthalate	84-74-2	23	149	15%	3.0E+00	3.0E+00	1.0E+04	No	Yes	Yes		No				X
	Diethylphthalate	84-66-2	2	148	1%	2.7E+00	3.4E-01	8.2E+04	No	Yes	Yes		No				X
	Dimethylphthalate	131-11-3	5	97	5%	9.6E-01	2.8E-01	1.0E+06	No	Yes	Yes		No				X
	Hexachlorobenzene	118-74-1	0	132	0%	2.7E+00	NA	1.8E+00	No	Yes	No	No				X	
	Hexachlorobutadiene	87-68-3	0	133	0%	2.7E+00	NA	2.0E+01	No	Yes	No	Yes					X
	Hexachlorocyclopentadiene	77-47-4	0	97	0%	9.3E-01	NA	6.1E+02	No	Yes	No	Yes					X
	Hexachloroethane	67-72-1	0	132	0%	2.7E+00	NA	1.0E+02	No	Yes	No	Yes					X
	Isophorone	78-59-1	0	97	0%	9.3E-01	NA	3.0E+03	No	Yes	No	Yes					X
	Nitrobenzene	98-95-3	0	132	0%	2.7E+00	NA	5.1E+01	No	Yes	No	Yes					X
	N-Nitrosodiphenylamine	86-30-6	1	97	1%	9.3E-01	3.4E-02	5.8E+02	No	Yes	Yes		No				X
	n-Nitrosodipropylamine	621-64-7	1	133	1%	2.7E+00	1.3E+00	4.1E-01	No	Yes	Yes		Yes	X			
	Pentachlorophenol (PCP)	87-86-5	8	145	6%	1.2E+01	3.2E+00	2.4E+01	No	Yes	Yes		No				X
	Phenol	108-95-2	6	130	5%	2.6E+00	1.8E+01	3.1E+04	No	Yes	Yes		No				X

Appendix C5.8 COPC Screen for On-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	ON-YARD DATA					Worker Soil RBC (mg/kg)	COPC SELECTION STEPS					On-Yard Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	QUANT COPC	QUAL COPC Type 1	QUAL COPC Type 2	Not a COPC
Volatile Organic Compounds (VOCs)	1,1,1,2-Tetrachloroethane	630-20-6	0	108	0%	1.9E-02	NA	1.1E+02	No	Yes	No	Yes					X
	1,1,1-Trichloroethane	71-55-6	5	126	4%	2.0E-02	1.3E-01	2.9E+04	No	Yes	Yes		No				X
	1,1,2,2-Tetrachloroethane	79-34-5	3	124	2%	2.3E-02	7.6E-02	1.4E+01	No	Yes	Yes		No				X
	1,1,2-Trichloroethane	79-00-5	1	124	1%	2.4E-02	5.0E-03	5.0E+01	No	Yes	Yes		No				X
	1,1-Dichloroethane	75-34-3	3	124	2%	2.4E-02	6.4E-03	1.0E+04	No	Yes	Yes		No				X
	1,1-Dichloroethene	75-35-4	0	1	0%	1.0E-03	NA	5.1E+03	No	Yes	No	Yes					X
	1,1-Dichloropropene	563-58-6	0	1	0%	1.0E-03	NA	--	No	No					X		
	1,2,3-Trichlorobenzene	87-61-6	0	1	0%	1.0E-03	NA	--	No	No					X		
	1,2,3-Trichloropropane	96-18-4	1	123	1%	2.7E-02	5.0E-03	1.4E+00	No	Yes	Yes		No				X
	1,2,4-Trimethylbenzene	95-63-6	0	1	0%	1.0E-03	NA	5.1E+03	No	Yes	No	Yes					X
	1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	1	124	1%	4.4E-02	1.0E-02	2.0E+00	No	Yes	Yes		No				X
	1,2-Dichloroethane	107-06-2	1	124	1%	2.4E-02	5.0E-03	3.1E+01	No	Yes	Yes		No				X
	1,2-Dichloroethene	540-59-0	2	123	2%	3.7E-02	1.0E-02	9.2E+02	No	Yes	Yes		No				X
	1,2-Dichloropropane	78-87-5	1	124	1%	2.4E-02	5.0E-03	4.2E+01	No	Yes	Yes		No				X
	1,3,5-Trimethylbenzene	108-67-8	0	1	0%	1.0E-03	NA	5.1E+03	No	Yes	No	Yes					X
	1,3-Dichloropropane	142-28-9	0	1	0%	1.0E-03	NA	--	No	No					X		
	1,4-Dioxane	123-91-1	0	107	0%	5.8E-01	NA	2.6E+02	No	Yes	No	Yes					X
	2,2-Dichloropropane	594-20-7	0	1	0%	1.0E-03	NA	--	No	No					X		
	2-Chloro-1,3-butadiene (Chloroprene)	126-99-8	0	107	0%	1.9E-02	NA	2.0E+03	No	Yes	No	Yes					X
	2-Chloroethyl vinyl ether	110-75-8	2	123	2%	3.7E-02	1.0E+00	--	No	No					X		
	2-Chlorotoluene	95-49-8	0	1	0%	1.0E-03	NA	2.0E+03	No	Yes	No	Yes					X
	2-Hexanone	591-78-6	2	125	2%	4.4E-02	4.3E-02	4.1E+03	No	Yes	Yes		No				X
	3-Chloropropene (Allyl Chloride)	107-05-1	0	107	0%	1.9E-02	NA	--	No	No					X		
	4-Chlorotoluene	106-43-4	0	1	0%	1.0E-03	NA	--	No	No					X		
	Acetone	67-64-1	26	127	20%	4.2E-02	1.6E+00	1.0E+04	No	Yes	Yes		No				X
	Acetonitrile	75-05-8	1	119	1%	9.1E-02	1.0E-02	1.7E+03	No	Yes	Yes		No				X
	Acrolein	107-02-8	1	118	1%	1.6E-01	1.0E-01	2.0E+03	No	Yes	Yes		No				X
	Acrylonitrile	107-13-1	0	120	0%	9.3E-02	NA	5.3E+00	No	Yes	No	Yes					X
	Benzene	71-43-2	5	124	4%	2.0E-02	1.3E-01	5.2E+01	No	Yes	Yes		No				X
	Bromobenzene	108-86-1	0	1	0%	1.0E-03	NA	--	No	No					X		
	Bromodichloromethane	75-27-4	1	124	1%	2.4E-02	5.0E-03	4.6E+01	No	Yes	Yes		No				X
	Bromoform	75-25-2	1	124	1%	2.4E-02	5.0E-03	3.6E+02	No	Yes	Yes		No				X
	Bromomethane (Methyl bromide)	74-83-9	1	124	1%	4.0E-02	1.0E-02	1.4E+02	No	Yes	Yes		No				X
	Carbon Disulfide	75-15-0	1	124	1%	2.4E-02	5.0E-03	1.0E+04	No	Yes	Yes		No				X
	Carbon Tetrachloride	56-23-5	1	124	1%	2.4E-02	5.0E-03	2.2E+01	No	Yes	Yes		No				X
	Chlorobenzene	108-90-7	1	124	1%	2.4E-02	5.0E-03	2.0E+03	No	Yes	Yes		No				X
	Chlorodibromomethane	124-48-1	1	124	1%	2.4E-02	5.0E-03	3.4E+01	No	Yes	Yes		No				X
	Chloroethane (Ethyl chloride)	75-00-3	1	124	1%	2.9E-02	5.0E-03	9.9E+02	No	Yes	Yes		No				X
	Chloroform	67-66-3	1	124	1%	2.4E-02	5.0E-03	1.0E+03	No	Yes	Yes		No				X
	Chloromethane (Methyl chloride)	74-87-3	2	124	2%	4.1E-02	1.0E-02	2.2E+02	No	Yes	Yes		No				X
	cis-1,2-Dichloroethene	156-59-2	0	10	0%	6.0E-03	NA	1.0E+03	No	Yes	No	Yes					X
	cis-1,3-Dichloropropene	10061-01-5	1	125	1%	2.4E-02	5.0E-03	2.9E+01	No	Yes	Yes		No				X
	Dibromomethane	74-95-3	0	108	0%	1.9E-02	NA	1.0E+03	No	Yes	No	Yes					X
	Dichlorodifluoromethane	75-71-8	0	108	0%	1.9E-02	NA	2.0E+04	No	Yes	No	Yes					X
	Dichloromethane	75-09-2	100	128	78%	1.2E-01	4.4E-01	3.8E+02	No	Yes	Yes		No				X
	Ethyl Methacrylate	97-63-2	0	107	0%	9.6E-02	NA	9.2E+03	No	Yes	No	Yes					X
	Ethylbenzene	100-41-4	5	124	4%	6.2E-03	2.6E+00	1.0E+04	No	Yes	Yes		No				X
	Ethylene dibromide (EDB)	106-93-4	1	124	1%	4.4E-02	1.0E-02	3.4E-02	No	Yes	Yes		No				X
	Hexane	110-54-3	1	15	7%	8.6E-02	5.0E-03	6.1E+03	No	Yes	Yes		No				X
	Iodomethane	74-88-4	0	107	0%	1.9E-02	NA	--	No	No					X		
	Isobutyl Alcohol	78-83-1	0	107	0%	1.9E-01	NA	3.1E+04	No	Yes	No	Yes					X
	Isopropylbenzene	98-82-8	0	2	0%	1.0E-03	NA	1.0E+04	No	Yes	No	Yes					X
	Methacrylonitrile	126-98-7	1	123	1%	4.5E-02	1.0E-02	1.0E+01	No	Yes	Yes		No				X
	Methyl ethyl ketone (MEK)	78-93-3	3	119	3%	4.6E-02	4.4E-02	6.1E+04	No	Yes	Yes		No				X
	Methyl isobutyl ketone (MIBK)	108-10-1	9	125	7%	4.4E-02	2.0E-01	8.2E+03	No	Yes	Yes		No				X
	Methyl Metharcylate	80-62-6	0	107	0%	1.9E-02	NA	1.4E+05	No	Yes	No	Yes					X
	Methyl-t-butyl ether	1634-04-4	0	1	0%	1.0E-03	NA	7.2E+02	No	Yes	No	Yes					X
	n-Butylbenzene	104-51-8	0	1	0%	1.0E-03	NA	4.1E+03	No	Yes	No	Yes					X
	n-Propylbenzene	103-65-1	0	1	0%	1.0E-03	NA	4.1E+03	No	Yes	No	Yes					X
	o-Xylene	95-47-6	0	1	0%	1.0E-03	NA	2.0E+05	No	Yes	No	Yes					X
	sec-Butylbenzene	135-98-8	0	1	0%	1.0E-03	NA	4.1E+03	No	Yes	No	Yes					X
	Styrene	100-42-5	1	124	1%	2.4E-02	5.0E-03	2.0E+04	No	Yes	Yes		No				X
	tert-Butylbenzene	98-06-6	0	1	0%	1.0E-03	NA	4.1E+03	No	Yes	No	Yes					X
	Tetrachloroethene	127-18-4	8	124	6%	2.1E-02	3.8E-01	5.5E+01	No	Yes	Yes		No				X
	Toluene	108-88-3	12	125	10%	6.2E-03	4.1E+00	2.0E+04	No	Yes	Yes		No				X
	trans-1,2-Dichloroethene	156-60-5	0	11	0%	5.5E-03	NA	2.0E+03	No	Yes	No	Yes					X

Appendix C5.8 COPC Screen for On-Yard Soils

Human Health Risk Assessment for Ogden, Utah

Group	Analyte	CAS #	ON-YARD DATA					Worker Soil RBC (mg/kg)	COPC SELECTION STEPS					On-Yard Soil COPCs			
			Number of Detections	Number of Samples	Detection Frequency (DF)	Mean Non-Detected Conc (mg/kg)	Maximum Detected Conc (mg/kg)		Is cmpd a non-toxic essential nutrient?	Does cmpd have an RBC?	Is cmpd detected?	Is DL < RBC?	Is Max Detect > RBC?	**QUANT COPC**	**QUAL COPC Type 1**	**QUAL COPC Type 2**	**Not a COPC**
VOCs (cont.)	trans-1,3-Dichloropropene	10061-02-6	1	124	1%	2.4E-02	5.0E-03	2.9E+01	No	Yes	Yes		No				**X**
	trans-1,4-Dichloro-2-Butene	110-57-6	0	107	0%	1.9E-02	NA	3.1E-01	No	Yes	No	Yes					**X**
	Trichloroethene	79-01-6	2	124	2%	2.0E-02	9.2E-01	3.1E+01	No	Yes	Yes		No				**X**
	Trichlorofluoromethane	75-69-4	2	124	2%	2.4E-02	5.0E-03	3.1E+04	No	Yes	Yes		No				**X**
	Vinyl Acetate	108-05-4	1	122	1%	3.7E-02	1.0E-02	1.0E+05	No	Yes	Yes		No				**X**
	Vinyl Chloride	75-01-4	1	124	1%	4.0E-02	1.0E-02	2.0E+00	No	Yes	Yes		No				**X**
	Xylenes (Total)	1330-20-7	9	123	7%	1.0E-02	2.1E+01	2.0E+05	No	Yes	Yes		No				**X**
	Xylenes-p,m	179601-23-1	0	1	0%	1.0E-03	NA	2.0E+05	No	Yes	No	Yes					**X**
													TOTAL	**17**	**22**	**3**	**157**

APPENDIX D
EXPOSURE POINT CONCENTRATION VALUES

D.1 - SURFACE WATER
D.2 - SEDIMENT
D.3 - GROUNDWATER
D.4 - FISH TISSUE
D.5 - OFF-YARD SURFACE SOIL
D.6 - ON-YARD SURFACE SOIL BY REGION
D.7 - ON-YARD SURFACE SOIL BY AOI

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Appendix D.1 Summary of Exposure Point Concentrations for Surface Water COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/L)
21st Street Pond	Surface Water	Dichloromethane	3/19	3.3E-03	3.3E-03	5.0E-04	6.1E-04	7.2E-04	6.6E-04	9.8E-04	8.6E-04	9.8E-04
Buena Ventura Park Pond	Surface Water	Dichloromethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
Ogden River - Reach B	Surface Water	Dichloromethane	1/8	2.9E-03	2.9E-03	5.0E-04	6.2E-04	8.0E-04	8.5E-04	1.4E-03	1.4E-03	1.4E-03
Weber River - Reach A	Surface Water	Dichloromethane	0/5	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
Weber River - Reach B	Surface Water	Dichloromethane	12/17	5.8E+00	5.8E+00	5.0E-04	7.8E-03	6.0E-01	1.6E+00	1.3E+00	2.0E+02	5.8E+00
Weber River - Reach C	Surface Water	Dichloromethane	3/11	2.5E-03	2.0E-03	5.0E-04	8.0E-04	1.0E-03	7.6E-04	1.4E-03	1.7E-03	1.7E-03
Weber River - Reach D	Surface Water	Dichloromethane	7/20	5.6E+00	5.6E+00	5.0E-04	2.1E-03	4.9E-01	1.5E+00	1.1E+00	2.0E+00	2.0E+00

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Appendix D.2 Summary of Exposure Point Concentrations for Sediment COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Results									
			Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
21st Street Pond	Sediment	Aroclor-1260	5/16	5.5E-01	1.3E-01	2.0E-02	4.9E-02	8.2E-02	1.3E-01	1.4E-01	1.3E-01	1.3E-01
21st Street Pond	Sediment	Benzo[a]anthracene	23/43	3.4E+02	3.4E+02	5.0E-03	4.5E-01	1.1E+01	5.3E+01	2.5E+01	1.2E+01	2.5E+01
21st Street Pond	Sediment	Benzo[a]pyrene	29/43	3.5E+02	3.5E+02	6.0E-03	4.8E-01	1.2E+01	5.5E+01	2.6E+01	1.4E+01	2.6E+01
21st Street Pond	Sediment	Benzo[b]fluoranthene	28/43	1.6E+02	1.6E+02	5.0E-03	3.8E-01	5.8E+00	2.5E+01	1.2E+01	9.0E+00	1.2E+01
21st Street Pond	Sediment	Benzo[k]fluoranthene	27/43	1.7E+02	1.7E+02	5.0E-03	3.6E-01	5.9E+00	2.7E+01	1.3E+01	8.7E+00	1.3E+01
21st Street Pond	Sediment	Dibenz[a,h]anthracene	18/43	7.2E+01	7.2E+01	3.0E-03	2.7E-01	2.3E+00	1.1E+01	5.1E+00	3.4E+00	5.1E+00
21st Street Pond	Sediment	Indeno[1,2,3-c,d]pyrene	27/43	1.6E+02	1.6E+02	3.0E-03	4.4E-01	5.7E+00	2.5E+01	1.2E+01	8.5E+00	1.2E+01
Buena Ventura Park Pond	Sediment	Aroclor-1260	0/3	4.1E-02	0.0E+00	3.2E-02	3.7E-02	3.7E-02	4.7E-03	4.5E-02	4.8E-02	3.7E-02
Buena Ventura Park Pond	Sediment	Benzo[a]anthracene	2/8	4.1E+00	3.8E-02	3.1E-02	3.7E-01	9.6E-01	1.3E+00	1.8E+00	7.2E+01	3.8E-02
Buena Ventura Park Pond	Sediment	Benzo[a]pyrene	2/8	4.1E+00	3.9E-02	2.8E-02	3.6E-01	9.6E-01	1.3E+00	1.8E+00	7.6E+01	3.9E-02
Buena Ventura Park Pond	Sediment	Benzo[b]fluoranthene	2/8	4.1E+00	6.1E-02	3.5E-02	4.0E-01	9.6E-01	1.3E+00	1.9E+00	3.1E+01	6.1E-02
Buena Ventura Park Pond	Sediment	Benzo[k]fluoranthene	2/8	4.1E+00	3.5E-02	2.8E-02	3.6E-01	9.6E-01	1.3E+00	1.8E+00	8.1E+01	3.5E-02
Buena Ventura Park Pond	Sediment	Dibenz[a,h]anthracene	0/8	4.1E+00	0.0E+00	2.4E-02	3.4E-01	9.6E-01	1.3E+00	1.8E+00	1.2E+02	9.6E-01
Buena Ventura Park Pond	Sediment	Indeno[1,2,3-c,d]pyrene	2/8	4.1E+00	1.6E-02	1.5E-02	3.0E-01	9.5E-01	1.3E+00	1.8E+00	4.1E+02	1.6E-02
Ogden River - Reach A	Sediment	Aroclor-1260	0/10	4.7E-02	0.0E+00	2.1E-02	2.9E-02	3.0E-02	9.9E-03	3.6E-02	3.7E-02	3.0E-02
Ogden River - Reach A	Sediment	Benzo[a]anthracene	4/8	3.1E+00	1.3E-01	8.8E-02	1.9E-01	5.0E-01	1.0E+00	1.2E+00	2.5E+00	1.3E-01
Ogden River - Reach A	Sediment	Benzo[a]pyrene	4/8	3.1E+00	1.4E-01	7.7E-02	2.0E-01	5.0E-01	1.0E+00	1.2E+00	2.5E+00	1.4E-01
Ogden River - Reach A	Sediment	Benzo[b]fluoranthene	4/8	3.1E+00	9.9E-02	5.7E-02	1.7E-01	4.8E-01	1.0E+00	1.2E+00	2.8E+00	9.9E-02
Ogden River - Reach A	Sediment	Benzo[k]fluoranthene	4/8	3.1E+00	8.7E-02	5.9E-02	1.6E-01	4.8E-01	1.0E+00	1.2E+00	2.9E+00	8.7E-02
Ogden River - Reach A	Sediment	Dibenz[a,h]anthracene	1/8	3.1E+00	2.4E-02	2.4E-02	1.9E-01	5.1E-01	0.0E+00	5.1E-01	4.4E+00	2.4E-02
Ogden River - Reach A	Sediment	Indeno[1,2,3-c,d]pyrene	3/8	3.1E+00	6.6E-02	5.6E-02	1.8E-01	5.0E-01	1.0E+00	1.2E+00	3.5E+00	6.6E-02
Ogden River - Reach B	Sediment	Aroclor-1260	11/15	4.2E+00	4.2E+00	2.3E-02	1.9E-01	6.9E-01	1.2E+00	1.2E+00	5.1E+00	4.2E+00
Ogden River - Reach B	Sediment	Benzo[a]anthracene	18/21	1.4E+00	3.8E-01	3.7E-02	1.4E-01	2.5E-01	3.4E-01	3.8E-01	4.3E-01	3.8E-01
Ogden River - Reach B	Sediment	Benzo[a]pyrene	17/21	1.4E+00	3.2E-01	4.1E-02	1.5E-01	2.6E-01	3.4E-01	3.8E-01	4.4E-01	3.2E-01
Ogden River - Reach B	Sediment	Benzo[b]fluoranthene	16/21	1.5E+00	2.3E-01	3.3E-02	1.4E-01	2.9E-01	4.3E-01	4.6E-01	5.7E-01	2.3E-01
Ogden River - Reach B	Sediment	Benzo[k]fluoranthene	15/21	1.5E+00	2.6E-01	2.4E-02	1.4E-01	3.0E-01	4.3E-01	4.6E-01	6.2E-01	2.6E-01
Ogden River - Reach B	Sediment	Dibenz[a,h]anthracene	6/21	1.5E+00	5.9E-02	1.0E-02	1.6E-01	3.4E-01	4.3E-01	5.0E-01	1.2E+00	5.9E-02
Ogden River - Reach B	Sediment	Indeno[1,2,3-c,d]pyrene	14/21	1.5E+00	1.8E-01	2.6E-02	1.4E-01	3.2E-01	4.4E-01	4.9E-01	7.3E-01	1.8E-01
Ogden River - Reach C	Sediment	Aroclor-1260	3/4	2.3E-01	2.3E-01	2.4E-02	8.4E-02	1.1E-01	8.7E-02	2.1E-01	1.5E+00	2.3E-01
Ogden River - Reach C	Sediment	Benzo[a]anthracene	5/7	2.4E-01	1.3E-01	2.4E-02	8.8E-02	1.2E-01	8.5E-02	1.8E-01	4.4E-01	1.3E-01
Ogden River - Reach C	Sediment	Benzo[a]pyrene	5/7	2.4E-01	1.1E-01	2.7E-02	9.1E-02	1.2E-01	8.2E-02	1.8E-01	3.4E-01	1.1E-01
Ogden River - Reach C	Sediment	Benzo[b]fluoranthene	5/7	2.4E-01	1.0E-01	1.8E-02	7.6E-02	1.1E-01	8.7E-02	1.7E-01	4.3E-01	1.0E-01
Ogden River - Reach C	Sediment	Benzo[k]fluoranthene	5/7	2.4E-01	9.4E-02	1.7E-02	6.4E-02	9.8E-02	9.2E-02	1.7E-01	4.9E-01	9.4E-02
Ogden River - Reach C	Sediment	Dibenz[a,h]anthracene	3/7	2.4E-01	2.2E-02	5.0E-03	5.6E-02	1.2E-01	1.1E-01	2.0E-01	1.4E+01	2.2E-02
Ogden River - Reach C	Sediment	Indeno[1,2,3-c,d]pyrene	5/7	2.4E-01	6.0E-02	1.7E-02	6.3E-02	9.5E-02	9.2E-02	1.6E-01	4.7E-01	6.0E-02

Appendix D.2 Summary of Exposure Point Concentrations for Sediment COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
Pioneer Power Plant	Sediment	Aroclor-1260	0/4	2.6E-02	0.0E+00	1.9E-02	2.2E-02	2.2E-02	2.7E-03	2.6E-02	2.6E-02	2.2E-02
Wall Ave Storm Drain	Sediment	Aroclor-1260	1/2	2.1E-02	2.0E-02	2.0E-02	2.0E-02	2.0E-02	0.0E+00	2.0E-02	2.1E-02	2.0E-02
Weber River - Reach A	Sediment	Aroclor-1260	0/2	7.5E-02	0.0E+00	3.9E-02	5.4E-02	5.7E-02	2.5E-02	1.7E-01	1.2E+00	5.7E-02
Weber River - Reach A	Sediment	Benzo[a]anthracene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach A	Sediment	Benzo[a]pyrene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach A	Sediment	Benzo[b]fluoranthene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach A	Sediment	Benzo[k]fluoranthene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach A	Sediment	Dibenz[a,h]anthracene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach A	Sediment	Indeno[1,2,3-c,d]pyrene	0/2	3.0E+00	0.0E+00	1.6E+00	2.1E+00	2.3E+00	9.9E-01	6.7E+00	4.6E+01	2.3E+00
Weber River - Reach B	Sediment	Aroclor-1260	0/10	4.7E-02	0.0E+00	3.2E-02	4.0E-02	4.0E-02	3.5E-03	4.2E-02	4.2E-02	4.0E-02
Weber River - Reach B	Sediment	Benzo[a]anthracene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach B	Sediment	Benzo[a]pyrene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach B	Sediment	Benzo[b]fluoranthene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach B	Sediment	Benzo[k]fluoranthene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach B	Sediment	Dibenz[a,h]anthracene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach B	Sediment	Indeno[1,2,3-c,d]pyrene	0/10	1.9E+00	0.0E+00	1.7E-01	2.6E-01	4.5E-01	6.2E-01	8.1E-01	1.1E+00	4.5E-01
Weber River - Reach C	Sediment	Aroclor-1260	0/5	5.0E-02	0.0E+00	4.0E-02	4.2E-02	4.2E-02	4.5E-03	4.6E-02	4.7E-02	4.2E-02
Weber River - Reach C	Sediment	Benzo[a]anthracene	1/5	2.1E+00	8.5E-02	8.5E-02	2.4E-01	5.3E-01	0.0E+00	5.3E-01	2.1E+01	8.5E-02
Weber River - Reach C	Sediment	Benzo[a]pyrene	1/5	2.1E+00	7.6E-02	7.6E-02	2.3E-01	5.2E-01	0.0E+00	5.2E-01	2.3E+01	7.6E-02
Weber River - Reach C	Sediment	Benzo[b]fluoranthene	1/5	2.1E+00	1.1E-01	1.1E-01	2.5E-01	5.3E-01	0.0E+00	5.3E-01	1.8E+01	1.1E-01
Weber River - Reach C	Sediment	Benzo[k]fluoranthene	1/5	2.1E+00	3.7E-02	3.7E-02	2.0E-01	5.2E-01	0.0E+00	5.2E-01	1.0E+02	3.7E-02
Weber River - Reach C	Sediment	Dibenz[a,h]anthracene	0/5	2.1E+00	0.0E+00	1.7E-01	2.7E-01	5.4E-01	8.4E-01	1.3E+00	1.5E+01	5.4E-01
Weber River - Reach C	Sediment	Indeno[1,2,3-c,d]pyrene	0/5	2.1E+00	0.0E+00	1.7E-01	2.7E-01	5.4E-01	8.4E-01	1.3E+00	1.5E+01	5.4E-01
Weber River - Reach D	Sediment	Aroclor-1260	0/15	7.0E-02	0.0E+00	2.2E-02	3.5E-02	3.6E-02	1.1E-02	4.1E-02	4.2E-02	3.6E-02
Weber River - Reach D	Sediment	Benzo[a]anthracene	1/10	2.9E+00	8.0E-02	8.0E-02	4.7E-01	9.0E-01	0.0E+00	9.0E-01	5.3E+00	8.0E-02
Weber River - Reach D	Sediment	Benzo[a]pyrene	1/10	2.9E+00	5.4E-02	5.4E-02	4.5E-01	9.0E-01	0.0E+00	9.0E-01	6.0E+00	5.4E-02
Weber River - Reach D	Sediment	Benzo[b]fluoranthene	1/10	2.9E+00	7.5E-02	7.5E-02	4.7E-01	9.0E-01	0.0E+00	9.0E-01	5.4E+00	7.5E-02
Weber River - Reach D	Sediment	Benzo[k]fluoranthene	0/10	2.9E+00	0.0E+00	1.7E-01	5.1E-01	9.1E-01	9.2E-01	1.4E+00	4.5E+00	9.1E-01
Weber River - Reach D	Sediment	Dibenz[a,h]anthracene	0/10	2.9E+00	0.0E+00	1.7E-01	5.1E-01	9.1E-01	9.2E-01	1.4E+00	4.5E+00	9.1E-01
Weber River - Reach D	Sediment	Indeno[1,2,3-c,d]pyrene	0/10	2.9E+00	0.0E+00	1.7E-01	5.1E-01	9.1E-01	9.2E-01	1.4E+00	4.5E+00	9.1E-01

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 1	Groundwater	1,1,1-Trichloroethane	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	1,1,2-Trichloroethane	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	1,1-Dichloroethane	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	1,2,3-Trichloropropane	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	1,2-Dichloroethane	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	1,2-Dichloroethene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	1,4-Dichlorobenzene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	2,6-Dinitrotoluene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	2-Methylnaphthalene	1/2	5.0E-03	4.5E-03	4.5E-03	4.7E-03	4.8E-03	0.0E+00	4.8E-03	5.8E-03	4.5E-03
AOI 1	Groundwater	4,6-Dinitro-o-cresol	0/2	1.3E-02	0.0E+00	1.3E-02	1.3E-02	1.3E-02	0.0E+00	1.3E-02	1.3E-02	1.3E-02
AOI 1	Groundwater	4-Methylphenol (p-Cresol)	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Acenaphthene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Acetone	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Benzene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Benzo[a]anthracene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Benzo[a]pyrene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Benzo[b]fluoranthene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Benzo[k]fluoranthene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	bis(2-Chloroethyl)ether	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	bis(2-Ethylhexyl)phthalate	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Carbazole	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Chlorodibromomethane	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Chloroethane (Ethyl chloride)	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Chloromethane (Methyl chloride)	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Chrysene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Dibenz[a,h]anthracene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Dibenzofuran	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Dichloromethane	1/2	3.7E-03	3.7E-03	2.5E-03	3.0E-03	3.1E-03	8.5E-04	6.9E-03	9.9E-03	3.7E-03
AOI 1	Groundwater	Ethylbenzene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Fluoranthene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Fluorene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Indeno[1,2,3-c,d]pyrene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Naphthalene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	n-Nitrosodipropylamine	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Pentachlorophenol (PCP)	0/2	1.3E-02	0.0E+00	1.3E-02	1.3E-02	1.3E-02	0.0E+00	1.3E-02	1.3E-02	1.3E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 1	Groundwater	Phenanthrene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Pyrene	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Tetrachloroethene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Toluene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Trichloroethene	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 1	Groundwater	Vinyl Chloride	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 1	Groundwater	Xylenes (Total)	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 12	Groundwater	1,1,1-Trichloroethane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	1,1,2-Trichloroethane	1/11	2.5E-03	1.0E-03	5.0E-04	8.3E-04	1.1E-03	9.2E-04	1.6E-03	1.9E-03	1.0E-03
AOI 12	Groundwater	1,1-Dichloroethane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	1,2,3-Trichloropropane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	1,2-Dichloroethane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	1,2-Dichloroethene	0/12	5.0E-03	0.0E+00	1.0E-03	1.5E-03	2.0E-03	1.8E-03	2.9E-03	3.3E-03	2.0E-03
AOI 12	Groundwater	1,4-Dichlorobenzene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	2,6-Dinitrotoluene	0/12	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 12	Groundwater	2-Methylnaphthalene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	4,6-Dinitro-o-cresol	0/12	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	1.2E-10	5.0E-03	5.0E-03	5.0E-03
AOI 12	Groundwater	4-Methylphenol (p-Cresol)	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	Acenaphthene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	Acetone	0/9	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	Arsenic	3/12	1.0E-02	8.6E-03	8.0E-04	3.8E-03	5.0E-03	3.6E-03	6.8E-03	9.7E-03	8.6E-03
AOI 12	Groundwater	Barium	12/12	5.9E-01	5.9E-01	2.2E-01	3.2E-01	3.4E-01	1.1E-01	4.0E-01	4.0E-01	4.0E-01
AOI 12	Groundwater	Benzene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Benzo[a]anthracene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	Benzo[a]pyrene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	Benzo[b]fluoranthene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	Benzo[k]fluoranthene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	bis(2-Chloroethyl)ether	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	bis(2-Ethylhexyl)phthalate	3/12	5.9E-02	5.9E-02	1.0E-04	8.7E-04	6.5E-03	1.7E-02	1.5E-02	1.3E-01	5.9E-02
AOI 12	Groundwater	Cadmium	3/12	4.7E-03	4.7E-03	7.5E-05	4.8E-04	1.3E-03	1.5E-03	2.0E-03	1.7E-02	4.7E-03
AOI 12	Groundwater	Carbazole	0/12	3.5E-03	0.0E+00	3.0E-03	3.1E-03	3.1E-03	1.9E-04	3.2E-03	3.2E-03	3.1E-03
AOI 12	Groundwater	Chlorodibromomethane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Chloroethane (Ethyl chloride)	0/12	5.0E-03	0.0E+00	5.0E-04	1.3E-03	1.9E-03	1.9E-03	2.9E-03	3.9E-03	1.9E-03
AOI 12	Groundwater	Chloromethane (Methyl chloride)	0/12	5.0E-03	0.0E+00	5.0E-04	1.3E-03	1.9E-03	1.9E-03	2.9E-03	3.9E-03	1.9E-03
AOI 12	Groundwater	Chromium	6/12	3.7E-03	3.7E-03	1.5E-04	4.5E-04	8.9E-04	1.1E-03	1.5E-03	3.2E-03	3.2E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 12	Groundwater	Chrysene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	cis-1,2-Dichloroethene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Dibenz[a,h]anthracene	0/12	1.5E-03	0.0E+00	1.0E-03	1.1E-03	1.1E-03	2.3E-04	1.2E-03	1.2E-03	1.1E-03
AOI 12	Groundwater	Dichloromethane	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Ethylbenzene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Fluoranthene	1/12	1.5E-03	1.0E-04	1.0E-04	9.1E-04	1.1E-03	0.0E+00	1.1E-03	2.0E-03	1.0E-04
AOI 12	Groundwater	Fluorene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	Indeno[1,2,3-c,d]pyrene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	Lead	3/12	1.0E-02	1.0E-02	5.5E-04	1.9E-03	3.1E-03	2.9E-03	4.6E-03	9.0E-03	3.1E-03
AOI 12	Groundwater	Mercury	1/12	2.5E-04	2.4E-05	8.5E-06	1.9E-05	5.2E-05	9.3E-05	1.0E-04	1.4E-04	2.4E-05
AOI 12	Groundwater	Naphthalene	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	n-Nitrosodipropylamine	0/12	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 12	Groundwater	Pentachlorophenol (PCP)	2/12	3.0E-03	3.0E-03	5.0E-04	1.0E-03	1.2E-03	8.6E-04	1.7E-03	1.8E-03	1.8E-03
AOI 12	Groundwater	Phenanthrene	0/12	1.0E-03	0.0E+00	5.0E-04	8.4E-04	8.8E-04	2.3E-04	9.9E-04	1.1E-03	8.8E-04
AOI 12	Groundwater	Pyrene	1/12	1.0E-03	1.0E-04	1.0E-04	8.3E-04	9.3E-04	0.0E+00	9.3E-04	1.7E-03	1.0E-04
AOI 12	Groundwater	Selenium	5/12	2.0E-02	2.0E-02	1.8E-03	8.5E-03	1.1E-02	7.3E-03	1.5E-02	2.5E-02	2.0E-02
AOI 12	Groundwater	Silver	3/12	5.0E-03	2.4E-03	7.0E-04	2.4E-03	2.7E-03	1.4E-03	3.5E-03	4.1E-03	2.4E-03
AOI 12	Groundwater	Tetrachloroethene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Toluene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Trichloroethene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 12	Groundwater	Vinyl Chloride	0/12	5.0E-03	0.0E+00	5.0E-04	1.3E-03	1.9E-03	1.9E-03	2.9E-03	3.9E-03	1.9E-03
AOI 12	Groundwater	Xylenes (Total)	0/12	5.0E-03	0.0E+00	5.0E-04	1.5E-03	2.1E-03	1.8E-03	3.1E-03	4.5E-03	2.1E-03
AOI 13	Groundwater	1,1,1-Trichloroethane	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	1,1,2-Trichloroethane	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	1,1-Dichloroethane	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	1,2,3-Trichloropropane	0/10	2.5E-02	0.0E+00	5.0E-03	6.3E-03	7.5E-03	6.3E-03	1.1E-02	1.1E-02	7.5E-03
AOI 13	Groundwater	1,2-Dichloroethane	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	1,2-Dichloroethene	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	1,4-Dichlorobenzene	0/6	5.0E-02	0.0E+00	5.0E-03	7.3E-03	1.3E-02	1.8E-02	2.8E-02	4.8E-02	1.3E-02
AOI 13	Groundwater	2,6-Dinitrotoluene	1/9	5.0E-02	7.4E-03	5.0E-05	1.5E-03	8.6E-03	1.6E-02	1.8E-02	2.2E+01	7.4E-03
AOI 13	Groundwater	2-Methylnaphthalene	5/10	1.3E+00	1.3E+00	2.0E-04	3.4E-03	1.3E-01	4.1E-01	3.7E-01	1.5E+01	1.3E+00
AOI 13	Groundwater	4,6-Dinitro-o-cresol	0/6	1.3E-01	0.0E+00	1.3E-02	1.8E-02	3.1E-02	4.6E-02	6.9E-02	1.2E-01	3.1E-02
AOI 13	Groundwater	4-Methylphenol (p-Cresol)	0/6	5.0E-02	0.0E+00	5.0E-03	7.3E-03	1.3E-02	1.8E-02	2.8E-02	4.8E-02	1.3E-02
AOI 13	Groundwater	Acenaphthene	27/32	5.0E-02	9.0E-03	2.0E-04	1.3E-03	3.6E-03	8.8E-03	6.2E-03	5.5E-03	6.2E-03
AOI 13	Groundwater	Acetone	1/10	2.5E-02	2.0E-03	2.0E-03	5.7E-03	7.2E-03	0.0E+00	7.2E-03	1.2E-02	2.0E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 13	Groundwater	Arsenic	2/2	6.4E-02	6.4E-02	4.8E-02	5.5E-02	5.6E-02	1.1E-02	1.1E-01	1.1E-01	6.4E-02
AOI 13	Groundwater	Barium	2/2	1.6E+00	1.6E+00	1.1E+00	1.3E+00	1.4E+00	3.5E-01	2.9E+00	4.1E+00	1.6E+00
AOI 13	Groundwater	Benzene	22/32	3.6E-02	3.6E-02	5.0E-04	5.6E-03	1.0E-02	9.7E-03	1.3E-02	2.5E-02	2.5E-02
AOI 13	Groundwater	Benzo[a]anthracene	1/32	5.0E-02	1.0E-04	1.0E-04	1.4E-03	3.1E-03	0.0E+00	3.1E-03	3.4E-03	1.0E-04
AOI 13	Groundwater	Benzo[a]pyrene	1/32	5.0E-02	1.0E-04	5.0E-05	9.9E-04	3.0E-03	8.7E-03	5.6E-03	4.5E-03	1.0E-04
AOI 13	Groundwater	Benzo[b]fluoranthene	1/32	5.0E-02	2.0E-04	2.0E-04	1.4E-03	3.1E-03	0.0E+00	3.1E-03	3.2E-03	2.0E-04
AOI 13	Groundwater	Benzo[k]fluoranthene	0/32	5.0E-02	0.0E+00	1.0E-03	1.5E-03	3.2E-03	8.7E-03	5.8E-03	3.1E-03	3.2E-03
AOI 13	Groundwater	bis(2-Chloroethyl)ether	0/6	5.0E-02	0.0E+00	5.0E-03	7.3E-03	1.3E-02	1.8E-02	2.8E-02	4.8E-02	1.3E-02
AOI 13	Groundwater	bis(2-Ethylhexyl)phthalate	1/6	5.1E-01	5.1E-01	5.0E-03	1.1E-02	8.9E-02	2.1E-01	2.6E-01	1.9E+01	5.1E-01
AOI 13	Groundwater	Cadmium	2/2	6.7E-03	6.7E-03	2.4E-03	4.0E-03	4.6E-03	3.0E-03	1.8E-02	3.9E+00	6.7E-03
AOI 13	Groundwater	Carbazole	1/6	5.0E-02	1.0E-03	1.0E-03	5.6E-03	1.2E-02	0.0E+00	1.2E-02	1.5E-01	1.0E-03
AOI 13	Groundwater	Chlorodibromomethane	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03
AOI 13	Groundwater	Chloroethane (Ethyl chloride)	0/10	1.3E-02	0.0E+00	5.0E-03	5.5E-03	5.8E-03	2.4E-03	7.1E-03	6.9E-03	5.8E-03
AOI 13	Groundwater	Chloromethane (Methyl chloride)	0/10	1.3E-02	0.0E+00	5.0E-03	5.5E-03	5.8E-03	2.4E-03	7.1E-03	6.9E-03	5.8E-03
AOI 13	Groundwater	Chromium	2/2	2.3E-01	2.3E-01	3.9E-02	9.5E-02	1.3E-01	1.4E-01	7.4E-01	1.6E+08	2.3E-01
AOI 13	Groundwater	Chrysene	1/32	5.0E-02	1.0E-04	1.0E-04	1.1E-03	3.0E-03	0.0E+00	3.0E-03	3.3E-03	1.0E-04
AOI 13	Groundwater	Dibenz[a,h]anthracene	0/32	5.0E-02	0.0E+00	5.0E-05	1.1E-03	3.1E-03	8.7E-03	5.7E-03	5.2E-03	3.1E-03
AOI 13	Groundwater	Dibenzofuran	0/6	5.0E-02	0.0E+00	5.0E-03	7.3E-03	1.3E-02	1.8E-02	2.8E-02	4.8E-02	1.3E-02
AOI 13	Groundwater	Dichloromethane	6/10	8.0E-03	8.0E-03	1.4E-03	3.0E-03	3.4E-03	1.9E-03	4.5E-03	4.8E-03	4.8E-03
AOI 13	Groundwater	Ethylbenzene	15/32	5.1E-02	5.1E-02	5.0E-04	3.4E-03	1.0E-02	1.5E-02	1.4E-02	2.7E-02	2.7E-02
AOI 13	Groundwater	Fluoranthene	11/32	4.5E-02	4.5E-02	1.0E-04	1.1E-03	2.8E-03	7.9E-03	5.2E-03	3.7E-03	5.2E-03
AOI 13	Groundwater	Fluorene	17/32	5.0E-02	1.1E-02	9.0E-05	1.2E-03	3.8E-03	8.8E-03	6.5E-03	9.2E-03	9.2E-03
AOI 13	Groundwater	Indeno[1,2,3-c,d]pyrene	0/32	5.0E-02	0.0E+00	1.0E-03	1.5E-03	3.2E-03	8.7E-03	5.8E-03	3.1E-03	3.2E-03
AOI 13	Groundwater	Lead	2/2	1.6E+00	1.6E+00	2.1E-01	5.8E-01	9.1E-01	9.8E-01	5.3E+00	2.7E+12	9.1E-01
AOI 13	Groundwater	Mercury	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 13	Groundwater	Naphthalene	33/54	5.3E-01	5.3E-01	8.0E-05	2.4E-03	3.2E-02	8.7E-02	5.2E-02	7.6E-02	7.6E-02
AOI 13	Groundwater	n-Nitrosodipropylamine	0/9	5.0E-02	0.0E+00	5.0E-05	1.4E-03	8.4E-03	1.6E-02	1.8E-02	1.8E+01	8.4E-03
AOI 13	Groundwater	Pentachlorophenol (PCP)	0/6	1.3E-01	0.0E+00	1.3E-02	1.8E-02	3.1E-02	4.6E-02	6.9E-02	1.2E-01	3.1E-02
AOI 13	Groundwater	Phenanthrene	11/32	4.8E-01	4.8E-01	2.0E-04	1.9E-03	1.8E-02	8.4E-02	4.3E-02	1.2E-02	4.3E-02
AOI 13	Groundwater	Pyrene	12/32	4.3E-02	4.3E-02	1.0E-04	9.2E-04	2.7E-03	7.5E-03	5.0E-03	3.7E-03	5.0E-03
AOI 13	Groundwater	Selenium	0/2	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03	0.0E+00	2.5E-03	2.5E-03	2.5E-03
AOI 13	Groundwater	Silver	1/2	1.2E-02	1.2E-02	5.0E-03	7.7E-03	8.5E-03	4.9E-03	3.1E-02	1.2E+00	1.2E-02
AOI 13	Groundwater	Tetrachloroethene	1/10	1.3E-02	1.9E-03	1.9E-03	3.1E-03	3.7E-03	0.0E+00	3.7E-03	5.5E-03	1.9E-03
AOI 13	Groundwater	Toluene	13/32	1.3E-02	4.9E-03	5.0E-04	1.2E-03	1.9E-03	2.3E-03	2.5E-03	2.6E-03	2.6E-03
AOI 13	Groundwater	Trichloroethene	0/10	1.3E-02	0.0E+00	2.5E-03	3.1E-03	3.8E-03	3.2E-03	5.6E-03	5.4E-03	3.8E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 13	Groundwater	Vinyl Chloride	0/10	1.3E-02	0.0E+00	1.0E-03	3.4E-03	4.6E-03	3.4E-03	6.5E-03	1.2E-02	4.6E-03
AOI 13	Groundwater	Xylenes (Total)	22/32	5.8E-02	5.8E-02	5.0E-04	3.9E-03	8.8E-03	1.4E-02	1.3E-02	1.5E-02	1.5E-02
AOI 18	Groundwater	1,1,1-Trichloroethane	5/5	6.2E-02	6.2E-02	1.1E-02	2.1E-02	2.6E-02	2.1E-02	4.6E-02	9.4E-02	6.2E-02
AOI 18	Groundwater	1,1,2-Trichloroethane	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	1,1-Dichloroethane	3/5	1.0E-03	1.0E-03	5.0E-04	7.1E-04	7.4E-04	2.5E-04	9.8E-04	1.1E-03	1.0E-03
AOI 18	Groundwater	1,2,3-Trichloropropane	0/5	5.0E-03	0.0E+00	5.0E-04	9.9E-04	1.6E-03	1.9E-03	3.5E-03	2.1E-02	1.6E-03
AOI 18	Groundwater	1,2-Dichloroethane	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	1,2-Dichloroethene	0/5	2.5E-03	0.0E+00	1.0E-03	1.2E-03	1.3E-03	6.7E-04	1.9E-03	2.2E-03	1.3E-03
AOI 18	Groundwater	1,4-Dichlorobenzene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	2,6-Dinitrotoluene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 18	Groundwater	2-Methylnaphthalene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	4,6-Dinitro-o-cresol	0/4	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 18	Groundwater	4-Methylphenol (p-Cresol)	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Acenaphthene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Acetone	0/5	5.0E-03	0.0E+00	1.0E-03	1.7E-03	2.1E-03	1.7E-03	3.8E-03	8.3E-03	2.1E-03
AOI 18	Groundwater	Arsenic	1/4	1.0E-02	3.8E-03	8.0E-04	2.9E-03	4.2E-03	4.1E-03	9.0E-03	9.9E-02	3.8E-03
AOI 18	Groundwater	Barium	4/4	1.1E-01	1.1E-01	7.9E-02	9.3E-02	9.4E-02	1.4E-02	1.1E-01	1.1E-01	1.1E-01
AOI 18	Groundwater	Benzene	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	Benzo[a]anthracene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Benzo[a]pyrene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Benzo[b]fluoranthene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Benzo[k]fluoranthene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	bis(2-Chloroethyl)ether	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	bis(2-Ethylhexyl)phthalate	1/4	7.0E-03	7.0E-03	5.0E-05	5.7E-04	2.1E-03	3.3E-03	6.0E-03	3.8E+02	7.0E-03
AOI 18	Groundwater	Cadmium	1/4	2.5E-03	1.8E-03	8.0E-05	4.2E-04	1.1E-03	1.2E-03	2.6E-03	6.5E+01	1.8E-03
AOI 18	Groundwater	Carbazole	0/4	3.0E-03	0.0E+00	3.0E-03	3.0E-03	3.0E-03	0.0E+00	3.0E-03	3.0E-03	3.0E-03
AOI 18	Groundwater	Chlorodibromomethane	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	Chloroethane (Ethyl chloride)	0/5	5.0E-03	0.0E+00	5.0E-04	1.0E-03	1.6E-03	1.9E-03	3.4E-03	1.3E-02	1.6E-03
AOI 18	Groundwater	Chloromethane (Methyl chloride)	0/5	5.0E-03	0.0E+00	5.0E-04	1.0E-03	1.6E-03	1.9E-03	3.4E-03	1.3E-02	1.6E-03
AOI 18	Groundwater	Chromium	3/4	1.5E-03	1.5E-03	7.5E-04	1.0E-03	1.1E-03	3.3E-04	1.4E-03	1.6E-03	1.5E-03
AOI 18	Groundwater	Chrysene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	cis-1,2-Dichloroethene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 18	Groundwater	Dibenz[a,h]anthracene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Dichloromethane	1/5	1.1E-03	1.1E-03	5.0E-04	5.9E-04	6.2E-04	2.7E-04	8.8E-04	9.9E-04	9.9E-04
AOI 18	Groundwater	Ethylbenzene	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 18	Groundwater	Fluoranthene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Fluorene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Indeno[1,2,3-c,d]pyrene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Lead	0/4	5.0E-03	0.0E+00	5.5E-04	1.5E-03	2.2E-03	2.1E-03	4.7E-03	6.2E-02	2.2E-03
AOI 18	Groundwater	Mercury	0/4	3.9E-05	0.0E+00	8.5E-06	1.7E-05	2.1E-05	1.4E-05	3.7E-05	9.4E-05	2.1E-05
AOI 18	Groundwater	Naphthalene	1/3	1.0E-03	3.0E-04	3.0E-04	6.7E-04	7.7E-04	0.0E+00	7.7E-04	7.5E-02	3.0E-04
AOI 18	Groundwater	n-Nitrosodipropylamine	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Pentachlorophenol (PCP)	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Phenanthrene	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 18	Groundwater	Pyrene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 18	Groundwater	Selenium	2/4	5.2E-03	5.2E-03	1.1E-03	2.9E-03	3.3E-03	1.7E-03	5.4E-03	1.6E-02	5.2E-03
AOI 18	Groundwater	Silver	2/4	3.0E-03	3.0E-03	1.6E-04	8.4E-04	1.3E-03	1.2E-03	2.8E-03	1.5E-01	3.0E-03
AOI 18	Groundwater	Tetrachloroethene	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	Toluene	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	Trichloroethene	0/5	2.5E-03	0.0E+00	5.0E-04	6.9E-04	9.0E-04	8.9E-04	1.8E-03	3.3E-03	9.0E-04
AOI 18	Groundwater	Vinyl Chloride	0/5	5.0E-03	0.0E+00	5.0E-04	1.0E-03	1.6E-03	1.9E-03	3.4E-03	1.3E-02	1.6E-03
AOI 18	Groundwater	Xylenes (Total)	0/5	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.5E-03	7.1E-04	2.2E-03	4.2E-03	1.5E-03
AOI 19	Groundwater	1,1,1-Trichloroethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	1,1,2-Trichloroethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	1,1-Dichloroethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	1,2,3-Trichloropropane	0/4	1.5E-03	0.0E+00	5.0E-04	6.6E-04	7.5E-04	5.0E-04	1.3E-03	6.6E-04	7.5E-04
AOI 19	Groundwater	1,2-Dichloroethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	1,2-Dichloroethene	0/4	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03
AOI 19	Groundwater	1,4-Dichlorobenzene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	2,6-Dinitrotoluene	0/4	5.0E-04	0.0E+00	5.0E-05	2.8E-04	3.9E-04	2.3E-04	6.5E-04	2.9E-02	3.9E-04
AOI 19	Groundwater	2-Methylnaphthalene	1/4	2.0E-03	2.0E-03	1.0E-04	6.7E-04	1.0E-03	7.8E-04	1.9E-03	1.5E-01	2.0E-03
AOI 19	Groundwater	4,6-Dinitro-o-cresol	0/4	5.0E-03	0.0E+00	5.0E-04	2.8E-03	3.9E-03	2.3E-03	6.5E-03	2.9E-01	3.9E-03
AOI 19	Groundwater	4-Methylphenol (p-Cresol)	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04
AOI 19	Groundwater	Acenaphthene	4/4	8.0E-04	8.0E-04	4.0E-04	6.1E-04	6.3E-04	1.7E-04	8.3E-04	9.6E-04	8.0E-04
AOI 19	Groundwater	Acetone	0/4	2.5E-03	0.0E+00	1.0E-03	1.3E-03	1.4E-03	7.5E-04	2.3E-03	3.0E-03	1.4E-03
AOI 19	Groundwater	Arsenic	0/4	1.0E-02	0.0E+00	8.0E-04	2.6E-03	3.9E-03	4.1E-03	8.8E-03	8.4E-02	3.9E-03
AOI 19	Groundwater	Barium	4/4	4.6E-01	4.6E-01	3.8E-01	4.1E-01	4.1E-01	3.9E-02	4.5E-01	4.6E-01	4.6E-01
AOI 19	Groundwater	Benzene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Benzo[a]anthracene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	Benzo[a]pyrene	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 19	Groundwater	Benzo[b]fluoranthene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	Benzo[k]fluoranthene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	bis(2-Chloroethyl)ether	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04
AOI 19	Groundwater	bis(2-Ethylhexyl)phthalate	1/4	4.0E-04	3.0E-04	5.0E-05	1.7E-04	2.3E-04	1.6E-04	4.1E-04	2.9E-03	3.0E-04
AOI 19	Groundwater	Cadmium	0/4	2.5E-03	0.0E+00	7.5E-05	2.2E-04	7.0E-04	1.2E-03	2.1E-03	2.3E+00	7.0E-04
AOI 19	Groundwater	Carbazole	0/4	3.0E-03	0.0E+00	3.0E-04	1.7E-03	2.3E-03	1.4E-03	3.9E-03	1.8E-01	2.3E-03
AOI 19	Groundwater	Chlorodibromomethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Chloroethane (Ethyl chloride)	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 19	Groundwater	Chloromethane (Methyl chloride)	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 19	Groundwater	Chromium	1/4	5.8E-04	5.8E-04	1.5E-04	3.1E-04	3.5E-04	1.9E-04	5.8E-04	1.2E-03	5.8E-04
AOI 19	Groundwater	Chrysene	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04
AOI 19	Groundwater	cis-1,2-Dichloroethene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Dibenz[a,h]anthracene	0/4	1.0E-03	0.0E+00	1.5E-04	6.2E-04	7.9E-04	4.3E-04	1.3E-03	1.1E-02	7.9E-04
AOI 19	Groundwater	Dichloromethane	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Ethylbenzene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Fluoranthene	0/4	1.0E-03	0.0E+00	1.5E-04	6.2E-04	7.9E-04	4.3E-04	1.3E-03	1.1E-02	7.9E-04
AOI 19	Groundwater	Fluorene	3/4	1.0E-03	1.0E-03	3.0E-04	5.9E-04	6.5E-04	3.1E-04	1.0E-03	1.7E-03	1.0E-03
AOI 19	Groundwater	Indeno[1,2,3-c,d]pyrene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	Lead	0/4	5.0E-03	0.0E+00	5.5E-04	1.0E-03	1.7E-03	2.2E-03	4.3E-03	3.7E-02	1.7E-03
AOI 19	Groundwater	Mercury	0/4	2.7E-05	0.0E+00	8.5E-06	1.3E-05	1.5E-05	8.1E-06	2.4E-05	3.4E-05	1.5E-05
AOI 19	Groundwater	Naphthalene	0/3	1.0E-03	0.0E+00	1.0E-04	4.6E-04	7.0E-04	5.2E-04	1.6E-03	5.2E+03	7.0E-04
AOI 19	Groundwater	n-Nitrosodipropylamine	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04
AOI 19	Groundwater	Pentachlorophenol (PCP)	0/4	1.0E-03	0.0E+00	1.0E-04	4.7E-04	6.5E-04	4.4E-04	1.2E-03	1.8E-02	6.5E-04
AOI 19	Groundwater	Phenanthrene	1/4	1.0E-03	2.0E-04	1.0E-04	3.8E-04	5.8E-04	4.9E-04	1.2E-03	4.2E-02	2.0E-04
AOI 19	Groundwater	Pyrene	0/4	1.0E-03	0.0E+00	1.0E-04	5.6E-04	7.8E-04	4.5E-04	1.3E-03	5.9E-02	7.8E-04
AOI 19	Groundwater	Selenium	2/4	2.3E-02	2.3E-02	9.0E-04	3.8E-03	7.7E-03	1.1E-02	2.0E-02	1.1E+00	2.3E-02
AOI 19	Groundwater	Silver	2/4	2.5E-03	2.4E-03	7.0E-04	1.4E-03	1.6E-03	9.8E-04	2.8E-03	7.3E-03	2.4E-03
AOI 19	Groundwater	Tetrachloroethene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Toluene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Trichloroethene	0/4	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 19	Groundwater	Vinyl Chloride	0/4	1.0E-03	0.0E+00	5.0E-04	7.1E-04	7.5E-04	2.9E-04	1.1E-03	1.4E-03	7.5E-04
AOI 19	Groundwater	Xylenes (Total)	0/4	1.5E-03	0.0E+00	5.0E-04	1.1E-03	1.3E-03	5.0E-04	1.8E-03	3.4E-03	1.3E-03
AOI 20	Groundwater	1,1,1-Trichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	1,1,2-Trichloroethane	0/12	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	2.0E-03	3.1E-03	1.5E-03
AOI 20	Groundwater	1,1-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 20	Groundwater	1,2,3-Trichloropropane	0/15	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.8E-03	1.8E-03	2.6E-03	3.9E-03	1.8E-03
AOI 20	Groundwater	1,2-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	1,2-Dichloroethene	0/15	5.0E-03	0.0E+00	1.0E-03	1.7E-03	2.1E-03	1.6E-03	2.8E-03	3.2E-03	2.1E-03
AOI 20	Groundwater	1,4-Dichlorobenzene	3/15	5.0E-03	4.0E-04	2.0E-04	1.1E-03	1.7E-03	1.8E-03	2.5E-03	3.2E-03	4.0E-04
AOI 20	Groundwater	2,6-Dinitrotoluene	0/15	5.0E-03	0.0E+00	5.0E-04	7.9E-04	1.4E-03	1.9E-03	2.2E-03	2.5E-03	1.4E-03
AOI 20	Groundwater	2-Methylnaphthalene	2/15	2.9E-02	2.9E-02	5.0E-04	1.3E-03	3.3E-03	7.3E-03	6.6E-03	5.4E-03	6.6E-03
AOI 20	Groundwater	4,6-Dinitro-o-cresol	0/15	1.3E-02	0.0E+00	5.0E-03	6.0E-03	6.5E-03	3.1E-03	7.9E-03	7.9E-03	6.5E-03
AOI 20	Groundwater	4-Methylphenol (p-Cresol)	0/15	5.0E-03	0.0E+00	5.0E-04	1.2E-03	1.7E-03	1.7E-03	2.5E-03	2.7E-03	1.7E-03
AOI 20	Groundwater	Acenaphthene	5/15	5.0E-03	3.0E-03	5.0E-04	1.4E-03	1.8E-03	1.5E-03	2.5E-03	3.0E-03	3.0E-03
AOI 20	Groundwater	Acetone	2/15	1.4E-02	1.4E-02	1.0E-03	2.5E-03	3.7E-03	3.5E-03	5.3E-03	7.5E-03	7.5E-03
AOI 20	Groundwater	Arsenic	5/15	2.8E-02	2.8E-02	8.0E-04	3.9E-03	6.6E-03	7.5E-03	1.0E-02	1.5E-02	1.5E-02
AOI 20	Groundwater	Barium	15/15	7.2E-01	7.2E-01	1.7E-01	3.0E-01	3.2E-01	1.4E-01	3.9E-01	3.9E-01	3.9E-01
AOI 20	Groundwater	Benzene	1/15	2.5E-03	6.0E-04	5.0E-04	9.6E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	6.0E-04
AOI 20	Groundwater	Benzo[a]anthracene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	Benzo[a]pyrene	0/15	5.0E-03	0.0E+00	5.0E-04	1.2E-03	1.7E-03	1.7E-03	2.5E-03	2.7E-03	1.7E-03
AOI 20	Groundwater	Benzo[b]fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	Benzo[k]fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	bis(2-Chloroethyl)ether	0/15	5.0E-03	0.0E+00	5.0E-04	1.2E-03	1.7E-03	1.7E-03	2.5E-03	2.7E-03	1.7E-03
AOI 20	Groundwater	bis(2-Ethylhexyl)phthalate	6/15	4.8E-02	4.8E-02	1.0E-04	9.4E-04	8.1E-03	1.5E-02	1.5E-02	1.7E-01	4.8E-02
AOI 20	Groundwater	Cadmium	5/15	3.9E-03	3.9E-03	7.5E-05	5.5E-04	1.4E-03	1.3E-03	2.0E-03	1.5E-02	3.9E-03
AOI 20	Groundwater	Carbazole	0/15	5.0E-03	0.0E+00	3.0E-03	3.3E-03	3.4E-03	8.3E-04	3.8E-03	3.8E-03	3.4E-03
AOI 20	Groundwater	Chlorodibromomethane	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	Chloroethane (Ethyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	1.7E-03	2.5E-03	2.1E-03	3.5E-03	5.4E-03	2.5E-03
AOI 20	Groundwater	Chloromethane (Methyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	1.7E-03	2.5E-03	2.1E-03	3.5E-03	5.4E-03	2.5E-03
AOI 20	Groundwater	Chromium	3/15	2.6E-02	2.6E-02	1.1E-04	6.1E-04	3.0E-03	6.6E-03	6.0E-03	2.0E-02	2.0E-02
AOI 20	Groundwater	Chrysene	0/15	5.0E-03	0.0E+00	5.0E-04	1.2E-03	1.7E-03	1.7E-03	2.5E-03	2.7E-03	1.7E-03
AOI 20	Groundwater	cis-1,2-Dichloroethene	0/12	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	9.0E-04	1.5E-03	1.7E-03	1.0E-03
AOI 20	Groundwater	Dibenz[a,h]anthracene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	Dibenzofuran	0/3	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	8.2E-11	5.0E-03	5.0E-03	5.0E-03
AOI 20	Groundwater	Dichloromethane	3/15	2.5E-03	1.4E-03	5.0E-04	8.3E-04	1.0E-03	8.1E-04	1.4E-03	1.6E-03	1.4E-03
AOI 20	Groundwater	Ethylbenzene	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	Fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	Fluorene	4/15	5.0E-03	1.5E-03	2.0E-04	8.8E-04	1.4E-03	1.5E-03	2.0E-03	2.6E-03	1.5E-03
AOI 20	Groundwater	Indeno[1,2,3-c,d]pyrene	0/15	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.8E-03	1.7E-03	2.6E-03	2.6E-03	1.8E-03
AOI 20	Groundwater	Lead	4/15	1.1E-01	1.1E-01	5.0E-04	1.9E-03	9.5E-03	2.8E-02	2.2E-02	2.5E-02	9.5E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 20	Groundwater	Mercury	3/15	2.5E-03	3.6E-05	8.5E-06	4.5E-05	5.3E-04	1.0E-03	9.9E-04	8.6E-03	3.6E-05
AOI 20	Groundwater	Naphthalene	1/15	5.0E-03	1.3E-03	1.0E-03	1.3E-03	1.6E-03	1.4E-03	2.2E-03	2.1E-03	1.3E-03
AOI 20	Groundwater	n-Nitrosodipropylamine	0/15	5.0E-03	0.0E+00	5.0E-04	1.2E-03	1.7E-03	1.7E-03	2.5E-03	2.7E-03	1.7E-03
AOI 20	Groundwater	Pentachlorophenol (PCP)	0/15	1.3E-02	0.0E+00	5.0E-04	1.4E-03	3.2E-03	4.8E-03	5.4E-03	7.5E-03	3.2E-03
AOI 20	Groundwater	Phenanthrene	2/15	5.0E-03	1.4E-03	2.0E-04	9.9E-04	1.4E-03	1.5E-03	2.1E-03	2.4E-03	1.4E-03
AOI 20	Groundwater	Pyrene	1/15	5.0E-03	5.0E-05	5.0E-05	1.1E-03	1.7E-03	0.0E+00	1.7E-03	4.5E-03	5.0E-05
AOI 20	Groundwater	Selenium	1/15	2.9E-02	4.0E-03	9.0E-04	4.5E-03	9.4E-03	1.0E-02	1.4E-02	3.5E-02	4.0E-03
AOI 20	Groundwater	Silver	4/15	5.0E-03	2.4E-03	7.0E-04	2.0E-03	2.6E-03	1.8E-03	3.4E-03	4.5E-03	2.4E-03
AOI 20	Groundwater	Tetrachloroethene	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	Toluene	1/15	2.5E-03	1.6E-03	5.0E-04	9.2E-04	1.2E-03	9.6E-04	1.7E-03	2.1E-03	1.6E-03
AOI 20	Groundwater	Trichloroethene	0/15	2.5E-03	0.0E+00	5.0E-04	9.5E-04	1.3E-03	1.0E-03	1.8E-03	2.3E-03	1.3E-03
AOI 20	Groundwater	Vinyl Chloride	1/15	5.0E-03	6.0E-04	5.0E-04	1.6E-03	2.5E-03	2.1E-03	3.4E-03	5.5E-03	6.0E-04
AOI 20	Groundwater	Xylenes (Total)	1/15	5.0E-03	1.0E-03	5.0E-04	1.6E-03	2.1E-03	1.6E-03	2.8E-03	3.6E-03	1.0E-03
AOI 21	Groundwater	1,1,1-Trichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	1,1,2-Trichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	1,1-Dichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	1,2,3-Trichloropropane	0/16	5.0E-03	0.0E+00	5.0E-04	7.8E-04	1.2E-03	1.3E-03	1.7E-03	1.8E-03	1.2E-03
AOI 21	Groundwater	1,2-Dichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	1,2-Dichloroethene	9/16	1.2E-01	1.2E-01	1.0E-03	7.0E-03	2.1E-02	3.3E-02	3.6E-02	1.2E-01	1.2E-01
AOI 21	Groundwater	1,4-Dichlorobenzene	0/16	5.0E-03	0.0E+00	1.0E-03	1.1E-03	1.3E-03	1.0E-03	1.7E-03	1.5E-03	1.3E-03
AOI 21	Groundwater	2,6-Dinitrotoluene	0/16	5.0E-03	0.0E+00	5.0E-04	5.8E-04	7.8E-04	1.1E-03	1.3E-03	9.4E-04	7.8E-04
AOI 21	Groundwater	2-Methylnaphthalene	2/16	1.9E-02	1.9E-02	5.0E-04	1.0E-03	2.4E-03	4.7E-03	4.5E-03	4.2E-03	4.5E-03
AOI 21	Groundwater	4,6-Dinitro-o-cresol	1/16	1.3E-02	5.0E-03	5.0E-03	5.3E-03	5.5E-03	0.0E+00	5.5E-03	6.1E-03	5.0E-03
AOI 21	Groundwater	4-Methylphenol (p-Cresol)	0/16	5.0E-03	0.0E+00	5.0E-04	7.7E-04	9.8E-04	1.1E-03	1.5E-03	1.3E-03	9.8E-04
AOI 21	Groundwater	Acenaphthene	4/16	5.0E-03	4.0E-03	8.0E-05	8.6E-04	1.4E-03	1.5E-03	2.0E-03	3.1E-03	3.1E-03
AOI 21	Groundwater	Acetone	1/14	5.0E-03	2.8E-03	1.0E-03	1.4E-03	1.7E-03	1.5E-03	2.4E-03	2.4E-03	2.4E-03
AOI 21	Groundwater	Arsenic	10/18	3.8E-02	3.8E-02	8.0E-04	4.7E-03	8.1E-03	9.2E-03	1.2E-02	1.8E-02	1.8E-02
AOI 21	Groundwater	Barium	18/18	4.7E-01	4.7E-01	9.8E-02	1.7E-01	1.9E-01	1.0E-01	2.3E-01	2.3E-01	2.3E-01
AOI 21	Groundwater	Benzene	7/16	1.1E-02	1.1E-02	5.0E-04	1.4E-03	2.2E-03	2.6E-03	3.3E-03	4.2E-03	4.2E-03
AOI 21	Groundwater	Benzo[a]anthracene	1/16	5.0E-03	2.0E-04	2.0E-04	1.0E-03	1.2E-03	0.0E+00	1.2E-03	1.7E-03	2.0E-04
AOI 21	Groundwater	Benzo[a]pyrene	0/16	5.0E-03	0.0E+00	5.0E-04	7.7E-04	9.8E-04	1.1E-03	1.5E-03	1.3E-03	9.8E-04
AOI 21	Groundwater	Benzo[b]fluoranthene	0/16	5.0E-03	0.0E+00	1.0E-03	1.1E-03	1.3E-03	1.0E-03	1.7E-03	1.5E-03	1.3E-03
AOI 21	Groundwater	Benzo[k]fluoranthene	0/16	5.0E-03	0.0E+00	1.0E-03	1.1E-03	1.3E-03	1.0E-03	1.7E-03	1.5E-03	1.3E-03
AOI 21	Groundwater	bis(2-Chloroethyl)ether	0/16	5.0E-03	0.0E+00	5.0E-04	7.7E-04	9.8E-04	1.1E-03	1.5E-03	1.3E-03	9.8E-04
AOI 21	Groundwater	bis(2-Ethylhexyl)phthalate	6/16	9.4E-02	9.4E-02	5.0E-05	5.5E-04	7.8E-03	2.3E-02	1.8E-02	6.9E-02	6.9E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 21	Groundwater	Cadmium	9/18	5.3E-03	5.3E-03	7.5E-05	6.0E-04	1.5E-03	1.8E-03	2.2E-03	7.7E-03	5.3E-03
AOI 21	Groundwater	Carbazole	3/16	5.0E-03	1.0E-03	9.0E-05	2.2E-03	2.8E-03	1.2E-03	3.3E-03	7.0E-03	1.0E-03
AOI 21	Groundwater	Chlorodibromomethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	Chloroethane (Ethyl chloride)	0/16	5.0E-03	0.0E+00	5.0E-04	1.3E-03	1.9E-03	1.9E-03	2.7E-03	3.2E-03	1.9E-03
AOI 21	Groundwater	Chloromethane (Methyl chloride)	1/16	1.0E-02	1.0E-02	5.0E-04	1.4E-03	2.2E-03	2.7E-03	3.4E-03	3.9E-03	3.9E-03
AOI 21	Groundwater	Chromium	9/18	7.4E-02	7.4E-02	1.5E-04	1.4E-03	7.0E-03	1.8E-02	1.4E-02	3.2E-02	3.2E-02
AOI 21	Groundwater	Chrysene	1/16	5.0E-03	3.0E-04	3.0E-04	7.4E-04	9.7E-04	0.0E+00	9.7E-04	1.3E-03	3.0E-04
AOI 21	Groundwater	cis-1,2-Dichloroethene	9/15	1.2E-01	1.2E-01	5.0E-04	5.4E-03	2.1E-02	3.3E-02	3.6E-02	3.3E-01	1.2E-01
AOI 21	Groundwater	Dibenz[a,h]anthracene	0/16	5.0E-03	0.0E+00	1.0E-03	1.2E-03	1.4E-03	9.9E-04	1.8E-03	1.6E-03	1.4E-03
AOI 21	Groundwater	Dibenzofuran	0/1	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	#DIV/0!	#VALUE!	#DIV/0!	5.0E-03
AOI 21	Groundwater	Dichloromethane	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	Ethylbenzene	1/16	2.5E-03	5.0E-04	5.0E-04	7.5E-04	1.0E-03	0.0E+00	1.0E-03	1.5E-03	5.0E-04
AOI 21	Groundwater	Fluoranthene	5/16	5.0E-03	5.0E-04	5.0E-05	7.0E-04	1.1E-03	1.1E-03	1.6E-03	3.3E-03	5.0E-04
AOI 21	Groundwater	Fluorene	4/16	1.0E-02	1.0E-02	5.0E-04	1.0E-03	2.0E-03	2.8E-03	3.2E-03	3.5E-03	3.5E-03
AOI 21	Groundwater	Indeno[1,2,3-c,d]pyrene	0/16	5.0E-03	0.0E+00	1.0E-03	1.1E-03	1.3E-03	1.0E-03	1.7E-03	1.5E-03	1.3E-03
AOI 21	Groundwater	Lead	10/18	3.7E-01	3.7E-01	5.5E-04	4.6E-03	3.5E-02	9.2E-02	7.2E-02	1.8E-01	3.5E-02
AOI 21	Groundwater	Mercury	5/18	2.5E-03	9.9E-05	8.5E-06	3.6E-05	4.3E-04	9.5E-04	8.2E-04	2.4E-03	9.9E-05
AOI 21	Groundwater	Naphthalene	0/12	5.0E-03	0.0E+00	1.0E-03	1.1E-03	1.3E-03	1.2E-03	1.9E-03	1.7E-03	1.3E-03
AOI 21	Groundwater	n-Nitrosodipropylamine	0/16	5.0E-03	0.0E+00	5.0E-04	7.7E-04	9.8E-04	1.1E-03	1.5E-03	1.3E-03	9.8E-04
AOI 21	Groundwater	Pentachlorophenol (PCP)	1/16	1.3E-02	7.0E-04	5.0E-04	8.0E-04	1.4E-03	3.0E-03	2.7E-03	1.8E-03	7.0E-04
AOI 21	Groundwater	Phenanthrene	4/16	5.0E-03	3.0E-03	1.0E-04	7.5E-04	1.2E-03	1.3E-03	1.8E-03	2.5E-03	2.5E-03
AOI 21	Groundwater	Pyrene	5/16	5.0E-03	4.0E-03	7.0E-05	8.2E-04	1.4E-03	1.4E-03	2.0E-03	4.8E-03	4.0E-03
AOI 21	Groundwater	Selenium	8/18	2.0E-02	8.2E-03	9.0E-04	5.2E-03	7.2E-03	6.3E-03	9.8E-03	1.2E-02	8.2E-03
AOI 21	Groundwater	Silver	4/18	5.0E-03	3.1E-03	7.0E-04	2.1E-03	2.8E-03	1.8E-03	3.5E-03	4.6E-03	3.1E-03
AOI 21	Groundwater	Tetrachloroethene	0/16	2.5E-03	0.0E+00	5.0E-04	7.5E-04	1.0E-03	8.9E-04	1.4E-03	1.5E-03	1.0E-03
AOI 21	Groundwater	Toluene	4/16	5.0E-03	5.0E-03	5.0E-04	1.2E-03	1.8E-03	1.5E-03	2.4E-03	3.4E-03	3.4E-03
AOI 21	Groundwater	Trichloroethene	6/16	8.0E-03	8.0E-03	5.0E-04	1.5E-03	2.4E-03	2.5E-03	3.5E-03	5.5E-03	5.5E-03
AOI 21	Groundwater	Vinyl Chloride	12/21	1.1E-01	1.1E-01	5.0E-04	4.8E-03	1.4E-02	2.5E-02	2.3E-02	5.1E-02	5.1E-02
AOI 21	Groundwater	Xylenes (Total)	4/16	5.0E-03	1.0E-03	5.0E-04	1.4E-03	1.9E-03	1.6E-03	2.6E-03	3.1E-03	1.0E-03
AOI 22A	Groundwater	1,1,1-Trichloroethane	20/37	5.8E-01	5.8E-01	5.0E-04	5.2E-03	4.9E-02	1.2E-01	8.2E-02	2.6E-01	2.6E-01
AOI 22A	Groundwater	1,1,2-Trichloroethane	5/37	1.0E-01	3.0E-03	5.0E-04	1.2E-03	5.0E-03	1.7E-02	9.7E-03	5.1E-03	3.0E-03
AOI 22A	Groundwater	1,1-Dichloroethane	29/37	2.0E+00	2.0E+00	5.0E-04	4.6E-02	3.2E-01	4.5E-01	4.4E-01	2.5E+01	2.0E+00
AOI 22A	Groundwater	1,2,3-Trichloropropane	1/37	2.0E-01	1.5E-02	5.0E-04	1.4E-03	9.3E-03	3.3E-02	1.9E-02	1.0E-02	1.5E-02
AOI 22A	Groundwater	1,2-Dichloroethane	3/37	1.0E-01	2.0E-03	5.0E-04	1.2E-03	4.9E-03	1.7E-02	9.6E-03	4.8E-03	2.0E-03
AOI 22A	Groundwater	1,2-Dichloroethene	24/37	3.7E+00	3.7E+00	7.0E-04	2.1E-02	3.5E-01	7.4E-01	5.6E-01	1.7E+01	3.7E+00

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 22A	Groundwater	1,4-Dichlorobenzene	0/27	2.5E-02	0.0E+00	1.0E-03	1.4E-03	2.4E-03	4.7E-03	3.9E-03	2.6E-03	2.4E-03
AOI 22A	Groundwater	2,6-Dinitrotoluene	0/27	2.5E-02	0.0E+00	5.0E-04	7.7E-04	1.9E-03	4.8E-03	3.5E-03	2.1E-03	1.9E-03
AOI 22A	Groundwater	2-Methylnaphthalene	5/27	8.7E-02	8.7E-02	5.0E-04	1.5E-03	7.9E-03	2.1E-02	1.5E-02	9.9E-03	1.5E-02
AOI 22A	Groundwater	4,6-Dinitro-o-cresol	0/27	6.0E-02	0.0E+00	5.0E-03	6.2E-03	8.1E-03	1.1E-02	1.2E-02	9.0E-03	8.1E-03
AOI 22A	Groundwater	4-Methylphenol (p-Cresol)	1/28	2.5E-02	2.0E-03	5.0E-04	1.2E-03	2.2E-03	4.7E-03	3.7E-03	2.6E-03	2.0E-03
AOI 22A	Groundwater	Acenaphthene	27/32	4.1E-02	4.1E-02	1.0E-04	1.1E-03	2.8E-03	7.2E-03	4.9E-03	4.0E-03	4.9E-03
AOI 22A	Groundwater	Acetone	3/30	2.0E-01	1.3E-02	1.0E-03	2.4E-03	1.2E-02	3.7E-02	2.3E-02	1.5E-02	1.3E-02
AOI 22A	Groundwater	Aroclor-1260	0/4	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02
AOI 22A	Groundwater	Arsenic	18/32	7.7E-02	7.7E-02	8.0E-04	4.4E-03	1.0E-02	1.8E-02	1.6E-02	1.7E-02	1.7E-02
AOI 22A	Groundwater	Barium	32/32	1.2E+00	1.2E+00	6.9E-02	3.4E-01	3.8E-01	2.1E-01	4.5E-01	4.6E-01	4.6E-01
AOI 22A	Groundwater	Benzene	28/37	1.0E-01	1.8E-02	5.0E-04	3.2E-03	7.2E-03	1.6E-02	1.2E-02	1.1E-02	1.2E-02
AOI 22A	Groundwater	Benzo[a]anthracene	0/31	2.5E-02	0.0E+00	1.0E-03	1.3E-03	2.2E-03	4.4E-03	3.5E-03	2.3E-03	2.2E-03
AOI 22A	Groundwater	Benzo[a]pyrene	0/31	2.5E-02	0.0E+00	5.0E-04	1.1E-03	2.0E-03	4.4E-03	3.4E-03	2.3E-03	2.0E-03
AOI 22A	Groundwater	Benzo[b]fluoranthene	0/31	2.5E-02	0.0E+00	1.0E-03	1.3E-03	2.2E-03	4.4E-03	3.5E-03	2.3E-03	2.2E-03
AOI 22A	Groundwater	Benzo[k]fluoranthene	0/31	2.5E-02	0.0E+00	1.0E-03	1.3E-03	2.2E-03	4.4E-03	3.5E-03	2.3E-03	2.2E-03
AOI 22A	Groundwater	bis(2-Chloroethyl)ether	0/27	2.5E-02	0.0E+00	5.0E-04	1.2E-03	2.2E-03	4.7E-03	3.8E-03	2.6E-03	2.2E-03
AOI 22A	Groundwater	bis(2-Ethylhexyl)phthalate	15/27	3.1E-02	3.1E-02	1.0E-04	6.3E-04	3.0E-03	6.4E-03	5.1E-03	9.0E-03	9.0E-03
AOI 22A	Groundwater	Cadmium	3/32	2.5E-03	6.6E-04	7.5E-05	1.7E-04	3.3E-04	5.9E-04	5.1E-04	4.2E-04	5.1E-04
AOI 22A	Groundwater	Carbazole	6/27	2.5E-02	4.0E-03	7.0E-04	3.2E-03	4.0E-03	4.3E-03	5.5E-03	4.9E-03	4.0E-03
AOI 22A	Groundwater	Chlorodibromomethane	0/37	1.0E-01	0.0E+00	5.0E-04	1.1E-03	4.9E-03	1.7E-02	9.5E-03	4.6E-03	4.9E-03
AOI 22A	Groundwater	Chloroethane (Ethyl chloride)	27/37	1.7E-01	1.7E-01	5.0E-04	1.6E-02	4.0E-02	4.4E-02	5.2E-02	1.9E-01	1.7E-01
AOI 22A	Groundwater	Chloromethane (Methyl chloride)	0/37	1.0E-01	0.0E+00	5.0E-04	1.7E-03	5.9E-03	1.7E-02	1.1E-02	7.3E-03	5.9E-03
AOI 22A	Groundwater	Chromium	8/32	5.0E-03	3.1E-03	1.5E-04	8.8E-04	1.8E-03	2.0E-03	2.4E-03	3.5E-03	3.1E-03
AOI 22A	Groundwater	Chrysene	0/31	2.5E-02	0.0E+00	5.0E-04	1.1E-03	2.0E-03	4.4E-03	3.4E-03	2.3E-03	2.0E-03
AOI 22A	Groundwater	cis-1,2-Dichloroethene	20/31	3.7E+00	3.7E+00	5.0E-04	1.6E-02	3.6E-01	7.8E-01	6.0E-01	5.1E+01	3.7E+00
AOI 22A	Groundwater	Dibenz[a,h]anthracene	0/31	2.5E-02	0.0E+00	5.0E-04	1.3E-03	2.2E-03	4.4E-03	3.5E-03	2.3E-03	2.2E-03
AOI 22A	Groundwater	Dibenzofuran	1/4	2.5E-02	9.4E-03	5.0E-03	8.8E-03	1.1E-02	9.5E-03	2.2E-02	6.9E-02	9.4E-03
AOI 22A	Groundwater	Dichloromethane	1/37	1.0E-01	1.5E-03	4.0E-04	1.0E-03	4.8E-03	1.7E-02	9.5E-03	4.3E-03	1.5E-03
AOI 22A	Groundwater	Ethylbenzene	12/37	1.0E-01	1.1E-02	5.0E-04	1.7E-03	5.7E-03	1.7E-02	1.0E-02	7.2E-03	1.0E-02
AOI 22A	Groundwater	Fluoranthene	2/31	9.4E-03	9.4E-03	1.0E-04	1.2E-03	1.7E-03	1.9E-03	2.3E-03	2.2E-03	2.3E-03
AOI 22A	Groundwater	Fluorene	22/31	6.3E-02	6.3E-02	9.0E-05	9.5E-04	3.4E-03	1.1E-02	6.8E-03	4.3E-03	6.8E-03
AOI 22A	Groundwater	Indeno[1,2,3-c,d]pyrene	0/31	2.5E-02	0.0E+00	1.0E-03	1.3E-03	2.2E-03	4.4E-03	3.5E-03	2.3E-03	2.2E-03
AOI 22A	Groundwater	Lead	4/32	5.6E-02	5.6E-02	5.0E-04	1.1E-03	4.8E-03	1.3E-02	8.8E-03	5.0E-03	4.8E-03
AOI 22A	Groundwater	Manganese	8/8	1.1E+00	1.1E+00	4.6E-01	8.0E-01	8.2E-01	1.9E-01	9.5E-01	1.0E+00	1.0E+00
AOI 22A	Groundwater	Mercury	6/31	2.5E-03	6.4E-04	8.5E-06	4.7E-05	3.9E-04	8.4E-04	6.4E-04	1.3E-03	6.4E-04

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 22A	Groundwater	Naphthalene	9/31	1.5E-02	1.5E-02	1.0E-04	9.0E-04	1.6E-03	2.7E-03	2.4E-03	2.3E-03	2.4E-03
AOI 22A	Groundwater	n-Nitrosodipropylamine	0/27	2.5E-02	0.0E+00	5.0E-04	1.2E-03	2.2E-03	4.7E-03	3.8E-03	2.6E-03	2.2E-03
AOI 22A	Groundwater	Pentachlorophenol (PCP)	4/28	6.0E-02	3.0E-03	5.0E-04	1.4E-03	4.4E-03	1.1E-02	8.1E-03	5.4E-03	3.0E-03
AOI 22A	Groundwater	Phenanthrene	10/31	1.1E-01	1.1E-01	1.0E-04	9.6E-04	4.7E-03	2.0E-02	1.1E-02	3.6E-03	1.1E-02
AOI 22A	Groundwater	Pyrene	6/32	1.9E-02	1.9E-02	5.0E-05	8.5E-04	1.8E-03	3.4E-03	2.8E-03	3.5E-03	3.5E-03
AOI 22A	Groundwater	Selenium	11/32	2.0E-02	5.9E-03	9.0E-04	3.9E-03	6.9E-03	7.7E-03	9.2E-03	1.1E-02	5.9E-03
AOI 22A	Groundwater	Silver	9/32	5.0E-03	3.2E-03	1.6E-04	1.4E-03	2.2E-03	1.9E-03	2.8E-03	4.6E-03	3.2E-03
AOI 22A	Groundwater	Tetrachloroethene	2/37	1.0E-01	7.0E-04	5.0E-04	1.1E-03	4.9E-03	1.7E-02	9.5E-03	4.6E-03	7.0E-04
AOI 22A	Groundwater	Toluene	11/36	1.0E-01	4.9E-03	5.0E-04	1.3E-03	5.2E-03	1.7E-02	1.0E-02	5.7E-03	4.9E-03
AOI 22A	Groundwater	Trichloroethene	6/37	1.0E-01	4.0E-03	5.0E-04	1.3E-03	5.1E-03	1.7E-02	9.8E-03	5.5E-03	4.0E-03
AOI 22A	Groundwater	Vinyl Chloride	26/38	2.3E+00	2.3E+00	5.0E-04	4.6E-02	3.6E-01	5.5E-01	5.1E-01	2.6E+01	2.3E+00
AOI 22A	Groundwater	Xylenes (Total)	13/37	1.0E-01	7.0E-03	5.0E-04	2.4E-03	6.6E-03	1.7E-02	1.1E-02	8.4E-03	7.0E-03
AOI 22B	Groundwater	1,1,1-Trichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.2E-03	3.1E-03	1.8E-03
AOI 22B	Groundwater	1,1,2-Trichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.5E-03	1.8E-03	9.8E-04	2.3E-03	3.3E-03	1.8E-03
AOI 22B	Groundwater	1,1-Dichloroethane	0/16	2.5E-03	0.0E+00	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.2E-03	3.1E-03	1.8E-03
AOI 22B	Groundwater	1,2,3-Trichloropropane	0/15	7.5E-03	0.0E+00	5.0E-04	2.4E-03	3.8E-03	2.6E-03	5.0E-03	1.3E-02	3.8E-03
AOI 22B	Groundwater	1,2-Dichloroethane	0/15	3.0E-03	0.0E+00	5.0E-04	1.5E-03	1.9E-03	1.0E-03	2.4E-03	3.5E-03	1.9E-03
AOI 22B	Groundwater	1,2-Dichloroethene	14/16	1.5E-01	1.5E-01	2.5E-03	2.1E-02	3.8E-02	4.4E-02	5.7E-02	1.2E-01	1.2E-01
AOI 22B	Groundwater	1,4-Dichlorobenzene	8/13	5.0E-03	4.4E-03	3.0E-04	1.6E-03	2.4E-03	2.0E-03	3.5E-03	6.2E-03	4.4E-03
AOI 22B	Groundwater	2,6-Dinitrotoluene	0/13	5.0E-03	0.0E+00	5.0E-04	1.4E-03	2.6E-03	2.3E-03	3.7E-03	9.5E-03	2.6E-03
AOI 22B	Groundwater	2-Methylnaphthalene	0/13	5.0E-03	0.0E+00	5.0E-04	1.9E-03	2.8E-03	2.2E-03	3.8E-03	6.8E-03	2.8E-03
AOI 22B	Groundwater	4,6-Dinitro-o-cresol	0/13	1.3E-02	0.0E+00	5.0E-03	7.6E-03	8.5E-03	3.9E-03	1.0E-02	1.1E-02	8.5E-03
AOI 22B	Groundwater	4-Methylphenol (p-Cresol)	1/13	5.0E-03	4.0E-04	4.0E-04	1.7E-03	2.7E-03	0.0E+00	2.7E-03	7.7E-03	4.0E-04
AOI 22B	Groundwater	Acenaphthene	9/14	5.0E-03	2.3E-03	1.0E-04	1.3E-03	2.3E-03	2.1E-03	3.4E-03	9.6E-03	2.3E-03
AOI 22B	Groundwater	Acetone	3/15	1.4E-02	1.4E-02	1.0E-03	3.3E-03	5.1E-03	4.5E-03	7.1E-03	1.2E-02	1.2E-02
AOI 22B	Groundwater	Aroclor-1260	0/6	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02	8.3E-10	5.0E-02	5.0E-02	5.0E-02
AOI 22B	Groundwater	Arsenic	6/14	1.5E-02	1.5E-02	8.0E-04	2.9E-03	4.1E-03	4.0E-03	6.0E-03	7.8E-03	7.8E-03
AOI 22B	Groundwater	Barium	14/14	5.6E-01	5.6E-01	1.1E-01	3.0E-01	3.2E-01	1.2E-01	3.8E-01	4.1E-01	4.1E-01
AOI 22B	Groundwater	Benzene	2/16	2.5E-03	7.0E-04	5.0E-04	1.4E-03	1.8E-03	9.8E-04	2.2E-03	3.1E-03	7.0E-04
AOI 22B	Groundwater	Benzo[a]anthracene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 22B	Groundwater	Benzo[a]pyrene	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.8E-03	7.2E-03	2.7E-03
AOI 22B	Groundwater	Benzo[b]fluoranthene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 22B	Groundwater	Benzo[k]fluoranthene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 22B	Groundwater	bis(2-Chloroethyl)ether	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.8E-03	7.2E-03	2.7E-03
AOI 22B	Groundwater	bis(2-Ethylhexyl)phthalate	2/13	5.0E-03	2.0E-03	1.0E-04	1.2E-03	2.6E-03	2.3E-03	3.8E-03	3.5E-02	2.0E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 22B	Groundwater	Cadmium	2/14	2.5E-03	6.7E-04	7.5E-05	3.7E-04	6.7E-04	8.0E-04	1.0E-03	2.0E-03	6.7E-04
AOI 22B	Groundwater	Carbazole	0/13	5.0E-03	0.0E+00	3.0E-03	3.8E-03	3.9E-03	1.0E-03	4.4E-03	4.6E-03	3.9E-03
AOI 22B	Groundwater	Chlorodibromomethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.5E-03	1.8E-03	9.8E-04	2.3E-03	3.3E-03	1.8E-03
AOI 22B	Groundwater	Chloroethane (Ethyl chloride)	0/16	5.0E-03	0.0E+00	5.0E-04	2.3E-03	3.1E-03	2.0E-03	4.0E-03	6.3E-03	3.1E-03
AOI 22B	Groundwater	Chloromethane (Methyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	2.5E-03	3.3E-03	2.0E-03	4.2E-03	6.2E-03	3.3E-03
AOI 22B	Groundwater	Chromium	2/14	2.3E-02	2.3E-02	1.5E-04	1.6E-03	4.3E-03	5.9E-03	7.1E-03	5.0E-02	2.3E-02
AOI 22B	Groundwater	Chrysene	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.8E-03	7.2E-03	2.7E-03
AOI 22B	Groundwater	cis-1,2-Dichloroethene	5/7	3.0E-02	3.0E-02	7.0E-03	1.6E-02	1.8E-02	8.4E-03	2.4E-02	3.1E-02	3.0E-02
AOI 22B	Groundwater	Dibenz[a,h]anthracene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 22B	Groundwater	Dibenzofuran	0/6	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 22B	Groundwater	Dichloromethane	6/16	2.5E-03	2.4E-03	5.0E-04	1.2E-03	1.4E-03	8.6E-04	1.8E-03	2.3E-03	2.3E-03
AOI 22B	Groundwater	Ethylbenzene	0/16	2.5E-03	0.0E+00	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.2E-03	3.1E-03	1.8E-03
AOI 22B	Groundwater	Fluoranthene	5/13	5.0E-03	2.0E-04	1.0E-04	9.6E-04	2.5E-03	2.4E-03	3.7E-03	4.1E-02	2.0E-04
AOI 22B	Groundwater	Fluorene	3/13	5.0E-03	1.0E-03	1.0E-04	1.7E-03	2.8E-03	2.2E-03	3.8E-03	1.2E-02	1.0E-03
AOI 22B	Groundwater	Indeno[1,2,3-c,d]pyrene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 22B	Groundwater	Lead	2/14	1.1E-02	1.1E-02	5.0E-04	1.0E-03	2.0E-03	3.0E-03	3.4E-03	3.9E-03	2.0E-03
AOI 22B	Groundwater	Mercury	0/13	2.5E-03	0.0E+00	8.5E-06	1.7E-04	1.2E-03	1.3E-03	1.8E-03	6.8E-01	1.2E-03
AOI 22B	Groundwater	Naphthalene	0/11	5.0E-03	0.0E+00	1.0E-03	2.4E-03	3.2E-03	2.1E-03	4.3E-03	6.8E-03	3.2E-03
AOI 22B	Groundwater	n-Nitrosodipropylamine	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.8E-03	7.2E-03	2.7E-03
AOI 22B	Groundwater	Pentachlorophenol (PCP)	1/13	1.3E-02	2.0E-03	5.0E-04	2.9E-03	6.3E-03	6.0E-03	9.2E-03	4.3E-02	2.0E-03
AOI 22B	Groundwater	Phenanthrene	3/13	5.0E-03	3.0E-04	2.0E-04	1.4E-03	2.6E-03	2.3E-03	3.7E-03	1.2E-02	3.0E-04
AOI 22B	Groundwater	Pyrene	5/13	5.0E-03	3.0E-04	1.0E-04	1.1E-03	2.5E-03	2.4E-03	3.7E-03	2.3E-02	3.0E-04
AOI 22B	Groundwater	Selenium	7/14	4.6E-02	4.6E-02	9.0E-04	4.7E-03	9.7E-03	1.2E-02	1.5E-02	3.4E-02	3.4E-02
AOI 22B	Groundwater	Silver	4/14	5.0E-03	2.4E-03	7.0E-04	2.6E-03	3.1E-03	1.8E-03	4.0E-03	5.3E-03	2.4E-03
AOI 22B	Groundwater	Tetrachloroethene	0/16	2.5E-03	0.0E+00	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.2E-03	3.1E-03	1.8E-03
AOI 22B	Groundwater	Toluene	0/16	2.5E-03	0.0E+00	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.2E-03	3.1E-03	1.8E-03
AOI 22B	Groundwater	Trichloroethene	2/15	3.3E-03	3.3E-03	5.0E-04	1.4E-03	1.8E-03	1.0E-03	2.3E-03	3.2E-03	3.2E-03
AOI 22B	Groundwater	Vinyl Chloride	24/28	4.6E-01	4.6E-01	1.0E-03	3.1E-02	8.1E-02	1.1E-01	1.2E-01	3.4E-01	3.4E-01
AOI 22B	Groundwater	Xylenes (Total)	1/15	7.5E-03	1.4E-03	5.0E-04	2.2E-03	2.7E-03	2.0E-03	3.6E-03	4.1E-03	1.4E-03
AOI 26	Groundwater	1,1,1-Trichloroethane	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	1,1,2-Trichloroethane	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	1,1-Dichloroethane	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	1,2,3-Trichloropropane	0/18	5.0E-03	0.0E+00	5.0E-04	1.4E-03	2.3E-03	2.1E-03	3.2E-03	5.0E-03	2.3E-03
AOI 26	Groundwater	1,2-Dichloroethane	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	1,2-Dichloroethene	9/18	5.0E-03	1.8E-03	5.0E-04	1.4E-03	1.8E-03	1.6E-03	2.5E-03	2.7E-03	1.8E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 26	Groundwater	1,4-Dichlorobenzene	0/15	5.0E-03	0.0E+00	1.0E-03	1.9E-03	2.6E-03	2.0E-03	3.5E-03	4.5E-03	2.6E-03
AOI 26	Groundwater	2,6-Dinitrotoluene	0/15	5.0E-03	0.0E+00	5.0E-04	1.3E-03	2.3E-03	2.3E-03	3.3E-03	6.7E-03	2.3E-03
AOI 26	Groundwater	2-Methylnaphthalene	2/15	2.9E-02	2.9E-02	5.0E-04	1.7E-03	3.9E-03	7.2E-03	7.2E-03	9.7E-03	9.7E-03
AOI 26	Groundwater	4,6-Dinitro-o-cresol	0/15	1.3E-02	0.0E+00	5.0E-03	7.2E-03	8.0E-03	3.8E-03	9.7E-03	1.0E-02	8.0E-03
AOI 26	Groundwater	4-Methylphenol (p-Cresol)	1/15	5.0E-03	1.5E-03	5.0E-04	1.5E-03	2.2E-03	2.0E-03	3.2E-03	4.7E-03	1.5E-03
AOI 26	Groundwater	Acenaphthene	2/15	8.6E-03	8.6E-03	2.0E-04	1.5E-03	2.7E-03	2.6E-03	3.9E-03	8.0E-03	8.0E-03
AOI 26	Groundwater	Acetone	2/12	9.7E-03	9.7E-03	1.0E-03	2.3E-03	3.3E-03	2.8E-03	4.7E-03	7.2E-03	7.2E-03
AOI 26	Groundwater	Arsenic	5/14	1.3E-02	1.3E-02	8.0E-04	3.2E-03	5.0E-03	4.4E-03	7.1E-03	1.2E-02	1.2E-02
AOI 26	Groundwater	Barium	14/14	3.4E-01	3.4E-01	1.4E-01	2.3E-01	2.4E-01	5.4E-02	2.6E-01	2.7E-01	2.7E-01
AOI 26	Groundwater	Benzene	1/18	2.5E-03	1.2E-03	5.0E-04	1.1E-03	1.4E-03	1.0E-03	1.8E-03	2.3E-03	1.2E-03
AOI 26	Groundwater	Benzo[a]anthracene	1/15	5.5E-03	5.5E-03	1.0E-03	1.9E-03	2.6E-03	2.1E-03	3.6E-03	4.6E-03	4.6E-03
AOI 26	Groundwater	Benzo[a]pyrene	1/15	5.0E-03	1.1E-03	5.0E-04	1.4E-03	2.2E-03	2.1E-03	3.1E-03	4.6E-03	1.1E-03
AOI 26	Groundwater	Benzo[b]fluoranthene	1/15	5.0E-03	2.3E-03	1.0E-03	1.8E-03	2.4E-03	1.9E-03	3.3E-03	4.0E-03	2.3E-03
AOI 26	Groundwater	Benzo[k]fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	1.9E-03	2.6E-03	2.0E-03	3.5E-03	4.5E-03	2.6E-03
AOI 26	Groundwater	bis(2-Chloroethyl)ether	0/15	5.0E-03	0.0E+00	5.0E-04	1.6E-03	2.5E-03	2.2E-03	3.4E-03	5.5E-03	2.5E-03
AOI 26	Groundwater	bis(2-Ethylhexyl)phthalate	7/15	9.9E-02	9.9E-02	1.5E-04	1.7E-03	1.2E-02	2.6E-02	2.4E-02	3.3E-01	9.9E-02
AOI 26	Groundwater	Cadmium	4/14	4.1E-03	4.1E-03	7.5E-05	3.4E-04	1.0E-03	1.4E-03	1.6E-03	5.6E-03	4.1E-03
AOI 26	Groundwater	Carbazole	0/15	5.0E-03	0.0E+00	3.0E-03	3.7E-03	3.8E-03	1.0E-03	4.3E-03	4.3E-03	3.8E-03
AOI 26	Groundwater	Chlorodibromomethane	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	Chloroethane (Ethyl chloride)	0/18	5.0E-03	0.0E+00	5.0E-04	2.0E-03	2.9E-03	2.2E-03	3.8E-03	5.9E-03	2.9E-03
AOI 26	Groundwater	Chloromethane (Methyl chloride)	0/18	5.0E-03	0.0E+00	5.0E-04	2.0E-03	2.9E-03	2.2E-03	3.8E-03	5.9E-03	2.9E-03
AOI 26	Groundwater	Chromium	4/14	5.0E-03	2.7E-03	1.5E-04	6.6E-04	1.6E-03	2.0E-03	2.5E-03	7.6E-03	2.7E-03
AOI 26	Groundwater	Chrysene	1/15	8.5E-03	8.5E-03	5.0E-04	1.6E-03	2.7E-03	2.6E-03	3.9E-03	6.3E-03	6.3E-03
AOI 26	Groundwater	cis-1,2-Dichloroethene	5/12	2.5E-03	1.0E-03	5.0E-04	8.4E-04	1.1E-03	8.7E-04	1.5E-03	1.8E-03	1.0E-03
AOI 26	Groundwater	Dibenz[a,h]anthracene	0/15	5.0E-03	0.0E+00	1.0E-03	1.9E-03	2.6E-03	2.0E-03	3.5E-03	4.5E-03	2.6E-03
AOI 26	Groundwater	Dibenzofuran	1/6	5.7E-03	5.7E-03	5.0E-03	5.1E-03	5.1E-03	2.9E-04	5.4E-03	5.4E-03	5.4E-03
AOI 26	Groundwater	Dichloromethane	5/18	2.5E-03	1.7E-03	5.0E-04	9.5E-04	1.2E-03	8.2E-04	1.5E-03	1.8E-03	1.7E-03
AOI 26	Groundwater	Ethylbenzene	1/18	2.5E-03	2.4E-03	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	2.4E-03
AOI 26	Groundwater	Fluoranthene	1/15	5.0E-03	4.9E-03	1.0E-03	1.9E-03	2.6E-03	2.0E-03	3.5E-03	4.5E-03	4.5E-03
AOI 26	Groundwater	Fluorene	1/15	1.9E-02	1.9E-02	5.0E-04	1.7E-03	3.4E-03	4.8E-03	5.6E-03	9.1E-03	9.1E-03
AOI 26	Groundwater	Indeno[1,2,3-c,d]pyrene	1/15	5.0E-03	1.5E-03	1.0E-03	1.8E-03	2.4E-03	1.9E-03	3.2E-03	3.9E-03	1.5E-03
AOI 26	Groundwater	Lead	2/14	4.3E-02	4.3E-02	5.5E-04	2.0E-03	7.6E-03	1.5E-02	1.4E-02	3.2E-02	7.6E-03
AOI 26	Groundwater	Mercury	3/14	2.5E-03	1.9E-03	8.5E-06	6.0E-05	5.4E-04	9.7E-04	1.0E-03	2.7E-02	1.9E-03
AOI 26	Groundwater	Naphthalene	2/15	2.8E-02	2.8E-02	1.0E-03	2.1E-03	4.1E-03	6.9E-03	7.2E-03	7.7E-03	7.7E-03
AOI 26	Groundwater	n-Nitrosodipropylamine	0/15	5.0E-03	0.0E+00	5.0E-04	1.7E-03	2.5E-03	2.1E-03	3.5E-03	5.4E-03	2.5E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 26	Groundwater	Pentachlorophenol (PCP)	0/15	1.3E-02	0.0E+00	5.0E-04	2.3E-03	5.5E-03	5.9E-03	8.2E-03	2.7E-02	5.5E-03
AOI 26	Groundwater	Phenanthrene	1/15	5.1E-02	5.1E-02	5.0E-04	1.8E-03	5.5E-03	1.3E-02	1.1E-02	1.4E-02	1.4E-02
AOI 26	Groundwater	Pyrene	1/15	2.9E-02	2.9E-02	1.0E-03	2.1E-03	4.2E-03	7.1E-03	7.4E-03	8.1E-03	8.1E-03
AOI 26	Groundwater	Selenium	1/14	2.0E-02	2.4E-03	9.0E-04	3.5E-03	6.7E-03	7.6E-03	1.0E-02	2.2E-02	2.4E-03
AOI 26	Groundwater	Silver	3/14	5.0E-03	2.4E-03	7.0E-04	2.2E-03	2.8E-03	1.8E-03	3.7E-03	5.0E-03	2.4E-03
AOI 26	Groundwater	Tetrachloroethene	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	Toluene	1/18	2.5E-03	1.4E-03	5.0E-04	1.1E-03	1.4E-03	1.0E-03	1.8E-03	2.4E-03	1.4E-03
AOI 26	Groundwater	Trichloroethene	0/18	2.5E-03	0.0E+00	5.0E-04	1.1E-03	1.5E-03	1.0E-03	1.9E-03	2.5E-03	1.5E-03
AOI 26	Groundwater	Vinyl Chloride	13/20	7.0E-03	7.0E-03	5.0E-04	2.6E-03	3.2E-03	1.9E-03	4.0E-03	5.4E-03	5.4E-03
AOI 26	Groundwater	Xylenes (Total)	2/18	5.3E-03	5.3E-03	5.0E-04	1.8E-03	2.4E-03	1.6E-03	3.0E-03	3.8E-03	3.8E-03
AOI 27	Groundwater	1,1,1-Trichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	1,1,2-Trichloroethane	0/13	2.5E-03	0.0E+00	5.0E-04	1.5E-03	1.9E-03	9.6E-04	2.4E-03	3.6E-03	1.9E-03
AOI 27	Groundwater	1,1-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	1,2,3-Trichloropropane	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.9E-03	2.2E-03	3.9E-03	7.6E-03	2.9E-03
AOI 27	Groundwater	1,2-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	1,2-Dichloroethene	7/15	5.0E-03	3.0E-03	6.0E-04	1.7E-03	2.0E-03	1.2E-03	2.5E-03	2.9E-03	2.9E-03
AOI 27	Groundwater	1,4-Dichlorobenzene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	2,6-Dinitrotoluene	0/15	5.0E-03	0.0E+00	5.0E-04	1.5E-03	2.6E-03	2.3E-03	3.7E-03	8.1E-03	2.6E-03
AOI 27	Groundwater	2-Methylnaphthalene	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	4,6-Dinitro-o-cresol	0/15	1.3E-02	0.0E+00	5.0E-03	7.7E-03	8.5E-03	3.9E-03	1.0E-02	1.1E-02	8.5E-03
AOI 27	Groundwater	4-Methylphenol (p-Cresol)	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	Acenaphthene	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	Acetone	5/13	1.1E-02	1.1E-02	1.0E-03	3.3E-03	4.9E-03	3.9E-03	6.8E-03	1.3E-02	1.1E-02
AOI 27	Groundwater	Arsenic	11/15	1.0E-02	1.0E-02	2.0E-03	3.9E-03	4.5E-03	2.7E-03	5.8E-03	6.1E-03	6.1E-03
AOI 27	Groundwater	Barium	15/15	5.8E-01	5.8E-01	6.1E-02	1.6E-01	2.1E-01	1.6E-01	2.8E-01	3.2E-01	3.2E-01
AOI 27	Groundwater	Benzene	1/15	2.5E-03	8.0E-04	5.0E-04	1.4E-03	1.7E-03	9.9E-04	2.2E-03	3.1E-03	8.0E-04
AOI 27	Groundwater	Benzo[a]anthracene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	Benzo[a]pyrene	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	Benzo[b]fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	Benzo[k]fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	bis(2-Chloroethyl)ether	3/15	5.0E-03	1.0E-03	5.0E-04	1.9E-03	2.8E-03	2.2E-03	3.8E-03	6.2E-03	1.0E-03
AOI 27	Groundwater	bis(2-Ethylhexyl)phthalate	3/15	9.0E-03	9.0E-03	1.5E-04	1.8E-03	3.4E-03	2.9E-03	4.8E-03	1.9E-02	9.0E-03
AOI 27	Groundwater	Cadmium	3/15	3.6E-03	3.6E-03	7.5E-05	6.4E-04	1.1E-03	1.1E-03	1.6E-03	3.3E-03	3.3E-03
AOI 27	Groundwater	Carbazole	0/15	5.0E-03	0.0E+00	3.0E-03	3.8E-03	3.9E-03	1.0E-03	4.4E-03	4.5E-03	3.9E-03
AOI 27	Groundwater	Chlorodibromomethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 27	Groundwater	Chloroethane (Ethyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	2.4E-03	3.3E-03	2.1E-03	4.3E-03	7.6E-03	3.3E-03
AOI 27	Groundwater	Chloromethane (Methyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	2.4E-03	3.3E-03	2.1E-03	4.3E-03	7.6E-03	3.3E-03
AOI 27	Groundwater	Chromium	5/15	9.0E-02	9.0E-02	1.5E-04	2.1E-03	1.2E-02	2.5E-02	2.4E-02	2.7E-01	9.0E-02
AOI 27	Groundwater	Chrysene	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	cis-1,2-Dichloroethene	4/8	3.0E-03	3.0E-03	5.0E-04	1.0E-03	1.3E-03	1.0E-03	2.0E-03	3.4E-03	3.0E-03
AOI 27	Groundwater	Dibenz[a,h]anthracene	0/15	5.0E-03	0.0E+00	1.0E-03	2.2E-03	2.9E-03	2.0E-03	3.8E-03	5.1E-03	2.9E-03
AOI 27	Groundwater	Dibenzofuran	0/7	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 27	Groundwater	Dichloromethane	7/15	2.5E-03	1.5E-03	5.0E-04	9.7E-04	1.1E-03	6.8E-04	1.5E-03	1.7E-03	1.5E-03
AOI 27	Groundwater	Ethylbenzene	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	Fluoranthene	0/15	5.0E-03	0.0E+00	1.0E-03	2.2E-03	2.9E-03	2.0E-03	3.8E-03	5.1E-03	2.9E-03
AOI 27	Groundwater	Fluorene	1/15	5.0E-03	3.0E-04	3.0E-04	1.7E-03	2.7E-03	0.0E+00	2.7E-03	6.9E-03	3.0E-04
AOI 27	Groundwater	Indeno[1,2,3-c,d]pyrene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	Lead	4/15	9.5E-03	9.5E-03	5.0E-04	1.7E-03	3.1E-03	3.2E-03	4.5E-03	9.2E-03	3.1E-03
AOI 27	Groundwater	Mercury	0/15	2.5E-03	0.0E+00	8.5E-06	2.1E-04	1.2E-03	1.3E-03	1.8E-03	3.3E-01	1.2E-03
AOI 27	Groundwater	Naphthalene	2/15	5.0E-03	2.0E-04	1.0E-04	1.6E-03	2.8E-03	2.2E-03	3.7E-03	1.1E-02	2.0E-04
AOI 27	Groundwater	n-Nitrosodipropylamine	0/15	5.0E-03	0.0E+00	5.0E-04	1.9E-03	2.8E-03	2.1E-03	3.8E-03	5.8E-03	2.8E-03
AOI 27	Groundwater	Pentachlorophenol (PCP)	3/15	1.3E-02	3.0E-03	5.0E-04	3.0E-03	6.4E-03	5.9E-03	9.1E-03	3.6E-02	3.0E-03
AOI 27	Groundwater	Phenanthrene	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.7E-03	2.2E-03	3.7E-03	6.5E-03	2.7E-03
AOI 27	Groundwater	Pyrene	0/15	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.9E-03	2.1E-03	3.8E-03	5.2E-03	2.9E-03
AOI 27	Groundwater	Selenium	3/15	2.6E-02	2.6E-02	9.0E-04	4.8E-03	7.7E-03	7.8E-03	1.1E-02	1.8E-02	1.8E-02
AOI 27	Groundwater	Silver	2/15	1.0E-02	1.0E-02	7.0E-04	2.9E-03	3.7E-03	2.5E-03	4.9E-03	6.9E-03	6.9E-03
AOI 27	Groundwater	Tetrachloroethene	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	Toluene	0/15	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.7E-03	1.0E-03	2.2E-03	3.1E-03	1.7E-03
AOI 27	Groundwater	Trichloroethene	6/15	3.1E-03	3.1E-03	5.0E-04	1.8E-03	2.0E-03	8.6E-04	2.4E-03	3.3E-03	3.1E-03
AOI 27	Groundwater	Vinyl Chloride	0/15	5.0E-03	0.0E+00	5.0E-04	2.4E-03	3.3E-03	2.1E-03	4.3E-03	7.6E-03	3.3E-03
AOI 27	Groundwater	Xylenes (Total)	0/15	5.0E-03	0.0E+00	5.0E-04	1.9E-03	2.3E-03	1.3E-03	2.9E-03	3.6E-03	2.3E-03
AOI 30	Groundwater	1,1,1-Trichloroethane	0/47	6.0E-02	0.0E+00	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	4.2E-03
AOI 30	Groundwater	1,1,2-Trichloroethane	0/45	6.0E-02	0.0E+00	5.0E-04	1.7E-03	4.3E-03	1.1E-02	7.2E-03	4.9E-03	4.3E-03
AOI 30	Groundwater	1,1-Dichloroethane	0/47	6.0E-02	0.0E+00	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	4.2E-03
AOI 30	Groundwater	1,2,3-Trichloropropane	1/47	1.3E-01	9.0E-03	5.0E-04	2.4E-03	8.1E-03	2.3E-02	1.4E-02	1.1E-02	9.0E-03
AOI 30	Groundwater	1,2-Dichloroethane	0/47	6.0E-02	0.0E+00	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	4.2E-03
AOI 30	Groundwater	1,2-Dichloroethene	21/47	6.0E-01	6.0E-01	1.0E-03	5.5E-03	3.8E-02	1.0E-01	6.3E-02	5.5E-02	6.3E-02
AOI 30	Groundwater	1,4-Dichlorobenzene	8/39	2.5E-01	3.0E-03	1.0E-04	2.4E-03	1.6E-02	4.7E-02	2.9E-02	3.1E-02	3.0E-03
AOI 30	Groundwater	2,6-Dinitrotoluene	0/39	2.5E-01	0.0E+00	5.0E-04	1.9E-03	1.6E-02	4.7E-02	2.9E-02	2.6E-02	1.6E-02
AOI 30	Groundwater	2-Methylnaphthalene	14/39	6.9E+00	6.9E+00	5.0E-04	5.2E-03	2.8E-01	1.2E+00	6.1E-01	4.0E-01	6.1E-01

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 30	Groundwater	4,6-Dinitro-o-cresol	0/37	6.0E-01	0.0E+00	5.0E-03	1.1E-02	4.4E-02	1.2E-01	7.6E-02	4.3E-02	4.4E-02
AOI 30	Groundwater	4-Methylphenol (p-Cresol)	3/39	2.5E-01	1.9E-03	5.0E-04	2.6E-03	1.6E-02	4.7E-02	2.9E-02	1.9E-02	1.9E-03
AOI 30	Groundwater	Acenaphthene	16/39	1.1E+00	1.1E+00	5.0E-04	3.0E-03	4.3E-02	1.8E-01	9.2E-02	3.7E-02	9.2E-02
AOI 30	Groundwater	Acetone	12/40	1.6E-01	1.6E-01	1.0E-03	3.4E-03	9.4E-03	2.6E-02	1.6E-02	1.2E-02	1.6E-02
AOI 30	Groundwater	Aroclor-1260	0/1	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02	#DIV/0!	#VALUE!	#DIV/0!	5.0E-02
AOI 30	Groundwater	Arsenic	22/41	5.1E-02	5.1E-02	8.0E-04	5.7E-03	1.1E-02	1.4E-02	1.5E-02	1.9E-02	1.9E-02
AOI 30	Groundwater	Barium	41/41	2.2E+00	2.2E+00	1.4E-02	3.4E-01	5.0E-01	4.5E-01	6.2E-01	7.6E-01	7.6E-01
AOI 30	Groundwater	Benzene	21/47	6.0E-02	9.0E-03	5.0E-04	2.6E-03	5.3E-03	1.1E-02	8.0E-03	6.1E-03	8.0E-03
AOI 30	Groundwater	Benzo[a]anthracene	3/39	1.3E-01	1.3E-01	1.0E-03	2.7E-03	1.2E-02	3.0E-02	2.0E-02	1.5E-02	2.0E-02
AOI 30	Groundwater	Benzo[a]pyrene	1/39	2.5E-01	7.3E-02	5.0E-04	2.7E-03	1.6E-02	4.5E-02	2.8E-02	1.8E-02	2.8E-02
AOI 30	Groundwater	Benzo[b]fluoranthene	1/39	2.5E-01	8.3E-02	1.0E-03	2.8E-03	1.6E-02	4.6E-02	2.8E-02	1.8E-02	2.8E-02
AOI 30	Groundwater	Benzo[k]fluoranthene	1/39	2.5E-01	3.8E-02	1.0E-03	2.8E-03	1.5E-02	4.5E-02	2.7E-02	1.6E-02	2.7E-02
AOI 30	Groundwater	bis(2-Chloroethyl)ether	0/39	2.5E-01	0.0E+00	5.0E-04	2.7E-03	1.6E-02	4.7E-02	2.9E-02	1.9E-02	1.6E-02
AOI 30	Groundwater	bis(2-Ethylhexyl)phthalate	16/39	2.7E-01	2.7E-01	5.0E-05	2.5E-03	2.1E-02	5.0E-02	3.5E-02	1.3E-01	1.3E-01
AOI 30	Groundwater	Cadmium	11/41	1.1E-02	1.1E-02	7.5E-05	4.5E-04	1.3E-03	2.1E-03	1.9E-03	3.1E-03	3.1E-03
AOI 30	Groundwater	Carbazole	4/38	2.5E-01	3.0E-03	6.0E-04	4.9E-03	1.8E-02	4.7E-02	3.1E-02	1.7E-02	3.0E-03
AOI 30	Groundwater	Chlorodibromomethane	0/47	6.0E-02	0.0E+00	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	4.2E-03
AOI 30	Groundwater	Chloroethane (Ethyl chloride)	0/47	6.0E-02	0.0E+00	5.0E-04	2.8E-03	5.7E-03	1.1E-02	8.3E-03	8.2E-03	5.7E-03
AOI 30	Groundwater	Chloromethane (Methyl chloride)	1/47	6.0E-02	1.0E-02	5.0E-04	2.8E-03	5.8E-03	1.1E-02	8.5E-03	8.5E-03	8.5E-03
AOI 30	Groundwater	Chromium	10/41	9.2E-02	9.2E-02	1.1E-04	1.8E-03	1.1E-02	2.2E-02	1.6E-02	4.2E-02	4.2E-02
AOI 30	Groundwater	Chrysene	4/39	1.5E-01	1.5E-01	5.0E-04	2.5E-03	1.2E-02	3.2E-02	2.1E-02	1.5E-02	2.1E-02
AOI 30	Groundwater	cis-1,2-Dichloroethene	10/24	1.6E-01	1.6E-01	5.0E-04	2.4E-03	1.9E-02	4.5E-02	3.5E-02	7.1E-02	7.1E-02
AOI 30	Groundwater	Dibenz[a,h]anthracene	0/39	2.5E-01	0.0E+00	1.0E-03	3.0E-03	1.6E-02	4.7E-02	2.9E-02	1.8E-02	1.6E-02
AOI 30	Groundwater	Dibenzofuran	3/17	2.5E-01	4.1E-02	2.5E-03	9.8E-03	3.3E-02	6.4E-02	6.0E-02	8.8E-02	4.1E-02
AOI 30	Groundwater	Dichloromethane	14/47	6.0E-02	8.8E-03	5.0E-04	1.4E-03	3.9E-03	1.1E-02	6.6E-03	3.6E-03	6.6E-03
AOI 30	Groundwater	Ethylbenzene	2/47	6.0E-02	3.2E-03	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	3.2E-03
AOI 30	Groundwater	Fluoranthene	11/38	3.1E-01	3.1E-01	1.0E-04	2.8E-03	2.0E-02	6.4E-02	3.8E-02	2.6E-02	3.8E-02
AOI 30	Groundwater	Fluorene	18/39	1.3E+00	1.3E+00	5.0E-04	3.3E-03	5.4E-02	2.2E-01	1.1E-01	4.0E-02	1.1E-01
AOI 30	Groundwater	Indeno[1,2,3-c,d]pyrene	0/39	2.5E-01	0.0E+00	1.0E-03	2.9E-03	1.6E-02	4.7E-02	2.9E-02	1.9E-02	1.6E-02
AOI 30	Groundwater	Lead	21/41	1.6E+00	1.6E+00	5.5E-04	5.0E-03	8.1E-02	2.7E-01	1.5E-01	1.9E-01	8.1E-02
AOI 30	Groundwater	Mercury	5/40	2.5E-03	4.8E-05	8.5E-06	1.3E-04	1.1E-03	1.2E-03	1.4E-03	3.0E-02	4.8E-05
AOI 30	Groundwater	Naphthalene	8/39	7.2E-01	7.2E-01	5.0E-04	2.9E-03	3.2E-02	1.2E-01	6.5E-02	2.9E-02	6.5E-02
AOI 30	Groundwater	n-Nitrosodipropylamine	0/39	2.5E-01	0.0E+00	5.0E-04	2.7E-03	1.6E-02	4.7E-02	2.9E-02	1.9E-02	1.6E-02
AOI 30	Groundwater	Pentachlorophenol (PCP)	3/37	6.0E-01	5.0E-03	5.0E-04	4.8E-03	4.2E-02	1.2E-01	7.4E-02	1.0E-01	5.0E-03
AOI 30	Groundwater	Phenanthrene	14/37	2.3E+00	2.3E+00	2.0E-04	2.6E-03	7.8E-02	3.8E-01	1.8E-01	6.4E-02	1.8E-01

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 30	Groundwater	Pyrene	11/39	4.2E-01	4.2E-01	4.0E-04	2.6E-03	2.2E-02	7.6E-02	4.3E-02	2.0E-02	4.3E-02
AOI 30	Groundwater	Selenium	18/41	5.0E-02	2.7E-02	9.0E-04	5.2E-03	8.8E-03	9.7E-03	1.1E-02	1.4E-02	1.4E-02
AOI 30	Groundwater	Silver	8/41	5.0E-03	3.2E-03	7.0E-04	3.0E-03	3.6E-03	1.7E-03	4.0E-03	4.7E-03	3.2E-03
AOI 30	Groundwater	Tetrachloroethene	3/47	6.0E-02	9.7E-03	5.0E-04	1.6E-03	4.3E-03	1.1E-02	7.0E-03	5.0E-03	7.0E-03
AOI 30	Groundwater	Toluene	7/47	6.0E-02	3.1E-03	5.0E-04	1.4E-03	4.0E-03	1.1E-02	6.7E-03	4.2E-03	3.1E-03
AOI 30	Groundwater	Trichloroethene	1/47	6.0E-02	2.5E-03	5.0E-04	1.6E-03	4.2E-03	1.1E-02	6.9E-03	4.6E-03	2.5E-03
AOI 30	Groundwater	Vinyl Chloride	32/58	2.0E+00	2.0E+00	5.0E-04	9.1E-03	1.1E-01	3.0E-01	1.7E-01	2.9E-01	2.9E-01
AOI 30	Groundwater	Xylenes (Total)	7/47	6.0E-02	5.4E-03	5.0E-04	2.2E-03	4.7E-03	1.1E-02	7.4E-03	5.1E-03	5.4E-03
AOI 32	Groundwater	1,1,1-Trichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	1,1,2-Trichloroethane	0/14	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.6E-03	1.0E-03	2.1E-03	3.1E-03	1.6E-03
AOI 32	Groundwater	1,1-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	1,2,3-Trichloropropane	0/15	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.8E-03	2.2E-03	3.8E-03	7.3E-03	2.8E-03
AOI 32	Groundwater	1,2-Dichloroethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	1,2-Dichloroethene	1/15	3.0E-03	3.0E-03	1.0E-03	1.7E-03	1.8E-03	8.2E-04	2.2E-03	2.4E-03	2.4E-03
AOI 32	Groundwater	1,4-Dichlorobenzene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 32	Groundwater	2,6-Dinitrotoluene	0/13	5.0E-03	0.0E+00	5.0E-04	1.4E-03	2.6E-03	2.3E-03	3.7E-03	9.5E-03	2.6E-03
AOI 32	Groundwater	2-Methylnaphthalene	3/13	3.2E-02	3.2E-02	5.0E-04	2.1E-03	4.8E-03	8.5E-03	9.0E-03	1.6E-02	1.6E-02
AOI 32	Groundwater	4,6-Dinitro-o-cresol	0/13	1.3E-02	0.0E+00	5.0E-03	7.7E-03	8.5E-03	3.9E-03	1.0E-02	1.1E-02	8.5E-03
AOI 32	Groundwater	4-Methylphenol (p-Cresol)	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.8E-03	2.2E-03	3.8E-03	6.9E-03	2.8E-03
AOI 32	Groundwater	Acenaphthene	7/13	5.0E-03	3.3E-03	2.0E-04	1.2E-03	1.8E-03	1.6E-03	2.6E-03	4.1E-03	3.3E-03
AOI 32	Groundwater	Acetone	1/12	1.0E+01	1.0E+01	1.0E-03	4.8E-03	8.4E-01	2.9E+00	2.3E+00	1.2E+01	1.0E+01
AOI 32	Groundwater	Arsenic	5/8	1.7E-02	1.7E-02	9.0E-04	4.9E-03	7.4E-03	6.0E-03	1.1E-02	3.6E-02	1.7E-02
AOI 32	Groundwater	Barium	8/8	6.7E-01	6.7E-01	3.7E-01	5.2E-01	5.2E-01	9.2E-02	5.9E-01	6.0E-01	6.0E-01
AOI 32	Groundwater	Benzene	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	Benzo[a]anthracene	2/13	5.0E-03	1.3E-03	2.0E-05	1.4E-03	2.5E-03	2.1E-03	3.5E-03	2.3E-02	1.3E-03
AOI 32	Groundwater	Benzo[a]pyrene	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.8E-03	2.2E-03	3.8E-03	6.9E-03	2.8E-03
AOI 32	Groundwater	Benzo[b]fluoranthene	1/13	5.0E-03	1.1E-03	1.0E-03	1.9E-03	2.5E-03	2.0E-03	3.5E-03	4.7E-03	1.1E-03
AOI 32	Groundwater	Benzo[k]fluoranthene	1/13	5.0E-03	2.0E-04	2.0E-04	1.9E-03	2.8E-03	0.0E+00	2.8E-03	7.8E-03	2.0E-04
AOI 32	Groundwater	bis(2-Chloroethyl)ether	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.8E-03	2.2E-03	3.8E-03	6.9E-03	2.8E-03
AOI 32	Groundwater	bis(2-Ethylhexyl)phthalate	5/13	1.4E-01	1.4E-01	2.0E-04	2.8E-03	1.6E-02	3.9E-02	3.6E-02	1.6E-01	1.4E-01
AOI 32	Groundwater	Cadmium	3/8	5.0E-03	5.0E-03	7.5E-05	3.8E-04	1.3E-03	1.9E-03	2.5E-03	1.0E-01	5.0E-03
AOI 32	Groundwater	Carbazole	2/13	5.0E-03	1.2E-03	4.0E-04	3.0E-03	3.5E-03	1.5E-03	4.2E-03	6.3E-03	1.2E-03
AOI 32	Groundwater	Chlorodibromomethane	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	Chloroethane (Ethyl chloride)	0/15	5.0E-03	0.0E+00	5.0E-04	2.1E-03	3.0E-03	2.2E-03	4.0E-03	7.2E-03	3.0E-03
AOI 32	Groundwater	Chloromethane (Methyl chloride)	1/15	1.0E-02	1.0E-02	5.0E-04	2.2E-03	3.4E-03	2.8E-03	4.6E-03	8.4E-03	8.4E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 32	Groundwater	Chromium	1/8	5.0E-03	1.9E-03	1.5E-04	4.6E-04	1.1E-03	1.7E-03	2.2E-03	9.2E-03	1.9E-03
AOI 32	Groundwater	Chrysene	1/13	5.0E-03	1.1E-03	5.0E-04	1.6E-03	2.5E-03	2.1E-03	3.5E-03	5.5E-03	1.1E-03
AOI 32	Groundwater	cis-1,2-Dichloroethene	1/8	3.0E-03	3.0E-03	5.0E-04	6.3E-04	8.1E-04	8.8E-04	1.4E-03	1.4E-03	1.4E-03
AOI 32	Groundwater	Dibenz[a,h]anthracene	0/13	5.0E-03	0.0E+00	1.0E-03	2.2E-03	2.9E-03	2.0E-03	3.9E-03	5.5E-03	2.9E-03
AOI 32	Groundwater	Dibenzofuran	1/6	5.0E-03	1.2E-03	1.2E-03	3.9E-03	4.4E-03	0.0E+00	4.4E-03	9.4E-03	1.2E-03
AOI 32	Groundwater	Dichloromethane	7/15	8.7E+00	8.7E+00	5.0E-04	1.5E-03	5.8E-01	2.2E+00	1.6E+00	1.2E+00	1.6E+00
AOI 32	Groundwater	Ethylbenzene	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	Fluoranthene	2/13	7.4E-03	7.4E-03	2.0E-04	2.0E-03	3.0E-03	2.4E-03	4.2E-03	8.6E-03	7.4E-03
AOI 32	Groundwater	Fluorene	6/13	5.0E-03	3.4E-03	8.0E-05	1.1E-03	2.0E-03	1.9E-03	2.9E-03	8.2E-03	3.4E-03
AOI 32	Groundwater	Indeno[1,2,3-c,d]pyrene	0/13	5.0E-03	0.0E+00	1.0E-03	2.1E-03	2.8E-03	2.1E-03	3.9E-03	5.5E-03	2.8E-03
AOI 32	Groundwater	Lead	2/8	1.0E-02	1.0E-02	5.5E-04	1.1E-03	2.2E-03	3.3E-03	4.3E-03	8.9E-03	2.2E-03
AOI 32	Groundwater	Mercury	2/8	4.2E-05	4.2E-05	8.5E-06	1.4E-05	1.8E-05	1.3E-05	2.6E-05	3.3E-05	3.3E-05
AOI 32	Groundwater	Naphthalene	3/13	6.2E-03	6.2E-03	9.0E-04	2.0E-03	2.7E-03	2.1E-03	3.8E-03	5.2E-03	5.2E-03
AOI 32	Groundwater	n-Nitrosodipropylamine	0/13	5.0E-03	0.0E+00	5.0E-04	1.8E-03	2.8E-03	2.2E-03	3.8E-03	6.9E-03	2.8E-03
AOI 32	Groundwater	Pentachlorophenol (PCP)	2/13	1.3E-02	6.3E-03	5.0E-04	3.6E-03	6.8E-03	5.7E-03	9.6E-03	3.5E-02	6.3E-03
AOI 32	Groundwater	Phenanthrene	6/13	5.0E-03	4.5E-03	1.0E-04	1.1E-03	1.8E-03	1.8E-03	2.7E-03	5.5E-03	4.5E-03
AOI 32	Groundwater	Pyrene	2/13	5.6E-03	5.6E-03	2.0E-04	1.9E-03	2.8E-03	2.2E-03	3.9E-03	8.0E-03	5.6E-03
AOI 32	Groundwater	Selenium	3/8	2.0E-02	6.6E-03	9.0E-04	5.9E-03	8.6E-03	7.4E-03	1.4E-02	4.1E-02	6.6E-03
AOI 32	Groundwater	Silver	3/8	5.0E-03	1.5E-03	7.0E-04	1.6E-03	1.9E-03	1.3E-03	2.8E-03	3.5E-03	1.5E-03
AOI 32	Groundwater	Tetrachloroethene	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	Toluene	2/15	2.5E-03	1.6E-03	5.0E-04	1.1E-03	1.4E-03	9.6E-04	1.9E-03	2.5E-03	1.6E-03
AOI 32	Groundwater	Trichloroethene	0/15	2.5E-03	0.0E+00	5.0E-04	1.2E-03	1.6E-03	1.0E-03	2.0E-03	2.9E-03	1.6E-03
AOI 32	Groundwater	Vinyl Chloride	1/15	9.0E-03	9.0E-03	5.0E-04	2.1E-03	3.3E-03	2.6E-03	4.5E-03	8.2E-03	8.2E-03
AOI 32	Groundwater	Xylenes (Total)	1/15	5.0E-03	2.6E-03	5.0E-04	1.8E-03	2.1E-03	1.1E-03	2.6E-03	3.1E-03	2.6E-03
AOI 33	Groundwater	1,1,1-Trichloroethane	0/78	1.3E-02	0.0E+00	5.0E-04	6.0E-04	9.7E-04	2.0E-03	1.4E-03	8.6E-04	9.7E-04
AOI 33	Groundwater	1,1,2-Trichloroethane	2/78	1.3E-02	2.0E-03	5.0E-04	6.2E-04	1.0E-03	2.0E-03	1.4E-03	9.2E-04	1.4E-03
AOI 33	Groundwater	1,1-Dichloroethane	4/78	1.3E-02	2.1E-03	5.0E-04	6.0E-04	9.7E-04	2.0E-03	1.4E-03	8.6E-04	1.4E-03
AOI 33	Groundwater	1,2,3-Trichloropropane	0/78	2.5E-02	0.0E+00	5.0E-04	6.2E-04	1.2E-03	3.2E-03	1.8E-03	1.0E-03	1.2E-03
AOI 33	Groundwater	1,2-Dichloroethane	0/78	1.3E-02	0.0E+00	5.0E-04	6.0E-04	9.7E-04	2.0E-03	1.4E-03	8.6E-04	9.7E-04
AOI 33	Groundwater	1,2-Dichloroethene	0/78	2.0E-02	0.0E+00	1.0E-03	1.2E-03	1.7E-03	3.3E-03	2.3E-03	1.5E-03	1.7E-03
AOI 33	Groundwater	1,4-Dichlorobenzene	1/77	2.5E-02	4.0E-04	4.0E-04	1.1E-03	1.5E-03	0.0E+00	1.5E-03	1.4E-03	4.0E-04
AOI 33	Groundwater	2,6-Dinitrotoluene	0/77	2.5E-02	0.0E+00	5.0E-05	3.5E-04	8.9E-04	2.9E-03	1.5E-03	1.0E-03	8.9E-04
AOI 33	Groundwater	2-Methylnaphthalene	32/77	7.3E-01	7.3E-01	4.0E-05	3.0E-03	6.9E-02	1.7E-01	1.0E-01	2.4E-01	2.4E-01
AOI 33	Groundwater	4,6-Dinitro-o-cresol	0/77	6.0E-02	0.0E+00	5.0E-03	5.4E-03	6.0E-03	6.4E-03	7.2E-03	6.0E-03	6.0E-03
AOI 33	Groundwater	4-Methylphenol (p-Cresol)	8/77	2.5E-02	2.3E-02	2.0E-04	8.5E-04	1.7E-03	4.1E-03	2.5E-03	1.5E-03	2.5E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 33	Groundwater	Acenaphthene	68/82	2.4E-01	2.4E-01	1.0E-04	1.2E-02	5.3E-02	6.6E-02	6.5E-02	3.2E-01	2.4E-01
AOI 33	Groundwater	Acetone	3/60	2.4E-01	2.4E-01	1.0E-03	1.5E-03	9.2E-03	3.8E-02	1.7E-02	4.2E-03	1.7E-02
AOI 33	Groundwater	Aroclor-1260	1/7	2.5E-03	1.0E-04	4.8E-06	7.8E-05	7.7E-04	1.2E-03	1.6E-03	5.0E+02	1.0E-04
AOI 33	Groundwater	Arsenic	16/75	1.3E-02	1.3E-02	8.0E-04	1.4E-03	1.8E-03	1.8E-03	2.2E-03	2.0E-03	2.2E-03
AOI 33	Groundwater	Barium	75/75	5.1E-01	5.1E-01	2.2E-04	1.1E-01	1.3E-01	6.3E-02	1.4E-01	1.8E-01	1.8E-01
AOI 33	Groundwater	Benzene	39/78	2.7E-01	2.7E-01	5.0E-04	2.7E-03	2.9E-02	6.0E-02	4.0E-02	6.6E-02	6.6E-02
AOI 33	Groundwater	Benzo[a]anthracene	35/82	2.5E-02	1.8E-02	1.0E-04	9.1E-04	1.7E-03	3.5E-03	2.4E-03	1.8E-03	2.4E-03
AOI 33	Groundwater	Benzo[a]pyrene	20/82	2.5E-02	1.9E-02	5.0E-05	5.4E-04	1.6E-03	3.7E-03	2.2E-03	2.3E-03	2.3E-03
AOI 33	Groundwater	Benzo[b]fluoranthene	17/82	2.5E-02	8.0E-03	1.0E-04	1.0E-03	1.5E-03	2.9E-03	2.1E-03	1.6E-03	2.1E-03
AOI 33	Groundwater	Benzo[k]fluoranthene	17/82	2.5E-02	1.1E-02	1.0E-04	9.8E-04	1.6E-03	3.0E-03	2.2E-03	1.7E-03	2.2E-03
AOI 33	Groundwater	bis(2-Chloroethyl)ether	0/77	2.5E-02	0.0E+00	5.0E-04	7.7E-04	1.2E-03	2.9E-03	1.8E-03	1.1E-03	1.2E-03
AOI 33	Groundwater	bis(2-Ethylhexyl)phthalate	11/77	2.5E-02	1.0E-03	5.0E-05	2.1E-04	7.4E-04	3.0E-03	1.3E-03	4.9E-04	1.0E-03
AOI 33	Groundwater	Cadmium	10/75	4.8E-03	4.8E-03	7.5E-05	1.7E-04	3.3E-04	7.4E-04	4.8E-04	3.1E-04	4.8E-04
AOI 33	Groundwater	Carbazole	37/77	3.5E-02	3.5E-02	2.0E-04	3.6E-03	5.6E-03	6.4E-03	6.8E-03	7.0E-03	7.0E-03
AOI 33	Groundwater	Chlorodibromomethane	1/78	1.3E-02	3.0E-03	5.0E-04	6.1E-04	1.0E-03	2.0E-03	1.4E-03	9.0E-04	1.4E-03
AOI 33	Groundwater	Chloroethane (Ethyl chloride)	0/78	2.0E-02	0.0E+00	1.0E-03	1.2E-03	1.8E-03	3.3E-03	2.4E-03	1.6E-03	1.8E-03
AOI 33	Groundwater	Chloromethane (Methyl chloride)	0/78	2.0E-02	0.0E+00	1.0E-03	1.2E-03	1.8E-03	3.3E-03	2.4E-03	1.6E-03	1.8E-03
AOI 33	Groundwater	Chromium	20/75	1.1E-02	1.1E-02	1.5E-04	4.7E-04	7.2E-04	1.3E-03	9.8E-04	7.3E-04	9.8E-04
AOI 33	Groundwater	Chrysene	35/82	2.5E-02	1.8E-02	1.0E-04	7.5E-04	1.6E-03	3.6E-03	2.3E-03	1.6E-03	2.3E-03
AOI 33	Groundwater	cis-1,2-Dichloroethene	0/74	1.0E-02	0.0E+00	5.0E-04	5.4E-04	7.6E-04	1.6E-03	1.1E-03	6.8E-04	7.6E-04
AOI 33	Groundwater	Dibenz[a,h]anthracene	9/82	2.5E-02	2.0E-03	5.0E-05	5.5E-04	1.2E-03	2.8E-03	1.7E-03	2.0E-03	2.0E-03
AOI 33	Groundwater	Dibenzofuran	0/4	2.5E-02	0.0E+00	5.0E-03	7.5E-03	1.0E-02	1.0E-02	2.2E-02	6.8E-02	1.0E-02
AOI 33	Groundwater	Dichloromethane	4/78	1.0E-02	8.0E-03	5.0E-04	5.9E-04	9.1E-04	1.7E-03	1.2E-03	8.3E-04	1.2E-03
AOI 33	Groundwater	Ethylbenzene	40/78	2.2E+00	2.2E+00	5.0E-04	6.3E-03	1.8E-01	4.8E-01	2.7E-01	1.7E+00	1.7E+00
AOI 33	Groundwater	Fluoranthene	64/82	4.3E-02	4.3E-02	9.0E-05	1.9E-03	4.4E-03	6.5E-03	5.6E-03	8.2E-03	8.2E-03
AOI 33	Groundwater	Fluorene	64/82	9.4E-02	9.4E-02	1.0E-04	5.2E-03	2.0E-02	2.3E-02	2.4E-02	7.7E-02	7.7E-02
AOI 33	Groundwater	Indeno[1,2,3-c,d]pyrene	13/82	2.5E-02	9.0E-03	7.0E-05	1.1E-03	1.6E-03	2.9E-03	2.1E-03	1.6E-03	2.1E-03
AOI 33	Groundwater	Lead	12/75	1.2E-02	1.2E-02	5.5E-04	8.6E-04	1.2E-03	1.8E-03	1.5E-03	1.2E-03	1.2E-03
AOI 33	Groundwater	Mercury	9/75	2.5E-03	1.1E-03	8.5E-06	1.3E-05	6.6E-05	3.1E-04	1.3E-04	2.9E-05	1.3E-04
AOI 33	Groundwater	Naphthalene	43/82	6.9E+00	6.9E+00	5.0E-05	7.3E-03	4.8E-01	1.3E+00	7.2E-01	5.5E+00	5.5E+00
AOI 33	Groundwater	n-Nitrosodipropylamine	1/77	2.5E-02	1.0E-03	5.0E-05	4.6E-04	1.1E-03	2.9E-03	1.7E-03	1.6E-03	1.0E-03
AOI 33	Groundwater	Pentachlorophenol (PCP)	2/77	6.0E-02	1.0E-03	1.5E-04	7.5E-04	1.9E-03	7.1E-03	3.3E-03	1.4E-03	1.0E-03
AOI 33	Groundwater	Phenanthrene	53/82	2.1E-01	2.1E-01	8.0E-05	3.4E-03	2.6E-02	4.0E-02	3.3E-02	1.5E-01	1.5E-01
AOI 33	Groundwater	Pyrene	66/82	7.9E-02	7.9E-02	8.0E-05	2.6E-03	6.7E-03	1.1E-02	8.8E-03	1.2E-02	1.2E-02
AOI 33	Groundwater	Selenium	18/75	1.8E-02	1.5E-02	9.0E-04	1.7E-03	2.7E-03	3.4E-03	3.4E-03	3.1E-03	3.4E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 33	Groundwater	Silver	2/75	5.1E-03	5.1E-03	1.6E-04	6.1E-04	8.3E-04	8.5E-04	9.9E-04	1.0E-03	1.0E-03
AOI 33	Groundwater	Tetrachloroethene	0/78	1.3E-02	0.0E+00	5.0E-04	6.0E-04	9.7E-04	2.0E-03	1.4E-03	8.6E-04	9.7E-04
AOI 33	Groundwater	Toluene	33/78	3.6E-01	3.6E-01	5.0E-04	1.7E-03	2.1E-02	6.7E-02	3.4E-02	1.8E-02	3.4E-02
AOI 33	Groundwater	Trichloroethene	1/78	1.3E-02	1.0E-03	5.0E-04	6.0E-04	9.8E-04	2.0E-03	1.4E-03	8.7E-04	1.0E-03
AOI 33	Groundwater	Vinyl Chloride	0/78	2.0E-02	0.0E+00	1.0E-03	1.2E-03	1.8E-03	3.3E-03	2.4E-03	1.6E-03	1.8E-03
AOI 33	Groundwater	Xylenes (Total)	44/78	1.8E+00	1.8E+00	6.0E-04	8.1E-03	1.2E-01	3.6E-01	1.9E-01	2.1E-01	2.1E-01
AOI 34	Groundwater	1,1,1-Trichloroethane	12/97	2.5E-02	1.7E-02	5.0E-04	1.2E-03	2.6E-03	4.8E-03	3.4E-03	2.8E-03	3.4E-03
AOI 34	Groundwater	1,1,2-Trichloroethane	1/95	3.1E-02	8.0E-04	5.0E-04	1.1E-03	2.4E-03	5.2E-03	3.3E-03	2.4E-03	8.0E-04
AOI 34	Groundwater	1,1-Dichloroethane	88/99	7.9E-01	7.9E-01	5.0E-04	1.8E-02	8.5E-02	1.5E-01	1.1E-01	2.9E-01	2.9E-01
AOI 34	Groundwater	1,2,3-Trichloropropane	0/95	6.0E-02	0.0E+00	5.0E-04	1.4E-03	4.1E-03	1.0E-02	5.9E-03	4.2E-03	4.1E-03
AOI 34	Groundwater	1,2-Dichloroethane	1/95	3.1E-02	6.0E-04	5.0E-04	1.1E-03	2.4E-03	5.2E-03	3.3E-03	2.4E-03	6.0E-04
AOI 34	Groundwater	1,2-Dichloroethene	53/97	2.0E-01	2.0E-01	6.0E-04	3.4E-03	1.2E-02	3.1E-02	1.7E-02	1.1E-02	1.7E-02
AOI 34	Groundwater	1,4-Dichlorobenzene	0/84	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.5E-03	2.2E-03
AOI 34	Groundwater	2,6-Dinitrotoluene	0/84	1.3E-02	0.0E+00	4.5E-04	9.5E-04	1.9E-03	2.4E-03	2.3E-03	2.2E-03	1.9E-03
AOI 34	Groundwater	2-Methylnaphthalene	3/84	2.2E-01	2.2E-01	5.0E-05	1.2E-03	4.6E-03	2.4E-02	9.0E-03	3.7E-03	9.0E-03
AOI 34	Groundwater	4,6-Dinitro-o-cresol	2/84	3.1E-02	2.0E-03	1.0E-03	6.3E-03	7.3E-03	4.5E-03	8.1E-03	8.0E-03	2.0E-03
AOI 34	Groundwater	4-Methylphenol (p-Cresol)	0/83	1.3E-02	0.0E+00	5.0E-04	1.3E-03	2.1E-03	2.3E-03	2.5E-03	2.5E-03	2.1E-03
AOI 34	Groundwater	Acenaphthene	35/88	1.1E-02	1.1E-02	9.0E-05	1.3E-03	2.1E-03	2.1E-03	2.5E-03	2.9E-03	2.9E-03
AOI 34	Groundwater	Acetone	10/83	4.8E-01	4.8E-01	1.0E-03	2.4E-03	1.1E-02	5.3E-02	2.1E-02	7.4E-03	2.1E-02
AOI 34	Groundwater	Antimony	1/1	5.0E-02	5.0E-02	5.0E-02	5.0E-02	5.0E-02	0.0E+00	#VALUE!	#DIV/0!	5.0E-02
AOI 34	Groundwater	Arsenic	56/95	1.4E-01	1.4E-01	8.0E-04	5.9E-03	1.6E-02	2.9E-02	2.1E-02	2.3E-02	2.3E-02
AOI 34	Groundwater	Barium	94/95	1.2E+00	1.2E+00	7.8E-02	3.0E-01	3.4E-01	2.2E-01	3.8E-01	3.8E-01	3.8E-01
AOI 34	Groundwater	Benzene	44/97	3.1E-02	7.2E-03	5.0E-04	1.6E-03	2.9E-03	5.1E-03	3.7E-03	3.1E-03	3.7E-03
AOI 34	Groundwater	Benzo[a]anthracene	0/87	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.4E-03	2.2E-03
AOI 34	Groundwater	Benzo[a]pyrene	0/87	1.3E-02	0.0E+00	5.0E-04	1.2E-03	2.0E-03	2.3E-03	2.4E-03	2.4E-03	2.0E-03
AOI 34	Groundwater	Benzo[b]fluoranthene	0/87	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.4E-03	2.2E-03
AOI 34	Groundwater	Benzo[k]fluoranthene	0/87	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.4E-03	2.2E-03
AOI 34	Groundwater	bis(2-Chloroethyl)ether	0/84	1.3E-02	0.0E+00	5.0E-04	1.3E-03	2.1E-03	2.3E-03	2.5E-03	2.5E-03	2.1E-03
AOI 34	Groundwater	bis(2-Ethylhexyl)phthalate	40/89	1.6E-01	1.6E-01	5.0E-05	8.4E-04	8.3E-03	2.9E-02	1.3E-02	8.1E-03	1.3E-02
AOI 34	Groundwater	Cadmium	22/90	1.7E-02	1.7E-02	7.5E-05	3.7E-04	1.0E-03	2.0E-03	1.4E-03	1.6E-03	1.6E-03
AOI 34	Groundwater	Carbazole	2/84	8.5E-03	2.7E-03	2.6E-03	3.4E-03	3.6E-03	1.0E-03	3.7E-03	3.7E-03	2.7E-03
AOI 34	Groundwater	Chlorodibromomethane	0/95	3.1E-02	0.0E+00	5.0E-04	1.1E-03	2.4E-03	5.2E-03	3.3E-03	2.4E-03	2.4E-03
AOI 34	Groundwater	Chloroethane (Ethyl chloride)	39/97	9.0E-02	9.0E-02	5.0E-04	3.8E-03	1.1E-02	1.7E-02	1.4E-02	1.7E-02	1.7E-02
AOI 34	Groundwater	Chloromethane (Methyl chloride)	0/95	3.1E-02	0.0E+00	5.0E-04	1.8E-03	3.5E-03	5.3E-03	4.4E-03	4.2E-03	3.5E-03
AOI 34	Groundwater	Chromium	35/91	9.4E-01	9.4E-01	1.5E-04	1.3E-03	1.9E-02	1.0E-01	3.7E-02	1.5E-02	3.7E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 34	Groundwater	Chrysene	0/87	1.3E-02	0.0E+00	5.0E-04	1.2E-03	2.0E-03	2.3E-03	2.4E-03	2.4E-03	2.0E-03
AOI 34	Groundwater	cis-1,2-Dichloroethene	37/70	1.8E-01	1.8E-01	5.0E-04	2.0E-03	8.1E-03	2.5E-02	1.3E-02	9.1E-03	1.3E-02
AOI 34	Groundwater	Dibenz[a,h]anthracene	0/87	1.3E-02	0.0E+00	5.0E-04	1.5E-03	2.1E-03	2.2E-03	2.5E-03	2.5E-03	2.1E-03
AOI 34	Groundwater	Dibenzofuran	3/23	9.5E-03	9.5E-03	3.2E-03	5.1E-03	5.2E-03	1.3E-03	5.7E-03	5.6E-03	5.7E-03
AOI 34	Groundwater	Dichloromethane	21/100	3.1E-02	2.6E-02	4.0E-04	1.1E-03	2.5E-03	5.2E-03	3.3E-03	2.4E-03	3.3E-03
AOI 34	Groundwater	Ethylbenzene	3/95	3.1E-02	3.0E-03	5.0E-04	1.1E-03	2.4E-03	5.2E-03	3.3E-03	2.4E-03	3.0E-03
AOI 34	Groundwater	Fluoranthene	0/87	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.4E-03	2.2E-03
AOI 34	Groundwater	Fluorene	30/89	1.8E-02	1.8E-02	1.0E-04	1.2E-03	2.3E-03	2.9E-03	2.8E-03	3.3E-03	3.3E-03
AOI 34	Groundwater	Indeno[1,2,3-c,d]pyrene	0/87	1.3E-02	0.0E+00	1.0E-03	1.6E-03	2.2E-03	2.2E-03	2.6E-03	2.4E-03	2.2E-03
AOI 34	Groundwater	Lead	48/94	9.6E-02	9.6E-02	5.5E-04	2.3E-03	6.9E-03	1.5E-02	9.5E-03	7.7E-03	6.9E-03
AOI 34	Groundwater	Manganese	25/25	2.4E+00	2.4E+00	3.0E-01	7.6E-01	9.2E-01	5.7E-01	1.1E+00	1.2E+00	1.2E+00
AOI 34	Groundwater	Mercury	21/89	2.5E-03	5.7E-04	8.5E-06	7.2E-05	6.8E-04	1.1E-03	8.7E-04	2.4E-03	5.7E-04
AOI 34	Groundwater	Naphthalene	6/86	8.5E-03	3.4E-03	3.0E-05	1.2E-03	2.0E-03	1.9E-03	2.3E-03	3.1E-03	3.1E-03
AOI 34	Groundwater	n-Nitrosodipropylamine	0/84	1.3E-02	0.0E+00	5.0E-04	1.3E-03	2.1E-03	2.3E-03	2.5E-03	2.5E-03	2.1E-03
AOI 34	Groundwater	Pentachlorophenol (PCP)	2/85	3.1E-02	7.0E-03	4.0E-04	1.7E-03	4.4E-03	6.1E-03	5.5E-03	5.8E-03	5.8E-03
AOI 34	Groundwater	Phenanthrene	12/87	4.1E-02	4.1E-02	5.0E-05	9.7E-04	2.2E-03	4.7E-03	3.1E-03	3.0E-03	3.1E-03
AOI 34	Groundwater	Pyrene	1/87	1.3E-02	1.1E-03	1.0E-03	1.5E-03	2.1E-03	2.1E-03	2.5E-03	2.4E-03	1.1E-03
AOI 34	Groundwater	Selenium	31/90	2.9E-02	2.5E-02	9.0E-04	5.1E-03	8.2E-03	8.0E-03	9.6E-03	1.0E-02	1.0E-02
AOI 34	Groundwater	Silver	23/91	6.0E-01	6.0E-01	1.6E-04	2.2E-03	9.5E-03	6.3E-02	2.0E-02	5.4E-03	2.0E-02
AOI 34	Groundwater	Tetrachloroethene	9/96	3.1E-02	1.0E-02	5.0E-04	1.2E-03	2.7E-03	5.3E-03	3.6E-03	2.9E-03	3.6E-03
AOI 34	Groundwater	Toluene	5/95	3.1E-02	3.1E-03	5.0E-04	1.1E-03	2.4E-03	5.2E-03	3.3E-03	2.3E-03	3.1E-03
AOI 34	Groundwater	Trichloroethene	12/96	3.1E-02	5.0E-03	5.0E-04	1.2E-03	2.5E-03	5.2E-03	3.3E-03	2.5E-03	3.3E-03
AOI 34	Groundwater	Vinyl Chloride	91/130	3.1E+00	3.1E+00	5.0E-04	1.4E-02	9.6E-02	3.0E-01	1.4E-01	1.9E-01	1.9E-01
AOI 34	Groundwater	Xylenes (Total)	6/94	3.1E-02	2.2E-02	5.0E-04	2.0E-03	3.5E-03	5.7E-03	4.4E-03	3.8E-03	4.4E-03
AOI 35	Groundwater	1,1,1-Trichloroethane	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	1,1,2-Trichloroethane	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	1,1-Dichloroethane	5/9	1.8E-02	1.8E-02	5.0E-04	9.7E-04	2.7E-03	5.8E-03	6.2E-03	8.8E-03	8.8E-03
AOI 35	Groundwater	1,2,3-Trichloropropane	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	5.2E-03	1.7E-03
AOI 35	Groundwater	1,2-Dichloroethane	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	1,2-Dichloroethene	1/9	2.5E-03	1.4E-03	1.0E-03	1.1E-03	1.2E-03	5.0E-04	1.5E-03	1.5E-03	1.4E-03
AOI 35	Groundwater	1,4-Dichlorobenzene	1/9	5.0E-03	3.0E-04	3.0E-04	1.3E-03	1.8E-03	0.0E+00	1.8E-03	4.5E-03	3.0E-04
AOI 35	Groundwater	2,6-Dinitrotoluene	0/9	5.0E-03	0.0E+00	5.0E-04	8.3E-04	1.5E-03	2.0E-03	2.7E-03	4.3E-03	1.5E-03
AOI 35	Groundwater	2-Methylnaphthalene	2/9	3.7E-02	3.7E-02	1.0E-04	1.4E-03	5.7E-03	1.2E-02	1.3E-02	1.1E-01	3.7E-02
AOI 35	Groundwater	4,6-Dinitro-o-cresol	0/9	1.3E-02	0.0E+00	5.0E-03	6.1E-03	6.7E-03	3.3E-03	8.7E-03	9.0E-03	6.7E-03
AOI 35	Groundwater	4-Methylphenol (p-Cresol)	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	4.3E-03	1.7E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 35	Groundwater	Acenaphthene	2/9	5.0E-03	4.0E-03	4.0E-04	1.2E-03	2.0E-03	2.0E-03	3.3E-03	6.8E-03	4.0E-03
AOI 35	Groundwater	Acetone	0/8	5.0E-03	0.0E+00	1.0E-03	1.7E-03	2.2E-03	1.8E-03	3.4E-03	5.0E-03	2.2E-03
AOI 35	Groundwater	Aroclor-1260	0/1	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02	#DIV/0!	#VALUE!	#DIV/0!	5.0E-02
AOI 35	Groundwater	Arsenic	5/9	1.0E-02	9.5E-03	1.0E-03	3.7E-03	5.0E-03	3.5E-03	7.1E-03	1.4E-02	9.5E-03
AOI 35	Groundwater	Barium	9/9	3.3E-01	3.3E-01	9.1E-02	2.0E-01	2.2E-01	9.0E-02	2.8E-01	3.1E-01	3.1E-01
AOI 35	Groundwater	Benzene	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Benzo[a]anthracene	0/9	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.9E-03	1.8E-03	3.0E-03	3.5E-03	1.9E-03
AOI 35	Groundwater	Benzo[a]pyrene	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	Benzo[b]fluoranthene	0/9	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.9E-03	1.8E-03	3.0E-03	3.5E-03	1.9E-03
AOI 35	Groundwater	Benzo[k]fluoranthene	0/9	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.9E-03	1.8E-03	3.0E-03	3.5E-03	1.9E-03
AOI 35	Groundwater	bis(2-Chloroethyl)ether	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	bis(2-Ethylhexyl)phthalate	2/9	5.0E-03	3.8E-03	1.0E-04	5.7E-04	1.3E-03	1.8E-03	2.4E-03	7.9E-03	3.8E-03
AOI 35	Groundwater	Cadmium	2/9	2.5E-03	1.5E-03	7.5E-05	3.3E-04	7.0E-04	8.3E-04	1.2E-03	7.0E-03	1.5E-03
AOI 35	Groundwater	Carbazole	1/9	5.0E-03	7.0E-04	7.0E-04	2.9E-03	3.2E-03	0.0E+00	3.2E-03	5.4E-03	7.0E-04
AOI 35	Groundwater	Chlorodibromomethane	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Chloroethane (Ethyl chloride)	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.8E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	Chloromethane (Methyl chloride)	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.8E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	Chromium	3/9	5.0E-03	2.1E-03	1.5E-04	1.1E-03	2.3E-03	2.2E-03	3.6E-03	2.9E-02	2.1E-03
AOI 35	Groundwater	Chrysene	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	cis-1,2-Dichloroethene	0/7	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04
AOI 35	Groundwater	Dibenz[a,h]anthracene	0/9	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.9E-03	1.8E-03	3.0E-03	3.5E-03	1.9E-03
AOI 35	Groundwater	Dibenzofuran	0/2	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03
AOI 35	Groundwater	Dichloromethane	1/9	2.5E-03	1.9E-03	5.0E-04	6.9E-04	8.8E-04	7.6E-04	1.4E-03	1.5E-03	1.5E-03
AOI 35	Groundwater	Ethylbenzene	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Fluoranthene	1/9	5.0E-03	2.0E-04	2.0E-04	1.2E-03	1.8E-03	0.0E+00	1.8E-03	5.5E-03	2.0E-04
AOI 35	Groundwater	Fluorene	2/9	5.0E-03	4.0E-03	5.0E-04	1.3E-03	2.0E-03	2.0E-03	3.3E-03	6.4E-03	4.0E-03
AOI 35	Groundwater	Indeno[1,2,3-c,d]pyrene	0/9	5.0E-03	0.0E+00	1.0E-03	1.4E-03	1.9E-03	1.8E-03	3.0E-03	3.5E-03	1.9E-03
AOI 35	Groundwater	Lead	3/9	5.0E-03	4.0E-03	5.0E-04	1.3E-03	2.0E-03	1.8E-03	3.1E-03	6.5E-03	2.0E-03
AOI 35	Groundwater	Manganese	2/2	5.8E-01	5.8E-01	3.5E-01	4.5E-01	4.7E-01	1.6E-01	1.2E+00	3.1E+00	5.8E-01
AOI 35	Groundwater	Mercury	3/9	2.5E-03	6.7E-05	8.5E-06	8.8E-05	6.1E-04	1.1E-03	1.3E-03	6.0E-02	6.7E-05
AOI 35	Groundwater	Naphthalene	1/8	5.0E-03	1.0E-04	1.0E-04	1.1E-03	1.9E-03	0.0E+00	1.9E-03	1.8E-02	1.0E-04
AOI 35	Groundwater	n-Nitrosodipropylamine	0/9	5.0E-03	0.0E+00	5.0E-04	1.1E-03	1.7E-03	1.9E-03	2.9E-03	4.3E-03	1.7E-03
AOI 35	Groundwater	Pentachlorophenol (PCP)	0/9	1.3E-02	0.0E+00	5.0E-04	1.4E-03	3.4E-03	5.2E-03	6.6E-03	1.7E-02	3.4E-03
AOI 35	Groundwater	Phenanthrene	2/9	6.0E-03	6.0E-03	2.0E-04	1.3E-03	2.2E-03	2.4E-03	3.7E-03	1.2E-02	6.0E-03
AOI 35	Groundwater	Pyrene	3/9	5.0E-03	2.0E-04	1.0E-04	7.7E-04	1.6E-03	2.0E-03	2.8E-03	1.5E-02	2.0E-04

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 35	Groundwater	Selenium	2/9	2.0E-02	7.4E-03	1.1E-03	4.6E-03	7.5E-03	7.5E-03	1.2E-02	2.9E-02	7.4E-03
AOI 35	Groundwater	Silver	4/9	5.0E-03	2.9E-03	7.0E-04	1.7E-03	2.3E-03	1.8E-03	3.4E-03	5.3E-03	2.9E-03
AOI 35	Groundwater	Tetrachloroethene	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Toluene	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Trichloroethene	0/9	2.5E-03	0.0E+00	5.0E-04	7.1E-04	9.4E-04	8.8E-04	1.5E-03	1.7E-03	9.4E-04
AOI 35	Groundwater	Vinyl Chloride	5/9	5.0E-03	4.3E-03	5.0E-04	1.4E-03	2.0E-03	1.6E-03	3.0E-03	5.2E-03	4.3E-03
AOI 35	Groundwater	Xylenes (Total)	0/9	2.5E-03	0.0E+00	5.0E-04	1.3E-03	1.5E-03	7.1E-04	1.9E-03	2.6E-03	1.5E-03
AOI 36	Groundwater	1,1,1-Trichloroethane	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	1,1,2-Trichloroethane	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	1,1-Dichloroethane	3/27	2.7E-02	2.7E-02	5.0E-04	9.8E-04	2.1E-03	5.1E-03	3.8E-03	2.6E-03	3.8E-03
AOI 36	Groundwater	1,2,3-Trichloropropane	0/27	5.0E-03	0.0E+00	5.0E-04	8.5E-04	1.3E-03	1.4E-03	1.7E-03	1.7E-03	1.3E-03
AOI 36	Groundwater	1,2-Dichloroethane	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	1,2-Dichloroethene	7/27	8.0E-03	8.0E-03	7.0E-04	1.6E-03	2.2E-03	2.0E-03	2.9E-03	3.0E-03	3.0E-03
AOI 36	Groundwater	1,4-Dichlorobenzene	0/25	2.0E-03	0.0E+00	1.0E-03	1.1E-03	1.2E-03	3.7E-04	1.3E-03	1.3E-03	1.2E-03
AOI 36	Groundwater	2,6-Dinitrotoluene	0/25	1.0E-03	0.0E+00	5.0E-04	5.6E-04	5.8E-04	1.9E-04	6.4E-04	6.4E-04	5.8E-04
AOI 36	Groundwater	2-Methylnaphthalene	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	4,6-Dinitro-o-cresol	0/25	1.0E-02	0.0E+00	5.0E-03	5.6E-03	5.8E-03	1.9E-03	6.4E-03	6.4E-03	5.8E-03
AOI 36	Groundwater	4-Methylphenol (p-Cresol)	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Acenaphthene	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Acetone	0/18	5.0E-03	0.0E+00	1.0E-03	1.3E-03	1.7E-03	1.5E-03	2.3E-03	2.2E-03	1.7E-03
AOI 36	Groundwater	Arsenic	8/27	1.8E-02	1.8E-02	8.0E-04	3.3E-03	4.8E-03	4.1E-03	6.1E-03	7.5E-03	7.5E-03
AOI 36	Groundwater	Barium	27/27	1.5E+00	1.5E+00	5.4E-02	1.4E-01	2.1E-01	3.0E-01	3.1E-01	2.5E-01	3.1E-01
AOI 36	Groundwater	Benzene	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	Benzo[a]anthracene	0/25	2.0E-03	0.0E+00	1.0E-03	1.1E-03	1.2E-03	3.7E-04	1.3E-03	1.3E-03	1.2E-03
AOI 36	Groundwater	Benzo[a]pyrene	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Benzo[b]fluoranthene	0/25	2.0E-03	0.0E+00	1.0E-03	1.1E-03	1.2E-03	3.7E-04	1.3E-03	1.3E-03	1.2E-03
AOI 36	Groundwater	Benzo[k]fluoranthene	0/25	2.0E-03	0.0E+00	1.0E-03	1.1E-03	1.2E-03	3.7E-04	1.3E-03	1.3E-03	1.2E-03
AOI 36	Groundwater	bis(2-Chloroethyl)ether	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	bis(2-Ethylhexyl)phthalate	7/25	1.0E-02	1.0E-02	1.0E-04	3.0E-04	7.7E-04	2.0E-03	1.4E-03	9.6E-04	1.4E-03
AOI 36	Groundwater	Cadmium	6/27	2.5E-03	1.9E-03	7.5E-05	2.9E-04	7.8E-04	1.0E-03	1.1E-03	2.1E-03	1.9E-03
AOI 36	Groundwater	Carbazole	0/25	6.0E-03	0.0E+00	3.0E-03	3.4E-03	3.5E-03	1.1E-03	3.9E-03	3.8E-03	3.5E-03
AOI 36	Groundwater	Chlorodibromomethane	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	Chloroethane (Ethyl chloride)	0/27	5.0E-03	0.0E+00	5.0E-04	1.4E-03	2.1E-03	1.9E-03	2.7E-03	3.1E-03	2.1E-03
AOI 36	Groundwater	Chloromethane (Methyl chloride)	0/27	5.0E-03	0.0E+00	5.0E-04	1.4E-03	2.1E-03	1.9E-03	2.7E-03	3.1E-03	2.1E-03
AOI 36	Groundwater	Chromium	11/27	1.8E-01	1.8E-01	1.5E-04	7.1E-04	1.2E-02	4.2E-02	2.6E-02	1.3E-02	2.6E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 36	Groundwater	Chrysene	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	cis-1,2-Dichloroethene	6/24	2.5E-03	2.0E-03	5.0E-04	8.8E-04	1.1E-03	8.7E-04	1.4E-03	1.5E-03	1.5E-03
AOI 36	Groundwater	Dibenz[a,h]anthracene	0/25	1.5E-03	0.0E+00	5.0E-04	1.0E-03	1.0E-03	2.5E-04	1.1E-03	1.1E-03	1.0E-03
AOI 36	Groundwater	Dichloromethane	3/27	2.5E-03	1.5E-03	5.0E-04	7.2E-04	9.1E-04	7.3E-04	1.1E-03	1.1E-03	1.1E-03
AOI 36	Groundwater	Ethylbenzene	0/25	2.5E-03	0.0E+00	5.0E-04	8.4E-04	1.1E-03	9.5E-04	1.5E-03	1.6E-03	1.1E-03
AOI 36	Groundwater	Fluoranthene	0/25	2.5E-03	0.0E+00	1.0E-03	1.2E-03	1.2E-03	5.6E-04	1.4E-03	1.4E-03	1.2E-03
AOI 36	Groundwater	Fluorene	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Indeno[1,2,3-c,d]pyrene	0/25	2.0E-03	0.0E+00	1.0E-03	1.1E-03	1.2E-03	3.7E-04	1.3E-03	1.3E-03	1.2E-03
AOI 36	Groundwater	Lead	5/27	1.1E-01	1.1E-01	5.5E-04	1.7E-03	7.4E-03	2.1E-02	1.4E-02	1.2E-02	7.4E-03
AOI 36	Groundwater	Manganese	2/2	1.2E-01	1.2E-01	1.1E-01	1.1E-01	1.2E-01	8.5E-03	1.5E-01	1.4E-01	1.2E-01
AOI 36	Groundwater	Mercury	5/23	2.5E-03	6.2E-05	8.5E-06	2.9E-05	2.6E-04	7.1E-04	5.1E-04	5.2E-04	6.2E-05
AOI 36	Groundwater	Naphthalene	0/25	2.0E-03	0.0E+00	1.5E-04	1.0E-03	1.1E-03	4.2E-04	1.3E-03	1.4E-03	1.1E-03
AOI 36	Groundwater	n-Nitrosodipropylamine	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Pentachlorophenol (PCP)	0/25	1.5E-03	0.0E+00	5.0E-04	9.0E-04	9.6E-04	3.2E-04	1.1E-03	1.1E-03	9.6E-04
AOI 36	Groundwater	Phenanthrene	0/25	1.5E-03	0.0E+00	5.0E-05	8.0E-04	9.2E-04	3.7E-04	1.0E-03	1.4E-03	9.2E-04
AOI 36	Groundwater	Pyrene	4/25	2.0E-03	1.0E-04	8.0E-05	7.6E-04	1.0E-03	5.5E-04	1.2E-03	2.0E-03	1.0E-04
AOI 36	Groundwater	Selenium	12/27	2.1E-02	6.0E-03	9.0E-04	5.1E-03	7.7E-03	6.9E-03	9.9E-03	1.3E-02	6.0E-03
AOI 36	Groundwater	Silver	8/27	5.0E-03	3.0E-03	7.0E-04	1.8E-03	2.3E-03	1.6E-03	2.8E-03	3.1E-03	3.0E-03
AOI 36	Groundwater	Tetrachloroethene	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	Toluene	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	Trichloroethene	0/27	2.5E-03	0.0E+00	5.0E-04	8.1E-04	1.1E-03	9.3E-04	1.4E-03	1.5E-03	1.1E-03
AOI 36	Groundwater	Vinyl Chloride	2/27	1.1E-02	1.1E-02	5.0E-04	1.5E-03	2.5E-03	2.6E-03	3.3E-03	3.8E-03	3.8E-03
AOI 36	Groundwater	Xylenes (Total)	0/27	5.0E-03	0.0E+00	5.0E-04	1.6E-03	2.1E-03	1.7E-03	2.7E-03	3.1E-03	2.1E-03
AOI 37	Groundwater	1,1,1-Trichloroethane	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	1,1,2-Trichloroethane	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	1,1-Dichloroethane	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	1,2,3-Trichloropropane	0/3	2.5E-02	0.0E+00	5.0E-03	8.5E-03	1.2E-02	1.2E-02	3.1E-02	2.9E+01	1.2E-02
AOI 37	Groundwater	1,2-Dichloroethane	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	1,2-Dichloroethene	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	1,4-Dichlorobenzene	0/11	1.0E-02	0.0E+00	1.0E-03	4.0E-03	4.7E-03	2.4E-03	6.0E-03	8.8E-03	4.7E-03
AOI 37	Groundwater	2,6-Dinitrotoluene	0/11	1.0E-02	0.0E+00	5.0E-04	3.5E-03	4.6E-03	2.5E-03	6.0E-03	1.4E-02	4.6E-03
AOI 37	Groundwater	2-Methylnaphthalene	5/15	1.7E-01	1.7E-01	7.5E-04	4.4E-03	2.5E-02	4.9E-02	4.8E-02	2.9E-01	1.7E-01
AOI 37	Groundwater	4,6-Dinitro-o-cresol	0/11	2.5E-02	0.0E+00	5.0E-03	1.1E-02	1.2E-02	5.2E-03	1.5E-02	1.7E-02	1.2E-02
AOI 37	Groundwater	4-Methylphenol (p-Cresol)	1/11	1.0E-02	9.0E-03	1.0E-03	4.2E-03	5.1E-03	2.7E-03	6.6E-03	1.0E-02	9.0E-03
AOI 37	Groundwater	Acenaphthene	16/25	3.4E-02	3.4E-02	1.0E-04	2.5E-03	6.3E-03	8.7E-03	9.3E-03	1.9E-02	1.9E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 37	Groundwater	Acetone	0/2	2.5E-02	0.0E+00	5.0E-03	1.1E-02	1.5E-02	1.4E-02	7.8E-02	2.5E+06	1.5E-02
AOI 37	Groundwater	Benzene	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	Benzo[a]anthracene	0/25	1.0E-02	0.0E+00	1.0E-03	1.8E-03	2.6E-03	2.4E-03	3.5E-03	3.8E-03	2.6E-03
AOI 37	Groundwater	Benzo[a]pyrene	0/25	1.0E-02	0.0E+00	5.0E-04	1.6E-03	2.5E-03	2.5E-03	3.4E-03	4.1E-03	2.5E-03
AOI 37	Groundwater	Benzo[b]fluoranthene	1/25	1.0E-02	2.0E-04	2.0E-04	1.7E-03	2.6E-03	0.0E+00	2.6E-03	4.2E-03	2.0E-04
AOI 37	Groundwater	Benzo[k]fluoranthene	1/25	1.0E-02	2.0E-04	2.0E-04	1.7E-03	2.6E-03	0.0E+00	2.6E-03	4.2E-03	2.0E-04
AOI 37	Groundwater	bis(2-Chloroethyl)ether	0/11	1.0E-02	0.0E+00	1.0E-03	4.0E-03	4.7E-03	2.4E-03	6.0E-03	8.8E-03	4.7E-03
AOI 37	Groundwater	bis(2-Ethylhexyl)phthalate	5/11	1.3E-02	1.3E-02	2.0E-04	3.6E-03	5.4E-03	4.0E-03	7.6E-03	2.7E-02	1.3E-02
AOI 37	Groundwater	Carbazole	1/11	1.0E-02	1.0E-03	1.0E-03	4.4E-03	4.9E-03	0.0E+00	4.9E-03	7.7E-03	1.0E-03
AOI 37	Groundwater	Chlorodibromomethane	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	Chloroethane (Ethyl chloride)	0/3	1.3E-02	0.0E+00	5.0E-03	6.8E-03	7.5E-03	4.3E-03	1.5E-02	8.9E-02	7.5E-03
AOI 37	Groundwater	Chloromethane (Methyl chloride)	0/3	1.3E-02	0.0E+00	5.0E-03	6.8E-03	7.5E-03	4.3E-03	1.5E-02	8.9E-02	7.5E-03
AOI 37	Groundwater	Chrysene	1/25	1.0E-02	4.0E-04	4.0E-04	1.6E-03	2.5E-03	0.0E+00	2.5E-03	4.2E-03	4.0E-04
AOI 37	Groundwater	Dibenz[a,h]anthracene	0/25	1.0E-02	0.0E+00	7.5E-04	1.8E-03	2.6E-03	2.4E-03	3.5E-03	3.9E-03	2.6E-03
AOI 37	Groundwater	Dibenzofuran	3/9	2.9E-02	2.9E-02	5.0E-03	8.7E-03	1.1E-02	9.2E-03	1.7E-02	2.2E-02	2.2E-02
AOI 37	Groundwater	Dichloromethane	2/3	1.3E-02	1.3E-03	1.2E-03	2.7E-03	5.0E-03	6.5E-03	1.6E-02	3.1E+04	1.3E-03
AOI 37	Groundwater	Ethylbenzene	1/3	6.5E-03	6.5E-03	2.5E-03	3.4E-03	3.8E-03	2.3E-03	7.7E-03	8.4E-02	6.5E-03
AOI 37	Groundwater	Fluoranthene	5/25	1.0E-02	3.4E-03	1.0E-04	1.5E-03	2.3E-03	2.3E-03	3.1E-03	4.2E-03	3.4E-03
AOI 37	Groundwater	Fluorene	13/25	6.9E-02	6.9E-02	2.0E-04	3.1E-03	1.0E-02	1.8E-02	1.6E-02	3.6E-02	3.6E-02
AOI 37	Groundwater	Indeno[1,2,3-c,d]pyrene	0/25	1.0E-02	0.0E+00	1.0E-03	1.8E-03	2.6E-03	2.4E-03	3.5E-03	3.8E-03	2.6E-03
AOI 37	Groundwater	Naphthalene	4/25	1.0E-02	5.0E-03	5.0E-04	1.8E-03	2.8E-03	2.5E-03	3.6E-03	4.3E-03	4.3E-03
AOI 37	Groundwater	n-Nitrosodipropylamine	0/11	1.0E-02	0.0E+00	1.0E-03	4.0E-03	4.7E-03	2.4E-03	6.0E-03	8.8E-03	4.7E-03
AOI 37	Groundwater	Pentachlorophenol (PCP)	0/11	2.5E-02	0.0E+00	1.0E-03	8.4E-03	1.2E-02	6.4E-03	1.5E-02	4.0E-02	1.2E-02
AOI 37	Groundwater	Phenanthrene	15/25	1.1E-01	1.1E-01	2.0E-04	2.4E-03	1.6E-02	3.1E-02	2.6E-02	8.0E-02	8.0E-02
AOI 37	Groundwater	Pyrene	9/25	9.0E-03	9.0E-03	2.0E-04	1.3E-03	2.2E-03	2.5E-03	3.1E-03	3.7E-03	3.7E-03
AOI 37	Groundwater	Tetrachloroethene	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	Toluene	2/3	1.3E-02	3.9E-03	1.2E-03	3.9E-03	5.9E-03	5.9E-03	1.6E-02	5.8E+03	3.9E-03
AOI 37	Groundwater	Trichloroethene	0/3	1.3E-02	0.0E+00	2.5E-03	4.3E-03	5.8E-03	5.8E-03	1.6E-02	1.5E+01	5.8E-03
AOI 37	Groundwater	Vinyl Chloride	0/3	1.3E-02	0.0E+00	5.0E-03	6.8E-03	7.5E-03	4.3E-03	1.5E-02	8.9E-02	7.5E-03
AOI 37	Groundwater	Xylenes (Total)	1/3	2.6E-02	2.6E-02	2.5E-03	9.3E-03	1.4E-02	1.2E-02	3.4E-02	1.9E+04	2.6E-02
AOI 38	Groundwater	1,1,1-Trichloroethane	8/54	4.1E+00	4.1E+00	5.0E-04	2.2E-03	1.6E-01	6.9E-01	3.2E-01	4.7E-02	3.2E-01
AOI 38	Groundwater	1,1,2-Trichloroethane	2/53	1.3E-02	4.0E-03	5.0E-04	1.4E-03	2.2E-03	2.5E-03	2.8E-03	3.1E-03	3.1E-03
AOI 38	Groundwater	1,1-Dichloroethane	29/54	1.2E+00	1.2E+00	5.0E-04	3.8E-03	7.2E-02	2.5E-01	1.3E-01	8.2E-02	1.3E-01
AOI 38	Groundwater	1,2,3-Trichloropropane	0/54	2.5E-02	0.0E+00	5.0E-04	1.8E-03	3.7E-03	5.1E-03	4.9E-03	6.0E-03	3.7E-03
AOI 38	Groundwater	1,2-Dichloroethane	1/54	1.3E-02	1.0E-03	5.0E-04	1.3E-03	2.1E-03	2.4E-03	2.7E-03	2.9E-03	1.0E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 38	Groundwater	1,2-Dichloroethene	14/54	5.3E+00	5.3E+00	5.0E-04	3.4E-03	2.2E-01	9.4E-01	4.4E-01	6.0E-02	4.4E-01
AOI 38	Groundwater	1,4-Dichlorobenzene	3/45	1.0E-01	1.4E-02	2.0E-04	2.2E-03	8.4E-03	2.2E-02	1.4E-02	1.0E-02	1.4E-02
AOI 38	Groundwater	2,6-Dinitrotoluene	0/45	1.0E-01	0.0E+00	5.0E-04	1.5E-03	8.9E-03	2.3E-02	1.5E-02	1.3E-02	8.9E-03
AOI 38	Groundwater	2-Methylnaphthalene	26/45	2.5E+00	2.5E+00	7.0E-05	4.6E-03	1.7E-01	5.0E-01	3.0E-01	6.5E-01	6.5E-01
AOI 38	Groundwater	4,6-Dinitro-o-cresol	0/45	2.5E-01	0.0E+00	5.0E-03	9.2E-03	2.5E-02	5.6E-02	3.8E-02	2.4E-02	2.5E-02
AOI 38	Groundwater	4-Methylphenol (p-Cresol)	0/45	1.0E-01	0.0E+00	5.0E-04	2.1E-03	9.1E-03	2.2E-02	1.5E-02	1.1E-02	9.1E-03
AOI 38	Groundwater	Acenaphthene	27/49	1.6E-01	1.6E-01	2.0E-04	2.2E-03	8.6E-03	2.5E-02	1.5E-02	1.0E-02	1.5E-02
AOI 38	Groundwater	Acetone	9/42	2.5E-02	2.4E-02	1.0E-03	2.6E-03	4.6E-03	5.8E-03	6.1E-03	6.6E-03	6.6E-03
AOI 38	Groundwater	Aroclor-1260	0/15	5.0E-02	0.0E+00	5.0E-02	5.0E-02	5.0E-02	7.0E-10	5.0E-02	5.0E-02	5.0E-02
AOI 38	Groundwater	Arsenic	23/49	1.3E-01	1.3E-01	8.0E-04	4.1E-03	9.1E-03	2.0E-02	1.4E-02	1.2E-02	1.4E-02
AOI 38	Groundwater	Barium	49/49	2.3E+00	2.3E+00	1.1E-01	3.1E-01	4.4E-01	4.5E-01	5.5E-01	5.4E-01	5.5E-01
AOI 38	Groundwater	Benzene	25/54	7.4E-02	7.4E-02	5.0E-04	2.3E-03	6.8E-03	1.4E-02	1.0E-02	9.1E-03	1.0E-02
AOI 38	Groundwater	Benzo[a]anthracene	1/49	1.0E-01	1.2E-02	1.0E-03	2.2E-03	8.6E-03	2.2E-02	1.4E-02	8.8E-03	1.2E-02
AOI 38	Groundwater	Benzo[a]pyrene	2/49	1.0E-01	6.2E-03	5.0E-04	1.9E-03	8.4E-03	2.2E-02	1.4E-02	9.4E-03	6.2E-03
AOI 38	Groundwater	Benzo[b]fluoranthene	2/49	1.0E-01	1.0E-02	1.0E-03	2.2E-03	8.5E-03	2.2E-02	1.4E-02	8.7E-03	1.0E-02
AOI 38	Groundwater	Benzo[k]fluoranthene	2/49	1.0E-01	4.8E-03	2.0E-04	2.1E-03	8.4E-03	2.2E-02	1.4E-02	8.6E-03	4.8E-03
AOI 38	Groundwater	bis(2-Chloroethyl)ether	0/45	1.0E-01	0.0E+00	5.0E-04	2.1E-03	9.1E-03	2.2E-02	1.5E-02	1.1E-02	9.1E-03
AOI 38	Groundwater	bis(2-Ethylhexyl)phthalate	15/45	6.5E-02	6.5E-02	1.0E-04	1.5E-03	8.7E-03	1.6E-02	1.3E-02	3.8E-02	3.8E-02
AOI 38	Groundwater	Cadmium	9/49	8.1E-03	8.1E-03	7.5E-05	2.7E-04	8.2E-04	1.5E-03	1.2E-03	1.3E-03	1.3E-03
AOI 38	Groundwater	Carbazole	11/45	1.0E-01	5.1E-02	5.0E-05	3.7E-03	8.4E-03	1.7E-02	1.3E-02	1.2E-02	1.3E-02
AOI 38	Groundwater	Chlorodibromomethane	0/54	1.3E-02	0.0E+00	5.0E-04	1.3E-03	2.1E-03	2.4E-03	2.7E-03	2.9E-03	2.1E-03
AOI 38	Groundwater	Chloroethane (Ethyl chloride)	24/54	1.9E-01	1.9E-01	5.0E-04	5.0E-03	1.9E-02	4.1E-02	2.8E-02	3.1E-02	3.1E-02
AOI 38	Groundwater	Chloromethane (Methyl chloride)	0/54	1.3E-02	0.0E+00	5.0E-04	2.2E-03	3.4E-03	2.8E-03	4.0E-03	5.1E-03	3.4E-03
AOI 38	Groundwater	Chromium	23/49	1.6E-01	1.6E-01	1.5E-04	1.8E-03	1.0E-02	2.8E-02	1.7E-02	1.8E-02	1.8E-02
AOI 38	Groundwater	Chrysene	3/49	1.0E-01	1.4E-02	5.0E-04	1.9E-03	8.4E-03	2.2E-02	1.4E-02	9.1E-03	1.4E-02
AOI 38	Groundwater	cis-1,2-Dichloroethene	8/32	5.2E+00	5.2E+00	5.0E-04	1.8E-03	3.7E-01	1.2E+00	7.2E-01	4.4E-01	7.2E-01
AOI 38	Groundwater	Dibenz[a,h]anthracene	1/49	1.0E-01	3.0E-04	3.0E-04	2.1E-03	8.5E-03	0.0E+00	8.5E-03	8.9E-03	3.0E-04
AOI 38	Groundwater	Dibenzofuran	6/16	1.3E-01	1.3E-01	1.4E-03	1.0E-02	2.4E-02	3.6E-02	4.0E-02	6.7E-02	6.7E-02
AOI 38	Groundwater	Dichloromethane	13/54	1.0E-02	5.9E-03	5.0E-04	1.2E-03	1.9E-03	2.1E-03	2.3E-03	2.4E-03	2.4E-03
AOI 38	Groundwater	Ethylbenzene	12/53	7.0E-01	7.0E-01	5.0E-04	2.0E-03	1.9E-02	9.7E-02	4.1E-02	1.1E-02	4.1E-02
AOI 38	Groundwater	Fluoranthene	8/49	1.0E-01	3.1E-02	7.0E-05	1.7E-03	8.7E-03	2.2E-02	1.4E-02	1.4E-02	1.4E-02
AOI 38	Groundwater	Fluorene	26/49	1.7E-01	1.7E-01	2.0E-04	2.0E-03	1.1E-02	3.0E-02	1.8E-02	1.2E-02	1.8E-02
AOI 38	Groundwater	Indeno[1,2,3-c,d]pyrene	1/49	1.0E-01	2.0E-03	1.0E-03	2.2E-03	8.6E-03	2.2E-02	1.4E-02	8.7E-03	2.0E-03
AOI 38	Groundwater	Lead	19/49	3.5E-01	3.5E-01	5.5E-04	2.7E-03	2.9E-02	7.8E-02	4.8E-02	5.6E-02	2.9E-02
AOI 38	Groundwater	Manganese	7/7	1.1E+00	1.1E+00	7.7E-02	3.9E-01	6.5E-01	5.0E-01	1.0E+00	8.3E+00	1.1E+00

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI 38	Groundwater	Mercury	7/48	2.5E-03	5.4E-05	8.5E-06	1.0E-04	8.2E-04	1.1E-03	1.1E-03	7.3E-03	5.4E-05
AOI 38	Groundwater	Naphthalene	20/49	6.5E-01	6.5E-01	6.0E-05	2.9E-03	4.1E-02	1.2E-01	7.0E-02	7.7E-02	7.7E-02
AOI 38	Groundwater	n-Nitrosodipropylamine	0/45	1.0E-01	0.0E+00	5.0E-04	2.1E-03	9.1E-03	2.2E-02	1.5E-02	1.1E-02	9.1E-03
AOI 38	Groundwater	Pentachlorophenol (PCP)	5/45	2.5E-01	3.0E-03	5.0E-04	3.4E-03	2.2E-02	5.6E-02	3.6E-02	3.8E-02	3.0E-03
AOI 38	Groundwater	Phenanthrene	23/49	5.5E-01	5.5E-01	1.0E-04	1.9E-03	2.5E-02	9.3E-02	4.8E-02	2.5E-02	4.8E-02
AOI 38	Groundwater	Pyrene	12/49	5.0E-02	4.0E-02	6.0E-05	1.5E-03	5.4E-03	1.1E-02	8.1E-03	1.0E-02	1.0E-02
AOI 38	Groundwater	Selenium	15/49	3.7E-02	3.7E-02	9.0E-04	3.7E-03	6.5E-03	8.0E-03	8.4E-03	8.6E-03	8.6E-03
AOI 38	Groundwater	Silver	15/49	1.5E-02	1.5E-02	1.6E-04	2.0E-03	3.3E-03	2.8E-03	4.0E-03	6.8E-03	6.8E-03
AOI 38	Groundwater	Tetrachloroethene	3/54	1.3E-02	7.0E-03	5.0E-04	1.5E-03	2.4E-03	2.6E-03	3.0E-03	3.4E-03	3.4E-03
AOI 38	Groundwater	Toluene	10/54	1.7E-01	1.7E-01	5.0E-04	1.6E-03	7.4E-03	2.8E-02	1.4E-02	5.8E-03	1.4E-02
AOI 38	Groundwater	Trichloroethene	7/54	4.3E-01	4.3E-01	5.0E-04	1.9E-03	1.9E-02	7.7E-02	3.6E-02	1.1E-02	3.6E-02
AOI 38	Groundwater	Vinyl Chloride	18/63	8.2E-01	8.2E-01	5.0E-04	2.9E-03	3.8E-02	1.5E-01	6.9E-02	2.2E-02	6.9E-02
AOI 38	Groundwater	Xylenes (Total)	16/54	6.1E-01	6.1E-01	5.0E-04	3.5E-03	3.0E-02	1.1E-01	5.6E-02	2.7E-02	5.6E-02
AOI SPRR3	Groundwater	1,1,1-Trichloroethane	1/4	7.8E-02	7.8E-02	2.5E-03	1.3E-02	2.6E-02	3.5E-02	6.7E-02	1.1E+01	7.8E-02
AOI SPRR3	Groundwater	1,1,2-Trichloroethane	0/4	1.3E-02	0.0E+00	5.0E-04	3.7E-03	7.0E-03	6.4E-03	1.5E-02	6.9E+00	7.0E-03
AOI SPRR3	Groundwater	1,1-Dichloroethane	3/4	2.9E-01	2.9E-01	4.1E-03	2.9E-02	8.8E-02	1.4E-01	2.5E-01	9.4E+02	2.9E-01
AOI SPRR3	Groundwater	1,2,3-Trichloropropane	0/4	2.5E-02	0.0E+00	5.0E-04	6.3E-03	1.4E-02	1.3E-02	2.9E-02	2.3E+02	1.4E-02
AOI SPRR3	Groundwater	1,2-Dichloroethane	0/4	1.3E-02	0.0E+00	5.0E-04	3.7E-03	7.0E-03	6.4E-03	1.5E-02	6.9E+00	7.0E-03
AOI SPRR3	Groundwater	1,2-Dichloroethene	1/4	2.7E-01	2.7E-01	2.5E-03	1.8E-02	7.4E-02	1.3E-01	2.3E-01	5.0E+03	2.7E-01
AOI SPRR3	Groundwater	Acetone	0/4	2.5E-02	0.0E+00	1.0E-03	7.5E-03	1.4E-02	1.3E-02	2.9E-02	1.4E+01	1.4E-02
AOI SPRR3	Groundwater	Benzene	7/7	5.2E-02	5.2E-02	7.0E-03	2.4E-02	2.9E-02	1.7E-02	4.2E-02	7.3E-02	5.2E-02
AOI SPRR3	Groundwater	Chlorodibromomethane	0/4	1.3E-02	0.0E+00	5.0E-04	3.7E-03	7.0E-03	6.4E-03	1.5E-02	6.9E+00	7.0E-03
AOI SPRR3	Groundwater	Chloroethane (Ethyl chloride)	3/4	2.3E-01	2.3E-01	1.3E-02	6.0E-02	1.2E-01	1.2E-01	2.6E-01	1.1E+02	2.3E-01
AOI SPRR3	Groundwater	Chloromethane (Methyl chloride)	0/4	1.3E-02	0.0E+00	1.0E-03	5.3E-03	7.8E-03	5.7E-03	1.4E-02	6.7E-01	7.8E-03
AOI SPRR3	Groundwater	cis-1,2-Dichloroethene	1/1	2.7E-01	2.7E-01	2.7E-01	2.7E-01	2.7E-01	0.0E+00	#VALUE!	#DIV/0!	2.7E-01
AOI SPRR3	Groundwater	Dichloromethane	3/4	9.6E-03	9.6E-03	5.0E-04	2.4E-03	4.1E-03	4.2E-03	9.0E-03	5.7E-01	9.6E-03
AOI SPRR3	Groundwater	Ethylbenzene	7/7	1.5E-01	1.5E-01	3.9E-03	2.2E-02	4.5E-02	5.2E-02	8.3E-02	1.1E+00	1.5E-01
AOI SPRR3	Groundwater	Naphthalene	3/3	3.6E-01	3.6E-01	1.2E-01	2.0E-01	2.2E-01	1.2E-01	4.3E-01	5.0E+00	3.6E-01
AOI SPRR3	Groundwater	Tetrachloroethene	0/4	1.3E-02	0.0E+00	5.0E-04	3.7E-03	7.0E-03	6.4E-03	1.5E-02	6.9E+00	7.0E-03
AOI SPRR3	Groundwater	Toluene	4/7	1.2E-01	1.2E-01	7.0E-04	4.3E-03	2.0E-02	4.4E-02	5.3E-02	1.4E+00	1.2E-01
AOI SPRR3	Groundwater	Trichloroethene	1/4	1.3E-02	1.0E-03	1.0E-03	4.4E-03	7.1E-03	0.0E+00	7.1E-03	7.4E-01	1.0E-03
AOI SPRR3	Groundwater	Vinyl Chloride	3/4	3.3E-01	3.3E-01	1.1E-03	1.3E-02	8.8E-02	1.6E-01	2.8E-01	2.0E+06	3.3E-01
AOI SPRR3	Groundwater	Xylenes (Total)	7/7	9.3E-01	9.3E-01	7.0E-03	6.4E-02	2.0E-01	3.3E-01	4.4E-01	1.3E+01	9.3E-01
AOI SPRR5	Groundwater	1,1,1-Trichloroethane	3/18	1.3E-01	4.0E-03	5.0E-04	2.2E-03	1.6E-02	4.0E-02	3.2E-02	4.7E-02	4.0E-03
AOI SPRR5	Groundwater	1,1,2-Trichloroethane	0/18	1.3E-01	0.0E+00	5.0E-04	1.9E-03	1.6E-02	4.0E-02	3.2E-02	4.6E-02	1.6E-02

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI SPRR5	Groundwater	1,1-Dichloroethane	9/18	1.3E-01	1.2E-01	5.0E-04	3.0E-03	2.2E-02	4.7E-02	4.1E-02	8.6E-02	8.6E-02
AOI SPRR5	Groundwater	1,2,3-Trichloropropane	0/18	2.5E-01	0.0E+00	5.0E-04	2.3E-03	3.0E-02	8.0E-02	6.3E-02	1.5E-01	3.0E-02
AOI SPRR5	Groundwater	1,2-Dichloroethane	0/18	1.3E-01	0.0E+00	5.0E-04	1.9E-03	1.6E-02	4.0E-02	3.2E-02	4.6E-02	1.6E-02
AOI SPRR5	Groundwater	1,2-Dichloroethene	7/18	1.3E-01	6.1E-02	1.0E-03	3.4E-03	1.9E-02	4.1E-02	3.6E-02	6.1E-02	6.1E-02
AOI SPRR5	Groundwater	1,4-Dichlorobenzene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	2,6-Dinitrotoluene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	2-Methylnaphthalene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	4,6-Dinitro-o-cresol	0/1	5.0E-03	0.0E+00	5.0E-03	5.0E-03	5.0E-03	#DIV/0!	#VALUE!	#DIV/0!	5.0E-03
AOI SPRR5	Groundwater	4-Methylphenol (p-Cresol)	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Acenaphthene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Acetone	2/15	2.5E-01	6.0E-03	1.0E-03	3.5E-03	3.6E-02	8.7E-02	7.6E-02	2.7E-01	6.0E-03
AOI SPRR5	Groundwater	Arsenic	1/1	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	0.0E+00	#VALUE!	#DIV/0!	3.0E-03
AOI SPRR5	Groundwater	Barium	1/1	1.5E-01	1.5E-01	1.5E-01	1.5E-01	1.5E-01	0.0E+00	#VALUE!	#DIV/0!	1.5E-01
AOI SPRR5	Groundwater	Benzene	5/18	1.3E+00	1.3E+00	5.0E-04	3.1E-03	8.9E-02	3.1E-01	2.1E-01	6.0E-01	6.0E-01
AOI SPRR5	Groundwater	Benzo[a]anthracene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Benzo[a]pyrene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Benzo[b]fluoranthene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Benzo[k]fluoranthene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	bis(2-Chloroethyl)ether	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	bis(2-Ethylhexyl)phthalate	0/1	2.0E-04	0.0E+00	2.0E-04	2.0E-04	2.0E-04	#DIV/0!	#VALUE!	#DIV/0!	2.0E-04
AOI SPRR5	Groundwater	Cadmium	1/1	7.7E-04	7.7E-04	7.7E-04	7.7E-04	7.7E-04	0.0E+00	#VALUE!	#DIV/0!	7.7E-04
AOI SPRR5	Groundwater	Carbazole	0/1	3.0E-03	0.0E+00	3.0E-03	3.0E-03	3.0E-03	#DIV/0!	#VALUE!	#DIV/0!	3.0E-03
AOI SPRR5	Groundwater	Chlorodibromomethane	0/18	1.3E-01	0.0E+00	5.0E-04	1.9E-03	1.6E-02	4.0E-02	3.2E-02	4.6E-02	1.6E-02
AOI SPRR5	Groundwater	Chloroethane (Ethyl chloride)	0/17	1.3E-01	0.0E+00	5.0E-04	3.3E-03	1.7E-02	4.1E-02	3.5E-02	7.2E-02	1.7E-02
AOI SPRR5	Groundwater	Chloromethane (Methyl chloride)	0/18	1.3E-01	0.0E+00	5.0E-04	3.0E-03	1.7E-02	4.0E-02	3.3E-02	5.5E-02	1.7E-02
AOI SPRR5	Groundwater	Chromium	1/1	1.4E-03	1.4E-03	1.4E-03	1.4E-03	1.4E-03	0.0E+00	#VALUE!	#DIV/0!	1.4E-03
AOI SPRR5	Groundwater	Chrysene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	cis-1,2-Dichloroethene	5/12	4.0E-03	4.0E-03	5.0E-04	1.1E-03	1.5E-03	1.2E-03	2.2E-03	3.0E-03	3.0E-03
AOI SPRR5	Groundwater	Dibenz[a,h]anthracene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Dichloromethane	3/18	8.6E-02	8.6E-02	5.0E-04	1.6E-03	1.0E-02	2.6E-02	2.1E-02	3.0E-02	3.0E-02
AOI SPRR5	Groundwater	Ethylbenzene	3/18	1.3E+00	1.3E+00	5.0E-04	2.6E-03	1.2E-01	3.4E-01	2.6E-01	9.5E-01	9.5E-01
AOI SPRR5	Groundwater	Fluoranthene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Fluorene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Indeno[1,2,3-c,d]pyrene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Lead	1/1	9.7E-03	9.7E-03	9.7E-03	9.7E-03	9.7E-03	0.0E+00	#VALUE!	#DIV/0!	9.7E-03

Appendix D.3 Summary of Exposure Point Concentrations for Groundwater COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/l)
AOI SPRR5	Groundwater	Mercury	0/1	8.5E-06	0.0E+00	8.5E-06	8.5E-06	8.5E-06	#DIV/0!	#VALUE!	#DIV/0!	8.5E-06
AOI SPRR5	Groundwater	Naphthalene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	n-Nitrosodipropylamine	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Pentachlorophenol (PCP)	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Phenanthrene	0/1	5.0E-04	0.0E+00	5.0E-04	5.0E-04	5.0E-04	#DIV/0!	#VALUE!	#DIV/0!	5.0E-04
AOI SPRR5	Groundwater	Pyrene	0/1	1.0E-03	0.0E+00	1.0E-03	1.0E-03	1.0E-03	#DIV/0!	#VALUE!	#DIV/0!	1.0E-03
AOI SPRR5	Groundwater	Selenium	1/1	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	0.0E+00	#VALUE!	#DIV/0!	5.0E-03
AOI SPRR5	Groundwater	Silver	0/1	7.0E-04	0.0E+00	7.0E-04	7.0E-04	7.0E-04	#DIV/0!	#VALUE!	#DIV/0!	7.0E-04
AOI SPRR5	Groundwater	Tetrachloroethene	3/18	1.3E-01	2.0E-03	5.0E-04	2.1E-03	1.6E-02	4.0E-02	3.2E-02	4.4E-02	2.0E-03
AOI SPRR5	Groundwater	Toluene	3/18	2.8E+00	2.8E+00	5.0E-04	2.7E-03	2.9E-01	8.3E-01	6.2E-01	2.5E+00	2.5E+00
AOI SPRR5	Groundwater	Trichloroethene	0/18	1.3E-01	0.0E+00	5.0E-04	1.9E-03	1.6E-02	4.0E-02	3.2E-02	4.6E-02	1.6E-02
AOI SPRR5	Groundwater	Vinyl Chloride	6/18	1.3E-01	1.1E-01	5.0E-04	3.4E-03	2.2E-02	4.5E-02	4.1E-02	9.5E-02	9.5E-02
AOI SPRR5	Groundwater	Xylenes (Total)	3/18	7.9E+00	7.9E+00	5.0E-04	5.8E-03	6.6E-01	2.0E+00	1.5E+00	1.8E+01	7.9E+00

Appendix D.4 Summary of Exposure Point Concentrations for Fish Tissue COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

Results												
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg ww)
21st Street Pond	Fish Tissue	4,4'-DDE	28/28	5.9E-01	5.9E-01	1.9E-03	5.5E-02	1.3E-01	1.7E-01	1.8E-01	3.5E-01	3.5E-01
21st Street Pond	Fish Tissue	Aroclor-1260	27/28	1.9E+00	1.9E+00	5.3E-03	1.0E-01	2.9E-01	4.4E-01	4.3E-01	8.0E-01	8.0E-01
21st Street Pond	Fish Tissue	bis(2-Ethylhexyl)phthalate	21/28	2.7E+00	2.7E+00	4.1E-01	1.1E+00	1.2E+00	6.3E-01	1.4E+00	1.5E+00	1.5E+00

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Appendix D.5 Summary of Exposure Point Concentrations for Off-Yard Surface Soil COPCs

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
21st Street Pond	Soil OffYard	Arsenic	9/11	1.3E+01	1.3E+01	2.5E+00	4.7E+00	5.7E+00	3.9E+00	7.9E+00	9.2E+00	9.2E+00
21st Street Pond	Soil OffYard	Benzo[a]pyrene	3/11	1.6E+00	1.6E+00	4.4E-02	2.5E-01	3.9E-01	4.7E-01	6.4E-01	9.3E-01	9.3E-01
Weber River - Reach A	Soil OffYard	Arsenic	2/2	2.2E+01	2.2E+01	3.5E+00	8.8E+00	1.3E+01	1.3E+01	7.1E+01	3.4E+10	2.2E+01
Weber River - Reach A	Soil OffYard	Benzo[a]pyrene	0/11	1.0E+00	0.0E+00	1.8E-01	2.2E-01	2.7E-01	2.4E-01	4.0E-01	3.5E-01	2.7E-01
Weber River - Reach B	Soil OffYard	Arsenic	13/19	6.3E+00	6.3E+00	2.1E+00	3.1E+00	3.3E+00	1.2E+00	3.7E+00	3.7E+00	3.7E+00
Weber River - Reach B	Soil OffYard	Benzo[a]pyrene	1/23	1.2E+00	4.4E-01	1.7E-01	2.9E-01	4.0E-01	3.6E-01	5.3E-01	5.5E-01	4.4E-01
Weber River - Reach C	Soil OffYard	Arsenic	12/14	2.4E+01	2.4E+01	1.6E+00	3.6E+00	4.7E+00	5.6E+00	7.4E+00	6.4E+00	7.4E+00
Weber River - Reach C	Soil OffYard	Benzo[a]pyrene	1/14	9.0E-01	4.0E-02	4.0E-02	1.9E-01	2.3E-01	0.0E+00	2.3E-01	3.3E-01	4.0E-02
Weber River - Reach D	Soil OffYard	Arsenic	12/14	7.0E+00	7.0E+00	1.8E+00	3.1E+00	3.3E+00	1.4E+00	4.0E+00	4.2E+00	4.2E+00
Weber River - Reach D	Soil OffYard	Benzo[a]pyrene	2/14	1.1E+00	1.4E-01	3.6E-02	2.1E-01	2.9E-01	3.0E-01	4.3E-01	4.9E-01	1.4E-01

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Appendix D.6 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by Region

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
21st Street Pond	Soil OnYard	Aluminum	8/8	9.6E+03	9.6E+03	6.2E+03	7.3E+03	7.4E+03	1.3E+03	8.2E+03	8.4E+03	8.4E+03
21st Street Pond	Soil OnYard	Antimony	0/8	3.8E+00	0.0E+00	1.8E-01	3.9E-01	9.7E-01	1.5E+00	2.0E+00	8.5E+00	9.7E-01
21st Street Pond	Soil OnYard	Arsenic	9/11	1.3E+01	1.3E+01	2.5E+00	4.7E+00	5.7E+00	3.9E+00	7.9E+00	9.2E+00	9.2E+00
21st Street Pond	Soil OnYard	Benzo[a]anthracene	2/11	1.4E+00	1.4E+00	1.7E-01	2.7E-01	3.7E-01	4.1E-01	6.0E-01	6.2E-01	6.2E-01
21st Street Pond	Soil OnYard	Benzo[a]pyrene	3/11	1.6E+00	1.6E+00	4.4E-02	2.5E-01	3.9E-01	4.7E-01	6.4E-01	9.3E-01	9.3E-01
21st Street Pond	Soil OnYard	Benzo[b]fluoranthene	3/11	1.2E+00	1.2E+00	5.2E-02	2.5E-01	3.6E-01	3.7E-01	5.6E-01	7.7E-01	7.7E-01
21st Street Pond	Soil OnYard	Benzo[k]fluoranthene	2/11	1.6E+00	1.6E+00	1.7E-01	2.8E-01	4.0E-01	4.6E-01	6.5E-01	7.1E-01	7.1E-01
21st Street Pond	Soil OnYard	Chromium	11/11	2.0E+01	2.0E+01	5.2E+00	1.1E+01	1.2E+01	3.6E+00	1.4E+01	1.5E+01	1.5E+01
21st Street Pond	Soil OnYard	Chrysene	3/11	2.1E+00	2.1E+00	4.2E-02	2.6E-01	4.5E-01	6.0E-01	7.8E-01	1.1E+00	1.1E+00
21st Street Pond	Soil OnYard	Copper	8/8	9.4E+01	9.4E+01	1.2E+01	1.8E+01	2.4E+01	2.8E+01	4.3E+01	4.8E+01	4.8E+01
21st Street Pond	Soil OnYard	Dibenz[a,h]anthracene	1/11	9.5E-01	9.6E-02	9.6E-02	2.3E-01	3.1E-01	0.0E+00	3.1E-01	5.1E-01	9.6E-02
21st Street Pond	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/11	1.5E+00	1.5E+00	1.7E-01	2.8E-01	4.0E-01	4.4E-01	6.4E-01	7.1E-01	7.1E-01
21st Street Pond	Soil OnYard	Lead	11/11	2.2E+02	2.2E+02	4.7E+00	2.7E+01	6.8E+01	9.3E+01	1.2E+02	3.9E+02	6.8E+01
21st Street Pond	Soil OnYard	Manganese	8/8	3.6E+02	3.6E+02	1.8E+02	2.3E+02	2.4E+02	7.1E+01	2.9E+02	3.0E+02	3.0E+02
21st Street Pond	Soil OnYard	Mercury	9/11	1.4E-01	1.4E-01	1.5E-02	3.9E-02	5.3E-02	4.7E-02	7.9E-02	1.0E-01	1.0E-01
21st Street Pond	Soil OnYard	n-Nitrosodipropylamine	0/11	9.5E-01	0.0E+00	1.7E-01	2.4E-01	3.2E-01	3.0E-01	4.8E-01	5.0E-01	3.2E-01
21st Street Pond	Soil OnYard	Selenium	5/11	4.0E+00	1.0E+00	1.9E-01	5.6E-01	9.6E-01	1.2E+00	1.6E+00	2.5E+00	1.0E+00
Region 1	Soil OnYard	Aluminum	20/20	1.5E+05	1.5E+05	1.7E+03	7.4E+03	1.4E+04	3.3E+04	2.7E+04	1.6E+04	2.7E+04
Region 1	Soil OnYard	Antimony	5/19	4.4E+01	4.4E+01	1.6E+00	3.3E+00	7.0E+00	1.1E+01	1.1E+01	1.2E+01	1.2E+01
Region 1	Soil OnYard	Arsenic	60/64	8.0E+02	8.0E+02	2.0E+00	1.0E+01	2.8E+01	1.0E+02	4.9E+01	2.4E+01	4.9E+01
Region 1	Soil OnYard	Benzo[a]anthracene	44/62	3.6E+01	2.3E+00	3.7E-02	3.4E-01	1.8E+00	6.1E+00	3.1E+00	1.8E+00	2.3E+00
Region 1	Soil OnYard	Benzo[a]pyrene	44/62	3.6E+01	4.1E+00	3.7E-02	3.4E-01	1.8E+00	6.1E+00	3.1E+00	1.7E+00	3.1E+00
Region 1	Soil OnYard	Benzo[b]fluoranthene	49/63	3.6E+01	2.9E+00	2.2E-02	3.8E-01	1.8E+00	6.0E+00	3.1E+00	1.8E+00	2.9E+00
Region 1	Soil OnYard	Benzo[k]fluoranthene	40/62	3.6E+01	2.6E+00	3.4E-02	3.6E-01	1.8E+00	6.1E+00	3.1E+00	1.6E+00	2.6E+00
Region 1	Soil OnYard	Chromium	64/64	3.3E+02	3.3E+02	3.6E+00	1.9E+01	3.4E+01	5.4E+01	4.6E+01	4.0E+01	4.6E+01
Region 1	Soil OnYard	Chrysene	52/64	3.6E+01	3.3E+00	2.4E-02	4.4E-01	1.9E+00	6.0E+00	3.1E+00	1.9E+00	3.1E+00
Region 1	Soil OnYard	Copper	20/20	2.3E+04	2.3E+04	8.8E+00	1.6E+02	2.0E+03	5.6E+03	4.2E+03	9.3E+03	9.3E+03
Region 1	Soil OnYard	Dibenz[a,h]anthracene	14/61	3.6E+01	7.9E-01	4.0E-02	3.6E-01	1.9E+00	6.1E+00	3.2E+00	1.8E+00	7.9E-01
Region 1	Soil OnYard	Indeno[1,2,3-c,d]pyrene	40/62	3.6E+01	4.8E+00	5.0E-02	3.4E-01	1.8E+00	6.1E+00	3.1E+00	1.5E+00	3.1E+00
Region 1	Soil OnYard	Lead	64/64	3.0E+03	3.0E+03	6.7E+00	1.7E+02	3.8E+02	6.0E+02	5.1E+02	6.1E+02	3.8E+02
Region 1	Soil OnYard	Manganese	20/20	4.0E+03	4.0E+03	7.5E+01	3.0E+02	5.1E+02	8.6E+02	8.4E+02	7.5E+02	8.4E+02
Region 1	Soil OnYard	Mercury	52/62	1.6E+02	1.6E+02	1.0E-02	1.8E-01	1.1E+01	3.6E+01	1.8E+01	7.9E+00	1.8E+01

Appendix D.6 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by Region

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
Region 1	Soil OnYard	n-Nitrosodipropylamine	1/46	3.6E+01	1.3E+00	1.7E-01	3.6E-01	2.2E+00	7.0E+00	3.9E+00	1.8E+00	1.3E+00
Region 1	Soil OnYard	Selenium	22/62	4.5E+01	4.5E+01	4.8E-02	1.3E+00	3.7E+00	6.6E+00	5.1E+00	8.4E+00	8.4E+00
Region 2	Soil OnYard	Arsenic	41/48	4.5E+02	4.5E+02	1.9E+00	1.1E+01	3.0E+01	8.2E+01	5.0E+01	3.1E+01	5.0E+01
Region 2	Soil OnYard	Benzo[a]anthracene	32/43	1.4E+01	1.4E+01	4.4E-02	3.2E-01	8.5E-01	2.2E+00	1.4E+00	1.1E+00	1.4E+00
Region 2	Soil OnYard	Benzo[a]pyrene	35/43	2.0E+01	2.0E+01	3.4E-02	2.6E-01	9.6E-01	3.2E+00	1.8E+00	9.7E-01	1.8E+00
Region 2	Soil OnYard	Benzo[b]fluoranthene	38/43	1.7E+01	1.7E+01	4.3E-02	3.9E-01	1.1E+00	2.7E+00	1.8E+00	1.7E+00	1.8E+00
Region 2	Soil OnYard	Benzo[k]fluoranthene	30/43	1.5E+01	1.5E+01	5.9E-02	2.5E-01	7.3E-01	2.3E+00	1.3E+00	6.8E-01	1.3E+00
Region 2	Soil OnYard	Chromium	48/48	1.7E+03	1.7E+03	5.0E+00	4.7E+01	1.8E+02	3.6E+02	2.7E+02	3.3E+02	3.3E+02
Region 2	Soil OnYard	Chrysene	37/43	2.0E+01	2.0E+01	4.1E-02	4.5E-01	1.3E+00	3.2E+00	2.1E+00	1.8E+00	2.1E+00
Region 2	Soil OnYard	Dibenz[a,h]anthracene	26/43	4.2E+00	4.2E+00	3.4E-02	1.5E-01	3.3E-01	7.2E-01	5.1E-01	3.7E-01	5.1E-01
Region 2	Soil OnYard	Indeno[1,2,3-c,d]pyrene	32/43	1.8E+01	1.8E+01	4.3E-02	2.4E-01	8.1E-01	2.8E+00	1.5E+00	6.6E-01	1.5E+00
Region 2	Soil OnYard	Lead	48/48	2.2E+03	2.2E+03	1.9E+01	2.0E+02	3.5E+02	4.3E+02	4.5E+02	5.7E+02	3.5E+02
Region 2	Soil OnYard	Mercury	46/48	4.1E+00	4.1E+00	2.0E-02	1.7E-01	3.4E-01	6.1E-01	4.9E-01	4.8E-01	4.9E-01
Region 2	Soil OnYard	n-Nitrosodipropylamine	0/43	1.7E+00	0.0E+00	1.7E-01	2.2E-01	2.7E-01	2.6E-01	3.3E-01	2.9E-01	2.7E-01
Region 2	Soil OnYard	Selenium	20/48	7.7E+02	7.7E+02	4.5E-02	2.7E+00	2.8E+01	1.1E+02	5.6E+01	1.6E+02	1.6E+02
Region 3	Soil OnYard	Arsenic	10/15	1.7E+01	1.7E+01	2.5E+00	5.3E+00	6.6E+00	4.6E+00	8.7E+00	1.0E+01	1.0E+01
Region 3	Soil OnYard	Benzo[a]anthracene	9/18	3.0E+02	3.0E+02	3.7E-02	3.5E-01	1.8E+01	7.1E+01	4.7E+01	3.5E+01	4.7E+01
Region 3	Soil OnYard	Benzo[a]pyrene	6/18	2.0E+02	2.0E+02	4.9E-02	4.3E-01	1.3E+01	4.7E+01	3.2E+01	3.5E+01	3.5E+01
Region 3	Soil OnYard	Benzo[b]fluoranthene	9/18	2.6E+02	2.6E+02	3.4E-02	4.1E-01	1.6E+01	6.0E+01	4.0E+01	1.0E+02	1.0E+02
Region 3	Soil OnYard	Benzo[k]fluoranthene	5/18	1.9E+02	1.9E+02	3.7E-02	4.0E-01	1.2E+01	4.4E+01	3.0E+01	3.7E+01	3.7E+01
Region 3	Soil OnYard	Chromium	16/16	3.2E+01	3.2E+01	2.0E+00	9.0E+00	1.1E+01	6.8E+00	1.4E+01	1.5E+01	1.5E+01
Region 3	Soil OnYard	Chrysene	10/18	9.0E+02	9.0E+02	4.5E-02	4.2E-01	5.1E+01	2.1E+02	1.4E+02	1.4E+02	1.4E+02
Region 3	Soil OnYard	Dibenz[a,h]anthracene	0/18	3.7E+01	0.0E+00	1.7E-01	4.4E-01	3.6E+00	9.3E+00	7.4E+00	1.0E+01	3.6E+00
Region 3	Soil OnYard	Indeno[1,2,3-c,d]pyrene	5/18	3.7E+01	2.2E-01	6.3E-02	3.5E-01	3.5E+00	9.3E+00	7.3E+00	1.5E+01	2.2E-01
Region 3	Soil OnYard	Lead	16/16	3.0E+03	3.0E+03	5.0E+00	7.7E+01	3.0E+02	7.4E+02	6.2E+02	1.0E+03	3.0E+02
Region 3	Soil OnYard	Mercury	11/16	1.6E-01	1.6E-01	2.0E-02	5.2E-02	6.8E-02	4.5E-02	8.8E-02	1.2E-01	1.2E-01
Region 3	Soil OnYard	n-Nitrosodipropylamine	0/18	3.7E+01	0.0E+00	1.7E-01	4.4E-01	3.6E+00	9.3E+00	7.4E+00	1.0E+01	3.6E+00
Region 3	Soil OnYard	Selenium	4/16	1.0E+01	5.8E+00	1.1E-01	2.0E+00	2.8E+00	2.3E+00	3.8E+00	6.9E+00	5.8E+00
Region 4/5	Soil OnYard	Arsenic	8/9	5.5E+00	5.5E+00	2.5E+00	3.7E+00	3.9E+00	1.1E+00	4.5E+00	4.7E+00	4.7E+00
Region 4/5	Soil OnYard	Benzo[a]anthracene	2/11	1.7E-01	1.2E-01	2.3E-02	1.3E-01	1.5E-01	4.4E-02	1.7E-01	2.5E-01	1.2E-01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 1	Soil OnYard	Arsenic	3/4	2.4E+01	2.4E+01	2.5E+00	5.6E+00	8.6E+00	1.0E+01	2.0E+01	1.5E+02	2.4E+01
AOI 1	Soil OnYard	Benzo[a]anthracene	4/5	3.4E+00	7.0E-01	4.1E-02	2.8E-01	8.7E-01	1.4E+00	2.2E+00	1.5E+03	7.0E-01
AOI 1	Soil OnYard	Benzo[a]pyrene	4/5	3.4E+00	5.9E-01	4.4E-02	2.5E-01	8.4E-01	1.4E+00	2.2E+00	1.4E+03	5.9E-01
AOI 1	Soil OnYard	Benzo[b]fluoranthene	4/5	3.4E+00	7.7E-01	5.9E-02	3.6E-01	9.1E-01	1.4E+00	2.2E+00	2.9E+02	7.7E-01
AOI 1	Soil OnYard	Benzo[k]fluoranthene	2/5	3.4E+00	2.9E-01	6.1E-02	3.2E-01	8.4E-01	1.4E+00	2.2E+00	1.8E+02	2.9E-01
AOI 1	Soil OnYard	Chromium	4/4	1.5E+01	1.5E+01	3.6E+00	6.8E+00	7.8E+00	5.1E+00	1.4E+01	2.5E+01	1.5E+01
AOI 1	Soil OnYard	Chrysene	5/5	1.0E+00	1.0E+00	1.1E-01	3.2E-01	4.8E-01	4.3E-01	8.9E-01	6.9E+00	1.0E+00
AOI 1	Soil OnYard	Dibenz[a,h]anthracene	1/5	3.4E+00	4.0E-02	4.0E-02	3.0E-01	8.5E-01	0.0E+00	8.5E-01	3.3E+02	4.0E-02
AOI 1	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/5	3.4E+00	2.4E-01	5.7E-02	2.3E-01	7.8E-01	1.4E+00	2.2E+00	2.4E+02	2.4E-01
AOI 1	Soil OnYard	Lead	4/4	7.4E+02	7.4E+02	1.2E+01	5.4E+01	2.0E+02	3.6E+02	6.2E+02	1.5E+06	2.0E+02
AOI 1	Soil OnYard	Mercury	4/4	1.3E+00	1.3E+00	1.0E-02	1.2E-01	4.6E-01	6.0E-01	1.2E+00	6.2E+06	1.3E+00
AOI 1	Soil OnYard	n-Nitrosodipropylamine	0/5	3.4E+00	0.0E+00	1.7E-01	4.0E-01	8.7E-01	1.4E+00	2.2E+00	3.6E+01	8.7E-01
AOI 1	Soil OnYard	Selenium	3/4	2.5E+00	2.0E+00	2.1E-01	7.1E-01	1.2E+00	1.2E+00	2.6E+00	1.7E+02	2.0E+00
AOI 12	Soil OnYard	Arsenic	2/3	5.0E+00	5.0E+00	2.5E+00	3.7E+00	3.9E+00	1.3E+00	6.0E+00	1.5E+01	5.0E+00
AOI 12	Soil OnYard	Benzo[a]anthracene	1/5	1.7E-01	1.2E-01	1.2E-01	1.5E-01	1.6E-01	0.0E+00	1.6E-01	1.8E-01	1.2E-01
AOI 12	Soil OnYard	Benzo[a]pyrene	1/5	1.7E-01	8.2E-02	8.2E-02	1.4E-01	1.5E-01	0.0E+00	1.5E-01	2.2E-01	8.2E-02
AOI 12	Soil OnYard	Benzo[b]fluoranthene	1/5	2.2E-01	2.2E-01	1.7E-01	1.7E-01	1.8E-01	2.5E-02	2.0E-01	2.0E-01	2.0E-01
AOI 12	Soil OnYard	Benzo[k]fluoranthene	1/5	1.7E-01	5.2E-02	5.2E-02	1.3E-01	1.4E-01	0.0E+00	1.4E-01	3.2E-01	5.2E-02
AOI 12	Soil OnYard	Chromium	2/3	9.1E+00	9.1E+00	5.0E-01	3.3E+00	5.8E+00	4.6E+00	1.4E+01	3.6E+12	9.1E+00
AOI 12	Soil OnYard	Chrysene	1/5	3.3E-01	3.3E-01	1.7E-01	1.9E-01	2.0E-01	7.4E-02	2.7E-01	2.9E-01	2.9E-01
AOI 12	Soil OnYard	Dibenz[a,h]anthracene	0/5	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
AOI 12	Soil OnYard	Indeno[1,2,3-c,d]pyrene	1/5	1.7E-01	7.2E-02	7.2E-02	1.4E-01	1.5E-01	0.0E+00	1.5E-01	2.4E-01	7.2E-02
AOI 12	Soil OnYard	Lead	2/3	9.3E+01	9.3E+01	1.0E+00	1.7E+01	5.0E+01	4.6E+01	1.3E+02	3.5E+27	5.0E+01
AOI 12	Soil OnYard	Mercury	2/3	1.4E-01	1.4E-01	2.0E-02	6.8E-02	9.1E-02	6.4E-02	2.0E-01	2.2E+03	1.4E-01
AOI 12	Soil OnYard	n-Nitrosodipropylamine	0/5	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
AOI 12	Soil OnYard	Selenium	1/3	2.5E+00	3.2E-01	4.6E-02	3.3E-01	9.6E-01	1.3E+00	3.2E+00	2.4E+16	3.2E-01
AOI 13	Soil OnYard	Arsenic	0/2	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00
AOI 13	Soil OnYard	Chromium	3/3	1.5E+01	1.5E+01	5.5E+00	8.8E+00	9.6E+00	4.9E+00	1.8E+01	1.0E+02	1.5E+01
AOI 13	Soil OnYard	Lead	3/3	8.7E+01	8.7E+01	5.0E+00	1.9E+01	3.6E+01	4.5E+01	1.1E+02	2.4E+10	3.6E+01
AOI 13	Soil OnYard	Mercury	0/3	2.0E-02	0.0E+00	2.0E-02	2.0E-02	2.0E-02	3.3E-10	2.0E-02	2.0E-02	2.0E-02
AOI 13	Soil OnYard	Selenium	0/3	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00
AOI 17	Soil OnYard	Arsenic	4/4	1.1E+01	1.1E+01	5.9E+00	8.1E+00	8.3E+00	2.1E+00	1.1E+01	1.2E+01	1.1E+01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 17	Soil OnYard	Benzo[a]anthracene	3/3	3.0E-01	3.0E-01	5.0E-02	1.4E-01	1.7E-01	1.3E-01	3.8E-01	4.2E+02	3.0E-01
AOI 17	Soil OnYard	Benzo[a]pyrene	3/3	3.3E-01	3.3E-01	4.0E-02	1.4E-01	1.9E-01	1.5E-01	4.3E-01	6.7E+03	3.3E-01
AOI 17	Soil OnYard	Benzo[b]fluoranthene	3/3	3.1E-01	3.1E-01	4.0E-02	1.4E-01	2.0E-01	1.4E-01	4.3E-01	7.9E+03	3.1E-01
AOI 17	Soil OnYard	Benzo[k]fluoranthene	3/3	3.4E-01	3.4E-01	5.1E-02	1.5E-01	2.0E-01	1.4E-01	4.4E-01	2.0E+03	3.4E-01
AOI 17	Soil OnYard	Chromium	4/4	1.9E+01	1.9E+01	1.0E+01	1.4E+01	1.5E+01	4.0E+00	1.9E+01	2.2E+01	1.9E+01
AOI 17	Soil OnYard	Chrysene	3/3	4.2E-01	4.2E-01	7.5E-02	2.2E-01	2.7E-01	1.8E-01	5.7E-01	7.2E+02	4.2E-01
AOI 17	Soil OnYard	Dibenz[a,h]anthracene	2/3	1.7E-01	8.5E-02	4.9E-02	8.9E-02	1.0E-01	6.2E-02	2.1E-01	3.4E+00	8.5E-02
AOI 17	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/3	2.5E-01	2.5E-01	5.0E-02	1.4E-01	1.8E-01	1.1E-01	3.6E-01	4.0E+02	2.5E-01
AOI 17	Soil OnYard	Lead	4/4	2.5E+02	2.5E+02	1.2E+02	2.0E+02	2.0E+02	5.7E+01	2.7E+02	3.3E+02	2.0E+02
AOI 17	Soil OnYard	Mercury	4/4	9.5E-02	9.5E-02	5.4E-02	7.0E-02	7.2E-02	1.7E-02	9.2E-02	9.7E-02	9.5E-02
AOI 17	Soil OnYard	n-Nitrosodipropylamine	0/3	1.8E-01	0.0E+00	1.7E-01	1.7E-01	1.8E-01	5.0E-03	1.8E-01	1.9E-01	1.8E-01
AOI 17	Soil OnYard	Selenium	0/4	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00
AOI 18	Soil OnYard	Arsenic	3/3	8.6E+00	8.6E+00	4.5E+00	6.8E+00	7.1E+00	2.3E+00	1.1E+01	2.8E+01	8.6E+00
AOI 18	Soil OnYard	Benzo[a]anthracene	3/3	4.3E-01	4.3E-01	1.0E-01	1.9E-01	2.3E-01	1.8E-01	5.3E-01	3.1E+01	4.3E-01
AOI 18	Soil OnYard	Benzo[a]pyrene	3/3	4.9E-01	4.9E-01	1.1E-01	2.1E-01	2.6E-01	2.0E-01	6.0E-01	7.8E+01	4.9E-01
AOI 18	Soil OnYard	Benzo[b]fluoranthene	3/3	3.7E-01	3.7E-01	1.4E-01	2.3E-01	2.5E-01	1.2E-01	4.4E-01	2.4E+00	3.7E-01
AOI 18	Soil OnYard	Benzo[k]fluoranthene	3/3	4.1E-01	4.1E-01	1.2E-01	2.1E-01	2.4E-01	1.5E-01	4.9E-01	8.0E+00	4.1E-01
AOI 18	Soil OnYard	Chromium	3/3	1.3E+01	1.3E+01	5.4E+00	8.6E+00	9.2E+00	3.9E+00	1.6E+01	5.0E+01	1.3E+01
AOI 18	Soil OnYard	Chrysene	3/3	5.0E-01	5.0E-01	2.1E-01	3.3E-01	3.5E-01	1.5E-01	5.9E-01	1.8E+00	5.0E-01
AOI 18	Soil OnYard	Dibenz[a,h]anthracene	1/3	1.7E-01	8.6E-02	8.6E-02	1.4E-01	1.4E-01	0.0E+00	1.4E-01	6.3E-01	8.6E-02
AOI 18	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/3	3.9E-01	3.9E-01	1.3E-01	2.2E-01	2.5E-01	1.3E-01	4.7E-01	3.2E+00	3.9E-01
AOI 18	Soil OnYard	Lead	3/3	3.6E+02	3.6E+02	6.8E+01	1.8E+02	2.2E+02	1.4E+02	4.6E+02	3.1E+05	2.2E+02
AOI 18	Soil OnYard	Mercury	3/3	1.7E-01	1.7E-01	7.0E-02	1.1E-01	1.2E-01	4.9E-02	2.0E-01	6.4E-01	1.7E-01
AOI 18	Soil OnYard	n-Nitrosodipropylamine	0/3	1.9E-01	0.0E+00	1.7E-01	1.7E-01	1.8E-01	8.7E-03	1.9E-01	1.9E-01	1.8E-01
AOI 18	Soil OnYard	Selenium	3/3	5.4E-01	5.4E-01	1.0E-01	2.6E-01	3.3E-01	2.2E-01	7.0E-01	5.3E+02	5.4E-01
AOI 19	Soil OnYard	Arsenic	3/3	4.6E+00	4.6E+00	1.9E+00	2.7E+00	2.9E+00	1.5E+00	5.4E+00	2.7E+01	4.6E+00
AOI 19	Soil OnYard	Benzo[a]anthracene	2/3	1.4E+01	1.4E+01	1.9E-01	2.3E+00	6.3E+00	7.1E+00	1.8E+01	3.1E+19	1.4E+01
AOI 19	Soil OnYard	Benzo[a]pyrene	2/3	2.0E+01	2.0E+01	1.9E-01	3.0E+00	9.2E+00	1.0E+01	2.6E+01	3.5E+26	2.0E+01
AOI 19	Soil OnYard	Benzo[b]fluoranthene	2/3	1.7E+01	1.7E+01	1.9E-01	2.7E+00	7.9E+00	8.5E+00	2.2E+01	4.1E+25	1.7E+01
AOI 19	Soil OnYard	Benzo[k]fluoranthene	2/3	1.5E+01	1.5E+01	1.9E-01	2.1E+00	6.2E+00	7.8E+00	1.9E+01	2.3E+19	1.5E+01
AOI 19	Soil OnYard	Chromium	3/3	1.4E+01	1.4E+01	6.2E+00	8.1E+00	8.7E+00	4.1E+00	1.6E+01	4.5E+01	1.4E+01
AOI 19	Soil OnYard	Chrysene	3/3	2.0E+01	2.0E+01	4.6E-02	1.9E+00	9.3E+00	1.0E+01	2.6E+01	3.7E+48	2.0E+01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 19	Soil OnYard	Dibenz[a,h]anthracene	2/3	4.2E+00	4.2E+00	1.9E-01	1.2E+00	2.2E+00	2.0E+00	5.5E+00	1.5E+12	4.2E+00
AOI 19	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/3	1.8E+01	1.8E+01	1.9E-01	2.8E+00	8.2E+00	9.1E+00	2.3E+01	5.8E+25	1.8E+01
AOI 19	Soil OnYard	Lead	3/3	2.7E+02	2.7E+02	2.7E+01	6.9E+01	1.1E+02	1.4E+02	3.4E+02	1.8E+08	1.1E+02
AOI 19	Soil OnYard	Mercury	3/3	2.1E-01	2.1E-01	4.6E-02	9.9E-02	1.2E-01	8.5E-02	2.6E-01	3.9E+01	2.1E-01
AOI 19	Soil OnYard	n-Nitrosodipropylamine	0/3	1.9E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	1.0E-02	1.9E-01	1.9E-01	1.7E-01
AOI 19	Soil OnYard	Selenium	1/3	1.4E-01	1.4E-01	4.6E-02	6.6E-02	7.6E-02	5.2E-02	1.6E-01	2.5E+00	1.4E-01
AOI 2	Soil OnYard	Arsenic	3/3	1.5E+01	1.5E+01	8.9E+00	1.2E+01	1.2E+01	3.2E+00	1.8E+01	2.7E+01	1.5E+01
AOI 2	Soil OnYard	Benzo[a]anthracene	3/3	6.9E-01	6.9E-01	7.5E-02	2.4E-01	3.5E-01	3.1E-01	8.7E-01	1.3E+04	6.9E-01
AOI 2	Soil OnYard	Benzo[a]pyrene	3/3	6.2E-01	6.2E-01	6.4E-02	1.9E-01	2.8E-01	3.0E-01	7.8E-01	1.9E+05	6.2E-01
AOI 2	Soil OnYard	Benzo[b]fluoranthene	3/3	1.0E+00	1.0E+00	1.1E-01	3.2E-01	4.7E-01	4.7E-01	1.3E+00	1.6E+04	1.0E+00
AOI 2	Soil OnYard	Benzo[k]fluoranthene	3/3	6.9E-01	6.9E-01	7.9E-02	2.3E-01	3.3E-01	3.2E-01	8.7E-01	9.1E+03	6.9E-01
AOI 2	Soil OnYard	Chromium	3/3	3.9E+01	3.9E+01	2.3E+01	2.7E+01	2.8E+01	9.3E+00	4.4E+01	7.0E+01	3.9E+01
AOI 2	Soil OnYard	Chrysene	3/3	1.3E+00	1.3E+00	1.4E-01	4.8E-01	6.8E-01	5.8E-01	1.7E+00	4.3E+05	1.3E+00
AOI 2	Soil OnYard	Dibenz[a,h]anthracene	2/3	1.8E-01	1.0E-01	3.6E-02	8.6E-02	1.0E-01	7.0E-02	2.2E-01	4.4E+01	1.0E-01
AOI 2	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/3	3.9E-01	3.9E-01	8.9E-02	1.7E-01	2.1E-01	1.6E-01	4.8E-01	2.9E+01	3.9E-01
AOI 2	Soil OnYard	Lead	3/3	1.3E+02	1.3E+02	6.8E+01	8.8E+01	9.1E+01	3.3E+01	1.5E+02	2.5E+02	9.1E+01
AOI 2	Soil OnYard	Mercury	3/3	6.7E-02	6.7E-02	4.6E-02	5.2E-02	5.3E-02	1.2E-02	7.3E-02	8.7E-02	6.7E-02
AOI 2	Soil OnYard	n-Nitrosodipropylamine	0/3	1.8E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.8E-01	1.8E-01	1.7E-01
AOI 2	Soil OnYard	Selenium	3/3	7.1E-01	7.1E-01	5.7E-01	6.4E-01	6.4E-01	6.7E-02	7.5E-01	7.9E-01	7.1E-01
AOI 20	Soil OnYard	Arsenic	2/3	8.6E+00	8.6E+00	2.5E+00	5.6E+00	6.4E+00	3.4E+00	1.2E+01	6.2E+02	8.6E+00
AOI 20	Soil OnYard	Benzo[a]anthracene	2/3	3.4E-01	4.5E-02	4.4E-02	8.7E-02	1.4E-01	1.7E-01	4.2E-01	1.2E+05	4.5E-02
AOI 20	Soil OnYard	Benzo[a]pyrene	1/3	3.4E-01	3.9E-02	3.9E-02	1.3E-01	1.8E-01	0.0E+00	1.8E-01	5.8E+03	3.9E-02
AOI 20	Soil OnYard	Benzo[b]fluoranthene	3/3	9.5E-02	9.5E-02	7.5E-02	8.3E-02	8.3E-02	1.0E-02	1.0E-01	1.1E-01	9.5E-02
AOI 20	Soil OnYard	Benzo[k]fluoranthene	0/3	3.4E-01	0.0E+00	1.7E-01	2.1E-01	2.2E-01	9.8E-02	3.9E-01	1.0E+00	2.2E-01
AOI 20	Soil OnYard	Chromium	3/3	2.1E+01	2.1E+01	5.0E+00	8.5E+00	1.1E+01	9.0E+00	2.6E+01	3.9E+03	2.1E+01
AOI 20	Soil OnYard	Chrysene	3/3	1.1E-01	1.1E-01	9.7E-02	1.0E-01	1.0E-01	7.0E-03	1.1E-01	1.2E-01	1.1E-01
AOI 20	Soil OnYard	Dibenz[a,h]anthracene	0/3	3.4E-01	0.0E+00	1.7E-01	2.1E-01	2.2E-01	9.8E-02	3.9E-01	1.0E+00	2.2E-01
AOI 20	Soil OnYard	Indeno[1,2,3-c,d]pyrene	1/3	3.4E-01	4.3E-02	4.3E-02	1.3E-01	1.8E-01	0.0E+00	1.8E-01	3.5E+03	4.3E-02
AOI 20	Soil OnYard	Lead	3/3	1.2E+02	1.2E+02	6.9E+01	9.7E+01	1.0E+02	2.7E+01	1.5E+02	2.4E+02	1.0E+02
AOI 20	Soil OnYard	Mercury	3/3	7.8E-02	7.8E-02	4.4E-02	6.2E-02	6.4E-02	1.8E-02	9.4E-02	1.6E-01	7.8E-02
AOI 20	Soil OnYard	n-Nitrosodipropylamine	0/3	3.4E-01	0.0E+00	1.7E-01	2.1E-01	2.2E-01	9.8E-02	3.9E-01	1.0E+00	2.2E-01
AOI 20	Soil OnYard	Selenium	2/3	7.7E+00	7.7E+00	2.5E+00	5.0E+00	5.5E+00	2.7E+00	1.0E+01	1.7E+02	7.7E+00

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 21	Soil OnYard	Arsenic	9/10	4.5E+02	4.5E+02	2.5E+00	1.7E+01	7.0E+01	1.4E+02	1.5E+02	5.9E+02	4.5E+02
AOI 21	Soil OnYard	Benzo[a]anthracene	4/4	2.9E+00	2.9E+00	2.2E-01	7.1E-01	1.1E+00	1.2E+00	2.6E+00	7.4E+01	2.9E+00
AOI 21	Soil OnYard	Benzo[a]pyrene	4/4	2.0E+00	2.0E+00	1.9E-01	8.1E-01	1.1E+00	8.0E-01	2.0E+00	2.7E+01	2.0E+00
AOI 21	Soil OnYard	Benzo[b]fluoranthene	4/4	2.1E+00	2.1E+00	2.5E-01	9.2E-01	1.2E+00	7.9E-01	2.1E+00	1.6E+01	2.1E+00
AOI 21	Soil OnYard	Benzo[k]fluoranthene	4/4	2.6E+00	2.6E+00	2.3E-01	9.0E-01	1.2E+00	1.0E+00	2.4E+00	2.7E+01	2.6E+00
AOI 21	Soil OnYard	Chromium	10/10	1.4E+03	1.4E+03	1.9E+01	9.1E+01	2.4E+02	4.2E+02	4.8E+02	1.6E+03	1.4E+03
AOI 21	Soil OnYard	Chrysene	4/4	3.8E+00	3.8E+00	3.1E-01	1.2E+00	1.7E+00	1.5E+00	3.4E+00	3.8E+01	3.8E+00
AOI 21	Soil OnYard	Dibenz[a,h]anthracene	3/4	1.7E+00	2.4E-01	4.6E-02	2.3E-01	5.2E-01	7.5E-01	1.4E+00	3.1E+02	2.4E-01
AOI 21	Soil OnYard	Indeno[1,2,3-c,d]pyrene	4/4	9.8E-01	9.8E-01	1.9E-01	5.6E-01	6.6E-01	3.4E-01	1.1E+00	3.6E+00	9.8E-01
AOI 21	Soil OnYard	Lead	10/10	2.2E+03	2.2E+03	1.9E+01	4.0E+02	6.3E+02	6.1E+02	9.9E+02	3.9E+03	6.3E+02
AOI 21	Soil OnYard	Mercury	9/10	4.1E+00	4.1E+00	2.0E-02	3.5E-01	7.5E-01	1.2E+00	1.4E+00	4.5E+00	4.1E+00
AOI 21	Soil OnYard	n-Nitrosodipropylamine	0/4	1.7E+00	0.0E+00	1.7E-01	3.0E-01	5.4E-01	7.4E-01	1.4E+00	3.0E+01	5.4E-01
AOI 21	Soil OnYard	Selenium	5/10	7.7E+02	7.7E+02	4.5E-02	3.0E+00	8.2E+01	2.4E+02	2.2E+02	3.5E+05	7.7E+02
AOI 22A	Soil OnYard	Arsenic	7/7	1.7E+01	1.7E+01	5.2E+00	8.9E+00	9.5E+00	3.9E+00	1.2E+01	1.4E+01	1.4E+01
AOI 22A	Soil OnYard	Benzo[a]anthracene	7/7	1.3E+00	1.3E+00	3.7E-02	1.9E-01	3.9E-01	4.5E-01	7.2E-01	5.8E+00	1.3E+00
AOI 22A	Soil OnYard	Benzo[a]pyrene	6/7	8.7E-01	8.7E-01	5.7E-02	2.0E-01	3.0E-01	2.9E-01	5.2E-01	1.5E+00	8.7E-01
AOI 22A	Soil OnYard	Benzo[b]fluoranthene	7/7	1.6E+00	1.6E+00	5.4E-02	3.1E-01	5.6E-01	5.8E-01	9.8E-01	6.5E+00	1.6E+00
AOI 22A	Soil OnYard	Benzo[k]fluoranthene	5/7	4.9E-01	4.9E-01	6.9E-02	1.9E-01	2.2E-01	1.4E-01	3.2E-01	4.6E-01	4.6E-01
AOI 22A	Soil OnYard	Chromium	7/7	3.3E+02	3.3E+02	1.5E+01	4.7E+01	8.4E+01	1.1E+02	1.7E+02	4.5E+02	3.3E+02
AOI 22A	Soil OnYard	Chrysene	7/7	1.5E+00	1.5E+00	5.6E-02	3.6E-01	5.5E-01	5.0E-01	9.2E-01	3.4E+00	1.5E+00
AOI 22A	Soil OnYard	Dibenz[a,h]anthracene	2/7	9.5E-01	8.5E-02	6.8E-02	1.7E-01	2.5E-01	3.1E-01	4.8E-01	7.3E-01	8.5E-02
AOI 22A	Soil OnYard	Indeno[1,2,3-c,d]pyrene	4/7	3.5E-01	3.5E-01	7.6E-02	1.9E-01	2.1E-01	9.4E-02	2.8E-01	3.6E-01	3.5E-01
AOI 22A	Soil OnYard	Lead	7/7	8.1E+02	8.1E+02	4.9E+01	2.0E+02	2.8E+02	2.6E+02	4.7E+02	1.0E+03	2.8E+02
AOI 22A	Soil OnYard	Mercury	5/7	2.9E-01	2.9E-01	2.0E-02	6.6E-02	9.8E-02	9.7E-02	1.7E-01	4.8E-01	2.9E-01
AOI 22A	Soil OnYard	n-Nitrosodipropylamine	0/7	9.5E-01	0.0E+00	1.7E-01	2.2E-01	2.8E-01	3.0E-01	5.0E-01	5.8E-01	2.8E-01
AOI 22A	Soil OnYard	Selenium	0/7	1.0E+01	0.0E+00	2.5E+00	3.0E+00	3.6E+00	2.8E+00	5.7E+00	5.9E+00	3.6E+00
AOI 22B	Soil OnYard	Arsenic	5/7	2.4E+01	2.4E+01	2.5E+00	8.4E+00	1.1E+01	8.4E+00	1.8E+01	4.6E+01	2.4E+01
AOI 22B	Soil OnYard	Benzo[a]anthracene	3/7	2.5E-01	2.5E-01	1.7E-01	1.8E-01	1.9E-01	3.3E-02	2.1E-01	2.1E-01	2.1E-01
AOI 22B	Soil OnYard	Benzo[a]pyrene	3/7	2.1E-01	2.1E-01	1.3E-01	1.7E-01	1.7E-01	2.6E-02	1.9E-01	2.0E-01	2.0E-01
AOI 22B	Soil OnYard	Benzo[b]fluoranthene	3/7	5.7E-01	5.7E-01	1.7E-01	2.4E-01	2.8E-01	1.6E-01	3.9E-01	4.7E-01	4.7E-01
AOI 22B	Soil OnYard	Benzo[k]fluoranthene	3/7	1.7E-01	1.2E-01	1.0E-01	1.4E-01	1.4E-01	3.0E-02	1.6E-01	1.7E-01	1.2E-01
AOI 22B	Soil OnYard	Chromium	7/7	8.7E+01	8.7E+01	9.8E+00	3.1E+01	3.9E+01	2.7E+01	5.8E+01	9.7E+01	8.7E+01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 22B	Soil OnYard	Chrysene	3/7	5.5E-01	5.5E-01	1.7E-01	2.4E-01	2.7E-01	1.6E-01	3.9E-01	4.6E-01	4.6E-01
AOI 22B	Soil OnYard	Dibenz[a,h]anthracene	3/7	1.7E-01	1.0E-01	3.6E-02	1.0E-01	1.2E-01	5.9E-02	1.6E-01	2.8E-01	1.0E-01
AOI 22B	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/7	1.7E-01	1.4E-01	1.2E-01	1.5E-01	1.5E-01	2.0E-02	1.6E-01	1.7E-01	1.4E-01
AOI 22B	Soil OnYard	Lead	7/7	3.0E+02	3.0E+02	1.1E+02	1.6E+02	1.7E+02	6.4E+01	2.1E+02	2.2E+02	1.7E+02
AOI 22B	Soil OnYard	Mercury	7/7	1.8E-01	1.8E-01	5.0E-02	9.7E-02	1.0E-01	4.3E-02	1.4E-01	1.6E-01	1.6E-01
AOI 22B	Soil OnYard	n-Nitrosodipropylamine	0/7	3.4E-01	0.0E+00	1.7E-01	1.8E-01	1.9E-01	6.4E-02	2.4E-01	2.4E-01	1.9E-01
AOI 22B	Soil OnYard	Selenium	2/7	2.0E+01	1.4E+01	2.5E+00	5.4E+00	8.1E+00	7.4E+00	1.4E+01	3.9E+01	1.4E+01
AOI 23	Soil OnYard	Arsenic	3/3	1.1E+01	1.1E+01	6.6E+00	8.4E+00	8.6E+00	2.2E+00	1.2E+01	1.8E+01	1.1E+01
AOI 23	Soil OnYard	Chromium	3/3	1.6E+02	1.6E+02	2.3E+01	8.2E+01	1.1E+02	7.6E+01	2.4E+02	3.9E+06	1.6E+02
AOI 23	Soil OnYard	Lead	3/3	2.0E+03	2.0E+03	1.9E+01	1.5E+02	7.0E+02	1.1E+03	2.6E+03	1.7E+27	7.0E+02
AOI 23	Soil OnYard	Mercury	2/3	9.6E-02	9.6E-02	2.0E-02	5.0E-02	6.0E-02	3.8E-02	1.2E-01	2.8E+01	9.6E-02
AOI 23	Soil OnYard	Selenium	0/3	1.0E+01	0.0E+00	2.5E+00	6.3E+00	7.5E+00	4.3E+00	1.5E+01	3.2E+03	7.5E+00
AOI 26	Soil OnYard	Arsenic	3/3	5.5E+00	5.5E+00	3.3E+00	4.4E+00	4.5E+00	1.1E+00	6.4E+00	9.7E+00	5.5E+00
AOI 26	Soil OnYard	Benzo[a]anthracene	1/4	1.7E-01	8.0E-02	8.0E-02	1.4E-01	1.4E-01	0.0E+00	1.4E-01	2.6E-01	8.0E-02
AOI 26	Soil OnYard	Benzo[a]pyrene	3/4	1.7E-01	9.3E-02	3.6E-02	7.6E-02	8.8E-02	5.6E-02	1.5E-01	3.2E-01	9.3E-02
AOI 26	Soil OnYard	Benzo[b]fluoranthene	4/4	7.2E-02	7.2E-02	4.5E-02	5.9E-02	6.0E-02	1.2E-02	7.5E-02	7.9E-02	7.2E-02
AOI 26	Soil OnYard	Benzo[k]fluoranthene	1/4	1.7E-01	5.9E-02	5.9E-02	1.3E-01	1.4E-01	0.0E+00	1.4E-01	3.5E-01	5.9E-02
AOI 26	Soil OnYard	Chromium	3/3	7.6E+00	7.6E+00	5.3E+00	6.6E+00	6.7E+00	1.2E+00	8.8E+00	1.1E+01	7.6E+00
AOI 26	Soil OnYard	Chrysene	3/4	1.7E-01	1.5E-01	4.1E-02	1.1E-01	1.2E-01	5.6E-02	1.9E-01	4.5E-01	1.5E-01
AOI 26	Soil OnYard	Dibenz[a,h]anthracene	0/4	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
AOI 26	Soil OnYard	Indeno[1,2,3-c,d]pyrene	1/4	1.7E-01	4.5E-02	4.5E-02	1.2E-01	1.4E-01	0.0E+00	1.4E-01	5.1E-01	4.5E-02
AOI 26	Soil OnYard	Lead	3/3	7.3E+02	7.3E+02	2.4E+01	1.9E+02	3.8E+02	3.5E+02	9.8E+02	4.6E+15	3.8E+02
AOI 26	Soil OnYard	Mercury	3/3	2.2E-01	2.2E-01	2.8E-02	9.3E-02	1.3E-01	9.6E-02	2.9E-01	3.5E+03	2.2E-01
AOI 26	Soil OnYard	n-Nitrosodipropylamine	0/4	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
AOI 26	Soil OnYard	Selenium	2/3	3.3E-01	3.3E-01	5.4E-02	1.4E-01	1.8E-01	1.4E-01	4.2E-01	4.3E+02	3.3E-01
AOI 27	Soil OnYard	Arsenic	5/7	1.7E+01	1.7E+01	2.5E+00	5.6E+00	6.9E+00	5.0E+00	1.1E+01	1.6E+01	1.6E+01
AOI 27	Soil OnYard	Benzo[a]anthracene	3/8	3.0E+02	3.0E+02	1.7E-01	9.1E-01	3.8E+01	1.1E+02	1.1E+02	1.2E+05	3.0E+02
AOI 27	Soil OnYard	Benzo[a]pyrene	2/8	2.0E+02	2.0E+02	1.5E-01	1.0E+00	2.7E+01	7.0E+01	7.4E+01	1.8E+05	2.0E+02
AOI 27	Soil OnYard	Benzo[b]fluoranthene	2/8	2.6E+02	2.6E+02	1.7E-01	1.3E+00	3.5E+01	9.0E+01	9.5E+01	2.6E+05	2.6E+02
AOI 27	Soil OnYard	Benzo[k]fluoranthene	1/8	1.9E+02	1.9E+02	1.7E-01	1.1E+00	2.6E+01	6.6E+01	7.0E+01	1.6E+05	1.9E+02
AOI 27	Soil OnYard	Chromium	7/7	1.6E+01	1.6E+01	6.2E+00	1.1E+01	1.1E+01	3.6E+00	1.4E+01	1.5E+01	1.5E+01
AOI 27	Soil OnYard	Chrysene	3/8	9.0E+02	9.0E+02	5.4E-02	1.0E+00	1.1E+02	3.2E+02	3.3E+02	2.0E+07	9.0E+02

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 27	Soil OnYard	Dibenz[a,h]anthracene	0/8	3.7E+01	0.0E+00	1.7E-01	8.6E-01	7.0E+00	1.3E+01	1.6E+01	3.0E+03	7.0E+00
AOI 27	Soil OnYard	Indeno[1,2,3-c,d]pyrene	1/8	3.7E+01	2.2E-01	1.7E-01	8.0E-01	7.0E+00	1.3E+01	1.6E+01	1.3E+04	2.2E-01
AOI 27	Soil OnYard	Lead	7/7	3.0E+03	3.0E+03	5.1E+01	2.1E+02	6.1E+02	1.1E+03	1.4E+03	1.6E+04	6.1E+02
AOI 27	Soil OnYard	Mercury	6/7	1.3E-01	1.3E-01	2.0E-02	7.6E-02	8.6E-02	3.5E-02	1.1E-01	1.8E-01	1.3E-01
AOI 27	Soil OnYard	n-Nitrosodipropylamine	0/8	3.7E+01	0.0E+00	1.7E-01	8.6E-01	7.0E+00	1.3E+01	1.6E+01	3.0E+03	7.0E+00
AOI 27	Soil OnYard	Selenium	1/7	5.8E+00	5.8E+00	2.5E+00	2.8E+00	3.0E+00	1.2E+00	3.9E+00	3.9E+00	3.9E+00
AOI 30	Soil OnYard	Arsenic	10/13	3.5E+02	3.5E+02	7.1E+00	2.0E+01	4.2E+01	9.3E+01	8.8E+01	6.4E+01	8.8E+01
AOI 30	Soil OnYard	Benzo[a]anthracene	13/15	1.1E+00	1.1E+00	5.3E-02	4.5E-01	5.7E-01	3.2E-01	7.2E-01	1.2E+00	1.1E+00
AOI 30	Soil OnYard	Benzo[a]pyrene	15/15	9.0E-01	9.0E-01	3.4E-02	2.9E-01	3.8E-01	2.4E-01	4.9E-01	7.6E-01	7.6E-01
AOI 30	Soil OnYard	Benzo[b]fluoranthene	15/15	3.6E+00	3.6E+00	4.3E-02	5.9E-01	9.0E-01	8.5E-01	1.3E+00	2.4E+00	2.4E+00
AOI 30	Soil OnYard	Benzo[k]fluoranthene	13/15	6.7E-01	6.7E-01	5.9E-02	2.3E-01	2.7E-01	1.6E-01	3.4E-01	4.0E-01	4.0E-01
AOI 30	Soil OnYard	Chromium	13/13	1.7E+03	1.7E+03	2.5E+01	1.9E+02	4.2E+02	5.2E+02	6.7E+02	2.3E+03	1.7E+03
AOI 30	Soil OnYard	Chrysene	14/15	1.5E+00	1.5E+00	8.5E-02	6.5E-01	8.6E-01	5.0E-01	1.1E+00	1.8E+00	1.5E+00
AOI 30	Soil OnYard	Dibenz[a,h]anthracene	12/15	8.5E-01	3.0E-01	3.5E-02	1.4E-01	1.9E-01	2.0E-01	2.8E-01	3.2E-01	3.0E-01
AOI 30	Soil OnYard	Indeno[1,2,3-c,d]pyrene	14/15	7.3E-01	7.3E-01	4.9E-02	2.4E-01	2.8E-01	1.7E-01	3.6E-01	4.5E-01	4.5E-01
AOI 30	Soil OnYard	Lead	13/13	6.1E+02	6.1E+02	6.8E+01	3.1E+02	3.6E+02	1.6E+02	4.4E+02	5.7E+02	3.6E+02
AOI 30	Soil OnYard	Mercury	13/13	1.1E+00	1.1E+00	1.5E-01	4.0E-01	4.9E-01	3.3E-01	6.5E-01	8.0E-01	8.0E-01
AOI 30	Soil OnYard	n-Nitrosodipropylamine	0/15	8.5E-01	0.0E+00	1.7E-01	2.8E-01	3.3E-01	2.2E-01	4.3E-01	4.7E-01	3.3E-01
AOI 30	Soil OnYard	Selenium	3/13	1.8E+02	1.8E+02	2.5E+00	1.4E+01	3.3E+01	5.0E+01	5.8E+01	1.3E+02	1.3E+02
AOI 32	Soil OnYard	Arsenic	3/3	1.4E+01	1.4E+01	3.8E+00	7.4E+00	8.4E+00	4.9E+00	1.7E+01	3.0E+02	1.4E+01
AOI 32	Soil OnYard	Benzo[a]anthracene	5/7	1.9E-01	1.9E-01	3.7E-02	9.4E-02	1.2E-01	6.8E-02	1.7E-01	3.0E-01	1.9E-01
AOI 32	Soil OnYard	Benzo[a]pyrene	3/7	1.7E-01	1.5E-01	4.9E-02	1.3E-01	1.4E-01	4.2E-02	1.7E-01	2.2E-01	1.5E-01
AOI 32	Soil OnYard	Benzo[b]fluoranthene	6/7	2.9E-01	2.9E-01	3.4E-02	1.0E-01	1.4E-01	1.1E-01	2.2E-01	5.4E-01	2.9E-01
AOI 32	Soil OnYard	Benzo[k]fluoranthene	3/7	1.7E-01	1.2E-01	3.7E-02	1.2E-01	1.3E-01	5.0E-02	1.7E-01	2.5E-01	1.2E-01
AOI 32	Soil OnYard	Chromium	3/3	3.2E+01	3.2E+01	7.8E+00	1.3E+01	1.6E+01	1.3E+01	3.9E+01	4.6E+03	3.2E+01
AOI 32	Soil OnYard	Chrysene	6/7	3.7E-01	3.7E-01	4.5E-02	1.3E-01	1.7E-01	1.3E-01	2.6E-01	5.0E-01	3.7E-01
AOI 32	Soil OnYard	Dibenz[a,h]anthracene	0/7	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.2E-09	1.7E-01	1.7E-01	1.7E-01
AOI 32	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/7	1.7E-01	9.8E-02	6.3E-02	1.2E-01	1.3E-01	4.8E-02	1.6E-01	2.0E-01	9.8E-02
AOI 32	Soil OnYard	Lead	3/3	1.0E+02	1.0E+02	3.1E+01	6.0E+01	6.7E+01	3.4E+01	1.3E+02	1.9E+03	6.7E+01
AOI 32	Soil OnYard	Mercury	3/3	1.6E-01	1.6E-01	2.1E-02	6.1E-02	8.3E-02	6.8E-02	2.0E-01	1.3E+03	1.6E-01
AOI 32	Soil OnYard	n-Nitrosodipropylamine	0/7	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.2E-09	1.7E-01	1.7E-01	1.7E-01
AOI 32	Soil OnYard	Selenium	3/3	6.6E-01	6.6E-01	1.1E-01	3.5E-01	4.7E-01	3.1E-01	9.9E-01	9.7E+03	6.6E-01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 33	Soil OnYard	Aluminum	8/8	9.6E+03	9.6E+03	6.2E+03	7.3E+03	7.4E+03	1.3E+03	8.2E+03	8.4E+03	8.4E+03
AOI 33	Soil OnYard	Antimony	0/8	3.8E+00	0.0E+00	1.8E-01	3.9E-01	9.7E-01	1.5E+00	2.0E+00	8.5E+00	9.7E-01
AOI 33	Soil OnYard	Arsenic	9/11	1.3E+01	1.3E+01	2.5E+00	4.7E+00	5.7E+00	3.9E+00	7.9E+00	9.2E+00	9.2E+00
AOI 33	Soil OnYard	Benzo[a]anthracene	2/11	1.4E+00	1.4E+00	1.7E-01	2.7E-01	3.7E-01	4.1E-01	6.0E-01	6.2E-01	6.2E-01
AOI 33	Soil OnYard	Benzo[a]pyrene	3/11	1.6E+00	1.6E+00	4.4E-02	2.5E-01	3.9E-01	4.7E-01	6.4E-01	9.3E-01	9.3E-01
AOI 33	Soil OnYard	Benzo[b]fluoranthene	3/11	1.2E+00	1.2E+00	5.2E-02	2.5E-01	3.6E-01	3.7E-01	5.6E-01	7.7E-01	7.7E-01
AOI 33	Soil OnYard	Benzo[k]fluoranthene	2/11	1.6E+00	1.6E+00	1.7E-01	2.8E-01	4.0E-01	4.6E-01	6.5E-01	7.1E-01	7.1E-01
AOI 33	Soil OnYard	Chromium	11/11	2.0E+01	2.0E+01	5.2E+00	1.1E+01	1.2E+01	3.6E+00	1.4E+01	1.5E+01	1.5E+01
AOI 33	Soil OnYard	Chrysene	3/11	2.1E+00	2.1E+00	4.2E-02	2.6E-01	4.5E-01	6.0E-01	7.8E-01	1.1E+00	1.1E+00
AOI 33	Soil OnYard	Copper	8/8	9.4E+01	9.4E+01	1.2E+01	1.8E+01	2.4E+01	2.8E+01	4.3E+01	4.8E+01	4.8E+01
AOI 33	Soil OnYard	Dibenz[a,h]anthracene	1/11	9.5E-01	9.6E-02	9.6E-02	2.3E-01	3.1E-01	0.0E+00	3.1E-01	5.1E-01	9.6E-02
AOI 33	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/11	1.5E+00	1.5E+00	1.7E-01	2.8E-01	4.0E-01	4.4E-01	6.4E-01	7.1E-01	7.1E-01
AOI 33	Soil OnYard	Lead	11/11	2.2E+02	2.2E+02	4.7E+00	2.7E+01	6.8E+01	9.3E+01	1.2E+02	3.9E+02	6.8E+01
AOI 33	Soil OnYard	Manganese	8/8	3.6E+02	3.6E+02	1.8E+02	2.3E+02	2.4E+02	7.1E+01	2.9E+02	3.0E+02	3.0E+02
AOI 33	Soil OnYard	Mercury	9/11	1.4E-01	1.4E-01	1.5E-02	3.9E-02	5.3E-02	4.7E-02	7.9E-02	1.0E-01	1.0E-01
AOI 33	Soil OnYard	n-Nitrosodipropylamine	0/11	9.5E-01	0.0E+00	1.7E-01	2.4E-01	3.2E-01	3.0E-01	4.8E-01	5.0E-01	3.2E-01
AOI 33	Soil OnYard	Selenium	5/11	4.0E+00	1.0E+00	1.9E-01	5.6E-01	9.6E-01	1.2E+00	1.6E+00	2.5E+00	1.0E+00
AOI 34	Soil OnYard	Aluminum	4/4	1.5E+05	1.5E+05	9.7E+03	2.0E+04	4.6E+04	7.2E+04	1.3E+05	5.4E+06	1.5E+05
AOI 34	Soil OnYard	Antimony	3/3	4.4E+01	4.4E+01	1.1E+01	2.1E+01	2.5E+01	1.7E+01	5.3E+01	2.1E+03	4.4E+01
AOI 34	Soil OnYard	Arsenic	14/16	3.4E+01	3.4E+01	2.5E+00	8.9E+00	1.2E+01	1.0E+01	1.6E+01	2.0E+01	2.0E+01
AOI 34	Soil OnYard	Benzo[a]anthracene	3/13	3.6E+01	1.2E-01	4.7E-02	7.9E-01	6.7E+00	1.2E+01	1.3E+01	7.1E+02	1.2E-01
AOI 34	Soil OnYard	Benzo[a]pyrene	3/13	3.6E+01	1.4E-01	3.7E-02	7.9E-01	6.7E+00	1.2E+01	1.3E+01	7.3E+02	1.4E-01
AOI 34	Soil OnYard	Benzo[b]fluoranthene	5/14	3.6E+01	2.1E-01	2.2E-02	6.5E-01	6.3E+00	1.2E+01	1.2E+01	4.3E+02	2.1E-01
AOI 34	Soil OnYard	Benzo[k]fluoranthene	2/13	3.6E+01	1.7E-01	3.4E-02	8.6E-01	6.8E+00	1.2E+01	1.3E+01	5.8E+02	1.7E-01
AOI 34	Soil OnYard	Chromium	16/16	1.7E+02	1.7E+02	5.4E+00	2.5E+01	4.5E+01	5.0E+01	6.7E+01	1.2E+02	1.2E+02
AOI 34	Soil OnYard	Chrysene	6/15	3.6E+01	1.8E+00	2.4E-02	6.7E-01	6.0E+00	1.2E+01	1.1E+01	3.4E+02	1.8E+00
AOI 34	Soil OnYard	Copper	4/4	2.7E+02	2.7E+02	2.4E+01	1.2E+02	1.7E+02	1.2E+02	3.1E+02	1.2E+04	2.7E+02
AOI 34	Soil OnYard	Dibenz[a,h]anthracene	1/12	3.6E+01	4.4E-02	4.4E-02	1.0E+00	7.3E+00	0.0E+00	7.3E+00	8.5E+02	4.4E-02
AOI 34	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/13	3.6E+01	1.5E-01	5.8E-02	8.8E-01	6.8E+00	1.2E+01	1.3E+01	2.4E+02	1.5E-01
AOI 34	Soil OnYard	Lead	16/16	8.0E+02	8.0E+02	3.4E+01	2.3E+02	3.0E+02	2.1E+02	3.9E+02	5.4E+02	3.0E+02
AOI 34	Soil OnYard	Manganese	4/4	4.0E+02	4.0E+02	9.6E+01	2.4E+02	2.7E+02	1.3E+02	4.3E+02	9.9E+02	4.0E+02
AOI 34	Soil OnYard	Mercury	14/14	1.6E+02	1.6E+02	5.1E-02	1.3E+00	4.7E+01	6.6E+01	7.8E+01	1.5E+06	1.6E+02

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 34	Soil OnYard	n-Nitrosodipropylamine	1/13	3.6E+01	1.3E+00	1.7E-01	1.1E+00	6.8E+00	1.2E+01	1.3E+01	1.7E+02	1.3E+00
AOI 34	Soil OnYard	Selenium	6/14	1.3E+01	1.3E+01	4.6E-01	2.6E+00	3.8E+00	3.4E+00	5.5E+00	8.6E+00	8.6E+00
AOI 35	Soil OnYard	Arsenic	5/5	3.5E+01	3.5E+01	5.1E+00	1.0E+01	1.3E+01	1.2E+01	2.5E+01	6.5E+01	3.5E+01
AOI 35	Soil OnYard	Benzo[a]anthracene	5/7	6.5E-01	5.6E-01	6.7E-02	1.7E-01	2.5E-01	2.5E-01	4.3E-01	9.3E-01	5.6E-01
AOI 35	Soil OnYard	Benzo[a]pyrene	5/7	6.5E-01	5.1E-01	8.3E-02	2.0E-01	2.7E-01	2.2E-01	4.3E-01	7.7E-01	5.1E-01
AOI 35	Soil OnYard	Benzo[b]fluoranthene	5/7	6.5E-01	3.4E-01	9.3E-02	2.0E-01	2.5E-01	1.9E-01	3.9E-01	5.4E-01	3.4E-01
AOI 35	Soil OnYard	Benzo[k]fluoranthene	4/7	6.5E-01	6.0E-01	4.9E-02	1.7E-01	2.6E-01	2.5E-01	4.5E-01	1.2E+00	6.0E-01
AOI 35	Soil OnYard	Chromium	5/5	4.2E+01	4.2E+01	6.5E+00	1.2E+01	1.6E+01	1.5E+01	3.0E+01	5.8E+01	4.2E+01
AOI 35	Soil OnYard	Chrysene	5/7	8.8E-01	8.8E-01	9.5E-02	2.4E-01	3.3E-01	3.1E-01	5.5E-01	9.6E-01	8.8E-01
AOI 35	Soil OnYard	Dibenz[a,h]anthracene	1/7	6.5E-01	8.1E-02	8.1E-02	1.9E-01	2.3E-01	0.0E+00	2.3E-01	4.4E-01	8.1E-02
AOI 35	Soil OnYard	Indeno[1,2,3-c,d]pyrene	5/7	6.5E-01	4.9E-01	5.8E-02	1.7E-01	2.5E-01	2.3E-01	4.2E-01	9.6E-01	4.9E-01
AOI 35	Soil OnYard	Lead	5/5	2.3E+02	2.3E+02	2.7E+01	5.8E+01	8.2E+01	8.6E+01	1.6E+02	5.8E+02	8.2E+01
AOI 35	Soil OnYard	Mercury	4/5	1.0E-01	1.0E-01	2.0E-02	4.7E-02	5.6E-02	3.3E-02	8.8E-02	2.1E-01	1.0E-01
AOI 35	Soil OnYard	n-Nitrosodipropylamine	0/7	6.5E-01	0.0E+00	1.7E-01	2.1E-01	2.4E-01	1.8E-01	3.7E-01	3.9E-01	2.4E-01
AOI 35	Soil OnYard	Selenium	2/5	5.7E+00	5.7E+00	4.8E-02	5.6E-01	2.0E+00	2.3E+00	4.2E+00	2.6E+05	5.7E+00
AOI 36	Soil OnYard	Aluminum	16/16	1.1E+04	1.1E+04	1.7E+03	5.7E+03	6.2E+03	2.3E+03	7.2E+03	7.9E+03	7.9E+03
AOI 36	Soil OnYard	Antimony	2/16	2.2E+01	2.2E+01	1.6E+00	2.3E+00	3.7E+00	5.5E+00	6.1E+00	5.1E+00	6.1E+00
AOI 36	Soil OnYard	Arsenic	20/20	8.0E+02	8.0E+02	2.0E+00	1.8E+01	6.8E+01	1.8E+02	1.4E+02	1.6E+02	1.6E+02
AOI 36	Soil OnYard	Benzo[a]anthracene	15/19	3.3E+00	2.3E+00	1.0E-01	4.7E-01	7.2E-01	8.0E-01	1.0E+00	1.2E+00	1.2E+00
AOI 36	Soil OnYard	Benzo[a]pyrene	16/19	4.1E+00	4.1E+00	7.6E-02	4.3E-01	7.6E-01	1.1E+00	1.2E+00	1.3E+00	1.3E+00
AOI 36	Soil OnYard	Benzo[b]fluoranthene	17/19	3.3E+00	2.9E+00	1.6E-01	5.0E-01	7.6E-01	8.7E-01	1.1E+00	1.2E+00	1.2E+00
AOI 36	Soil OnYard	Benzo[k]fluoranthene	17/19	3.3E+00	2.6E+00	1.0E-01	4.9E-01	7.5E-01	8.4E-01	1.1E+00	1.2E+00	1.2E+00
AOI 36	Soil OnYard	Chromium	20/20	2.1E+02	2.1E+02	7.2E+00	1.9E+01	3.1E+01	4.6E+01	4.9E+01	4.5E+01	4.9E+01
AOI 36	Soil OnYard	Chrysene	18/19	3.3E+00	3.3E+00	1.4E-01	6.2E-01	9.1E-01	9.4E-01	1.3E+00	1.5E+00	1.5E+00
AOI 36	Soil OnYard	Copper	16/16	2.3E+04	2.3E+04	8.8E+00	1.7E+02	2.5E+03	6.2E+03	5.2E+03	5.5E+04	2.3E+04
AOI 36	Soil OnYard	Dibenz[a,h]anthracene	5/19	3.3E+00	7.9E-01	7.0E-02	5.5E-01	8.2E-01	7.8E-01	1.1E+00	1.6E+00	7.9E-01
AOI 36	Soil OnYard	Indeno[1,2,3-c,d]pyrene	16/19	4.8E+00	4.8E+00	1.2E-01	4.4E-01	7.9E-01	1.2E+00	1.3E+00	1.3E+00	1.3E+00
AOI 36	Soil OnYard	Lead	20/20	3.0E+03	3.0E+03	6.7E+00	2.5E+02	7.1E+02	9.7E+02	1.1E+03	3.8E+03	7.1E+02
AOI 36	Soil OnYard	Manganese	16/16	4.0E+03	4.0E+03	7.5E+01	3.2E+02	5.7E+02	9.5E+02	9.9E+02	1.0E+03	1.0E+03
AOI 36	Soil OnYard	Mercury	14/20	4.1E+00	4.1E+00	2.0E-02	1.6E-01	4.9E-01	1.0E+00	8.7E-01	9.6E-01	9.6E-01
AOI 36	Soil OnYard	n-Nitrosodipropylamine	0/3	4.0E-01	0.0E+00	1.7E-01	2.3E-01	2.5E-01	1.3E-01	4.6E-01	2.3E+00	2.5E-01
AOI 36	Soil OnYard	Selenium	5/20	4.5E+01	4.5E+01	1.5E-01	9.2E-01	5.5E+00	1.1E+01	9.7E+00	4.4E+01	4.4E+01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 37	Soil OnYard	Arsenic	3/3	4.3E+00	4.3E+00	2.7E+00	3.5E+00	3.6E+00	8.3E-01	5.0E+00	6.4E+00	4.3E+00
AOI 37	Soil OnYard	Benzo[a]anthracene	1/3	1.7E-01	2.3E-02	2.3E-02	8.6E-02	1.2E-01	0.0E+00	1.2E-01	8.3E+04	2.3E-02
AOI 37	Soil OnYard	Benzo[a]pyrene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.6E-09	1.7E-01	1.7E-01	1.7E-01
AOI 37	Soil OnYard	Benzo[b]fluoranthene	3/3	6.4E-02	6.4E-02	3.6E-02	4.6E-02	4.7E-02	1.5E-02	7.2E-02	1.1E-01	6.4E-02
AOI 37	Soil OnYard	Benzo[k]fluoranthene	1/3	1.7E-01	2.4E-02	2.4E-02	8.7E-02	1.2E-01	0.0E+00	1.2E-01	4.7E+03	2.4E-02
AOI 37	Soil OnYard	Chromium	3/3	1.3E+01	1.3E+01	8.0E+00	1.0E+01	1.0E+01	2.4E+00	1.4E+01	1.8E+01	1.3E+01
AOI 37	Soil OnYard	Chrysene	3/3	1.1E-01	1.1E-01	5.0E-02	7.9E-02	8.3E-02	3.0E-02	1.3E-01	3.8E-01	1.1E-01
AOI 37	Soil OnYard	Dibenz[a,h]anthracene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.6E-09	1.7E-01	1.7E-01	1.7E-01
AOI 37	Soil OnYard	Indeno[1,2,3-c,d]pyrene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.6E-09	1.7E-01	1.7E-01	1.7E-01
AOI 37	Soil OnYard	Lead	3/3	3.3E+02	3.3E+02	3.2E+01	8.1E+01	1.4E+02	1.7E+02	4.2E+02	2.9E+08	1.4E+02
AOI 37	Soil OnYard	Mercury	3/3	1.2E-01	1.2E-01	4.7E-02	6.6E-02	7.3E-02	4.2E-02	1.4E-01	8.7E-01	1.2E-01
AOI 37	Soil OnYard	n-Nitrosodipropylamine	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.6E-09	1.7E-01	1.7E-01	1.7E-01
AOI 37	Soil OnYard	Selenium	3/3	2.0E-01	2.0E-01	1.2E-01	1.5E-01	1.5E-01	4.3E-02	2.2E-01	3.3E-01	2.0E-01
AOI 38	Soil OnYard	Arsenic	3/3	7.9E+00	7.9E+00	5.0E+00	6.1E+00	6.3E+00	1.5E+00	8.8E+00	1.1E+01	7.9E+00
AOI 38	Soil OnYard	Benzo[a]anthracene	2/3	3.4E-01	2.1E-01	1.9E-01	2.4E-01	2.5E-01	7.9E-02	3.8E-01	6.0E-01	2.1E-01
AOI 38	Soil OnYard	Benzo[a]pyrene	2/3	3.4E-01	3.0E-01	1.6E-01	2.5E-01	2.7E-01	9.3E-02	4.2E-01	1.2E+00	3.0E-01
AOI 38	Soil OnYard	Benzo[b]fluoranthene	3/3	3.0E-01	3.0E-01	7.7E-02	1.8E-01	2.1E-01	1.2E-01	4.1E-01	2.8E+01	3.0E-01
AOI 38	Soil OnYard	Benzo[k]fluoranthene	2/3	3.4E-01	2.3E-01	2.2E-01	2.6E-01	2.6E-01	6.4E-02	3.7E-01	4.5E-01	2.3E-01
AOI 38	Soil OnYard	Chromium	3/3	1.8E+01	1.8E+01	9.6E+00	1.3E+01	1.3E+01	4.1E+00	2.0E+01	3.2E+01	1.8E+01
AOI 38	Soil OnYard	Chrysene	3/3	4.1E-01	4.1E-01	1.0E-01	2.5E-01	2.9E-01	1.7E-01	5.8E-01	1.1E+02	4.1E-01
AOI 38	Soil OnYard	Dibenz[a,h]anthracene	1/3	3.4E-01	4.4E-02	4.4E-02	1.4E-01	1.9E-01	0.0E+00	1.9E-01	3.7E+03	4.4E-02
AOI 38	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/3	3.4E-01	1.6E-01	9.1E-02	1.7E-01	2.0E-01	1.3E-01	4.1E-01	1.4E+01	1.6E-01
AOI 38	Soil OnYard	Lead	3/3	5.5E+02	5.5E+02	1.8E+01	9.7E+01	2.2E+02	2.9E+02	7.0E+02	5.4E+14	2.2E+02
AOI 38	Soil OnYard	Mercury	3/3	3.8E-01	3.8E-01	2.6E-02	1.0E-01	1.7E-01	1.8E-01	4.8E-01	1.2E+06	3.8E-01
AOI 38	Soil OnYard	n-Nitrosodipropylamine	0/3	3.4E-01	0.0E+00	1.7E-01	2.2E-01	2.3E-01	9.1E-02	3.8E-01	9.2E-01	2.3E-01
AOI 38	Soil OnYard	Selenium	3/3	8.4E+00	8.4E+00	1.5E-01	7.5E-01	3.0E+00	4.7E+00	1.1E+01	9.0E+17	8.4E+00
AOI 5	Soil OnYard	Arsenic	3/3	6.6E+00	6.6E+00	3.5E+00	4.9E+00	5.1E+00	1.6E+00	7.7E+00	1.3E+01	6.6E+00
AOI 5	Soil OnYard	Benzo[a]anthracene	4/4	7.7E-01	7.7E-01	9.6E-02	2.1E-01	3.0E-01	3.2E-01	6.7E-01	3.4E+00	7.7E-01
AOI 5	Soil OnYard	Benzo[a]pyrene	4/4	4.6E-01	4.6E-01	8.1E-02	1.6E-01	2.0E-01	1.7E-01	4.1E-01	1.0E+00	4.6E-01
AOI 5	Soil OnYard	Benzo[b]fluoranthene	4/4	1.6E+00	1.6E+00	2.6E-01	5.1E-01	6.7E-01	6.3E-01	1.4E+00	4.5E+00	1.6E+00
AOI 5	Soil OnYard	Benzo[k]fluoranthene	4/4	4.6E-01	4.6E-01	6.7E-02	1.4E-01	1.9E-01	1.8E-01	4.0E-01	1.4E+00	4.6E-01
AOI 5	Soil OnYard	Chromium	3/3	1.1E+01	1.1E+01	5.5E+00	8.4E+00	8.8E+00	3.0E+00	1.4E+01	3.7E+01	1.1E+01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 5	Soil OnYard	Chrysene	4/4	2.0E+00	2.0E+00	2.7E-01	5.2E-01	7.6E-01	8.3E-01	1.7E+00	8.3E+00	2.0E+00
AOI 5	Soil OnYard	Dibenz[a,h]anthracene	4/4	1.1E-01	1.1E-01	3.4E-02	5.1E-02	5.8E-02	3.5E-02	9.9E-02	1.4E-01	1.1E-01
AOI 5	Soil OnYard	Indeno[1,2,3-c,d]pyrene	4/4	3.7E-01	3.7E-01	9.8E-02	1.5E-01	1.8E-01	1.3E-01	3.3E-01	5.8E-01	3.7E-01
AOI 5	Soil OnYard	Lead	3/3	1.7E+02	1.7E+02	2.5E+01	7.7E+01	1.0E+02	7.4E+01	2.3E+02	1.5E+06	1.0E+02
AOI 5	Soil OnYard	Mercury	3/3	1.6E-01	1.6E-01	5.1E-02	8.7E-02	9.7E-02	5.5E-02	1.9E-01	2.3E+00	1.6E-01
AOI 5	Soil OnYard	n-Nitrosodipropylamine	0/4	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
AOI 5	Soil OnYard	Selenium	2/3	4.1E-01	4.1E-01	4.7E-02	1.6E-01	2.2E-01	1.8E-01	5.2E-01	7.4E+03	4.1E-01
AOI 8	Soil OnYard	Arsenic	2/3	1.3E+01	1.3E+01	2.5E+00	5.7E+00	7.1E+00	5.4E+00	1.6E+01	3.5E+03	1.3E+01
AOI 8	Soil OnYard	Benzo[a]anthracene	1/3	6.5E+00	8.6E-02	8.6E-02	5.7E-01	2.3E+00	0.0E+00	2.3E+00	3.6E+18	8.6E-02
AOI 8	Soil OnYard	Benzo[a]pyrene	1/3	6.5E+00	9.3E-02	9.3E-02	5.9E-01	2.3E+00	0.0E+00	2.3E+00	1.9E+18	9.3E-02
AOI 8	Soil OnYard	Benzo[b]fluoranthene	1/3	6.5E+00	6.5E-02	6.5E-02	5.2E-01	2.3E+00	0.0E+00	2.3E+00	2.1E+24	6.5E-02
AOI 8	Soil OnYard	Benzo[k]fluoranthene	1/3	6.5E+00	8.3E-02	8.3E-02	5.7E-01	2.3E+00	0.0E+00	2.3E+00	4.9E+18	8.3E-02
AOI 8	Soil OnYard	Chromium	3/3	8.4E+00	8.4E+00	2.0E+00	4.4E+00	5.2E+00	3.2E+00	1.1E+01	6.3E+02	8.4E+00
AOI 8	Soil OnYard	Chrysene	1/3	6.5E+00	1.1E-01	1.1E-01	6.2E-01	2.3E+00	0.0E+00	2.3E+00	4.6E+17	1.1E-01
AOI 8	Soil OnYard	Dibenz[a,h]anthracene	0/3	6.5E+00	0.0E+00	1.9E-01	7.4E-01	2.3E+00	3.6E+00	8.4E+00	8.7E+15	2.3E+00
AOI 8	Soil OnYard	Indeno[1,2,3-c,d]pyrene	1/3	6.5E+00	6.7E-02	6.7E-02	5.3E-01	2.3E+00	0.0E+00	2.3E+00	1.5E+24	6.7E-02
AOI 8	Soil OnYard	Lead	3/3	1.2E+02	1.2E+02	1.8E+01	4.1E+01	5.6E+01	5.6E+01	1.5E+02	5.4E+05	5.6E+01
AOI 8	Soil OnYard	Mercury	2/3	1.1E-01	1.1E-01	2.0E-02	4.9E-02	6.1E-02	4.6E-02	1.4E-01	8.4E+01	1.1E-01
AOI 8	Soil OnYard	n-Nitrosodipropylamine	0/3	6.5E+00	0.0E+00	1.9E-01	7.4E-01	2.3E+00	3.6E+00	8.4E+00	8.7E+15	2.3E+00
AOI 8	Soil OnYard	Selenium	0/3	1.0E+01	0.0E+00	2.5E+00	4.0E+00	5.0E+00	4.3E+00	1.2E+01	2.0E+03	5.0E+00
AOI 9	Soil OnYard	Arsenic	3/3	5.5E+00	5.5E+00	2.6E+00	3.9E+00	4.1E+00	1.5E+00	6.5E+00	1.7E+01	5.5E+00
AOI 9	Soil OnYard	Benzo[a]anthracene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Benzo[a]pyrene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Benzo[b]fluoranthene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Benzo[k]fluoranthene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Chromium	3/3	1.2E+01	1.2E+01	6.2E+00	8.8E+00	9.2E+00	2.9E+00	1.4E+01	2.4E+01	1.2E+01
AOI 9	Soil OnYard	Chrysene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Dibenz[a,h]anthracene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Indeno[1,2,3-c,d]pyrene	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01
AOI 9	Soil OnYard	Lead	3/3	2.1E+02	2.1E+02	2.4E+01	5.4E+01	8.9E+01	1.1E+02	2.7E+02	1.0E+08	8.9E+01
AOI 9	Soil OnYard	Mercury	3/3	1.0E-01	1.0E-01	1.6E-02	3.7E-02	5.0E-02	4.5E-02	1.3E-01	1.5E+02	1.0E-01
AOI 9	Soil OnYard	n-Nitrosodipropylamine	0/3	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	2.9E-03	1.7E-01	1.7E-01	1.7E-01

Appendix D.7 Summary of Exposure Point Concentrations for On-Site Surface Soil COPCs by AOI

Human Health Risk Assessment for the Ogden Railyard Site, Utah

Non-detects were evaluated at 1/2 the detection limit.

			Results									
Location	Medium	Chemical	Detect Frequency	Max Value	Max Hit	Min Value	GM	AM	Stdev	UCL95 Norm	UCL95 LogNorm	EPC (mg/kg)
AOI 9	Soil OnYard	Selenium	1/3	3.0E-01	3.0E-01	4.6E-02	8.6E-02	1.3E-01	1.4E-01	3.7E-01	3.0E+03	3.0E-01
AOI SPRR5	Soil OnYard	Arsenic	1/2	1.1E+01	1.1E+01	2.5E+00	5.2E+00	6.8E+00	6.0E+00	3.4E+01	7.9E+06	1.1E+01
AOI SPRR5	Soil OnYard	Benzo[a]anthracene	2/2	2.3E-01	2.3E-01	7.4E-02	1.3E-01	1.5E-01	1.1E-01	6.4E-01	7.7E+02	2.3E-01
AOI SPRR5	Soil OnYard	Benzo[a]pyrene	2/2	6.3E-01	6.3E-01	7.1E-02	2.1E-01	3.5E-01	4.0E-01	2.1E+00	9.6E+12	6.3E-01
AOI SPRR5	Soil OnYard	Benzo[b]fluoranthene	2/2	8.0E-01	8.0E-01	1.6E-01	3.6E-01	4.8E-01	4.5E-01	2.5E+00	8.1E+07	8.0E-01
AOI SPRR5	Soil OnYard	Benzo[k]fluoranthene	2/2	2.4E-01	2.4E-01	6.3E-02	1.2E-01	1.5E-01	1.3E-01	7.1E-01	1.3E+04	2.4E-01
AOI SPRR5	Soil OnYard	Chromium	2/2	1.6E+01	1.6E+01	1.1E+01	1.3E+01	1.4E+01	3.5E+00	2.9E+01	4.1E+01	1.6E+01
AOI SPRR5	Soil OnYard	Chrysene	2/2	8.5E-01	8.5E-01	1.4E-01	3.4E-01	5.0E-01	5.0E-01	2.7E+00	8.6E+08	8.5E-01
AOI SPRR5	Soil OnYard	Dibenz[a,h]anthracene	0/2	6.5E-01	0.0E+00	1.7E-01	3.3E-01	4.1E-01	3.4E-01	1.9E+00	1.6E+05	4.1E-01
AOI SPRR5	Soil OnYard	Indeno[1,2,3-c,d]pyrene	2/2	4.0E-01	4.0E-01	8.7E-02	1.9E-01	2.4E-01	2.2E-01	1.2E+00	4.3E+05	4.0E-01
AOI SPRR5	Soil OnYard	Lead	2/2	2.5E+02	2.5E+02	3.0E+01	8.7E+01	1.4E+02	1.6E+02	8.3E+02	1.5E+15	1.4E+02
AOI SPRR5	Soil OnYard	Mercury	1/2	8.5E-02	8.5E-02	2.0E-02	4.1E-02	5.3E-02	4.6E-02	2.6E-01	4.4E+04	8.5E-02
AOI SPRR5	Soil OnYard	n-Nitrosodipropylamine	0/2	6.5E-01	0.0E+00	1.7E-01	3.3E-01	4.1E-01	3.4E-01	1.9E+00	1.6E+05	4.1E-01
AOI SPRR5	Soil OnYard	Selenium	0/2	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00
)ther - Onyar	Soil OnYard	Arsenic	3/4	6.8E+01	6.8E+01	2.5E+00	1.5E+01	3.1E+01	3.2E+01	6.9E+01	4.2E+04	6.8E+01
)ther - Onyar	Soil OnYard	Benzo[a]anthracene	3/4	4.4E-01	4.4E-01	1.1E-01	2.0E-01	2.3E-01	1.5E-01	4.0E-01	7.1E-01	4.4E-01
)ther - Onyar	Soil OnYard	Benzo[a]pyrene	3/4	2.1E-01	2.1E-01	9.4E-02	1.4E-01	1.4E-01	5.3E-02	2.1E-01	2.6E-01	2.1E-01
)ther - Onyar	Soil OnYard	Benzo[b]fluoranthene	3/4	8.0E-01	8.0E-01	1.3E-01	2.7E-01	3.5E-01	3.1E-01	7.2E-01	2.6E+00	8.0E-01
)ther - Onyar	Soil OnYard	Benzo[k]fluoranthene	3/4	2.4E-01	2.4E-01	4.6E-02	1.2E-01	1.4E-01	8.4E-02	2.4E-01	6.8E-01	2.4E-01
)ther - Onyar	Soil OnYard	Chromium	4/4	1.0E+01	1.0E+01	4.5E+00	6.6E+00	6.9E+00	2.4E+00	9.8E+00	1.2E+01	1.0E+01
)ther - Onyar	Soil OnYard	Chrysene	3/4	6.2E-01	6.2E-01	1.7E-01	2.9E-01	3.3E-01	2.2E-01	5.9E-01	1.2E+00	6.2E-01
)ther - Onyar	Soil OnYard	Dibenz[a,h]anthracene	2/4	1.7E-01	4.2E-02	3.5E-02	8.0E-02	1.0E-01	7.3E-02	1.9E-01	8.3E-01	4.2E-02
)ther - Onyar	Soil OnYard	Indeno[1,2,3-c,d]pyrene	3/4	2.0E-01	2.0E-01	1.0E-01	1.4E-01	1.4E-01	4.7E-02	2.0E-01	2.3E-01	2.0E-01
)ther - Onyar	Soil OnYard	Lead	4/4	8.6E+02	8.6E+02	1.2E+01	6.0E+01	2.4E+02	4.2E+02	7.3E+02	9.9E+06	2.4E+02
)ther - Onyar	Soil OnYard	Mercury	2/4	2.6E-01	2.6E-01	2.0E-02	6.8E-02	1.3E-01	1.2E-01	2.7E-01	6.0E+01	2.6E-01
)ther - Onyar	Soil OnYard	n-Nitrosodipropylamine	0/4	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01	0.0E+00	1.7E-01	1.7E-01	1.7E-01
)ther - Onyar	Soil OnYard	Selenium	0/4	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00	0.0E+00	2.5E+00	2.5E+00	2.5E+00

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APPENDIX E
DETAILED CALCULATIONS OF EXPOSURE AND RISK

- ON-YARD WORKER
- RESIDENT
- RECREATIONAL VISITOR

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ON-YARD WORKER

E.1 - INGESTION OF SURFACE SOIL
E.2 - INGESTION OF GROUNDWATER
E.3 - INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR
E.4 - SOIL GAS INTRUSION

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APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 1	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	2.36E+01	4.29E-07	3.00E-04	3E-02	3.06E-08	1.50E+00	1E-06
	Chromium	1.52E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.03E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.30E+00	4.29E-07	3.00E-04	2E-03	3.06E-08	--	--
	Selenium	1.98E+00	4.29E-07	5.00E-03	2E-04	3.06E-08	--	--
	Benzo[a]anthracene	7.00E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[a]pyrene	5.90E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	7.70E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	2.90E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E-02	6E-10
	Chrysene	1.00E+00	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-03	2E-10
	Indeno[1,2,3-c,d]pyrene	2.40E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	4E-02		Total	1E-06
AOI 12	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	4.98E+00	4.29E-07	3.00E-04	7E-03	3.06E-08	1.50E+00	2E-07
	Chromium	9.12E+00	4.29E-07	3.00E-03	1E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	5.02E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.43E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	3.19E-01	4.29E-07	5.00E-03	3E-05	3.06E-08	--	--
	Benzo[a]anthracene	1.20E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-01	3E-09
	Benzo[a]pyrene	8.20E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E+00	2E-08
	Benzo[b]fluoranthene	2.01E-01	4.29E-07	2.00E-02	4E-06	3.06E-08	7.30E-01	4E-09
	Benzo[k]fluoranthene	5.20E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-02	1E-10
	Chrysene	2.89E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E-03	6E-11
	Indeno[1,2,3-c,d]pyrene	7.20E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	9E-03		Total	3E-07
AOI 13	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	ND	4.29E-07	3.00E-04	--	3.06E-08	1.50E+00	--
	Chromium	1.50E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	3.60E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	ND	4.29E-07	3.00E-04	--	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[a]pyrene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	Benzo[b]fluoranthene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[k]fluoranthene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-02	--
	Chrysene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	--	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-03		Total	--

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 17	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.10E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	5E-07
	Chromium	1.90E+01	4.29E-07	3.00E-03	3E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.03E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	9.50E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	3.00E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E-01	7E-09
	Benzo[a]pyrene	3.30E-01	4.29E-07	2.00E-02	7E-06	3.06E-08	7.30E+00	7E-08
	Benzo[b]fluoranthene	3.10E-01	4.29E-07	2.00E-02	7E-06	3.06E-08	7.30E-01	7E-09
	Benzo[k]fluoranthene	3.40E-01	4.29E-07	2.00E-02	7E-06	3.06E-08	7.30E-02	8E-10
	Chrysene	4.20E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-03	9E-11
	Indeno[1,2,3-c,d]pyrene	2.50E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	6E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	6E-07
AOI 18	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	8.57E+00	4.29E-07	3.00E-04	1E-02	3.06E-08	1.50E+00	4E-07
	Chromium	1.31E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.16E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.68E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	5.36E-01	4.29E-07	5.00E-03	5E-05	3.06E-08	--	--
	Benzo[a]anthracene	4.30E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-01	1E-08
	Benzo[a]pyrene	4.90E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	3.70E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-01	8E-09
	Benzo[k]fluoranthene	4.10E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-02	9E-10
	Chrysene	5.00E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-03	1E-10
	Indeno[1,2,3-c,d]pyrene	3.90E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-01	9E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	1E-02		Total	5E-07
AOI 19	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	4.56E+00	4.29E-07	3.00E-04	7E-03	3.06E-08	1.50E+00	2E-07
	Chromium	1.35E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	1.15E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	2.13E-01	4.29E-07	3.00E-04	3E-04	3.06E-08	--	--
	Selenium	1.36E-01	4.29E-07	5.00E-03	1E-05	3.06E-08	--	--
	Benzo[a]anthracene	1.40E+01	4.29E-07	2.00E-02	3E-04	3.06E-08	7.30E-01	3E-07
	Benzo[a]pyrene	2.00E+01	4.29E-07	2.00E-02	4E-04	3.06E-08	7.30E+00	4E-06
	Benzo[b]fluoranthene	1.70E+01	4.29E-07	2.00E-02	4E-04	3.06E-08	7.30E-01	4E-07
	Benzo[k]fluoranthene	1.50E+01	4.29E-07	2.00E-02	3E-04	3.06E-08	7.30E-02	3E-08
	Chrysene	2.00E+01	4.29E-07	2.00E-02	4E-04	3.06E-08	7.30E-03	4E-09
	Indeno[1,2,3-c,d]pyrene	1.80E+01	4.29E-07	2.00E-02	4E-04	3.06E-08	7.30E-01	4E-07
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	1E-02		Total	6E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 2	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.53E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	7E-07
	Chromium	3.89E+01	4.29E-07	3.00E-03	6E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	9.13E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	6.66E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	7.06E-01	4.29E-07	5.00E-03	6E-05	3.06E-08	--	--
	Benzo[a]anthracene	6.90E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	2E-08
	Benzo[a]pyrene	6.20E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	1.00E+00	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	6.90E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-02	2E-09
	Chrysene	1.30E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	3.90E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-01	9E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	3E-02		Total	9E-07
AOI 20	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	8.60E+00	4.29E-07	3.00E-04	1E-02	3.06E-08	1.50E+00	4E-07
	Chromium	2.10E+01	4.29E-07	3.00E-03	3E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	9.97E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	7.80E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	7.70E+00	4.29E-07	5.00E-03	7E-04	3.06E-08	--	--
	Benzo[a]anthracene	4.50E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-01	1E-09
	Benzo[a]pyrene	3.90E-02	4.29E-07	2.00E-02	8E-07	3.06E-08	7.30E+00	9E-09
	Benzo[b]fluoranthene	9.50E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-02	--
	Chrysene	1.10E-01	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-03	2E-11
	Indeno[1,2,3-c,d]pyrene	4.30E-02	4.29E-07	2.00E-02	9E-07	3.06E-08	7.30E-01	1E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	4E-07
AOI 21	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	4.50E+02	4.29E-07	3.00E-04	6E-01	3.06E-08	1.50E+00	2E-05
	Chromium	1.38E+03	4.29E-07	3.00E-03	2E-01	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	6.34E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	4.05E+00	4.29E-07	3.00E-04	6E-03	3.06E-08	--	--
	Selenium	7.70E+02	4.29E-07	5.00E-03	7E-02	3.06E-08	--	--
	Benzo[a]anthracene	2.90E+00	4.29E-07	2.00E-02	6E-05	3.06E-08	7.30E-01	6E-08
	Benzo[a]pyrene	2.00E+00	4.29E-07	2.00E-02	4E-05	3.06E-08	7.30E+00	4E-07
	Benzo[b]fluoranthene	2.10E+00	4.29E-07	2.00E-02	5E-05	3.06E-08	7.30E-01	5E-08
	Benzo[k]fluoranthene	2.60E+00	4.29E-07	2.00E-02	6E-05	3.06E-08	7.30E-02	6E-09
	Chrysene	3.80E+00	4.29E-07	2.00E-02	8E-05	3.06E-08	7.30E-03	8E-10
	Indeno[1,2,3-c,d]pyrene	9.80E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	9E-01		Total	2E-05

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 22A	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.39E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	6E-07
	Chromium	3.30E+02	4.29E-07	3.00E-03	5E-02	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.78E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	2.90E-01	4.29E-07	3.00E-04	4E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	1.30E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	3E-08
	Benzo[a]pyrene	8.70E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E+00	2E-07
	Benzo[b]fluoranthene	1.60E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	4E-08
	Benzo[k]fluoranthene	4.57E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-02	1E-09
	Chrysene	1.50E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	3.50E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-01	8E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	7E-02		Total	9E-07
AOI 22B	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	2.40E+01	4.29E-07	3.00E-04	3E-02	3.06E-08	1.50E+00	1E-06
	Chromium	8.70E+01	4.29E-07	3.00E-03	1E-02	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	1.67E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.57E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	1.40E+01	4.29E-07	5.00E-03	1E-03	3.06E-08	--	--
	Benzo[a]anthracene	2.14E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Benzo[a]pyrene	1.95E-01	4.29E-07	2.00E-02	4E-06	3.06E-08	7.30E+00	4E-08
	Benzo[b]fluoranthene	4.68E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	1E-08
	Benzo[k]fluoranthene	1.20E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-02	3E-10
	Chrysene	4.64E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-03	1E-10
	Indeno[1,2,3-c,d]pyrene	1.40E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-01	3E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	5E-02		Total	1E-06
AOI 23	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.10E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	5E-07
	Chromium	1.60E+02	4.29E-07	3.00E-03	2E-02	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	7.02E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	9.60E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[a]pyrene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	Benzo[b]fluoranthene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[k]fluoranthene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-02	--
	Chrysene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	--	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	4E-02		Total	5E-07

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 26	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	5.46E+00	4.29E-07	3.00E-04	8E-03	3.06E-08	1.50E+00	3E-07
	Chromium	7.61E+00	4.29E-07	3.00E-03	1E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	3.78E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	2.20E-01	4.29E-07	3.00E-04	3E-04	3.06E-08	--	--
	Selenium	3.29E-01	4.29E-07	5.00E-03	3E-05	3.06E-08	--	--
	Benzo[a]anthracene	8.00E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Benzo[a]pyrene	9.30E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E+00	2E-08
	Benzo[b]fluoranthene	7.20E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	5.90E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-02	1E-10
	Chrysene	1.50E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-03	3E-11
	Indeno[1,2,3-c,d]pyrene	4.50E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-01	1E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	9E-03		Total	3E-07
AOI 27	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.59E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	7E-07
	Chromium	1.52E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	6.09E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.30E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	3.91E+00	4.29E-07	5.00E-03	3E-04	3.06E-08	--	--
	Benzo[a]anthracene	3.01E+02	4.29E-07	2.00E-02	6E-03	3.06E-08	7.30E-01	7E-06
	Benzo[a]pyrene	1.99E+02	4.29E-07	2.00E-02	4E-03	3.06E-08	7.30E+00	4E-05
	Benzo[b]fluoranthene	2.56E+02	4.29E-07	2.00E-02	5E-03	3.06E-08	7.30E-01	6E-06
	Benzo[k]fluoranthene	1.89E+02	4.29E-07	2.00E-02	4E-03	3.06E-08	7.30E-02	4E-07
	Chrysene	8.95E+02	4.29E-07	2.00E-02	2E-02	3.06E-08	7.30E-03	2E-07
	Indeno[1,2,3-c,d]pyrene	2.20E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	6E-02		Total	6E-05
AOI 30	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	8.78E+01	4.29E-07	3.00E-04	1E-01	3.06E-08	1.50E+00	4E-06
	Chromium	1.70E+03	4.29E-07	3.00E-03	2E-01	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	3.58E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	8.03E-01	4.29E-07	3.00E-04	1E-03	3.06E-08	--	--
	Selenium	1.31E+02	4.29E-07	5.00E-03	1E-02	3.06E-08	--	--
	Benzo[a]anthracene	1.10E+00	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[a]pyrene	7.59E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E+00	2E-07
	Benzo[b]fluoranthene	2.41E+00	4.29E-07	2.00E-02	5E-05	3.06E-08	7.30E-01	5E-08
	Benzo[k]fluoranthene	4.01E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-02	9E-10
	Chrysene	1.50E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	4.48E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	1E-08
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	4E-01		Total	4E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 32	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.36E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	6E-07
	Chromium	3.16E+01	4.29E-07	3.00E-03	5E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	6.71E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.56E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	6.62E-01	4.29E-07	5.00E-03	6E-05	3.06E-08	--	--
	Benzo[a]anthracene	1.90E-01	4.29E-07	2.00E-02	4E-06	3.06E-08	7.30E-01	4E-09
	Benzo[a]pyrene	1.50E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	2.90E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E-01	6E-09
	Benzo[k]fluoranthene	1.20E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-02	3E-10
	Chrysene	3.70E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-03	8E-11
	Indeno[1,2,3-c,d]pyrene	9.80E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	7E-07
AOI 33	Aluminum	8.36E+03	4.29E-07	1.00E+00	4E-03	3.06E-08	--	--
	Antimony	ND	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	9.16E+00	4.29E-07	3.00E-04	1E-02	3.06E-08	1.50E+00	4E-07
	Chromium	1.46E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	4.80E+01	4.29E-07	4.00E-02	5E-04	3.06E-08	--	--
	Lead	6.79E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	3.00E+02	4.29E-07	2.00E-02	6E-03	3.06E-08	--	--
	Mercury	9.98E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	1.00E+00	4.29E-07	5.00E-03	9E-05	3.06E-08	--	--
	Benzo[a]anthracene	6.23E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	1E-08
	Benzo[a]pyrene	9.28E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E+00	2E-07
	Benzo[b]fluoranthene	7.70E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	7.14E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-02	2E-09
	Chrysene	1.14E+00	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	7.15E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	3E-02		Total	7E-07
AOI 34	Aluminum	1.54E+05	4.29E-07	1.00E+00	7E-02	3.06E-08	--	--
	Antimony	4.39E+01	4.29E-07	4.00E-04	5E-02	3.06E-08	--	--
	Arsenic	2.00E+01	4.29E-07	3.00E-04	3E-02	3.06E-08	1.50E+00	9E-07
	Chromium	1.24E+02	4.29E-07	3.00E-03	2E-02	3.06E-08	--	--
	Copper	2.67E+02	4.29E-07	4.00E-02	3E-03	3.06E-08	--	--
	Lead	2.98E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	3.98E+02	4.29E-07	2.00E-02	9E-03	3.06E-08	--	--
	Mercury	1.57E+02	4.29E-07	3.00E-04	2E-01	3.06E-08	--	--
	Selenium	8.61E+00	4.29E-07	5.00E-03	7E-04	3.06E-08	--	--
	Benzo[a]anthracene	1.20E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-01	3E-09
	Benzo[a]pyrene	1.40E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	2.10E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Benzo[k]fluoranthene	1.70E-01	4.29E-07	2.00E-02	4E-06	3.06E-08	7.30E-02	4E-10
	Chrysene	1.80E+00	4.29E-07	2.00E-02	4E-05	3.06E-08	7.30E-03	4E-10
	Indeno[1,2,3-c,d]pyrene	1.50E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-01	3E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	1.30E+00	4.29E-07	--	--	3.06E-08	7.00E+00	3E-07
				Total	4E-01		Total	1E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 35	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	3.51E+01	4.29E-07	3.00E-04	5E-02	3.06E-08	1.50E+00	2E-06
	Chromium	4.17E+01	4.29E-07	3.00E-03	6E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	8.20E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.02E-01	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	5.70E+00	4.29E-07	5.00E-03	5E-04	3.06E-08	--	--
	Benzo[a]anthracene	5.60E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	1E-08
	Benzo[a]pyrene	5.10E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	3.40E-01	4.29E-07	2.00E-02	7E-06	3.06E-08	7.30E-01	8E-09
	Benzo[k]fluoranthene	6.00E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-02	1E-09
	Chrysene	8.80E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-03	2E-10
	Indeno[1,2,3-c,d]pyrene	4.90E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-01	1E-08
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	6E-02		Total	2E-06
AOI 36	Aluminum	7.86E+03	4.29E-07	1.00E+00	3E-03	3.06E-08	--	--
	Antimony	6.09E+00	4.29E-07	4.00E-04	7E-03	3.06E-08	--	--
	Arsenic	1.60E+02	4.29E-07	3.00E-04	2E-01	3.06E-08	1.50E+00	7E-06
	Chromium	4.91E+01	4.29E-07	3.00E-03	7E-03	3.06E-08	--	--
	Copper	2.30E+04	4.29E-07	4.00E-02	2E-01	3.06E-08	--	--
	Lead	7.10E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	1.00E+03	4.29E-07	2.00E-02	2E-02	3.06E-08	--	--
	Mercury	9.56E-01	4.29E-07	3.00E-04	1E-03	3.06E-08	--	--
	Selenium	4.43E+01	4.29E-07	5.00E-03	4E-03	3.06E-08	--	--
	Benzo[a]anthracene	1.19E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	3E-08
	Benzo[a]pyrene	1.33E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E+00	3E-07
	Benzo[b]fluoranthene	1.20E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	3E-08
	Benzo[k]fluoranthene	1.22E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-02	3E-09
	Chrysene	1.51E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	1.27E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	3E-08
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	5E-01		Total	8E-06
AOI 37	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	4.32E+00	4.29E-07	3.00E-04	6E-03	3.06E-08	1.50E+00	2E-07
	Chromium	1.28E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	1.37E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.22E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	2.01E-01	4.29E-07	5.00E-03	2E-05	3.06E-08	--	--
	Benzo[a]anthracene	2.30E-02	4.29E-07	2.00E-02	5E-07	3.06E-08	7.30E-01	5E-10
	Benzo[a]pyrene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	Benzo[b]fluoranthene	6.40E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-01	1E-09
	Benzo[k]fluoranthene	2.40E-02	4.29E-07	2.00E-02	5E-07	3.06E-08	7.30E-02	5E-11
	Chrysene	1.10E-01	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-03	2E-11
	Indeno[1,2,3-c,d]pyrene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	8E-03		Total	2E-07

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 38	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	7.90E+00	4.29E-07	3.00E-04	1E-02	3.06E-08	1.50E+00	4E-07
	Chromium	1.76E+01	4.29E-07	3.00E-03	3E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.21E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	3.76E-01	4.29E-07	3.00E-04	5E-04	3.06E-08	--	--
	Selenium	8.40E+00	4.29E-07	5.00E-03	7E-04	3.06E-08	--	--
	Benzo[a]anthracene	2.10E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Benzo[a]pyrene	3.00E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E+00	7E-08
	Benzo[b]fluoranthene	3.00E-01	4.29E-07	2.00E-02	6E-06	3.06E-08	7.30E-01	7E-09
	Benzo[k]fluoranthene	2.30E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-02	5E-10
	Chrysene	4.10E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-03	9E-11
	Indeno[1,2,3-c,d]pyrene	1.60E-01	4.29E-07	2.00E-02	3E-06	3.06E-08	7.30E-01	4E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	4E-07
AOI 5	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	6.62E+00	4.29E-07	3.00E-04	9E-03	3.06E-08	1.50E+00	3E-07
	Chromium	1.13E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	1.02E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.58E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	4.07E-01	4.29E-07	5.00E-03	3E-05	3.06E-08	--	--
	Benzo[a]anthracene	7.70E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[a]pyrene	4.60E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	1.60E+00	4.29E-07	2.00E-02	3E-05	3.06E-08	7.30E-01	4E-08
	Benzo[k]fluoranthene	4.60E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-02	1E-09
	Chrysene	2.00E+00	4.29E-07	2.00E-02	4E-05	3.06E-08	7.30E-03	4E-10
	Indeno[1,2,3-c,d]pyrene	3.70E-01	4.29E-07	2.00E-02	8E-06	3.06E-08	7.30E-01	8E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	1E-02		Total	5E-07
AOI 8	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.30E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	6E-07
	Chromium	8.40E+00	4.29E-07	3.00E-03	1E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	5.63E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.10E-01	4.29E-07	3.00E-04	2E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	8.60E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-01	2E-09
	Benzo[a]pyrene	9.30E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E+00	2E-08
	Benzo[b]fluoranthene	6.50E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-01	1E-09
	Benzo[k]fluoranthene	8.30E-02	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-02	2E-10
	Chrysene	1.10E-01	4.29E-07	2.00E-02	2E-06	3.06E-08	7.30E-03	2E-11
	Indeno[1,2,3-c,d]pyrene	6.70E-02	4.29E-07	2.00E-02	1E-06	3.06E-08	7.30E-01	1E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	6E-07

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on CTE Assumptions

AOI	Chemical	Csoil	Noncancer Risk			Cancer Risk		
		(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
AOI 9	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	5.50E+00	4.29E-07	3.00E-04	8E-03	3.06E-08	1.50E+00	3E-07
	Chromium	1.20E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	8.91E+01	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	1.01E-01	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	2.96E-01	4.29E-07	5.00E-03	3E-05	3.06E-08	--	--
	Benzo[a]anthracene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[a]pyrene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	Benzo[b]fluoranthene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Benzo[k]fluoranthene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-02	--
	Chrysene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	ND	4.29E-07	2.00E-02	--	3.06E-08	7.30E-01	--
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	1E-02		Total	3E-07
AOI SPRR5	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	1.10E+01	4.29E-07	3.00E-04	2E-02	3.06E-08	1.50E+00	5E-07
	Chromium	1.60E+01	4.29E-07	3.00E-03	2E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	1.40E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	8.50E-02	4.29E-07	3.00E-04	1E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	2.30E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-01	5E-09
	Benzo[a]pyrene	6.30E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	8.00E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	2.40E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-02	5E-10
	Chrysene	8.50E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-03	2E-10
	Indeno[1,2,3-c,d]pyrene	4.00E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-01	9E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	2E-02		Total	7E-07
Other - Onyard	Aluminum	--	4.29E-07	1.00E+00	--	3.06E-08	--	--
	Antimony	--	4.29E-07	4.00E-04	--	3.06E-08	--	--
	Arsenic	6.80E+01	4.29E-07	3.00E-04	1E-01	3.06E-08	1.50E+00	3E-06
	Chromium	1.00E+01	4.29E-07	3.00E-03	1E-03	3.06E-08	--	--
	Copper	--	4.29E-07	4.00E-02	--	3.06E-08	--	--
	Lead	2.38E+02	4.29E-07	--	--	3.06E-08	--	--
	Manganese	--	4.29E-07	2.00E-02	--	3.06E-08	--	--
	Mercury	2.60E-01	4.29E-07	3.00E-04	4E-04	3.06E-08	--	--
	Selenium	ND	4.29E-07	5.00E-03	--	3.06E-08	--	--
	Benzo[a]anthracene	4.40E-01	4.29E-07	2.00E-02	9E-06	3.06E-08	7.30E-01	1E-08
	Benzo[a]pyrene	2.10E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E+00	5E-08
	Benzo[b]fluoranthene	8.00E-01	4.29E-07	2.00E-02	2E-05	3.06E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	2.40E-01	4.29E-07	2.00E-02	5E-06	3.06E-08	7.30E-02	5E-10
	Chrysene	6.20E-01	4.29E-07	2.00E-02	1E-05	3.06E-08	7.30E-03	1E-10
	Indeno[1,2,3-c,d]pyrene	2.00E-01	4.29E-07	2.00E-02	4E-06	3.06E-08	7.30E-01	4E-09
	Dibenzo[a,h]anthracene	--	4.29E-07	2.00E-02	--	3.06E-08	7.30E+00	--
	n-Nitrosodipropylamine	ND	4.29E-07	--	--	3.06E-08	7.00E+00	--
				Total	1E-01		Total	3E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 1	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	2.36E+01	9.78E-07	3.00E-04	8E-02	3.49E-07	1.50E+00	1E-05
	Chromium	18540299_VI	1.52E+01	9.78E-07	3.00E-03	5E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.03E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.30E+00	9.78E-07	3.00E-04	4E-03	3.49E-07	--	--
	Selenium	7782492	1.98E+00	9.78E-07	5.00E-03	4E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	7.00E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-01	2E-07
	Benzo[a]pyrene	50328	5.90E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	7.70E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	2.90E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-02	7E-09
	Chrysene	218019	1.00E+00	9.78E-07	2.00E-02	5E-05	3.49E-07	7.30E-03	3E-09
	Indeno[1,2,3-c,d]pyrene	193395	2.40E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	6E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	9E-02		Total	1E-05
AOI 12	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	4.98E+00	9.78E-07	3.00E-04	2E-02	3.49E-07	1.50E+00	3E-06
	Chromium	18540299_VI	9.12E+00	9.78E-07	3.00E-03	3E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	5.02E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.43E-01	9.78E-07	3.00E-04	5E-04	3.49E-07	--	--
	Selenium	7782492	3.19E-01	9.78E-07	5.00E-03	6E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.20E-01	9.78E-07	2.00E-02	6E-06	3.49E-07	7.30E-01	3E-08
	Benzo[a]pyrene	50328	8.20E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E+00	2E-07
	Benzo[b]fluoranthene	205992	2.01E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	5E-08
	Benzo[k]fluoranthene	207089	5.20E-02	9.78E-07	2.00E-02	3E-06	3.49E-07	7.30E-02	1E-09
	Chrysene	218019	2.89E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-03	7E-10
	Indeno[1,2,3-c,d]pyrene	193395	7.20E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E-01	2E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-02		Total	3E-06
AOI 13	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	ND	9.78E-07	3.00E-04	--	3.49E-07	1.50E+00	--
	Chromium	18540299_VI	1.50E+01	9.78E-07	3.00E-03	5E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	3.60E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	ND	9.78E-07	3.00E-04	--	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[a]pyrene	50328	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-02	--
	Chrysene	218019	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	193395	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	--	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	5E-03		Total	--

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 17	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.10E+01	9.78E-07	3.00E-04	4E-02	3.49E-07	1.50E+00	6E-06
	Chromium	18540299_VI	1.90E+01	9.78E-07	3.00E-03	6E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.03E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	9.50E-02	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	3.00E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	8E-08
	Benzo[a]pyrene	50328	3.30E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E+00	8E-07
	Benzo[b]fluoranthene	205992	3.10E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	8E-08
	Benzo[k]fluoranthene	207089	3.40E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-02	9E-09
	Chrysene	218019	4.20E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-03	1E-09
	Indeno[1,2,3-c,d]pyrene	193395	2.50E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	6E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	4E-02		Total	7E-06
AOI 18	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	8.57E+00	9.78E-07	3.00E-04	3E-02	3.49E-07	1.50E+00	4E-06
	Chromium	18540299_VI	1.31E+01	9.78E-07	3.00E-03	4E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.16E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.68E-01	9.78E-07	3.00E-04	5E-04	3.49E-07	--	--
	Selenium	7782492	5.36E-01	9.78E-07	5.00E-03	1E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	4.30E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Benzo[a]pyrene	50328	4.90E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E+00	1E-06
	Benzo[b]fluoranthene	205992	3.70E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	9E-08
	Benzo[k]fluoranthene	207089	4.10E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-02	1E-08
	Chrysene	218019	5.00E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-03	1E-09
	Indeno[1,2,3-c,d]pyrene	193395	3.90E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	3E-02		Total	6E-06
AOI 19	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	4.56E+00	9.78E-07	3.00E-04	1E-02	3.49E-07	1.50E+00	2E-06
	Chromium	18540299_VI	1.35E+01	9.78E-07	3.00E-03	4E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	1.15E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	2.13E-01	9.78E-07	3.00E-04	7E-04	3.49E-07	--	--
	Selenium	7782492	1.36E-01	9.78E-07	5.00E-03	3E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.40E+01	9.78E-07	2.00E-02	7E-04	3.49E-07	7.30E-01	4E-06
	Benzo[a]pyrene	50328	2.00E+01	9.78E-07	2.00E-02	1E-03	3.49E-07	7.30E+00	5E-05
	Benzo[b]fluoranthene	205992	1.70E+01	9.78E-07	2.00E-02	8E-04	3.49E-07	7.30E-01	4E-06
	Benzo[k]fluoranthene	207089	1.50E+01	9.78E-07	2.00E-02	7E-04	3.49E-07	7.30E-02	4E-07
	Chrysene	218019	2.00E+01	9.78E-07	2.00E-02	1E-03	3.49E-07	7.30E-03	5E-08
	Indeno[1,2,3-c,d]pyrene	193395	1.80E+01	9.78E-07	2.00E-02	9E-04	3.49E-07	7.30E-01	5E-06
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	3E-02		Total	7E-05

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 2	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.53E+01	9.78E-07	3.00E-04	5E-02	3.49E-07	1.50E+00	8E-06
	Chromium	18540299_VI	3.89E+01	9.78E-07	3.00E-03	1E-02	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	9.13E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	6.66E-02	9.78E-07	3.00E-04	2E-04	3.49E-07	--	--
	Selenium	7782492	7.06E-01	9.78E-07	5.00E-03	1E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	6.90E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-01	2E-07
	Benzo[a]pyrene	50328	6.20E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	1.00E+00	9.78E-07	2.00E-02	5E-05	3.49E-07	7.30E-01	3E-07
	Benzo[k]fluoranthene	207089	6.90E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-02	2E-08
	Chrysene	218019	1.30E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-03	3E-09
	Indeno[1,2,3-c,d]pyrene	193395	3.90E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	6E-02		Total	1E-05
AOI 20	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	8.60E+00	9.78E-07	3.00E-04	3E-02	3.49E-07	1.50E+00	5E-06
	Chromium	18540299_VI	2.10E+01	9.78E-07	3.00E-03	7E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	9.97E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	7.80E-02	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	7.70E+00	9.78E-07	5.00E-03	2E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	4.50E-02	9.78E-07	2.00E-02	2E-06	3.49E-07	7.30E-01	1E-08
	Benzo[a]pyrene	50328	3.90E-02	9.78E-07	2.00E-02	2E-06	3.49E-07	7.30E+00	1E-07
	Benzo[b]fluoranthene	205992	9.50E-02	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E-01	2E-08
	Benzo[k]fluoranthene	207089	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-02	--
	Chrysene	218019	1.10E-01	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	193395	4.30E-02	9.78E-07	2.00E-02	2E-06	3.49E-07	7.30E-01	1E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	4E-02		Total	5E-06
AOI 21	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	4.50E+02	9.78E-07	3.00E-04	1E+00	3.49E-07	1.50E+00	**2E-04**
	Chromium	18540299_VI	1.38E+03	9.78E-07	3.00E-03	5E-01	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	6.34E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	4.05E+00	9.78E-07	3.00E-04	1E-02	3.49E-07	--	--
	Selenium	7782492	7.70E+02	9.78E-07	5.00E-03	2E-01	3.49E-07	--	--
	Benzo[a]anthracene	56553	2.90E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E-01	7E-07
	Benzo[a]pyrene	50328	2.00E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E+00	5E-06
	Benzo[b]fluoranthene	205992	2.10E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E-01	5E-07
	Benzo[k]fluoranthene	207089	2.60E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E-02	7E-08
	Chrysene	218019	3.80E+00	9.78E-07	2.00E-02	2E-04	3.49E-07	7.30E-03	1E-08
	Indeno[1,2,3-c,d]pyrene	193395	9.80E-01	9.78E-07	2.00E-02	5E-05	3.49E-07	7.30E-01	2E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	**2E+00**		Total	**2E-04**

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 22A	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.39E+01	9.78E-07	3.00E-04	5E-02	3.49E-07	1.50E+00	7E-06
	Chromium	18540299_VI	3.30E+02	9.78E-07	3.00E-03	1E-01	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.78E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	2.90E-01	9.78E-07	3.00E-04	9E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.30E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-01	3E-07
	Benzo[a]pyrene	50328	8.70E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	1.60E+00	9.78E-07	2.00E-02	8E-05	3.49E-07	7.30E-01	4E-07
	Benzo[k]fluoranthene	207089	4.57E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-02	1E-08
	Chrysene	218019	1.50E+00	9.78E-07	2.00E-02	7E-05	3.49E-07	7.30E-03	4E-09
	Indeno[1,2,3-c,d]pyrene	193395	3.50E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	9E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-01		Total	1E-05
AOI 22B	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	2.40E+01	9.78E-07	3.00E-04	8E-02	3.49E-07	1.50E+00	1E-05
	Chromium	18540299_VI	8.70E+01	9.78E-07	3.00E-03	3E-02	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	1.67E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.57E-01	9.78E-07	3.00E-04	5E-04	3.49E-07	--	--
	Selenium	7782492	1.40E+01	9.78E-07	5.00E-03	3E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	2.14E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	5E-08
	Benzo[a]pyrene	50328	1.95E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E+00	5E-07
	Benzo[b]fluoranthene	205992	4.68E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Benzo[k]fluoranthene	207089	1.20E-01	9.78E-07	2.00E-02	6E-06	3.49E-07	7.30E-02	3E-09
	Chrysene	218019	4.64E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-03	1E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.40E-01	9.78E-07	2.00E-02	7E-06	3.49E-07	7.30E-01	4E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	1E-01		Total	1E-05
AOI 23	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.10E+01	9.78E-07	3.00E-04	4E-02	3.49E-07	1.50E+00	6E-06
	Chromium	18540299_VI	1.60E+02	9.78E-07	3.00E-03	5E-02	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	7.02E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	9.60E-02	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[a]pyrene	50328	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-02	--
	Chrysene	218019	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	193395	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	--	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	9E-02		Total	6E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 26	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	5.46E+00	9.78E-07	3.00E-04	2E-02	3.49E-07	1.50E+00	3E-06
	Chromium	18540299_VI	7.61E+00	9.78E-07	3.00E-03	2E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	3.78E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	2.20E-01	9.78E-07	3.00E-04	7E-04	3.49E-07	--	--
	Selenium	7782492	3.29E-01	9.78E-07	5.00E-03	6E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	8.00E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E-01	2E-08
	Benzo[a]pyrene	50328	9.30E-02	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E+00	2E-07
	Benzo[b]fluoranthene	205992	7.20E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E-01	2E-08
	Benzo[k]fluoranthene	207089	5.90E-02	9.78E-07	2.00E-02	3E-06	3.49E-07	7.30E-02	2E-09
	Chrysene	218019	1.50E-01	9.78E-07	2.00E-02	7E-06	3.49E-07	7.30E-03	4E-10
	Indeno[1,2,3-c,d]pyrene	193395	4.50E-02	9.78E-07	2.00E-02	2E-06	3.49E-07	7.30E-01	1E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-02		Total	3E-06
AOI 27	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.59E+01	9.78E-07	3.00E-04	5E-02	3.49E-07	1.50E+00	8E-06
	Chromium	18540299_VI	1.52E+01	9.78E-07	3.00E-03	5E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	6.09E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.30E-01	9.78E-07	3.00E-04	4E-04	3.49E-07	--	--
	Selenium	7782492	3.91E+00	9.78E-07	5.00E-03	8E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	3.01E+02	9.78E-07	2.00E-02	1E-02	3.49E-07	7.30E-01	8E-05
	Benzo[a]pyrene	50328	1.99E+02	9.78E-07	2.00E-02	1E-02	3.49E-07	7.30E+00	**5E-04**
	Benzo[b]fluoranthene	205992	2.56E+02	9.78E-07	2.00E-02	1E-02	3.49E-07	7.30E-01	7E-05
	Benzo[k]fluoranthene	207089	1.89E+02	9.78E-07	2.00E-02	9E-03	3.49E-07	7.30E-02	5E-06
	Chrysene	218019	8.95E+02	9.78E-07	2.00E-02	4E-02	3.49E-07	7.30E-03	2E-06
	Indeno[1,2,3-c,d]pyrene	193395	2.20E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	6E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	1E-01		Total	**7E-04**
AOI 30	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	8.78E+01	9.78E-07	3.00E-04	3E-01	3.49E-07	1.50E+00	5E-05
	Chromium	18540299_VI	1.70E+03	9.78E-07	3.00E-03	6E-01	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	3.58E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	8.03E-01	9.78E-07	3.00E-04	3E-03	3.49E-07	--	--
	Selenium	7782492	1.31E+02	9.78E-07	5.00E-03	3E-02	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.10E+00	9.78E-07	2.00E-02	5E-05	3.49E-07	7.30E-01	3E-07
	Benzo[a]pyrene	50328	7.59E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	2.41E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E-01	6E-07
	Benzo[k]fluoranthene	207089	4.01E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-02	1E-08
	Chrysene	218019	1.50E+00	9.78E-07	2.00E-02	7E-05	3.49E-07	7.30E-03	4E-09
	Indeno[1,2,3-c,d]pyrene	193395	4.48E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	9E-01		Total	5E-05

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 32	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.36E+01	9.78E-07	3.00E-04	4E-02	3.49E-07	1.50E+00	7E-06
	Chromium	18540299_VI	3.16E+01	9.78E-07	3.00E-03	1E-02	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	6.71E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.56E-01	9.78E-07	3.00E-04	5E-04	3.49E-07	--	--
	Selenium	7782492	6.62E-01	9.78E-07	5.00E-03	1E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.90E-01	9.78E-07	2.00E-02	9E-06	3.49E-07	7.30E-01	5E-08
	Benzo[a]pyrene	50328	1.50E-01	9.78E-07	2.00E-02	7E-06	3.49E-07	7.30E+00	4E-07
	Benzo[b]fluoranthene	205992	2.90E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	7E-08
	Benzo[k]fluoranthene	207089	1.20E-01	9.78E-07	2.00E-02	6E-06	3.49E-07	7.30E-02	3E-09
	Chrysene	218019	3.70E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-03	9E-10
	Indeno[1,2,3-c,d]pyrene	193395	9.80E-02	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E-01	2E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	6E-02		Total	8E-06
AOI 33	Aluminum	7429905	8.36E+03	9.78E-07	1.00E+00	8E-03	3.49E-07	--	--
	Antimony	7440360	ND	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	9.16E+00	9.78E-07	3.00E-04	3E-02	3.49E-07	1.50E+00	5E-06
	Chromium	18540299_VI	1.46E+01	9.78E-07	3.00E-03	5E-03	3.49E-07	--	--
	Copper	7440508	4.80E+01	9.78E-07	4.00E-02	1E-03	3.49E-07	--	--
	Lead	7439921	6.79E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	3.00E+02	9.78E-07	2.00E-02	1E-02	3.49E-07	--	--
	Mercury	7439976	9.98E-02	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	1.00E+00	9.78E-07	5.00E-03	2E-04	3.49E-07	--	--
	Benzo[a]anthracene	56553	6.23E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-01	2E-07
	Benzo[a]pyrene	50328	9.28E-01	9.78E-07	2.00E-02	5E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	7.70E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	7.14E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-02	2E-08
	Chrysene	218019	1.14E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-03	3E-09
	Indeno[1,2,3-c,d]pyrene	193395	7.15E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-01	2E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	6E-02		Total	8E-06
AOI 34	Aluminum	7429905	1.54E+05	9.78E-07	1.00E+00	2E-01	3.49E-07	--	--
	Antimony	7440360	4.39E+01	9.78E-07	4.00E-04	1E-01	3.49E-07	--	--
	Arsenic	7440382	2.00E+01	9.78E-07	3.00E-04	7E-02	3.49E-07	1.50E+00	1E-05
	Chromium	18540299_VI	1.24E+02	9.78E-07	3.00E-03	4E-02	3.49E-07	--	--
	Copper	7440508	2.67E+02	9.78E-07	4.00E-02	7E-03	3.49E-07	--	--
	Lead	7439921	2.98E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	3.98E+02	9.78E-07	2.00E-02	2E-02	3.49E-07	--	--
	Mercury	7439976	1.57E+02	9.78E-07	3.00E-04	5E-01	3.49E-07	--	--
	Selenium	7782492	8.61E+00	9.78E-07	5.00E-03	2E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.20E-01	9.78E-07	2.00E-02	6E-06	3.49E-07	7.30E-01	3E-08
	Benzo[a]pyrene	50328	1.40E-01	9.78E-07	2.00E-02	7E-06	3.49E-07	7.30E+00	4E-07
	Benzo[b]fluoranthene	205992	2.10E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	5E-08
	Benzo[k]fluoranthene	207089	1.70E-01	9.78E-07	2.00E-02	8E-06	3.49E-07	7.30E-02	4E-09
	Chrysene	218019	1.80E+00	9.78E-07	2.00E-02	9E-05	3.49E-07	7.30E-03	5E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.50E-01	9.78E-07	2.00E-02	7E-06	3.49E-07	7.30E-01	4E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	1.30E+00	9.78E-07	--	--	3.49E-07	7.00E+00	3E-06
					Total	9E-01		Total	1E-05

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 35	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	3.51E+01	9.78E-07	3.00E-04	1E-01	3.49E-07	1.50E+00	2E-05
	Chromium	18540299_VI	4.17E+01	9.78E-07	3.00E-03	1E-02	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	8.20E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.02E-01	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	5.70E+00	9.78E-07	5.00E-03	1E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	5.60E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-01	1E-07
	Benzo[a]pyrene	50328	5.10E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E+00	1E-06
	Benzo[b]fluoranthene	205992	3.40E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	9E-08
	Benzo[k]fluoranthene	207089	6.00E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-02	2E-08
	Chrysene	218019	8.80E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-03	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	4.90E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	1E-01		Total	2E-05
AOI 36	Aluminum	7429905	7.86E+03	9.78E-07	1.00E+00	8E-03	3.49E-07	--	--
	Antimony	7440360	6.09E+00	9.78E-07	4.00E-04	1E-02	3.49E-07	--	--
	Arsenic	7440382	1.60E+02	9.78E-07	3.00E-04	5E-01	3.49E-07	1.50E+00	8E-05
	Chromium	18540299_VI	4.91E+01	9.78E-07	3.00E-03	2E-02	3.49E-07	--	--
	Copper	7440508	2.30E+04	9.78E-07	4.00E-02	6E-01	3.49E-07	--	--
	Lead	7439921	7.10E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	1.00E+03	9.78E-07	2.00E-02	5E-02	3.49E-07	--	--
	Mercury	7439976	9.56E-01	9.78E-07	3.00E-04	3E-03	3.49E-07	--	--
	Selenium	7782492	4.43E+01	9.78E-07	5.00E-03	9E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	1.19E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-01	3E-07
	Benzo[a]pyrene	50328	1.33E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E+00	3E-06
	Benzo[b]fluoranthene	205992	1.20E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-01	3E-07
	Benzo[k]fluoranthene	207089	1.22E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-02	3E-08
	Chrysene	218019	1.51E+00	9.78E-07	2.00E-02	7E-05	3.49E-07	7.30E-03	4E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.27E+00	9.78E-07	2.00E-02	6E-05	3.49E-07	7.30E-01	3E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	1E+00		Total	9E-05
AOI 37	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	4.32E+00	9.78E-07	3.00E-04	1E-02	3.49E-07	1.50E+00	2E-06
	Chromium	18540299_VI	1.28E+01	9.78E-07	3.00E-03	4E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	1.37E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.22E-01	9.78E-07	3.00E-04	4E-04	3.49E-07	--	--
	Selenium	7782492	2.01E-01	9.78E-07	5.00E-03	4E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	2.30E-02	9.78E-07	2.00E-02	1E-06	3.49E-07	7.30E-01	6E-09
	Benzo[a]pyrene	50328	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	Benzo[b]fluoranthene	205992	6.40E-02	9.78E-07	2.00E-02	3E-06	3.49E-07	7.30E-01	2E-08
	Benzo[k]fluoranthene	207089	2.40E-02	9.78E-07	2.00E-02	1E-06	3.49E-07	7.30E-02	6E-10
	Chrysene	218019	1.10E-01	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-02		Total	2E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 38	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	7.90E+00	9.78E-07	3.00E-04	3E-02	3.49E-07	1.50E+00	4E-06
	Chromium	18540299_VI	1.76E+01	9.78E-07	3.00E-03	6E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.21E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	3.76E-01	9.78E-07	3.00E-04	1E-03	3.49E-07	--	--
	Selenium	7782492	8.40E+00	9.78E-07	5.00E-03	2E-03	3.49E-07	--	--
	Benzo[a]anthracene	56553	2.10E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	5E-08
	Benzo[a]pyrene	50328	3.00E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E+00	8E-07
	Benzo[b]fluoranthene	205992	3.00E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	8E-08
	Benzo[k]fluoranthene	207089	2.30E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-02	6E-09
	Chrysene	218019	4.10E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-03	1E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.60E-01	9.78E-07	2.00E-02	8E-06	3.49E-07	7.30E-01	4E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	3E-02		Total	5E-06
AOI 5	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	6.62E+00	9.78E-07	3.00E-04	2E-02	3.49E-07	1.50E+00	3E-06
	Chromium	18540299_VI	1.13E+01	9.78E-07	3.00E-03	4E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	1.02E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.58E-01	9.78E-07	3.00E-04	5E-04	3.49E-07	--	--
	Selenium	7782492	4.07E-01	9.78E-07	5.00E-03	8E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	7.70E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-01	2E-07
	Benzo[a]pyrene	50328	4.60E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E+00	1E-06
	Benzo[b]fluoranthene	205992	1.60E+00	9.78E-07	2.00E-02	8E-05	3.49E-07	7.30E-01	4E-07
	Benzo[k]fluoranthene	207089	4.60E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-02	1E-08
	Chrysene	218019	2.00E+00	9.78E-07	2.00E-02	1E-04	3.49E-07	7.30E-03	5E-09
	Indeno[1,2,3-c,d]pyrene	193395	3.70E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	9E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	3E-02		Total	5E-06
AOI 8	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.30E+01	9.78E-07	3.00E-04	4E-02	3.49E-07	1.50E+00	7E-06
	Chromium	18540299_VI	8.40E+00	9.78E-07	3.00E-03	3E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	5.63E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.10E-01	9.78E-07	3.00E-04	4E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	8.60E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E-01	2E-08
	Benzo[a]pyrene	50328	9.30E-02	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E+00	2E-07
	Benzo[b]fluoranthene	205992	6.50E-02	9.78E-07	2.00E-02	3E-06	3.49E-07	7.30E-01	2E-08
	Benzo[k]fluoranthene	207089	8.30E-02	9.78E-07	2.00E-02	4E-06	3.49E-07	7.30E-02	2E-09
	Chrysene	218019	1.10E-01	9.78E-07	2.00E-02	5E-06	3.49E-07	7.30E-03	3E-10
	Indeno[1,2,3-c,d]pyrene	193395	6.70E-02	9.78E-07	2.00E-02	3E-06	3.49E-07	7.30E-01	2E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	5E-02		Total	7E-06

APPENDIX E.1 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM SURFACE SOIL

Based on RME Assumptions

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 9	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	5.50E+00	9.78E-07	3.00E-04	2E-02	3.49E-07	1.50E+00	3E-06
	Chromium	18540299_VI	1.20E+01	9.78E-07	3.00E-03	4E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	8.91E+01	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	1.01E-01	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	2.96E-01	9.78E-07	5.00E-03	6E-05	3.49E-07	--	--
	Benzo[a]anthracene	56553	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-02	--
	Chrysene	218019	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-03	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-07	2.00E-02	--	3.49E-07	7.30E-01	--
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-02		Total	3E-06
AOI SPRR5	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	1.10E+01	9.78E-07	3.00E-04	4E-02	3.49E-07	1.50E+00	6E-06
	Chromium	18540299_VI	1.60E+01	9.78E-07	3.00E-03	5E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	1.40E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	8.50E-02	9.78E-07	3.00E-04	3E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	2.30E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	6E-08
	Benzo[a]pyrene	50328	6.30E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	8.00E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	2.40E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-02	6E-09
	Chrysene	218019	8.50E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-03	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	4.00E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	4E-02		Total	8E-06
Other - Onyard	Aluminum	7429905	--	9.78E-07	1.00E+00	--	3.49E-07	--	--
	Antimony	7440360	--	9.78E-07	4.00E-04	--	3.49E-07	--	--
	Arsenic	7440382	6.80E+01	9.78E-07	3.00E-04	2E-01	3.49E-07	1.50E+00	4E-05
	Chromium	18540299_VI	1.00E+01	9.78E-07	3.00E-03	3E-03	3.49E-07	--	--
	Copper	7440508	--	9.78E-07	4.00E-02	--	3.49E-07	--	--
	Lead	7439921	2.38E+02	9.78E-07	--	--	3.49E-07	--	--
	Manganese	7439965_NF	--	9.78E-07	2.00E-02	--	3.49E-07	--	--
	Mercury	7439976	2.60E-01	9.78E-07	3.00E-04	8E-04	3.49E-07	--	--
	Selenium	7782492	ND	9.78E-07	5.00E-03	--	3.49E-07	--	--
	Benzo[a]anthracene	56553	4.40E-01	9.78E-07	2.00E-02	2E-05	3.49E-07	7.30E-01	1E-07
	Benzo[a]pyrene	50328	2.10E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E+00	5E-07
	Benzo[b]fluoranthene	205992	8.00E-01	9.78E-07	2.00E-02	4E-05	3.49E-07	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	2.40E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-02	6E-09
	Chrysene	218019	6.20E-01	9.78E-07	2.00E-02	3E-05	3.49E-07	7.30E-03	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	2.00E-01	9.78E-07	2.00E-02	1E-05	3.49E-07	7.30E-01	5E-08
	Dibenzo[a,h]anthracene	53703	--	9.78E-07	2.00E-02	--	3.49E-07	7.30E+00	--
	n-Nitrosodipropylamine	621647	ND	9.78E-07	--	--	3.49E-07	7.00E+00	--
					Total	2E-01		Total	4E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 1	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	--	6.00E-03	3.00E-04	--	4.29E-04	1.50E+00	--
	Barium	7440393	--	6.00E-03	7.00E-02	--	4.29E-04	--	--
	Cadmium	7440439_W	--	6.00E-03	5.00E-04	--	4.29E-04	--	--
	Chromium	18540299_VI	--	6.00E-03	3.00E-03	--	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	--	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	Silver	7440224	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	2-Methylnaphthalene	91576	4.50E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	ND	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	6.00E-03	2.00E-02	--	4.29E-04	1.40E-02	--
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	3.70E-03	6.00E-03	6.00E-02	4E-04	4.29E-04	7.50E-03	1E-08
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	2E-03		Total	1E-08
AOI 12	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	8.60E-03	6.00E-03	3.00E-04	2E-01	4.29E-04	1.50E+00	6E-06
	Barium	7440393	4.01E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	4.70E-03	6.00E-03	5.00E-04	6E-02	4.29E-04	--	--
	Chromium	18540299_VI	3.15E-03	6.00E-03	3.00E-03	6E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	2.40E-05	6.00E-03	3.00E-04	5E-04	4.29E-04	--	--
	Selenium	7782492	1.96E-02	6.00E-03	5.00E-03	2E-02	4.29E-04	--	--
	Silver	7440224	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	1.00E-04	6.00E-03	4.00E-02	2E-05	4.29E-04	--	--
	Fluorene	86737	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	1.00E-04	6.00E-03	3.00E-02	2E-05	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.90E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	1.40E-02	4E-07
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	1.80E-03	6.00E-03	3.00E-02	4E-04	4.29E-04	1.20E-01	9E-08
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	1.00E-03	6.00E-03	4.00E-03	2E-03	4.29E-04	5.70E-02	2E-08
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	ND	6.00E-03	6.00E-02	--	4.29E-04	7.50E-03	--
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	3E-01		Total	6E-06

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 13	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	6.40E-02	6.00E-03	3.00E-04	1E+00	4.29E-04	1.50E+00	4E-05
	Barium	7440393	1.60E+00	6.00E-03	7.00E-02	1E-01	4.29E-04	--	--
	Cadmium	7440439_W	6.70E-03	6.00E-03	5.00E-04	8E-02	4.29E-04	--	--
	Chromium	18540299_VI	2.30E-01	6.00E-03	3.00E-03	5E-01	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	Silver	7440224	1.20E-02	6.00E-03	5.00E-03	1E-02	4.29E-04	--	--
	2-Methylnaphthalene	91576	1.30E+00	6.00E-03	2.00E-02	4E-01	4.29E-04	--	--
	Acenaphthene	83329	6.23E-03	6.00E-03	6.00E-02	6E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	1.00E-04	6.00E-03	2.00E-02	3E-05	4.29E-04	7.30E-01	3E-08
	Benzo[a]pyrene	50328	1.00E-04	6.00E-03	2.00E-02	3E-05	4.29E-04	7.30E+00	3E-07
	Benzo[b]fluoranthene	205992	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	7.30E-01	6E-08
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	1.00E-04	6.00E-03	2.00E-02	3E-05	4.29E-04	7.30E-03	3E-10
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	5.20E-03	6.00E-03	4.00E-02	8E-04	4.29E-04	--	--
	Fluorene	86737	9.15E-03	6.00E-03	4.00E-02	1E-03	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	7.63E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	--	--
	Phenanthrene	85018	4.32E-02	6.00E-03	2.00E-02	1E-02	4.29E-04	--	--
	Pyrene	129000	4.95E-03	6.00E-03	3.00E-02	1E-03	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	7.40E-03	6.00E-03	1.00E-03	4E-02	4.29E-04	6.80E-01	2E-06
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.10E-01	6.00E-03	2.00E-02	2E-01	4.29E-04	1.40E-02	3E-06
	Carbazole	86748	1.00E-03	6.00E-03	--	--	4.29E-04	2.00E-02	9E-09
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	2.00E-03	6.00E-03	1.00E-01	1E-04	4.29E-04	--	--
	Benzene	71432	2.49E-02	6.00E-03	3.00E-03	5E-02	4.29E-04	5.50E-02	6E-07
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	4.84E-03	6.00E-03	6.00E-02	5E-04	4.29E-04	7.50E-03	2E-08
	Ethylbenzene	100414	2.68E-02	6.00E-03	1.00E-01	2E-03	4.29E-04	--	--
	Tetrachloroethene	127184	1.90E-03	6.00E-03	1.00E-02	1E-03	4.29E-04	5.20E-02	4E-08
	Toluene	108883	2.60E-03	6.00E-03	2.00E-01	8E-05	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	1.47E-02	6.00E-03	2.00E+00	4E-05	4.29E-04	--	--
					Total	**3E+00**		Total	5E-05
AOI 18	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	3.80E-03	6.00E-03	3.00E-04	8E-02	4.29E-04	1.50E+00	2E-06
	Barium	7440393	1.07E-01	6.00E-03	7.00E-02	9E-03	4.29E-04	--	--
	Cadmium	7440439_W	1.80E-03	6.00E-03	5.00E-04	2E-02	4.29E-04	--	--
	Chromium	18540299_VI	1.50E-03	6.00E-03	3.00E-03	3E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	5.20E-03	6.00E-03	5.00E-03	6E-03	4.29E-04	--	--
	Silver	7440224	3.00E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	3.00E-04	6.00E-03	2.00E-02	9E-05	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	ND	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	7.00E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	1.40E-02	4E-08
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	6.20E-02	6.00E-03	2.80E-01	1E-03	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	1.00E-03	6.00E-03	1.00E-01	6E-05	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	9.94E-04	6.00E-03	6.00E-02	1E-04	4.29E-04	7.50E-03	3E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	1E-01		Total	2E-06

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 19	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	ND	6.00E-03	3.00E-04	--	4.29E-04	1.50E+00	--
	Barium	7440393	4.56E-01	6.00E-03	7.00E-02	4E-02	4.29E-04	--	--
	Cadmium	7440439_W	ND	6.00E-03	5.00E-04	--	4.29E-04	--	--
	Chromium	18540299_VI	5.80E-04	6.00E-03	3.00E-03	1E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	2.34E-02	6.00E-03	5.00E-03	3E-02	4.29E-04	--	--
	Silver	7440224	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	2.00E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	--	--
	Acenaphthene	83329	8.00E-04	6.00E-03	6.00E-02	8E-05	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	1.00E-03	6.00E-03	4.00E-02	2E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	--	--
	Pyrene	129000	ND	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.00E-04	6.00E-03	2.00E-02	9E-05	4.29E-04	1.40E-02	2E-09
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	ND	6.00E-03	6.00E-02	--	4.29E-04	7.50E-03	--
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	7E-02		Total	2E-09
AOI 20	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.46E-02	6.00E-03	3.00E-04	3E-01	4.29E-04	1.50E+00	9E-06
	Barium	7440393	3.91E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	3.90E-03	6.00E-03	5.00E-04	5E-02	4.29E-04	--	--
	Chromium	18540299_VI	2.03E-02	6.00E-03	3.00E-03	4E-02	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	3.60E-05	6.00E-03	3.00E-04	7E-04	4.29E-04	--	--
	Selenium	7782492	4.00E-03	6.00E-03	5.00E-03	5E-03	4.29E-04	--	--
	Silver	7440224	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	6.58E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	--	--
	Acenaphthene	83329	3.00E-03	6.00E-03	6.00E-02	3E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	1.50E-03	6.00E-03	4.00E-02	2E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	1.30E-03	6.00E-03	2.00E-02	4E-04	4.29E-04	--	--
	Phenanthrene	85018	1.40E-03	6.00E-03	2.00E-02	4E-04	4.29E-04	--	--
	Pyrene	129000	5.00E-05	6.00E-03	3.00E-02	1E-05	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.00E-04	6.00E-03	3.00E-02	8E-05	4.29E-04	2.40E-02	4E-09
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	4.80E-02	6.00E-03	2.00E-02	1E-02	4.29E-04	1.40E-02	3E-07
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	7.46E-03	6.00E-03	1.00E-01	4E-04	4.29E-04	--	--
	Benzene	71432	6.00E-04	6.00E-03	3.00E-03	1E-03	4.29E-04	5.50E-02	1E-08
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	1.40E-03	6.00E-03	6.00E-02	1E-04	4.29E-04	7.50E-03	5E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	1.60E-03	6.00E-03	2.00E-01	5E-05	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	6.00E-04	6.00E-03	3.00E-03	1E-03	4.29E-04	7.20E-01	2E-07
	Xylenes (Total)	1330207	1.00E-03	6.00E-03	2.00E+00	3E-06	4.29E-04	--	--
					Total	4E-01		Total	1E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 21	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.76E-02	6.00E-03	3.00E-04	4E-01	4.29E-04	1.50E+00	1E-05
	Barium	7440393	2.33E-01	6.00E-03	7.00E-02	2E-02	4.29E-04	--	--
	Cadmium	7440439_W	5.30E-03	6.00E-03	5.00E-04	6E-02	4.29E-04	--	--
	Chromium	18540299_VI	3.21E-02	6.00E-03	3.00E-03	6E-02	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	9.90E-05	6.00E-03	3.00E-04	2E-03	4.29E-04	--	--
	Selenium	7782492	8.20E-03	6.00E-03	5.00E-03	1E-02	4.29E-04	--	--
	Silver	7440224	3.10E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	4.49E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	--	--
	Acenaphthene	83329	3.10E-03	6.00E-03	6.00E-02	3E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	7.30E-01	6E-08
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	3.00E-04	6.00E-03	2.00E-02	9E-05	4.29E-04	7.30E-03	9E-10
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	5.00E-04	6.00E-03	4.00E-02	8E-05	4.29E-04	--	--
	Fluorene	86737	3.52E-03	6.00E-03	4.00E-02	5E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	2.46E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	--	--
	Pyrene	129000	4.00E-03	6.00E-03	3.00E-02	8E-04	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	5.00E-03	6.00E-03	1.00E-04	3E-01	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	6.86E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	1.40E-02	4E-07
	Carbazole	86748	1.00E-03	6.00E-03	--	--	4.29E-04	2.00E-02	9E-09
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	7.00E-04	6.00E-03	3.00E-02	1E-04	4.29E-04	1.20E-01	4E-08
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	1.16E-01	6.00E-03	9.00E-03	8E-02	4.29E-04	--	--
	Acetone	67641	2.40E-03	6.00E-03	1.00E-01	1E-04	4.29E-04	--	--
	Benzene	71432	4.24E-03	6.00E-03	3.00E-03	8E-03	4.29E-04	5.50E-02	1E-07
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	3.92E-03	6.00E-03	--	--	4.29E-04	1.30E-02	2E-08
	cis-1,2-Dichloroethene	156592	1.20E-01	6.00E-03	1.00E-02	7E-02	4.29E-04	--	--
	Dichloromethane	75092	ND	6.00E-03	6.00E-02	--	4.29E-04	7.50E-03	--
	Ethylbenzene	100414	5.00E-04	6.00E-03	1.00E-01	3E-05	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	3.42E-03	6.00E-03	2.00E-01	1E-04	4.29E-04	--	--
	Trichloroethene	79016	5.48E-03	6.00E-03	3.00E-04	1E-01	4.29E-04	1.10E-02	3E-08
	Vinyl Chloride	75014_A	5.09E-02	6.00E-03	3.00E-03	1E-01	4.29E-04	7.20E-01	2E-05
	Xylenes (Total)	1330207	1.00E-03	6.00E-03	2.00E+00	3E-06	4.29E-04	--	--
					Total	1E+00		Total	3E-05
AOI 22A	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.66E-02	6.00E-03	3.00E-04	3E-01	4.29E-04	1.50E+00	1E-05
	Barium	7440393	4.57E-01	6.00E-03	7.00E-02	4E-02	4.29E-04	--	--
	Cadmium	7440439_W	5.12E-04	6.00E-03	5.00E-04	6E-03	4.29E-04	--	--
	Chromium	18540299_VI	3.10E-03	6.00E-03	3.00E-03	6E-03	4.29E-04	--	--
	Manganese	7439965_NF	1.02E+00	6.00E-03	2.00E-02	3E-01	4.29E-04	--	--
	Mercury	7439976	6.40E-04	6.00E-03	3.00E-04	1E-02	4.29E-04	--	--
	Selenium	7782492	5.90E-03	6.00E-03	5.00E-03	7E-03	4.29E-04	--	--
	Silver	7440224	3.20E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	1.48E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	--	--
	Acenaphthene	83329	4.93E-03	6.00E-03	6.00E-02	5E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	9.40E-03	6.00E-03	4.00E-03	1E-02	4.29E-04	--	--
	Fluoranthene	206440	2.26E-03	6.00E-03	4.00E-02	3E-04	4.29E-04	--	--
	Fluorene	86737	6.84E-03	6.00E-03	4.00E-02	1E-03	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	2.42E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	--	--
	Phenanthrene	85018	1.07E-02	6.00E-03	2.00E-02	3E-03	4.29E-04	--	--
	Pyrene	129000	3.46E-03	6.00E-03	3.00E-02	7E-04	4.29E-04	--	--
	Aroclor-1260	11096825	ND	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	2.00E-03	6.00E-03	5.00E-03	2E-03	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	6.00E-03	2.00E-02	3E-03	4.29E-04	1.40E-02	5E-08
	Carbazole	86748	4.00E-03	6.00E-03	--	--	4.29E-04	2.00E-02	3E-08
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	6.00E-03	3.00E-02	6E-04	4.29E-04	1.20E-01	2E-07
	1,1,1-Trichloroethane	71556	2.62E-01	6.00E-03	2.80E-01	6E-03	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	3.00E-03	6.00E-03	4.00E-03	5E-03	4.29E-04	5.70E-02	7E-08
	1,1-Dichloroethane	75343	2.00E+00	6.00E-03	1.00E-01	1E-01	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	1.50E-02	6.00E-03	6.00E-03	2E-02	4.29E-04	2.00E+00	1E-05
	1,2-Dichloroethane	107062	2.00E-03	6.00E-03	3.00E-02	4E-04	4.29E-04	9.10E-02	8E-08
	1,2-Dichloroethene	540590	3.70E+00	6.00E-03	9.00E-03	**2E+00**	4.29E-04	--	--
	Acetone	67641	1.30E-02	6.00E-03	1.00E-01	8E-04	4.29E-04	--	--
	Benzene	71432	1.18E-02	6.00E-03	3.00E-03	2E-02	4.29E-04	5.50E-02	3E-07
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.70E-01	6.00E-03	4.00E-01	3E-03	4.29E-04	2.90E-03	2E-07
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.70E+00	6.00E-03	1.00E-02	**2E+00**	4.29E-04	--	--
	Dichloromethane	75092	1.50E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	5E-09
	Ethylbenzene	100414	1.03E-02	6.00E-03	1.00E-01	6E-04	4.29E-04	--	--
	Tetrachloroethene	127184	7.00E-04	6.00E-03	1.00E-02	4E-04	4.29E-04	5.20E-02	2E-08
	Toluene	108883	4.90E-03	6.00E-03	2.00E-01	1E-04	4.29E-04	--	--
	Trichloroethene	79016	4.00E-03	6.00E-03	3.00E-04	8E-02	4.29E-04	1.10E-02	2E-08
	Vinyl Chloride	75014_A	2.30E+00	6.00E-03	3.00E-03	**5E+00**	4.29E-04	7.20E-01	**7E-04**
	Xylenes (Total)	1330207	7.00E-03	6.00E-03	2.00E+00	2E-05	4.29E-04	--	--
					Total	**1E+01**		Total	**7E-04**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 27	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	6.08E-03	6.00E-03	3.00E-04	1E-01	4.29E-04	1.50E+00	4E-06
	Barium	7440393	3.22E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	3.27E-03	6.00E-03	5.00E-04	4E-02	4.29E-04	--	--
	Chromium	18540299_VI	9.00E-02	6.00E-03	3.00E-03	2E-01	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	1.79E-02	6.00E-03	5.00E-03	2E-02	4.29E-04	--	--
	Silver	7440224	6.90E-03	6.00E-03	5.00E-03	8E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	3.00E-04	6.00E-03	4.00E-02	5E-05	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	ND	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	1.00E-03	6.00E-03	--	--	4.29E-04	1.10E+00	5E-07
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	6.00E-03	2.00E-02	3E-03	4.29E-04	1.40E-02	5E-08
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	6.00E-03	3.00E-02	6E-04	4.29E-04	1.20E-01	2E-07
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	2.86E-03	6.00E-03	9.00E-03	2E-03	4.29E-04	--	--
	Acetone	67641	1.10E-02	6.00E-03	1.00E-01	7E-04	4.29E-04	--	--
	Benzene	71432	8.00E-04	6.00E-03	3.00E-03	2E-03	4.29E-04	5.50E-02	2E-08
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-03	6.00E-03	1.00E-02	2E-03	4.29E-04	--	--
	Dichloromethane	75092	1.50E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	5E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	3.10E-03	6.00E-03	3.00E-04	6E-02	4.29E-04	1.10E-02	1E-08
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	5E-01		Total	5E-06
AOI 30	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.91E-02	6.00E-03	3.00E-04	4E-01	4.29E-04	1.50E+00	1E-05
	Barium	7440393	7.65E-01	6.00E-03	7.00E-02	7E-02	4.29E-04	--	--
	Cadmium	7440439_W	3.07E-03	6.00E-03	5.00E-04	4E-02	4.29E-04	--	--
	Chromium	18540299_VI	4.23E-02	6.00E-03	3.00E-03	8E-02	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	4.80E-05	6.00E-03	3.00E-04	1E-03	4.29E-04	--	--
	Selenium	7782492	1.36E-02	6.00E-03	5.00E-03	2E-02	4.29E-04	--	--
	Silver	7440224	3.20E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	6.07E-01	6.00E-03	2.00E-02	2E-01	4.29E-04	--	--
	Acenaphthene	83329	9.24E-02	6.00E-03	6.00E-02	9E-03	4.29E-04	--	--
	Benzo[a]anthracene	56553	2.03E-02	6.00E-03	2.00E-02	6E-03	4.29E-04	7.30E-01	6E-06
	Benzo[a]pyrene	50328	2.80E-02	6.00E-03	2.00E-02	8E-03	4.29E-04	7.30E+00	9E-05
	Benzo[b]fluoranthene	205992	2.84E-02	6.00E-03	2.00E-02	9E-03	4.29E-04	7.30E-01	9E-06
	Benzo[k]fluoranthene	207089	2.69E-02	6.00E-03	2.00E-02	8E-03	4.29E-04	7.30E-02	8E-07
	Chrysene	218019	2.11E-02	6.00E-03	2.00E-02	6E-03	4.29E-04	7.30E-03	7E-08
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	4.10E-02	6.00E-03	4.00E-03	6E-02	4.29E-04	--	--
	Fluoranthene	206440	3.77E-02	6.00E-03	4.00E-02	6E-03	4.29E-04	--	--
	Fluorene	86737	1.14E-01	6.00E-03	4.00E-02	2E-02	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	6.52E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	--	--
	Phenanthrene	85018	1.84E-01	6.00E-03	2.00E-02	6E-02	4.29E-04	--	--
	Pyrene	129000	4.26E-02	6.00E-03	3.00E-02	9E-03	4.29E-04	--	--
	Aroclor-1260	11096825	ND	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-03	6.00E-03	3.00E-02	6E-04	4.29E-04	2.40E-02	3E-08
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	1.90E-03	6.00E-03	5.00E-03	2E-03	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.27E-01	6.00E-03	2.00E-02	4E-02	4.29E-04	1.40E-02	8E-07
	Carbazole	86748	3.00E-03	6.00E-03	--	--	4.29E-04	2.00E-02	3E-08
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.00E-03	6.00E-03	3.00E-02	1E-03	4.29E-04	1.20E-01	3E-07
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	9.00E-03	6.00E-03	6.00E-03	9E-03	4.29E-04	2.00E+00	8E-06
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	6.32E-02	6.00E-03	9.00E-03	4E-02	4.29E-04	--	--
	Acetone	67641	1.65E-02	6.00E-03	1.00E-01	1E-03	4.29E-04	--	--
	Benzene	71432	7.97E-03	6.00E-03	3.00E-03	2E-02	4.29E-04	5.50E-02	2E-07
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.46E-03	6.00E-03	--	--	4.29E-04	1.30E-02	5E-08
	cis-1,2-Dichloroethene	156592	7.09E-02	6.00E-03	1.00E-02	4E-02	4.29E-04	--	--
	Dichloromethane	75092	6.56E-03	6.00E-03	6.00E-02	7E-04	4.29E-04	7.50E-03	2E-08
	Ethylbenzene	100414	3.20E-03	6.00E-03	1.00E-01	2E-04	4.29E-04	--	--
	Tetrachloroethene	127184	7.04E-03	6.00E-03	1.00E-02	4E-03	4.29E-04	5.20E-02	2E-07
	Toluene	108883	3.10E-03	6.00E-03	2.00E-01	9E-05	4.29E-04	--	--
	Trichloroethene	79016	2.50E-03	6.00E-03	3.00E-04	5E-02	4.29E-04	1.10E-02	1E-08
	Vinyl Chloride	75014_A	2.86E-01	6.00E-03	3.00E-03	6E-01	4.29E-04	7.20E-01	9E-05
	Xylenes (Total)	1330207	5.40E-03	6.00E-03	2.00E+00	2E-05	4.29E-04	--	--
					Total	**2E+00**		Total	**2E-04**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 32	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.65E-02	6.00E-03	3.00E-04	3E-01	4.29E-04	1.50E+00	1E-05
	Barium	7440393	6.02E-01	6.00E-03	7.00E-02	5E-02	4.29E-04	--	--
	Cadmium	7440439_W	5.00E-03	6.00E-03	5.00E-04	6E-02	4.29E-04	--	--
	Chromium	18540299_VI	1.90E-03	6.00E-03	3.00E-03	4E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	3.27E-05	6.00E-03	3.00E-04	7E-04	4.29E-04	--	--
	Selenium	7782492	6.60E-03	6.00E-03	5.00E-03	8E-03	4.29E-04	--	--
	Silver	7440224	1.50E-03	6.00E-03	5.00E-03	2E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	1.55E-02	6.00E-03	2.00E-02	5E-03	4.29E-04	--	--
	Acenaphthene	83329	3.30E-03	6.00E-03	6.00E-02	3E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	1.30E-03	6.00E-03	2.00E-02	4E-04	4.29E-04	7.30E-01	4E-07
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	1.10E-03	6.00E-03	2.00E-02	3E-04	4.29E-04	7.30E-01	3E-07
	Benzo[k]fluoranthene	207089	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	7.30E-02	6E-09
	Chrysene	218019	1.10E-03	6.00E-03	2.00E-02	3E-04	4.29E-04	7.30E-03	3E-09
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	1.20E-03	6.00E-03	4.00E-03	2E-03	4.29E-04	--	--
	Fluoranthene	206440	7.40E-03	6.00E-03	4.00E-02	1E-03	4.29E-04	--	--
	Fluorene	86737	3.40E-03	6.00E-03	4.00E-02	5E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	5.20E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	--	--
	Phenanthrene	85018	4.50E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	--	--
	Pyrene	129000	5.60E-03	6.00E-03	3.00E-02	1E-03	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.40E-01	6.00E-03	2.00E-02	4E-02	4.29E-04	1.40E-02	8E-07
	Carbazole	86748	1.20E-03	6.00E-03	--	--	4.29E-04	2.00E-02	1E-08
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	6.30E-03	6.00E-03	3.00E-02	1E-03	4.29E-04	1.20E-01	3E-07
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	2.43E-03	6.00E-03	9.00E-03	2E-03	4.29E-04	--	--
	Acetone	67641	1.00E+01	6.00E-03	1.00E-01	6E-01	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.38E-03	6.00E-03	--	--	4.29E-04	1.30E-02	5E-08
	cis-1,2-Dichloroethene	156592	1.45E-03	6.00E-03	1.00E-02	9E-04	4.29E-04	--	--
	Dichloromethane	75092	1.60E+00	6.00E-03	6.00E-02	2E-01	4.29E-04	7.50E-03	5E-06
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	1.60E-03	6.00E-03	2.00E-01	5E-05	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	8.17E-03	6.00E-03	3.00E-03	2E-02	4.29E-04	7.20E-01	3E-06
	Xylenes (Total)	1330207	2.60E-03	6.00E-03	2.00E+00	8E-06	4.29E-04	--	--
					Total	1E+00		Total	2E-05
AOI 33	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	2.15E-03	6.00E-03	3.00E-04	4E-02	4.29E-04	1.50E+00	1E-06
	Barium	7440393	1.85E-01	6.00E-03	7.00E-02	2E-02	4.29E-04	--	--
	Cadmium	7440439_W	4.75E-04	6.00E-03	5.00E-04	6E-03	4.29E-04	--	--
	Chromium	18540299_VI	9.84E-04	6.00E-03	3.00E-03	2E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	1.26E-04	6.00E-03	3.00E-04	3E-03	4.29E-04	--	--
	Selenium	7782492	3.36E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	Silver	7440224	9.96E-04	6.00E-03	5.00E-03	1E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	2.37E-01	6.00E-03	2.00E-02	7E-02	4.29E-04	--	--
	Acenaphthene	83329	2.40E-01	6.00E-03	6.00E-02	2E-02	4.29E-04	--	--
	Benzo[a]anthracene	56553	2.38E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	7.30E-01	7E-07
	Benzo[a]pyrene	50328	2.25E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	7.30E+00	7E-06
	Benzo[b]fluoranthene	205992	2.07E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	7.30E-01	6E-07
	Benzo[k]fluoranthene	207089	2.16E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	7.30E-02	7E-08
	Chrysene	218019	2.30E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	7.30E-03	7E-09
	Dibenz[a,h]anthracene	53703	1.99E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	7.30E+00	6E-06
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	8.23E-03	6.00E-03	4.00E-02	1E-03	4.29E-04	--	--
	Fluorene	86737	7.68E-02	6.00E-03	4.00E-02	1E-02	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.14E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	7.30E-01	7E-07
	Naphthalene	91203	5.49E+00	6.00E-03	2.00E-02	**2E+00**	4.29E-04	--	--
	Phenanthrene	85018	1.50E-01	6.00E-03	2.00E-02	5E-02	4.29E-04	--	--
	Pyrene	129000	1.22E-02	6.00E-03	3.00E-02	2E-03	4.29E-04	--	--
	Aroclor-1260	11096825	1.02E-04	6.00E-03	2.00E-05	3E-02	4.29E-04	2.00E+00	9E-08
	1,4-Dichlorobenzene	106467	4.00E-04	6.00E-03	3.00E-02	8E-05	4.29E-04	2.40E-02	4E-09
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	2.51E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.00E-03	6.00E-03	2.00E-02	3E-04	4.29E-04	1.40E-02	6E-09
	Carbazole	86748	7.02E-03	6.00E-03	--	--	4.29E-04	2.00E-02	6E-08
	n-Nitrosodipropylamine	621647	1.00E-03	6.00E-03	--	--	4.29E-04	7.00E+00	3E-06
	Pentachlorophenol (PCP)	87865	1.00E-03	6.00E-03	3.00E-02	2E-04	4.29E-04	1.20E-01	5E-08
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	1.40E-03	6.00E-03	4.00E-03	2E-03	4.29E-04	5.70E-02	3E-08
	1,1-Dichloroethane	75343	1.36E-03	6.00E-03	1.00E-01	8E-05	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	1.75E-02	6.00E-03	1.00E-01	1E-03	4.29E-04	--	--
	Benzene	71432	6.57E-02	6.00E-03	3.00E-03	1E-01	4.29E-04	5.50E-02	2E-06
	Chlorodibromomethane	124481	1.39E-03	6.00E-03	2.00E-02	4E-04	4.29E-04	8.40E-02	5E-08
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	1.24E-03	6.00E-03	6.00E-02	1E-04	4.29E-04	7.50E-03	4E-09
	Ethylbenzene	100414	1.75E+00	6.00E-03	1.00E-01	1E-01	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	3.37E-02	6.00E-03	2.00E-01	1E-03	4.29E-04	--	--
	Trichloroethene	79016	1.00E-03	6.00E-03	3.00E-04	2E-02	4.29E-04	1.10E-02	5E-09
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	2.11E-01	6.00E-03	2.00E+00	6E-04	4.29E-04	--	--
					Total	**2E+00**		Total	2E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 34	Antimony	7440360	4.95E-02	6.00E-03	4.00E-04	7E-01	4.29E-04	--	--
	Arsenic	7440382	2.26E-02	6.00E-03	3.00E-04	5E-01	4.29E-04	1.50E+00	1E-05
	Barium	7440393	3.81E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	1.55E-03	6.00E-03	5.00E-04	2E-02	4.29E-04	--	--
	Chromium	18540299_VI	3.66E-02	6.00E-03	3.00E-03	7E-02	4.29E-04	--	--
	Manganese	7439965_NF	1.19E+00	6.00E-03	2.00E-02	4E-01	4.29E-04	--	--
	Mercury	7439976	5.70E-04	6.00E-03	3.00E-04	1E-02	4.29E-04	--	--
	Selenium	7782492	1.04E-02	6.00E-03	5.00E-03	1E-02	4.29E-04	--	--
	Silver	7440224	2.04E-02	6.00E-03	5.00E-03	2E-02	4.29E-04	--	--
	2-Methylnaphthalene	91576	8.98E-03	6.00E-03	2.00E-02	3E-03	4.29E-04	--	--
	Acenaphthene	83329	2.86E-03	6.00E-03	6.00E-02	3E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	5.69E-03	6.00E-03	4.00E-03	9E-03	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	3.28E-03	6.00E-03	4.00E-02	5E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	3.12E-03	6.00E-03	2.00E-02	9E-04	4.29E-04	--	--
	Phenanthrene	85018	3.07E-03	6.00E-03	2.00E-02	9E-04	4.29E-04	--	--
	Pyrene	129000	1.10E-03	6.00E-03	3.00E-02	2E-04	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	2.00E-03	6.00E-03	1.00E-04	1E-01	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.35E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	1.40E-02	8E-08
	Carbazole	86748	2.70E-03	6.00E-03	--	--	4.29E-04	2.00E-02	2E-08
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.84E-03	6.00E-03	3.00E-02	1E-03	4.29E-04	1.20E-01	3E-07
	1,1,1-Trichloroethane	71556	3.39E-03	6.00E-03	2.80E-01	7E-05	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	8.00E-04	6.00E-03	4.00E-03	1E-03	4.29E-04	5.70E-02	2E-08
	1,1-Dichloroethane	75343	2.87E-01	6.00E-03	1.00E-01	2E-02	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	6.00E-04	6.00E-03	3.00E-02	1E-04	4.29E-04	9.10E-02	2E-08
	1,2-Dichloroethene	540590	1.69E-02	6.00E-03	9.00E-03	1E-02	4.29E-04	--	--
	Acetone	67641	2.09E-02	6.00E-03	1.00E-01	1E-03	4.29E-04	--	--
	Benzene	71432	3.75E-03	6.00E-03	3.00E-03	7E-03	4.29E-04	5.50E-02	9E-08
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.72E-02	6.00E-03	4.00E-01	3E-04	4.29E-04	2.90E-03	2E-08
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.30E-02	6.00E-03	1.00E-02	8E-03	4.29E-04	--	--
	Dichloromethane	75092	3.34E-03	6.00E-03	6.00E-02	3E-04	4.29E-04	7.50E-03	1E-08
	Ethylbenzene	100414	3.00E-03	6.00E-03	1.00E-01	2E-04	4.29E-04	--	--
	Tetrachloroethene	127184	3.64E-03	6.00E-03	1.00E-02	2E-03	4.29E-04	5.20E-02	8E-08
	Toluene	108883	3.10E-03	6.00E-03	2.00E-01	9E-05	4.29E-04	--	--
	Trichloroethene	79016	3.34E-03	6.00E-03	3.00E-04	7E-02	4.29E-04	1.10E-02	2E-08
	Vinyl Chloride	75014_A	1.92E-01	6.00E-03	3.00E-03	4E-01	4.29E-04	7.20E-01	6E-05
	Xylenes (Total)	1330207	4.44E-03	6.00E-03	2.00E+00	1E-05	4.29E-04	--	--
					Total	**2E+00**		Total	7E-05
AOI 35	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	9.50E-03	6.00E-03	3.00E-04	2E-01	4.29E-04	1.50E+00	6E-06
	Barium	7440393	3.12E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	1.50E-03	6.00E-03	5.00E-04	2E-02	4.29E-04	--	--
	Chromium	18540299_VI	2.10E-03	6.00E-03	3.00E-03	4E-03	4.29E-04	--	--
	Manganese	7439965_NF	5.80E-01	6.00E-03	2.00E-02	2E-01	4.29E-04	--	--
	Mercury	7439976	6.70E-05	6.00E-03	3.00E-04	1E-03	4.29E-04	--	--
	Selenium	7782492	7.40E-03	6.00E-03	5.00E-03	9E-03	4.29E-04	--	--
	Silver	7440224	2.90E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	3.70E-02	6.00E-03	2.00E-02	1E-02	4.29E-04	--	--
	Acenaphthene	83329	4.00E-03	6.00E-03	6.00E-02	4E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	2.00E-04	6.00E-03	4.00E-02	3E-05	4.29E-04	--	--
	Fluorene	86737	4.00E-03	6.00E-03	4.00E-02	6E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	1.00E-04	6.00E-03	2.00E-02	3E-05	4.29E-04	--	--
	Phenanthrene	85018	6.00E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	--	--
	Pyrene	129000	2.00E-04	6.00E-03	3.00E-02	4E-05	4.29E-04	--	--
	Aroclor-1260	11096825	ND	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-04	6.00E-03	3.00E-02	6E-05	4.29E-04	2.40E-02	3E-09
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.80E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	1.40E-02	2E-08
	Carbazole	86748	7.00E-04	6.00E-03	--	--	4.29E-04	2.00E-02	6E-09
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	8.82E-03	6.00E-03	1.00E-01	5E-04	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	1.40E-03	6.00E-03	9.00E-03	9E-04	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	1.54E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	5E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	4.30E-03	6.00E-03	3.00E-03	9E-03	4.29E-04	7.20E-01	1E-06
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	5E-01		Total	7E-06

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 36	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	7.50E-03	6.00E-03	3.00E-04	2E-01	4.29E-04	1.50E+00	5E-06
	Barium	7440393	3.08E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	1.90E-03	6.00E-03	5.00E-04	2E-02	4.29E-04	--	--
	Chromium	18540299_VI	2.60E-02	6.00E-03	3.00E-03	5E-02	4.29E-04	--	--
	Manganese	7439965_NF	1.21E-01	6.00E-03	2.00E-02	4E-02	4.29E-04	--	--
	Mercury	7439976	6.20E-05	6.00E-03	3.00E-04	1E-03	4.29E-04	--	--
	Selenium	7782492	6.00E-03	6.00E-03	5.00E-03	7E-03	4.29E-04	--	--
	Silver	7440224	3.00E-03	6.00E-03	5.00E-03	4E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	1.00E-04	6.00E-03	3.00E-02	2E-05	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.44E-03	6.00E-03	2.00E-02	4E-04	4.29E-04	1.40E-02	9E-09
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	3.78E-03	6.00E-03	1.00E-01	2E-04	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	2.98E-03	6.00E-03	9.00E-03	2E-03	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.54E-03	6.00E-03	1.00E-02	9E-04	4.29E-04	--	--
	Dichloromethane	75092	1.15E-03	6.00E-03	6.00E-02	1E-04	4.29E-04	7.50E-03	4E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	3.84E-03	6.00E-03	3.00E-03	8E-03	4.29E-04	7.20E-01	1E-06
	Xylenes (Total)	1330207	ND	6.00E-03	2.00E+00	--	4.29E-04	--	--
					Total	3E-01		Total	6E-06
AOI 37	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	--	6.00E-03	3.00E-04	--	4.29E-04	1.50E+00	--
	Barium	7440393	--	6.00E-03	7.00E-02	--	4.29E-04	--	--
	Cadmium	7440439_W	--	6.00E-03	5.00E-04	--	4.29E-04	--	--
	Chromium	18540299_VI	--	6.00E-03	3.00E-03	--	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	--	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	Silver	7440224	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	2-Methylnaphthalene	91576	1.70E-01	6.00E-03	2.00E-02	5E-02	4.29E-04	--	--
	Acenaphthene	83329	1.91E-02	6.00E-03	6.00E-02	2E-03	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	7.30E-01	6E-08
	Benzo[k]fluoranthene	207089	2.00E-04	6.00E-03	2.00E-02	6E-05	4.29E-04	7.30E-02	6E-09
	Chrysene	218019	4.00E-04	6.00E-03	2.00E-02	1E-04	4.29E-04	7.30E-03	1E-09
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	2.16E-02	6.00E-03	4.00E-03	3E-02	4.29E-04	--	--
	Fluoranthene	206440	3.40E-03	6.00E-03	4.00E-02	5E-04	4.29E-04	--	--
	Fluorene	86737	3.55E-02	6.00E-03	4.00E-02	5E-03	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	4.31E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	--	--
	Phenanthrene	85018	8.04E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	--	--
	Pyrene	129000	3.72E-03	6.00E-03	3.00E-02	7E-04	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	9.00E-03	6.00E-03	5.00E-03	1E-02	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.30E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	1.40E-02	8E-08
	Carbazole	86748	1.00E-03	6.00E-03	--	--	4.29E-04	2.00E-02	9E-09
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	ND	6.00E-03	9.00E-03	--	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	ND	6.00E-03	3.00E-03	--	4.29E-04	5.50E-02	--
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	6.00E-03	1.00E-02	--	4.29E-04	--	--
	Dichloromethane	75092	1.30E-03	6.00E-03	6.00E-02	1E-04	4.29E-04	7.50E-03	4E-09
	Ethylbenzene	100414	6.50E-03	6.00E-03	1.00E-01	4E-04	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	3.90E-03	6.00E-03	2.00E-01	1E-04	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	ND	6.00E-03	3.00E-03	--	4.29E-04	7.20E-01	--
	Xylenes (Total)	1330207	2.60E-02	6.00E-03	2.00E+00	8E-05	4.29E-04	--	--
					Total	1E-01		Total	2E-07

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 38	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.38E-02	6.00E-03	3.00E-04	3E-01	4.29E-04	1.50E+00	9E-06
	Barium	7440393	5.47E-01	6.00E-03	7.00E-02	5E-02	4.29E-04	--	--
	Cadmium	7440439_W	1.34E-03	6.00E-03	5.00E-04	2E-02	4.29E-04	--	--
	Chromium	18540299_VI	1.81E-02	6.00E-03	3.00E-03	4E-02	4.29E-04	--	--
	Manganese	7439965_NF	1.13E+00	6.00E-03	2.00E-02	3E-01	4.29E-04	--	--
	Mercury	7439976	5.40E-05	6.00E-03	3.00E-04	1E-03	4.29E-04	--	--
	Selenium	7782492	8.64E-03	6.00E-03	5.00E-03	1E-02	4.29E-04	--	--
	Silver	7440224	6.78E-03	6.00E-03	5.00E-03	8E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	6.50E-01	6.00E-03	2.00E-02	2E-01	4.29E-04	--	--
	Acenaphthene	83329	1.45E-02	6.00E-03	6.00E-02	1E-03	4.29E-04	--	--
	Benzo[a]anthracene	56553	1.20E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	7.30E-01	4E-06
	Benzo[a]pyrene	50328	6.20E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	7.30E+00	2E-05
	Benzo[b]fluoranthene	205992	1.00E-02	6.00E-03	2.00E-02	3E-03	4.29E-04	7.30E-01	3E-06
	Benzo[k]fluoranthene	207089	4.80E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	7.30E-02	2E-07
	Chrysene	218019	1.36E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	7.30E-03	4E-08
	Dibenz[a,h]anthracene	53703	3.00E-04	6.00E-03	2.00E-02	9E-05	4.29E-04	7.30E+00	9E-07
	Dibenzofuran	132649	6.68E-02	6.00E-03	4.00E-03	1E-01	4.29E-04	--	--
	Fluoranthene	206440	1.40E-02	6.00E-03	4.00E-02	2E-03	4.29E-04	--	--
	Fluorene	86737	1.80E-02	6.00E-03	4.00E-02	3E-03	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.00E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	7.30E-01	6E-07
	Naphthalene	91203	7.72E-02	6.00E-03	2.00E-02	2E-02	4.29E-04	--	--
	Phenanthrene	85018	4.77E-02	6.00E-03	2.00E-02	1E-02	4.29E-04	--	--
	Pyrene	129000	1.01E-02	6.00E-03	3.00E-02	2E-03	4.29E-04	--	--
	Aroclor-1260	11096825	ND	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	1.38E-02	6.00E-03	3.00E-02	3E-03	4.29E-04	2.40E-02	1E-07
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.81E-02	6.00E-03	2.00E-02	1E-02	4.29E-04	1.40E-02	2E-07
	Carbazole	86748	1.27E-02	6.00E-03	--	--	4.29E-04	2.00E-02	1E-07
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	6.00E-03	3.00E-02	6E-04	4.29E-04	1.20E-01	2E-07
	1,1,1-Trichloroethane	71556	3.17E-01	6.00E-03	2.80E-01	7E-03	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	3.07E-03	6.00E-03	4.00E-03	5E-03	4.29E-04	5.70E-02	8E-08
	1,1-Dichloroethane	75343	1.30E-01	6.00E-03	1.00E-01	8E-03	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	1.00E-03	6.00E-03	3.00E-02	2E-04	4.29E-04	9.10E-02	4E-08
	1,2-Dichloroethene	540590	4.37E-01	6.00E-03	9.00E-03	3E-01	4.29E-04	--	--
	Acetone	67641	6.59E-03	6.00E-03	1.00E-01	4E-04	4.29E-04	--	--
	Benzene	71432	1.00E-02	6.00E-03	3.00E-03	2E-02	4.29E-04	5.50E-02	2E-07
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	3.13E-02	6.00E-03	4.00E-01	5E-04	4.29E-04	2.90E-03	4E-08
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	7.25E-01	6.00E-03	1.00E-02	4E-01	4.29E-04	--	--
	Dichloromethane	75092	2.43E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	8E-09
	Ethylbenzene	100414	4.14E-02	6.00E-03	1.00E-01	2E-03	4.29E-04	--	--
	Tetrachloroethene	127184	3.40E-03	6.00E-03	1.00E-02	2E-03	4.29E-04	5.20E-02	8E-08
	Toluene	108883	1.37E-02	6.00E-03	2.00E-01	4E-04	4.29E-04	--	--
	Trichloroethene	79016	3.63E-02	6.00E-03	3.00E-04	7E-01	4.29E-04	1.10E-02	2E-07
	Vinyl Chloride	75014_A	6.95E-02	6.00E-03	3.00E-03	1E-01	4.29E-04	7.20E-01	2E-05
	Xylenes (Total)	1330207	5.61E-02	6.00E-03	2.00E+00	2E-04	4.29E-04	--	--
					Total	**3E+00**		Total	6E-05
AOI SPRR3	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	--	6.00E-03	3.00E-04	--	4.29E-04	1.50E+00	--
	Barium	7440393	--	6.00E-03	7.00E-02	--	4.29E-04	--	--
	Cadmium	7440439_W	--	6.00E-03	5.00E-04	--	4.29E-04	--	--
	Chromium	18540299_VI	--	6.00E-03	3.00E-03	--	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	--	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	Silver	7440224	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	2-Methylnaphthalene	91576	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	--	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	--	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	--	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	--	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	3.60E-01	6.00E-03	2.00E-02	1E-01	4.29E-04	--	--
	Phenanthrene	85018	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	--	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	--	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	--	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	--	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	--	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	--	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	--	6.00E-03	2.00E-02	--	4.29E-04	1.40E-02	--
	Carbazole	86748	--	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	--	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	--	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	7.80E-02	6.00E-03	2.80E-01	2E-03	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	2.90E-01	6.00E-03	1.00E-01	2E-02	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	2.70E-01	6.00E-03	9.00E-03	2E-01	4.29E-04	--	--
	Acetone	67641	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Benzene	71432	5.20E-02	6.00E-03	3.00E-03	1E-01	4.29E-04	5.50E-02	1E-06
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	2.30E-01	6.00E-03	4.00E-01	3E-03	4.29E-04	2.90E-03	3E-07
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	2.70E-01	6.00E-03	1.00E-02	2E-01	4.29E-04	--	--
	Dichloromethane	75092	9.60E-03	6.00E-03	6.00E-02	1E-03	4.29E-04	7.50E-03	3E-08
	Ethylbenzene	100414	1.50E-01	6.00E-03	1.00E-01	9E-03	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	1.20E-01	6.00E-03	2.00E-01	4E-03	4.29E-04	--	--
	Trichloroethene	79016	1.00E-03	6.00E-03	3.00E-04	2E-02	4.29E-04	1.10E-02	5E-09
	Vinyl Chloride	75014_A	3.30E-01	6.00E-03	3.00E-03	7E-01	4.29E-04	7.20E-01	1E-04
	Xylenes (Total)	1330207	9.30E-01	6.00E-03	2.00E+00	3E-03	4.29E-04	--	--
					Total	1E+00		Total	1E-04

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 22B	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	7.81E-03	6.00E-03	3.00E-04	2E-01	4.29E-04	1.50E+00	5E-06
	Barium	7440393	4.07E-01	6.00E-03	7.00E-02	3E-02	4.29E-04	--	--
	Cadmium	7440439_W	6.70E-04	6.00E-03	5.00E-04	8E-03	4.29E-04	--	--
	Chromium	18540299_VI	2.30E-02	6.00E-03	3.00E-03	5E-02	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	3.38E-02	6.00E-03	5.00E-03	4E-02	4.29E-04	--	--
	Silver	7440224	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	2.30E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	ND	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	2.00E-04	6.00E-03	4.00E-02	3E-05	4.29E-04	--	--
	Fluorene	86737	1.00E-03	6.00E-03	4.00E-02	2E-04	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	3.00E-04	6.00E-03	2.00E-02	9E-05	4.29E-04	--	--
	Pyrene	129000	3.00E-04	6.00E-03	3.00E-02	6E-05	4.29E-04	--	--
	Aroclor-1260	11096825	ND	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.40E-03	6.00E-03	3.00E-02	9E-04	4.29E-04	2.40E-02	5E-08
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	4.00E-04	6.00E-03	5.00E-03	5E-04	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	2.00E-03	6.00E-03	2.00E-02	6E-04	4.29E-04	1.40E-02	1E-08
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	2.00E-03	6.00E-03	3.00E-02	4E-04	4.29E-04	1.20E-01	1E-07
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	1.17E-01	6.00E-03	9.00E-03	8E-02	4.29E-04	--	--
	Acetone	67641	1.17E-02	6.00E-03	1.00E-01	7E-04	4.29E-04	--	--
	Benzene	71432	7.00E-04	6.00E-03	3.00E-03	1E-03	4.29E-04	5.50E-02	2E-08
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-02	6.00E-03	1.00E-02	2E-02	4.29E-04	--	--
	Dichloromethane	75092	2.30E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	7E-09
	Ethylbenzene	100414	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	ND	6.00E-03	2.00E-01	--	4.29E-04	--	--
	Trichloroethene	79016	3.24E-03	6.00E-03	3.00E-04	6E-02	4.29E-04	1.10E-02	2E-08
	Vinyl Chloride	75014_A	3.42E-01	6.00E-03	3.00E-03	7E-01	4.29E-04	7.20E-01	1E-04
	Xylenes (Total)	1330207	1.40E-03	6.00E-03	2.00E+00	4E-06	4.29E-04	--	--
					Total	1E+00		Total	1E-04
AOI 26	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	1.21E-02	6.00E-03	3.00E-04	2E-01	4.29E-04	1.50E+00	8E-06
	Barium	7440393	2.68E-01	6.00E-03	7.00E-02	2E-02	4.29E-04	--	--
	Cadmium	7440439_W	4.10E-03	6.00E-03	5.00E-04	5E-02	4.29E-04	--	--
	Chromium	18540299_VI	2.70E-03	6.00E-03	3.00E-03	5E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	1.90E-03	6.00E-03	3.00E-04	4E-02	4.29E-04	--	--
	Selenium	7782492	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	Silver	7440224	2.40E-03	6.00E-03	5.00E-03	3E-03	4.29E-04	--	--
	2-Methylnaphthalene	91576	9.72E-03	6.00E-03	2.00E-02	3E-03	4.29E-04	--	--
	Acenaphthene	83329	8.04E-03	6.00E-03	6.00E-02	8E-04	4.29E-04	--	--
	Benzo[a]anthracene	56553	4.61E-03	6.00E-03	2.00E-02	1E-03	4.29E-04	7.30E-01	1E-06
	Benzo[a]pyrene	50328	1.10E-03	6.00E-03	2.00E-02	3E-04	4.29E-04	7.30E+00	3E-06
	Benzo[b]fluoranthene	205992	2.30E-03	6.00E-03	2.00E-02	7E-04	4.29E-04	7.30E-01	7E-07
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	6.28E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	7.30E-03	2E-08
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	5.35E-03	6.00E-03	4.00E-03	8E-03	4.29E-04	--	--
	Fluoranthene	206440	4.51E-03	6.00E-03	4.00E-02	7E-04	4.29E-04	--	--
	Fluorene	86737	9.15E-03	6.00E-03	4.00E-02	1E-03	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	1.50E-03	6.00E-03	2.00E-02	5E-04	4.29E-04	7.30E-01	5E-07
	Naphthalene	91203	7.69E-03	6.00E-03	2.00E-02	2E-03	4.29E-04	--	--
	Phenanthrene	85018	1.37E-02	6.00E-03	2.00E-02	4E-03	4.29E-04	--	--
	Pyrene	129000	8.11E-03	6.00E-03	3.00E-02	2E-03	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	1.50E-03	6.00E-03	5.00E-03	2E-03	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.90E-02	6.00E-03	2.00E-02	3E-02	4.29E-04	1.40E-02	6E-07
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	6.00E-03	2.80E-01	--	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	ND	6.00E-03	1.00E-01	--	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	1.80E-03	6.00E-03	9.00E-03	1E-03	4.29E-04	--	--
	Acetone	67641	7.21E-03	6.00E-03	1.00E-01	4E-04	4.29E-04	--	--
	Benzene	71432	1.20E-03	6.00E-03	3.00E-03	2E-03	4.29E-04	5.50E-02	3E-08
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.00E-03	6.00E-03	1.00E-02	6E-04	4.29E-04	--	--
	Dichloromethane	75092	1.70E-03	6.00E-03	6.00E-02	2E-04	4.29E-04	7.50E-03	5E-09
	Ethylbenzene	100414	2.40E-03	6.00E-03	1.00E-01	1E-04	4.29E-04	--	--
	Tetrachloroethene	127184	ND	6.00E-03	1.00E-02	--	4.29E-04	5.20E-02	--
	Toluene	108883	1.40E-03	6.00E-03	2.00E-01	4E-05	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	5.37E-03	6.00E-03	3.00E-03	1E-02	4.29E-04	7.20E-01	2E-06
	Xylenes (Total)	1330207	3.76E-03	6.00E-03	2.00E+00	1E-05	4.29E-04	--	--
					Total	4E-01		Total	2E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI SPRR5	Antimony	7440360	--	6.00E-03	4.00E-04	--	4.29E-04	--	--
	Arsenic	7440382	3.00E-03	6.00E-03	3.00E-04	6E-02	4.29E-04	1.50E+00	2E-06
	Barium	7440393	1.49E-01	6.00E-03	7.00E-02	1E-02	4.29E-04	--	--
	Cadmium	7440439_W	7.70E-04	6.00E-03	5.00E-04	9E-03	4.29E-04	--	--
	Chromium	18540299_VI	1.40E-03	6.00E-03	3.00E-03	3E-03	4.29E-04	--	--
	Manganese	7439965_NF	--	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Mercury	7439976	ND	6.00E-03	3.00E-04	--	4.29E-04	--	--
	Selenium	7782492	5.00E-03	6.00E-03	5.00E-03	6E-03	4.29E-04	--	--
	Silver	7440224	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	2-Methylnaphthalene	91576	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Acenaphthene	83329	ND	6.00E-03	6.00E-02	--	4.29E-04	--	--
	Benzo[a]anthracene	56553	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-02	--
	Chrysene	218019	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E+00	--
	Dibenzofuran	132649	--	6.00E-03	4.00E-03	--	4.29E-04	--	--
	Fluoranthene	206440	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Fluorene	86737	ND	6.00E-03	4.00E-02	--	4.29E-04	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.00E-03	2.00E-02	--	4.29E-04	7.30E-01	--
	Naphthalene	91203	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Phenanthrene	85018	ND	6.00E-03	2.00E-02	--	4.29E-04	--	--
	Pyrene	129000	ND	6.00E-03	3.00E-02	--	4.29E-04	--	--
	Aroclor-1260	11096825	--	6.00E-03	2.00E-05	--	4.29E-04	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	6.00E-03	3.00E-02	--	4.29E-04	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	6.00E-03	1.00E-03	--	4.29E-04	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	6.00E-03	1.00E-04	--	4.29E-04	--	--
	4-Methylphenol (p-Cresol)	106445	ND	6.00E-03	5.00E-03	--	4.29E-04	--	--
	bis(2-Chloroethyl)ether	111444	ND	6.00E-03	--	--	4.29E-04	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	6.00E-03	2.00E-02	--	4.29E-04	1.40E-02	--
	Carbazole	86748	ND	6.00E-03	--	--	4.29E-04	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	6.00E-03	--	--	4.29E-04	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	6.00E-03	3.00E-02	--	4.29E-04	1.20E-01	--
	1,1,1-Trichloroethane	71556	4.00E-03	6.00E-03	2.80E-01	9E-05	4.29E-04	--	--
	1,1,2-Trichloroethane	79005	ND	6.00E-03	4.00E-03	--	4.29E-04	5.70E-02	--
	1,1-Dichloroethane	75343	8.61E-02	6.00E-03	1.00E-01	5E-03	4.29E-04	--	--
	1,2,3-Trichloropropane	96184	ND	6.00E-03	6.00E-03	--	4.29E-04	2.00E+00	--
	1,2-Dichloroethane	107062	ND	6.00E-03	3.00E-02	--	4.29E-04	9.10E-02	--
	1,2-Dichloroethene	540590	6.09E-02	6.00E-03	9.00E-03	4E-02	4.29E-04	--	--
	Acetone	67641	6.00E-03	6.00E-03	1.00E-01	4E-04	4.29E-04	--	--
	Benzene	71432	6.05E-01	6.00E-03	3.00E-03	1E+00	4.29E-04	5.50E-02	1E-05
	Chlorodibromomethane	124481	ND	6.00E-03	2.00E-02	--	4.29E-04	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	6.00E-03	4.00E-01	--	4.29E-04	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	6.00E-03	--	--	4.29E-04	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.03E-03	6.00E-03	1.00E-02	2E-03	4.29E-04	--	--
	Dichloromethane	75092	2.96E-02	6.00E-03	6.00E-02	3E-03	4.29E-04	7.50E-03	1E-07
	Ethylbenzene	100414	9.45E-01	6.00E-03	1.00E-01	6E-02	4.29E-04	--	--
	Tetrachloroethene	127184	2.00E-03	6.00E-03	1.00E-02	1E-03	4.29E-04	5.20E-02	4E-08
	Toluene	108883	2.47E+00	6.00E-03	2.00E-01	7E-02	4.29E-04	--	--
	Trichloroethene	79016	ND	6.00E-03	3.00E-04	--	4.29E-04	1.10E-02	--
	Vinyl Chloride	75014_A	9.47E-02	6.00E-03	3.00E-03	2E-01	4.29E-04	7.20E-01	3E-05
	Xylenes (Total)	1330207	7.90E+00	6.00E-03	2.00E+00	2E-02	4.29E-04	--	--
					Total	**2E+00**		Total	5E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 1	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	--	9.78E-03	3.00E-04	--	3.49E-03	1.50E+00	--
	Barium	7440393	--	9.78E-03	7.00E-02	--	3.49E-03	--	--
	Cadmium	7440439_W	--	9.78E-03	5.00E-04	--	3.49E-03	--	--
	Chromium	18540299_VI	--	9.78E-03	3.00E-03	--	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	--	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	Silver	7440224	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	2-Methylnaphthalene	91576	4.50E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	ND	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	9.78E-03	2.00E-02	--	3.49E-03	1.40E-02	--
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	3.70E-03	9.78E-03	6.00E-02	6E-04	3.49E-03	7.50E-03	1E-07
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	3E-03		Total	1E-07
AOI 12	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	8.60E-03	9.78E-03	3.00E-04	3E-01	3.49E-03	1.50E+00	5E-05
	Barium	7440393	4.01E-01	9.78E-03	7.00E-02	6E-02	3.49E-03	--	--
	Cadmium	7440439_W	4.70E-03	9.78E-03	5.00E-04	9E-02	3.49E-03	--	--
	Chromium	18540299_VI	3.15E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	2.40E-05	9.78E-03	3.00E-04	8E-04	3.49E-03	--	--
	Selenium	7782492	1.96E-02	9.78E-03	5.00E-03	4E-02	3.49E-03	--	--
	Silver	7440224	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	1.00E-04	9.78E-03	4.00E-02	2E-05	3.49E-03	--	--
	Fluorene	86737	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	1.00E-04	9.78E-03	3.00E-02	3E-05	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.90E-02	9.78E-03	2.00E-02	3E-02	3.49E-03	1.40E-02	3E-06
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	1.80E-03	9.78E-03	3.00E-02	6E-04	3.49E-03	1.20E-01	8E-07
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	1.00E-03	9.78E-03	4.00E-03	2E-03	3.49E-03	5.70E-02	2E-07
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	ND	9.78E-03	6.00E-02	--	3.49E-03	7.50E-03	--
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	5E-01		Total	5E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 13	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	6.40E-02	9.78E-03	3.00E-04	**2E+00**	3.49E-03	1.50E+00	**3E-04**
	Barium	7440393	1.60E+00	9.78E-03	7.00E-02	2E-01	3.49E-03	--	--
	Cadmium	7440439_W	6.70E-03	9.78E-03	5.00E-04	1E-01	3.49E-03	--	--
	Chromium	18540299_VI	2.30E-01	9.78E-03	3.00E-03	8E-01	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	Silver	7440224	1.20E-02	9.78E-03	5.00E-03	2E-02	3.49E-03	--	--
	2-Methylnaphthalene	91576	1.30E+00	9.78E-03	2.00E-02	6E-01	3.49E-03	--	--
	Acenaphthene	83329	6.23E-03	9.78E-03	6.00E-02	1E-03	3.49E-03	--	--
	Benzo[a]anthracene	56553	1.00E-04	9.78E-03	2.00E-02	5E-05	3.49E-03	7.30E-01	3E-07
	Benzo[a]pyrene	50328	1.00E-04	9.78E-03	2.00E-02	5E-05	3.49E-03	7.30E+00	3E-06
	Benzo[b]fluoranthene	205992	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-01	5E-07
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	1.00E-04	9.78E-03	2.00E-02	5E-05	3.49E-03	7.30E-03	3E-09
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	5.20E-03	9.78E-03	4.00E-02	1E-03	3.49E-03	--	--
	Fluorene	86737	9.15E-03	9.78E-03	4.00E-02	2E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	7.63E-02	9.78E-03	2.00E-02	4E-02	3.49E-03	--	--
	Phenanthrene	85018	4.32E-02	9.78E-03	2.00E-02	2E-02	3.49E-03	--	--
	Pyrene	129000	4.95E-03	9.78E-03	3.00E-02	2E-03	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	7.40E-03	9.78E-03	1.00E-03	7E-02	3.49E-03	6.80E-01	2E-05
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.10E-01	9.78E-03	2.00E-02	2E-01	3.49E-03	1.40E-02	2E-05
	Carbazole	86748	1.00E-03	9.78E-03	--	--	3.49E-03	2.00E-02	7E-08
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	2.00E-03	9.78E-03	1.00E-01	2E-04	3.49E-03	--	--
	Benzene	71432	2.49E-02	9.78E-03	3.00E-03	8E-02	3.49E-03	5.50E-02	5E-06
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	4.84E-03	9.78E-03	6.00E-02	8E-04	3.49E-03	7.50E-03	1E-07
	Ethylbenzene	100414	2.68E-02	9.78E-03	1.00E-01	3E-03	3.49E-03	--	--
	Tetrachloroethene	127184	1.90E-03	9.78E-03	1.00E-02	2E-03	3.49E-03	5.20E-02	3E-07
	Toluene	108883	2.60E-03	9.78E-03	2.00E-01	1E-04	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	1.47E-02	9.78E-03	2.00E+00	7E-05	3.49E-03	--	--
					Total	**4E+00**		Total	**4E-04**
AOI 18	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	3.80E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.50E+00	2E-05
	Barium	7440393	1.07E-01	9.78E-03	7.00E-02	1E-02	3.49E-03	--	--
	Cadmium	7440439_W	1.80E-03	9.78E-03	5.00E-04	4E-02	3.49E-03	--	--
	Chromium	18540299_VI	1.50E-03	9.78E-03	3.00E-03	5E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	5.20E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	3.00E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	3.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	ND	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	7.00E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	1.40E-02	3E-07
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	6.20E-02	9.78E-03	2.80E-01	2E-03	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	1.00E-03	9.78E-03	1.00E-01	1E-04	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	9.94E-04	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	3E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	2E-01		Total	2E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 19	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	ND	9.78E-03	3.00E-04	--	3.49E-03	1.50E+00	--
	Barium	7440393	4.56E-01	9.78E-03	7.00E-02	6E-02	3.49E-03	--	--
	Cadmium	7440439_W	ND	9.78E-03	5.00E-04	--	3.49E-03	--	--
	Chromium	18540299_VI	5.80E-04	9.78E-03	3.00E-03	2E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	2.34E-02	9.78E-03	5.00E-03	5E-02	3.49E-03	--	--
	Silver	7440224	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	2.00E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	--	--
	Acenaphthene	83329	8.00E-04	9.78E-03	6.00E-02	1E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	1.00E-03	9.78E-03	4.00E-02	2E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	--	--
	Pyrene	129000	ND	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	1.40E-02	1E-08
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	ND	9.78E-03	6.00E-02	--	3.49E-03	7.50E-03	--
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	1E-01		Total	1E-08
AOI 20	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.46E-02	9.78E-03	3.00E-04	5E-01	3.49E-03	1.50E+00	8E-05
	Barium	7440393	3.91E-01	9.78E-03	7.00E-02	5E-02	3.49E-03	--	--
	Cadmium	7440439_W	3.90E-03	9.78E-03	5.00E-04	8E-02	3.49E-03	--	--
	Chromium	18540299_VI	2.03E-02	9.78E-03	3.00E-03	7E-02	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	3.60E-05	9.78E-03	3.00E-04	1E-03	3.49E-03	--	--
	Selenium	7782492	4.00E-03	9.78E-03	5.00E-03	8E-03	3.49E-03	--	--
	Silver	7440224	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	6.58E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	--	--
	Acenaphthene	83329	3.00E-03	9.78E-03	6.00E-02	5E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	1.50E-03	9.78E-03	4.00E-02	4E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	1.30E-03	9.78E-03	2.00E-02	6E-04	3.49E-03	--	--
	Phenanthrene	85018	1.40E-03	9.78E-03	2.00E-02	7E-04	3.49E-03	--	--
	Pyrene	129000	5.00E-05	9.78E-03	3.00E-02	2E-05	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.00E-04	9.78E-03	3.00E-02	1E-04	3.49E-03	2.40E-02	3E-08
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	4.80E-02	9.78E-03	2.00E-02	2E-02	3.49E-03	1.40E-02	2E-06
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	7.46E-03	9.78E-03	1.00E-01	7E-04	3.49E-03	--	--
	Benzene	71432	6.00E-04	9.78E-03	3.00E-03	2E-03	3.49E-03	5.50E-02	1E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	1.40E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	4E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	1.60E-03	9.78E-03	2.00E-01	8E-05	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	6.00E-04	9.78E-03	3.00E-03	2E-03	3.49E-03	7.20E-01	2E-06
	Xylenes (Total)	1330207	1.00E-03	9.78E-03	2.00E+00	5E-06	3.49E-03	--	--
					Total	7E-01		Total	8E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 21	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.76E-02	9.78E-03	3.00E-04	6E-01	3.49E-03	1.50E+00	9E-05
	Barium	7440393	2.33E-01	9.78E-03	7.00E-02	3E-02	3.49E-03	--	--
	Cadmium	7440439_W	5.30E-03	9.78E-03	5.00E-04	1E-01	3.49E-03	--	--
	Chromium	18540299_VI	3.21E-02	9.78E-03	3.00E-03	1E-01	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	9.90E-05	9.78E-03	3.00E-04	3E-03	3.49E-03	--	--
	Selenium	7782492	8.20E-03	9.78E-03	5.00E-03	2E-02	3.49E-03	--	--
	Silver	7440224	3.10E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	4.49E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Acenaphthene	83329	3.10E-03	9.78E-03	6.00E-02	5E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-01	5E-07
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	3.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-03	8E-09
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	5.00E-04	9.78E-03	4.00E-02	1E-04	3.49E-03	--	--
	Fluorene	86737	3.52E-03	9.78E-03	4.00E-02	9E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	2.46E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	--	--
	Pyrene	129000	4.00E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	5.00E-03	9.78E-03	1.00E-04	5E-01	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	6.86E-02	9.78E-03	2.00E-02	3E-02	3.49E-03	1.40E-02	3E-06
	Carbazole	86748	1.00E-03	9.78E-03	--	--	3.49E-03	2.00E-02	7E-08
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	7.00E-04	9.78E-03	3.00E-02	2E-04	3.49E-03	1.20E-01	3E-07
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.16E-01	9.78E-03	9.00E-03	1E-01	3.49E-03	--	--
	Acetone	67641	2.40E-03	9.78E-03	1.00E-01	2E-04	3.49E-03	--	--
	Benzene	71432	4.24E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	5.50E-02	8E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	3.92E-03	9.78E-03	--	--	3.49E-03	1.30E-02	2E-07
	cis-1,2-Dichloroethene	156592	1.20E-01	9.78E-03	1.00E-02	1E-01	3.49E-03	--	--
	Dichloromethane	75092	ND	9.78E-03	6.00E-02	--	3.49E-03	7.50E-03	--
	Ethylbenzene	100414	5.00E-04	9.78E-03	1.00E-01	5E-05	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	3.42E-03	9.78E-03	2.00E-01	2E-04	3.49E-03	--	--
	Trichloroethene	79016	5.48E-03	9.78E-03	3.00E-04	2E-01	3.49E-03	1.10E-02	2E-07
	Vinyl Chloride	75014_A	5.09E-02	9.78E-03	3.00E-03	2E-01	3.49E-03	7.20E-01	1E-04
	Xylenes (Total)	1330207	1.00E-03	9.78E-03	2.00E+00	5E-06	3.49E-03	--	--
					Total	**2E+00**		Total	**2E-04**
AOI 22A	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.66E-02	9.78E-03	3.00E-04	5E-01	3.49E-03	1.50E+00	9E-05
	Barium	7440393	4.57E-01	9.78E-03	7.00E-02	6E-02	3.49E-03	--	--
	Cadmium	7440439_W	5.12E-04	9.78E-03	5.00E-04	1E-02	3.49E-03	--	--
	Chromium	18540299_VI	3.10E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	--	--
	Manganese	7439965_NF	1.02E+00	9.78E-03	2.00E-02	5E-01	3.49E-03	--	--
	Mercury	7439976	6.40E-04	9.78E-03	3.00E-04	2E-02	3.49E-03	--	--
	Selenium	7782492	5.90E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	3.20E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	1.48E-02	9.78E-03	2.00E-02	7E-03	3.49E-03	--	--
	Acenaphthene	83329	4.93E-03	9.78E-03	6.00E-02	8E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	9.40E-03	9.78E-03	4.00E-03	2E-02	3.49E-03	--	--
	Fluoranthene	206440	2.26E-03	9.78E-03	4.00E-02	6E-04	3.49E-03	--	--
	Fluorene	86737	6.84E-03	9.78E-03	4.00E-02	2E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	2.42E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	--	--
	Phenanthrene	85018	1.07E-02	9.78E-03	2.00E-02	5E-03	3.49E-03	--	--
	Pyrene	129000	3.46E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	--	--
	Aroclor-1260	11096825	ND	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	2.00E-03	9.78E-03	5.00E-03	4E-03	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	9.78E-03	2.00E-02	4E-03	3.49E-03	1.40E-02	4E-07
	Carbazole	86748	4.00E-03	9.78E-03	--	--	3.49E-03	2.00E-02	3E-07
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	2.62E-01	9.78E-03	2.80E-01	9E-03	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	3.00E-03	9.78E-03	4.00E-03	7E-03	3.49E-03	5.70E-02	6E-07
	1,1-Dichloroethane	75343	2.00E+00	9.78E-03	1.00E-01	2E-01	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	1.50E-02	9.78E-03	6.00E-03	2E-02	3.49E-03	2.00E+00	1E-04
	1,2-Dichloroethane	107062	2.00E-03	9.78E-03	3.00E-02	7E-04	3.49E-03	9.10E-02	6E-07
	1,2-Dichloroethene	540590	3.70E+00	9.78E-03	9.00E-03	**4E+00**	3.49E-03	--	--
	Acetone	67641	1.30E-02	9.78E-03	1.00E-01	1E-03	3.49E-03	--	--
	Benzene	71432	1.18E-02	9.78E-03	3.00E-03	4E-02	3.49E-03	5.50E-02	2E-06
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.70E-01	9.78E-03	4.00E-01	4E-03	3.49E-03	2.90E-03	2E-06
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.70E+00	9.78E-03	1.00E-02	**4E+00**	3.49E-03	--	--
	Dichloromethane	75092	1.50E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	4E-08
	Ethylbenzene	100414	1.03E-02	9.78E-03	1.00E-01	1E-03	3.49E-03	--	--
	Tetrachloroethene	127184	7.00E-04	9.78E-03	1.00E-02	7E-04	3.49E-03	5.20E-02	1E-07
	Toluene	108883	4.90E-03	9.78E-03	2.00E-01	2E-04	3.49E-03	--	--
	Trichloroethene	79016	4.00E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.10E-02	2E-07
	Vinyl Chloride	75014_A	2.30E+00	9.78E-03	3.00E-03	**8E+00**	3.49E-03	7.20E-01	**6E-03**
	Xylenes (Total)	1330207	7.00E-03	9.78E-03	2.00E+00	3E-05	3.49E-03	--	--
					Total	**2E+01**		Total	**6E-03**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 22B	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	7.81E-03	9.78E-03	3.00E-04	3E-01	3.49E-03	1.50E+00	4E-05
	Barium	7440393	4.07E-01	9.78E-03	7.00E-02	6E-02	3.49E-03	--	--
	Cadmium	7440439_W	6.70E-04	9.78E-03	5.00E-04	1E-02	3.49E-03	--	--
	Chromium	18540299_VI	2.30E-02	9.78E-03	3.00E-03	8E-02	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	3.38E-02	9.78E-03	5.00E-03	7E-02	3.49E-03	--	--
	Silver	7440224	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	2.30E-03	9.78E-03	6.00E-02	4E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	2.00E-04	9.78E-03	4.00E-02	5E-05	3.49E-03	--	--
	Fluorene	86737	1.00E-03	9.78E-03	4.00E-02	2E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	3.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	--	--
	Pyrene	129000	3.00E-04	9.78E-03	3.00E-02	1E-04	3.49E-03	--	--
	Aroclor-1260	11096825	ND	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.40E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	2.40E-02	4E-07
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	4.00E-04	9.78E-03	5.00E-03	8E-04	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	2.00E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	1.40E-02	1E-07
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	2.00E-03	9.78E-03	3.00E-02	7E-04	3.49E-03	1.20E-01	8E-07
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.17E-01	9.78E-03	9.00E-03	1E-01	3.49E-03	--	--
	Acetone	67641	1.17E-02	9.78E-03	1.00E-01	1E-03	3.49E-03	--	--
	Benzene	71432	7.00E-04	9.78E-03	3.00E-03	2E-03	3.49E-03	5.50E-02	1E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-02	9.78E-03	1.00E-02	3E-02	3.49E-03	--	--
	Dichloromethane	75092	2.30E-03	9.78E-03	6.00E-02	4E-04	3.49E-03	7.50E-03	6E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	3.24E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.10E-02	1E-07
	Vinyl Chloride	75014_A	3.42E-01	9.78E-03	3.00E-03	1E+00	3.49E-03	7.20E-01	**9E-04**
	Xylenes (Total)	1330207	1.40E-03	9.78E-03	2.00E+00	7E-06	3.49E-03	--	--
					Total	**2E+00**		Total	**9E-04**
AOI 26	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.21E-02	9.78E-03	3.00E-04	4E-01	3.49E-03	1.50E+00	6E-05
	Barium	7440393	2.68E-01	9.78E-03	7.00E-02	4E-02	3.49E-03	--	--
	Cadmium	7440439_W	4.10E-03	9.78E-03	5.00E-04	8E-02	3.49E-03	--	--
	Chromium	18540299_VI	2.70E-03	9.78E-03	3.00E-03	9E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	1.90E-03	9.78E-03	3.00E-04	6E-02	3.49E-03	--	--
	Selenium	7782492	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	Silver	7440224	2.40E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	9.72E-03	9.78E-03	2.00E-02	5E-03	3.49E-03	--	--
	Acenaphthene	83329	8.04E-03	9.78E-03	6.00E-02	1E-03	3.49E-03	--	--
	Benzo[a]anthracene	56553	4.61E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	7.30E-01	1E-05
	Benzo[a]pyrene	50328	1.10E-03	9.78E-03	2.00E-02	5E-04	3.49E-03	7.30E+00	3E-05
	Benzo[b]fluoranthene	205992	2.30E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-01	6E-06
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	6.28E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	7.30E-03	2E-07
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	5.35E-03	9.78E-03	4.00E-03	1E-02	3.49E-03	--	--
	Fluoranthene	206440	4.51E-03	9.78E-03	4.00E-02	1E-03	3.49E-03	--	--
	Fluorene	86737	9.15E-03	9.78E-03	4.00E-02	2E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	1.50E-03	9.78E-03	2.00E-02	7E-04	3.49E-03	7.30E-01	4E-06
	Naphthalene	91203	7.69E-03	9.78E-03	2.00E-02	4E-03	3.49E-03	--	--
	Phenanthrene	85018	1.37E-02	9.78E-03	2.00E-02	7E-03	3.49E-03	--	--
	Pyrene	129000	8.11E-03	9.78E-03	3.00E-02	3E-03	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	1.50E-03	9.78E-03	5.00E-03	3E-03	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.90E-02	9.78E-03	2.00E-02	5E-02	3.49E-03	1.40E-02	5E-06
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.80E-03	9.78E-03	9.00E-03	2E-03	3.49E-03	--	--
	Acetone	67641	7.21E-03	9.78E-03	1.00E-01	7E-04	3.49E-03	--	--
	Benzene	71432	1.20E-03	9.78E-03	3.00E-03	4E-03	3.49E-03	5.50E-02	2E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.00E-03	9.78E-03	1.00E-02	1E-03	3.49E-03	--	--
	Dichloromethane	75092	1.70E-03	9.78E-03	6.00E-02	3E-04	3.49E-03	7.50E-03	4E-08
	Ethylbenzene	100414	2.40E-03	9.78E-03	1.00E-01	2E-04	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	1.40E-03	9.78E-03	2.00E-01	7E-05	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	5.37E-03	9.78E-03	3.00E-03	2E-02	3.49E-03	7.20E-01	1E-05
	Xylenes (Total)	1330207	3.76E-03	9.78E-03	2.00E+00	2E-05	3.49E-03	--	--
					Total	7E-01		Total	1E-04

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 27	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	6.08E-03	9.78E-03	3.00E-04	2E-01	3.49E-03	1.50E+00	3E-05
	Barium	7440393	3.22E-01	9.78E-03	7.00E-02	5E-02	3.49E-03	--	--
	Cadmium	7440439_W	3.27E-03	9.78E-03	5.00E-04	6E-02	3.49E-03	--	--
	Chromium	18540299_VI	9.00E-02	9.78E-03	3.00E-03	3E-01	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	1.79E-02	9.78E-03	5.00E-03	3E-02	3.49E-03	--	--
	Silver	7440224	6.90E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	3.00E-04	9.78E-03	4.00E-02	7E-05	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	ND	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	1.00E-03	9.78E-03	--	--	3.49E-03	1.10E+00	4E-06
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	9.78E-03	2.00E-02	4E-03	3.49E-03	1.40E-02	4E-07
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.86E-03	9.78E-03	9.00E-03	3E-03	3.49E-03	--	--
	Acetone	67641	1.10E-02	9.78E-03	1.00E-01	1E-03	3.49E-03	--	--
	Benzene	71432	8.00E-04	9.78E-03	3.00E-03	3E-03	3.49E-03	5.50E-02	2E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-03	9.78E-03	1.00E-02	3E-03	3.49E-03	--	--
	Dichloromethane	75092	1.50E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	4E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	3.10E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.10E-02	1E-07
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	8E-01		Total	4E-05
AOI 30	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.91E-02	9.78E-03	3.00E-04	6E-01	3.49E-03	1.50E+00	1E-04
	Barium	7440393	7.65E-01	9.78E-03	7.00E-02	1E-01	3.49E-03	--	--
	Cadmium	7440439_W	3.07E-03	9.78E-03	5.00E-04	6E-02	3.49E-03	--	--
	Chromium	18540299_VI	4.23E-02	9.78E-03	3.00E-03	1E-01	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	4.80E-05	9.78E-03	3.00E-04	2E-03	3.49E-03	--	--
	Selenium	7782492	1.36E-02	9.78E-03	5.00E-03	3E-02	3.49E-03	--	--
	Silver	7440224	3.20E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	6.07E-01	9.78E-03	2.00E-02	3E-01	3.49E-03	--	--
	Acenaphthene	83329	9.24E-02	9.78E-03	6.00E-02	2E-02	3.49E-03	--	--
	Benzo[a]anthracene	56553	2.03E-02	9.78E-03	2.00E-02	1E-02	3.49E-03	7.30E-01	5E-05
	Benzo[a]pyrene	50328	2.80E-02	9.78E-03	2.00E-02	1E-02	3.49E-03	7.30E+00	**7E-04**
	Benzo[b]fluoranthene	205992	2.84E-02	9.78E-03	2.00E-02	1E-02	3.49E-03	7.30E-01	7E-05
	Benzo[k]fluoranthene	207089	2.69E-02	9.78E-03	2.00E-02	1E-02	3.49E-03	7.30E-02	7E-06
	Chrysene	218019	2.11E-02	9.78E-03	2.00E-02	1E-02	3.49E-03	7.30E-03	5E-07
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	4.10E-02	9.78E-03	4.00E-03	1E-01	3.49E-03	--	--
	Fluoranthene	206440	3.77E-02	9.78E-03	4.00E-02	9E-03	3.49E-03	--	--
	Fluorene	86737	1.14E-01	9.78E-03	4.00E-02	3E-02	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	6.52E-02	9.78E-03	2.00E-02	3E-02	3.49E-03	--	--
	Phenanthrene	85018	1.84E-01	9.78E-03	2.00E-02	9E-02	3.49E-03	--	--
	Pyrene	129000	4.26E-02	9.78E-03	3.00E-02	1E-02	3.49E-03	--	--
	Aroclor-1260	11096825	ND	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	2.40E-02	3E-07
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	1.90E-03	9.78E-03	5.00E-03	4E-03	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.27E-01	9.78E-03	2.00E-02	6E-02	3.49E-03	1.40E-02	6E-06
	Carbazole	86748	3.00E-03	9.78E-03	--	--	3.49E-03	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.00E-03	9.78E-03	3.00E-02	2E-03	3.49E-03	1.20E-01	2E-06
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	9.00E-03	9.78E-03	6.00E-03	1E-02	3.49E-03	2.00E+00	6E-05
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	6.32E-02	9.78E-03	9.00E-03	7E-02	3.49E-03	--	--
	Acetone	67641	1.65E-02	9.78E-03	1.00E-01	2E-03	3.49E-03	--	--
	Benzene	71432	7.97E-03	9.78E-03	3.00E-03	3E-02	3.49E-03	5.50E-02	2E-06
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.46E-03	9.78E-03	--	--	3.49E-03	1.30E-02	4E-07
	cis-1,2-Dichloroethene	156592	7.09E-02	9.78E-03	1.00E-02	7E-02	3.49E-03	--	--
	Dichloromethane	75092	6.56E-03	9.78E-03	6.00E-02	1E-03	3.49E-03	7.50E-03	2E-07
	Ethylbenzene	100414	3.20E-03	9.78E-03	1.00E-01	3E-04	3.49E-03	--	--
	Tetrachloroethene	127184	7.04E-03	9.78E-03	1.00E-02	7E-03	3.49E-03	5.20E-02	1E-06
	Toluene	108883	3.10E-03	9.78E-03	2.00E-01	2E-04	3.49E-03	--	--
	Trichloroethene	79016	2.50E-03	9.78E-03	3.00E-04	8E-02	3.49E-03	1.10E-02	1E-07
	Vinyl Chloride	75014_A	2.86E-01	9.78E-03	3.00E-03	9E-01	3.49E-03	7.20E-01	**7E-04**
	Xylenes (Total)	1330207	5.40E-03	9.78E-03	2.00E+00	3E-05	3.49E-03	--	--
					Total	**3E+00**		Total	**2E-03**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 32	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.65E-02	9.78E-03	3.00E-04	5E-01	3.49E-03	1.50E+00	9E-05
	Barium	7440393	6.02E-01	9.78E-03	7.00E-02	8E-02	3.49E-03	--	--
	Cadmium	7440439_W	5.00E-03	9.78E-03	5.00E-04	1E-01	3.49E-03	--	--
	Chromium	18540299_VI	1.90E-03	9.78E-03	3.00E-03	6E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	3.27E-05	9.78E-03	3.00E-04	1E-03	3.49E-03	--	--
	Selenium	7782492	6.60E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	1.50E-03	9.78E-03	5.00E-03	3E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	1.55E-02	9.78E-03	2.00E-02	8E-03	3.49E-03	--	--
	Acenaphthene	83329	3.30E-03	9.78E-03	6.00E-02	5E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	1.30E-03	9.78E-03	2.00E-02	6E-04	3.49E-03	7.30E-01	3E-06
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	1.10E-03	9.78E-03	2.00E-02	5E-04	3.49E-03	7.30E-01	3E-06
	Benzo[k]fluoranthene	207089	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-02	5E-08
	Chrysene	218019	1.10E-03	9.78E-03	2.00E-02	5E-04	3.49E-03	7.30E-03	3E-08
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	1.20E-03	9.78E-03	4.00E-03	3E-03	3.49E-03	--	--
	Fluoranthene	206440	7.40E-03	9.78E-03	4.00E-02	2E-03	3.49E-03	--	--
	Fluorene	86737	3.40E-03	9.78E-03	4.00E-02	8E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	5.20E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	--	--
	Phenanthrene	85018	4.50E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Pyrene	129000	5.60E-03	9.78E-03	3.00E-02	2E-03	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.40E-01	9.78E-03	2.00E-02	7E-02	3.49E-03	1.40E-02	7E-06
	Carbazole	86748	1.20E-03	9.78E-03	--	--	3.49E-03	2.00E-02	8E-08
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	6.30E-03	9.78E-03	3.00E-02	2E-03	3.49E-03	1.20E-01	3E-06
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.43E-03	9.78E-03	9.00E-03	3E-03	3.49E-03	--	--
	Acetone	67641	1.00E+01	9.78E-03	1.00E-01	1E+00	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.38E-03	9.78E-03	--	--	3.49E-03	1.30E-02	4E-07
	cis-1,2-Dichloroethene	156592	1.45E-03	9.78E-03	1.00E-02	1E-03	3.49E-03	--	--
	Dichloromethane	75092	1.60E+00	9.78E-03	6.00E-02	3E-01	3.49E-03	7.50E-03	4E-05
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	1.60E-03	9.78E-03	2.00E-01	8E-05	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	8.17E-03	9.78E-03	3.00E-03	3E-02	3.49E-03	7.20E-01	2E-05
	Xylenes (Total)	1330207	2.60E-03	9.78E-03	2.00E+00	1E-05	3.49E-03	--	--
					Total	**2E+00**		Total	**2E-04**
AOI 33	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	2.15E-03	9.78E-03	3.00E-04	7E-02	3.49E-03	1.50E+00	1E-05
	Barium	7440393	1.85E-01	9.78E-03	7.00E-02	3E-02	3.49E-03	--	--
	Cadmium	7440439_W	4.75E-04	9.78E-03	5.00E-04	9E-03	3.49E-03	--	--
	Chromium	18540299_VI	9.84E-04	9.78E-03	3.00E-03	3E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	1.26E-04	9.78E-03	3.00E-04	4E-03	3.49E-03	--	--
	Selenium	7782492	3.36E-03	9.78E-03	5.00E-03	7E-03	3.49E-03	--	--
	Silver	7440224	9.96E-04	9.78E-03	5.00E-03	2E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	2.37E-01	9.78E-03	2.00E-02	1E-01	3.49E-03	--	--
	Acenaphthene	83329	2.40E-01	9.78E-03	6.00E-02	4E-02	3.49E-03	--	--
	Benzo[a]anthracene	56553	2.38E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-01	6E-06
	Benzo[a]pyrene	50328	2.25E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E+00	6E-05
	Benzo[b]fluoranthene	205992	2.07E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-01	5E-06
	Benzo[k]fluoranthene	207089	2.16E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-02	6E-07
	Chrysene	218019	2.30E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-03	6E-08
	Dibenz[a,h]anthracene	53703	1.99E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E+00	5E-05
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	8.23E-03	9.78E-03	4.00E-02	2E-03	3.49E-03	--	--
	Fluorene	86737	7.68E-02	9.78E-03	4.00E-02	2E-02	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.14E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-01	5E-06
	Naphthalene	91203	5.49E+00	9.78E-03	2.00E-02	**3E+00**	3.49E-03	--	--
	Phenanthrene	85018	1.50E-01	9.78E-03	2.00E-02	7E-02	3.49E-03	--	--
	Pyrene	129000	1.22E-02	9.78E-03	3.00E-02	4E-03	3.49E-03	--	--
	Aroclor-1260	11096825	1.02E-04	9.78E-03	2.00E-05	5E-02	3.49E-03	2.00E+00	7E-07
	1,4-Dichlorobenzene	106467	4.00E-04	9.78E-03	3.00E-02	1E-04	3.49E-03	2.40E-02	3E-08
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	2.51E-03	9.78E-03	5.00E-03	5E-03	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.00E-03	9.78E-03	2.00E-02	5E-04	3.49E-03	1.40E-02	5E-08
	Carbazole	86748	7.02E-03	9.78E-03	--	--	3.49E-03	2.00E-02	5E-07
	n-Nitrosodipropylamine	621647	1.00E-03	9.78E-03	--	--	3.49E-03	7.00E+00	2E-05
	Pentachlorophenol (PCP)	87865	1.00E-03	9.78E-03	3.00E-02	3E-04	3.49E-03	1.20E-01	4E-07
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	1.40E-03	9.78E-03	4.00E-03	3E-03	3.49E-03	5.70E-02	3E-07
	1,1-Dichloroethane	75343	1.36E-03	9.78E-03	1.00E-01	1E-04	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	1.75E-02	9.78E-03	1.00E-01	2E-03	3.49E-03	--	--
	Benzene	71432	6.57E-02	9.78E-03	3.00E-03	2E-01	3.49E-03	5.50E-02	1E-05
	Chlorodibromomethane	124481	1.39E-03	9.78E-03	2.00E-02	7E-04	3.49E-03	8.40E-02	4E-07
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	1.24E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	3E-08
	Ethylbenzene	100414	1.75E+00	9.78E-03	1.00E-01	2E-01	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	3.37E-02	9.78E-03	2.00E-01	2E-03	3.49E-03	--	--
	Trichloroethene	79016	1.00E-03	9.78E-03	3.00E-04	3E-02	3.49E-03	1.10E-02	4E-08
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	2.11E-01	9.78E-03	2.00E+00	1E-03	3.49E-03	--	--
					Total	**4E+00**		Total	**2E-04**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 34	Antimony	7440360	4.95E-02	9.78E-03	4.00E-04	1E+00	3.49E-03	--	--
	Arsenic	7440382	2.26E-02	9.78E-03	3.00E-04	7E-01	3.49E-03	1.50E+00	1E-04
	Barium	7440393	3.81E-01	9.78E-03	7.00E-02	5E-02	3.49E-03	--	--
	Cadmium	7440439_W	1.55E-03	9.78E-03	5.00E-04	3E-02	3.49E-03	--	--
	Chromium	18540299_VI	3.66E-02	9.78E-03	3.00E-03	1E-01	3.49E-03	--	--
	Manganese	7439965_NF	1.19E+00	9.78E-03	2.00E-02	6E-01	3.49E-03	--	--
	Mercury	7439976	5.70E-04	9.78E-03	3.00E-04	2E-02	3.49E-03	--	--
	Selenium	7782492	1.04E-02	9.78E-03	5.00E-03	2E-02	3.49E-03	--	--
	Silver	7440224	2.04E-02	9.78E-03	5.00E-03	4E-02	3.49E-03	--	--
	2-Methylnaphthalene	91576	8.98E-03	9.78E-03	2.00E-02	4E-03	3.49E-03	--	--
	Acenaphthene	83329	2.86E-03	9.78E-03	6.00E-02	5E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	5.69E-03	9.78E-03	4.00E-03	1E-02	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	3.28E-03	9.78E-03	4.00E-02	8E-04	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	3.12E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Phenanthrene	85018	3.07E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Pyrene	129000	1.10E-03	9.78E-03	3.00E-02	4E-04	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	2.00E-03	9.78E-03	1.00E-04	2E-01	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.35E-02	9.78E-03	2.00E-02	7E-03	3.49E-03	1.40E-02	7E-07
	Carbazole	86748	2.70E-03	9.78E-03	--	--	3.49E-03	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.84E-03	9.78E-03	3.00E-02	2E-03	3.49E-03	1.20E-01	2E-06
	1,1,1-Trichloroethane	71556	3.39E-03	9.78E-03	2.80E-01	1E-04	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	8.00E-04	9.78E-03	4.00E-03	2E-03	3.49E-03	5.70E-02	2E-07
	1,1-Dichloroethane	75343	2.87E-01	9.78E-03	1.00E-01	3E-02	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	6.00E-04	9.78E-03	3.00E-02	2E-04	3.49E-03	9.10E-02	2E-07
	1,2-Dichloroethene	540590	1.69E-02	9.78E-03	9.00E-03	2E-02	3.49E-03	--	--
	Acetone	67641	2.09E-02	9.78E-03	1.00E-01	2E-03	3.49E-03	--	--
	Benzene	71432	3.75E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	5.50E-02	7E-07
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.72E-02	9.78E-03	4.00E-01	4E-04	3.49E-03	2.90E-03	2E-07
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.30E-02	9.78E-03	1.00E-02	1E-02	3.49E-03	--	--
	Dichloromethane	75092	3.34E-03	9.78E-03	6.00E-02	5E-04	3.49E-03	7.50E-03	9E-08
	Ethylbenzene	100414	3.00E-03	9.78E-03	1.00E-01	3E-04	3.49E-03	--	--
	Tetrachloroethene	127184	3.64E-03	9.78E-03	1.00E-02	4E-03	3.49E-03	5.20E-02	7E-07
	Toluene	108883	3.10E-03	9.78E-03	2.00E-01	2E-04	3.49E-03	--	--
	Trichloroethene	79016	3.34E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.10E-02	1E-07
	Vinyl Chloride	75014_A	1.92E-01	9.78E-03	3.00E-03	6E-01	3.49E-03	7.20E-01	**5E-04**
	Xylenes (Total)	1330207	4.44E-03	9.78E-03	2.00E+00	2E-05	3.49E-03	--	--
					Total	**4E+00**		Total	**6E-04**
AOI 35	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	9.50E-03	9.78E-03	3.00E-04	3E-01	3.49E-03	1.50E+00	5E-05
	Barium	7440393	3.12E-01	9.78E-03	7.00E-02	4E-02	3.49E-03	--	--
	Cadmium	7440439_W	1.50E-03	9.78E-03	5.00E-04	3E-02	3.49E-03	--	--
	Chromium	18540299_VI	2.10E-03	9.78E-03	3.00E-03	7E-03	3.49E-03	--	--
	Manganese	7439965_NF	5.80E-01	9.78E-03	2.00E-02	3E-01	3.49E-03	--	--
	Mercury	7439976	6.70E-05	9.78E-03	3.00E-04	2E-03	3.49E-03	--	--
	Selenium	7782492	7.40E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	2.90E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	3.70E-02	9.78E-03	2.00E-02	2E-02	3.49E-03	--	--
	Acenaphthene	83329	4.00E-03	9.78E-03	6.00E-02	7E-04	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	ND	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	2.00E-04	9.78E-03	4.00E-02	5E-05	3.49E-03	--	--
	Fluorene	86737	4.00E-03	9.78E-03	4.00E-02	1E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	1.00E-04	9.78E-03	2.00E-02	5E-05	3.49E-03	--	--
	Phenanthrene	85018	6.00E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	--	--
	Pyrene	129000	2.00E-04	9.78E-03	3.00E-02	7E-05	3.49E-03	--	--
	Aroclor-1260	11096825	ND	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-04	9.78E-03	3.00E-02	1E-04	3.49E-03	2.40E-02	3E-08
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.80E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	1.40E-02	2E-07
	Carbazole	86748	7.00E-04	9.78E-03	--	--	3.49E-03	2.00E-02	5E-08
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	8.82E-03	9.78E-03	1.00E-01	9E-04	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.40E-03	9.78E-03	9.00E-03	2E-03	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	1.54E-03	9.78E-03	6.00E-02	3E-04	3.49E-03	7.50E-03	4E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	4.30E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	7.20E-01	1E-05
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	7E-01		Total	6E-05

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 36	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	7.50E-03	9.78E-03	3.00E-04	2E-01	3.49E-03	1.50E+00	4E-05
	Barium	7440393	3.08E-01	9.78E-03	7.00E-02	4E-02	3.49E-03	--	--
	Cadmium	7440439_W	1.90E-03	9.78E-03	5.00E-04	4E-02	3.49E-03	--	--
	Chromium	18540299_VI	2.60E-02	9.78E-03	3.00E-03	8E-02	3.49E-03	--	--
	Manganese	7439965_NF	1.21E-01	9.78E-03	2.00E-02	6E-02	3.49E-03	--	--
	Mercury	7439976	6.20E-05	9.78E-03	3.00E-04	2E-03	3.49E-03	--	--
	Selenium	7782492	6.00E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	3.00E-03	9.78E-03	5.00E-03	6E-03	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	1.00E-04	9.78E-03	3.00E-02	3E-05	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.44E-03	9.78E-03	2.00E-02	7E-04	3.49E-03	1.40E-02	7E-08
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	3.78E-03	9.78E-03	1.00E-01	4E-04	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.98E-03	9.78E-03	9.00E-03	3E-03	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.54E-03	9.78E-03	1.00E-02	2E-03	3.49E-03	--	--
	Dichloromethane	75092	1.15E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	3E-08
	Ethylbenzene	100414	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	ND	9.78E-03	2.00E-01	--	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	3.84E-03	9.78E-03	3.00E-03	1E-02	3.49E-03	7.20E-01	1E-05
	Xylenes (Total)	1330207	ND	9.78E-03	2.00E+00	--	3.49E-03	--	--
					Total	5E-01		Total	5E-05
AOI 37	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	--	9.78E-03	3.00E-04	--	3.49E-03	1.50E+00	--
	Barium	7440393	--	9.78E-03	7.00E-02	--	3.49E-03	--	--
	Cadmium	7440439_W	--	9.78E-03	5.00E-04	--	3.49E-03	--	--
	Chromium	18540299_VI	--	9.78E-03	3.00E-03	--	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	--	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	Silver	7440224	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	2-Methylnaphthalene	91576	1.70E-01	9.78E-03	2.00E-02	8E-02	3.49E-03	--	--
	Acenaphthene	83329	1.91E-02	9.78E-03	6.00E-02	3E-03	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-01	5E-07
	Benzo[k]fluoranthene	207089	2.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E-02	5E-08
	Chrysene	218019	4.00E-04	9.78E-03	2.00E-02	2E-04	3.49E-03	7.30E-03	1E-08
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	2.16E-02	9.78E-03	4.00E-03	5E-02	3.49E-03	--	--
	Fluoranthene	206440	3.40E-03	9.78E-03	4.00E-02	8E-04	3.49E-03	--	--
	Fluorene	86737	3.55E-02	9.78E-03	4.00E-02	9E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	4.31E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	--	--
	Phenanthrene	85018	8.04E-02	9.78E-03	2.00E-02	4E-02	3.49E-03	--	--
	Pyrene	129000	3.72E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	9.00E-03	9.78E-03	5.00E-03	2E-02	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.30E-02	9.78E-03	2.00E-02	6E-03	3.49E-03	1.40E-02	6E-07
	Carbazole	86748	1.00E-03	9.78E-03	--	--	3.49E-03	2.00E-02	7E-08
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	9.78E-03	2.80E-01	--	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	9.78E-03	9.00E-03	--	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	ND	9.78E-03	3.00E-03	--	3.49E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	9.78E-03	1.00E-02	--	3.49E-03	--	--
	Dichloromethane	75092	1.30E-03	9.78E-03	6.00E-02	2E-04	3.49E-03	7.50E-03	3E-08
	Ethylbenzene	100414	6.50E-03	9.78E-03	1.00E-01	6E-04	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	3.90E-03	9.78E-03	2.00E-01	2E-04	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	9.78E-03	3.00E-03	--	3.49E-03	7.20E-01	--
	Xylenes (Total)	1330207	2.60E-02	9.78E-03	2.00E+00	1E-04	3.49E-03	--	--
					Total	2E-01		Total	1E-06

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI 38	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	1.38E-02	9.78E-03	3.00E-04	4E-01	3.49E-03	1.50E+00	7E-05
	Barium	7440393	5.47E-01	9.78E-03	7.00E-02	8E-02	3.49E-03	--	--
	Cadmium	7440439_W	1.34E-03	9.78E-03	5.00E-04	3E-02	3.49E-03	--	--
	Chromium	18540299_VI	1.81E-02	9.78E-03	3.00E-03	6E-02	3.49E-03	--	--
	Manganese	7439965_NF	1.13E+00	9.78E-03	2.00E-02	6E-01	3.49E-03	--	--
	Mercury	7439976	5.40E-05	9.78E-03	3.00E-04	2E-03	3.49E-03	--	--
	Selenium	7782492	8.64E-03	9.78E-03	5.00E-03	2E-02	3.49E-03	--	--
	Silver	7440224	6.78E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	2-Methylnaphthalene	91576	6.50E-01	9.78E-03	2.00E-02	3E-01	3.49E-03	--	--
	Acenaphthene	83329	1.45E-02	9.78E-03	6.00E-02	2E-03	3.49E-03	--	--
	Benzo[a]anthracene	56553	1.20E-02	9.78E-03	2.00E-02	6E-03	3.49E-03	7.30E-01	3E-05
	Benzo[a]pyrene	50328	6.20E-03	9.78E-03	2.00E-02	3E-03	3.49E-03	7.30E+00	**2E-04**
	Benzo[b]fluoranthene	205992	1.00E-02	9.78E-03	2.00E-02	5E-03	3.49E-03	7.30E-01	3E-05
	Benzo[k]fluoranthene	207089	4.80E-03	9.78E-03	2.00E-02	2E-03	3.49E-03	7.30E-02	1E-06
	Chrysene	218019	1.36E-02	9.78E-03	2.00E-02	7E-03	3.49E-03	7.30E-03	3E-07
	Dibenz[a,h]anthracene	53703	3.00E-04	9.78E-03	2.00E-02	1E-04	3.49E-03	7.30E+00	8E-06
	Dibenzofuran	132649	6.68E-02	9.78E-03	4.00E-03	2E-01	3.49E-03	--	--
	Fluoranthene	206440	1.40E-02	9.78E-03	4.00E-02	3E-03	3.49E-03	--	--
	Fluorene	86737	1.80E-02	9.78E-03	4.00E-02	4E-03	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.00E-03	9.78E-03	2.00E-02	1E-03	3.49E-03	7.30E-01	5E-06
	Naphthalene	91203	7.72E-02	9.78E-03	2.00E-02	4E-02	3.49E-03	--	--
	Phenanthrene	85018	4.77E-02	9.78E-03	2.00E-02	2E-02	3.49E-03	--	--
	Pyrene	129000	1.01E-02	9.78E-03	3.00E-02	3E-03	3.49E-03	--	--
	Aroclor-1260	11096825	ND	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	1.38E-02	9.78E-03	3.00E-02	4E-03	3.49E-03	2.40E-02	1E-06
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.81E-02	9.78E-03	2.00E-02	2E-02	3.49E-03	1.40E-02	2E-06
	Carbazole	86748	1.27E-02	9.78E-03	--	--	3.49E-03	2.00E-02	9E-07
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	9.78E-03	3.00E-02	1E-03	3.49E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	3.17E-01	9.78E-03	2.80E-01	1E-02	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	3.07E-03	9.78E-03	4.00E-03	8E-03	3.49E-03	5.70E-02	6E-07
	1,1-Dichloroethane	75343	1.30E-01	9.78E-03	1.00E-01	1E-02	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	1.00E-03	9.78E-03	3.00E-02	3E-04	3.49E-03	9.10E-02	3E-07
	1,2-Dichloroethene	540590	4.37E-01	9.78E-03	9.00E-03	5E-01	3.49E-03	--	--
	Acetone	67641	6.59E-03	9.78E-03	1.00E-01	6E-04	3.49E-03	--	--
	Benzene	71432	1.00E-02	9.78E-03	3.00E-03	3E-02	3.49E-03	5.50E-02	2E-06
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	3.13E-02	9.78E-03	4.00E-01	8E-04	3.49E-03	2.90E-03	3E-07
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	7.25E-01	9.78E-03	1.00E-02	7E-01	3.49E-03	--	--
	Dichloromethane	75092	2.43E-03	9.78E-03	6.00E-02	4E-04	3.49E-03	7.50E-03	6E-08
	Ethylbenzene	100414	4.14E-02	9.78E-03	1.00E-01	4E-03	3.49E-03	--	--
	Tetrachloroethene	127184	3.40E-03	9.78E-03	1.00E-02	3E-03	3.49E-03	5.20E-02	6E-07
	Toluene	108883	1.37E-02	9.78E-03	2.00E-01	7E-04	3.49E-03	--	--
	Trichloroethene	79016	3.63E-02	9.78E-03	3.00E-04	1E+00	3.49E-03	1.10E-02	1E-06
	Vinyl Chloride	75014_A	6.95E-02	9.78E-03	3.00E-03	2E-01	3.49E-03	7.20E-01	**2E-04**
	Xylenes (Total)	1330207	5.61E-02	9.78E-03	2.00E+00	3E-04	3.49E-03	--	--
					Total	**4E+00**		Total	**5E-04**
AOI SPRR3	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	--	9.78E-03	3.00E-04	--	3.49E-03	1.50E+00	--
	Barium	7440393	--	9.78E-03	7.00E-02	--	3.49E-03	--	--
	Cadmium	7440439_W	--	9.78E-03	5.00E-04	--	3.49E-03	--	--
	Chromium	18540299_VI	--	9.78E-03	3.00E-03	--	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	--	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	Silver	7440224	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	2-Methylnaphthalene	91576	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	--	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	--	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	--	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	--	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	3.60E-01	9.78E-03	2.00E-02	2E-01	3.49E-03	--	--
	Phenanthrene	85018	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	--	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	--	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	--	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	--	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	--	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	--	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	--	9.78E-03	2.00E-02	--	3.49E-03	1.40E-02	--
	Carbazole	86748	--	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	--	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	--	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	7.80E-02	9.78E-03	2.80E-01	3E-03	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	2.90E-01	9.78E-03	1.00E-01	3E-02	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.70E-01	9.78E-03	9.00E-03	3E-01	3.49E-03	--	--
	Acetone	67641	ND	9.78E-03	1.00E-01	--	3.49E-03	--	--
	Benzene	71432	5.20E-02	9.78E-03	3.00E-03	2E-01	3.49E-03	5.50E-02	1E-05
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	2.30E-01	9.78E-03	4.00E-01	6E-03	3.49E-03	2.90E-03	2E-06
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	2.70E-01	9.78E-03	1.00E-02	3E-01	3.49E-03	--	--
	Dichloromethane	75092	9.60E-03	9.78E-03	6.00E-02	2E-03	3.49E-03	7.50E-03	3E-07
	Ethylbenzene	100414	1.50E-01	9.78E-03	1.00E-01	1E-02	3.49E-03	--	--
	Tetrachloroethene	127184	ND	9.78E-03	1.00E-02	--	3.49E-03	5.20E-02	--
	Toluene	108883	1.20E-01	9.78E-03	2.00E-01	6E-03	3.49E-03	--	--
	Trichloroethene	79016	1.00E-03	9.78E-03	3.00E-04	3E-02	3.49E-03	1.10E-02	4E-08
	Vinyl Chloride	75014_A	3.30E-01	9.78E-03	3.00E-03	1E+00	3.49E-03	7.20E-01	**8E-04**
	Xylenes (Total)	1330207	9.30E-01	9.78E-03	2.00E+00	5E-03	3.49E-03	--	--
					Total	**2E+00**		Total	**8E-04**

APPENDIX E.2 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
AOI SPRR5	Antimony	7440360	--	9.78E-03	4.00E-04	--	3.49E-03	--	--
	Arsenic	7440382	3.00E-03	9.78E-03	3.00E-04	1E-01	3.49E-03	1.50E+00	2E-05
	Barium	7440393	1.49E-01	9.78E-03	7.00E-02	2E-02	3.49E-03	--	--
	Cadmium	7440439_W	7.70E-04	9.78E-03	5.00E-04	2E-02	3.49E-03	--	--
	Chromium	18540299_VI	1.40E-03	9.78E-03	3.00E-03	5E-03	3.49E-03	--	--
	Manganese	7439965_NF	--	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Mercury	7439976	ND	9.78E-03	3.00E-04	--	3.49E-03	--	--
	Selenium	7782492	5.00E-03	9.78E-03	5.00E-03	1E-02	3.49E-03	--	--
	Silver	7440224	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	2-Methylnaphthalene	91576	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Acenaphthene	83329	ND	9.78E-03	6.00E-02	--	3.49E-03	--	--
	Benzo[a]anthracene	56553	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-02	--
	Chrysene	218019	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E+00	--
	Dibenzofuran	132649	--	9.78E-03	4.00E-03	--	3.49E-03	--	--
	Fluoranthene	206440	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Fluorene	86737	ND	9.78E-03	4.00E-02	--	3.49E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	9.78E-03	2.00E-02	--	3.49E-03	7.30E-01	--
	Naphthalene	91203	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Phenanthrene	85018	ND	9.78E-03	2.00E-02	--	3.49E-03	--	--
	Pyrene	129000	ND	9.78E-03	3.00E-02	--	3.49E-03	--	--
	Aroclor-1260	11096825	--	9.78E-03	2.00E-05	--	3.49E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	9.78E-03	3.00E-02	--	3.49E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	9.78E-03	1.00E-03	--	3.49E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	9.78E-03	1.00E-04	--	3.49E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	9.78E-03	5.00E-03	--	3.49E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	9.78E-03	--	--	3.49E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	9.78E-03	2.00E-02	--	3.49E-03	1.40E-02	--
	Carbazole	86748	ND	9.78E-03	--	--	3.49E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	9.78E-03	--	--	3.49E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	9.78E-03	3.00E-02	--	3.49E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	4.00E-03	9.78E-03	2.80E-01	1E-04	3.49E-03	--	--
	1,1,2-Trichloroethane	79005	ND	9.78E-03	4.00E-03	--	3.49E-03	5.70E-02	--
	1,1-Dichloroethane	75343	8.61E-02	9.78E-03	1.00E-01	8E-03	3.49E-03	--	--
	1,2,3-Trichloropropane	96184	ND	9.78E-03	6.00E-03	--	3.49E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	9.78E-03	3.00E-02	--	3.49E-03	9.10E-02	--
	1,2-Dichloroethene	540590	6.09E-02	9.78E-03	9.00E-03	7E-02	3.49E-03	--	--
	Acetone	67641	6.00E-03	9.78E-03	1.00E-01	6E-04	3.49E-03	--	--
	Benzene	71432	6.05E-01	9.78E-03	3.00E-03	**2E+00**	3.49E-03	5.50E-02	1E-04
	Chlorodibromomethane	124481	ND	9.78E-03	2.00E-02	--	3.49E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	9.78E-03	4.00E-01	--	3.49E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	9.78E-03	--	--	3.49E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.03E-03	9.78E-03	1.00E-02	3E-03	3.49E-03	--	--
	Dichloromethane	75092	2.96E-02	9.78E-03	6.00E-02	5E-03	3.49E-03	7.50E-03	8E-07
	Ethylbenzene	100414	9.45E-01	9.78E-03	1.00E-01	9E-02	3.49E-03	--	--
	Tetrachloroethene	127184	2.00E-03	9.78E-03	1.00E-02	2E-03	3.49E-03	5.20E-02	4E-07
	Toluene	108883	2.47E+00	9.78E-03	2.00E-01	1E-01	3.49E-03	--	--
	Trichloroethene	79016	ND	9.78E-03	3.00E-04	--	3.49E-03	1.10E-02	--
	Vinyl Chloride	75014_A	9.47E-02	9.78E-03	3.00E-03	3E-01	3.49E-03	7.20E-01	**2E-04**
	Xylenes (Total)	1330207	7.90E+00	9.78E-03	2.00E+00	4E-02	3.49E-03	--	--
					Total	**3E+00**		Total	**4E-04**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 1	2-Methylnaphthalene	91576	2.25E-03	8.57E-02	2.00E-02	1E-02	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	ND	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	ND	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	1.85E-03	8.57E-02	8.60E-01	2E-04	6.12E-03	1.65E-03	2E-08
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	1E-02		Total	2E-08
AOI 12	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	ND	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	5.00E-05	8.57E-02	3.00E-02	1E-04	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	5.00E-04	8.57E-02	4.00E-03	1E-02	6.12E-03	5.60E-02	2E-07
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	ND	8.57E-02	8.60E-01	--	6.12E-03	1.65E-03	--
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	1E-02		Total	2E-07

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 13	2-Methylnaphthalene	91576	6.50E-01	8.57E-02	2.00E-02	**3E+00**	6.12E-03	--	--
	Acenaphthene	83329	3.11E-03	8.57E-02	6.00E-02	4E-03	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	4.58E-03	8.57E-02	4.00E-02	1E-02	6.12E-03	--	--
	Naphthalene	91203	3.82E-02	8.57E-02	9.00E-04	**4E+00**	6.12E-03	--	--
	Pyrene	129000	2.48E-03	8.57E-02	3.00E-02	7E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	1.00E-03	8.57E-02	1.00E-01	9E-04	6.12E-03	--	--
	Benzene	71432	1.24E-02	8.57E-02	1.70E-03	6E-01	6.12E-03	2.90E-02	2E-06
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	2.42E-03	8.57E-02	8.60E-01	2E-04	6.12E-03	1.65E-03	2E-08
	Ethylbenzene	100414	1.34E-02	8.57E-02	2.90E-01	4E-03	6.12E-03	3.85E-03	3E-07
	Tetrachloroethene	127184	9.50E-04	8.57E-02	1.40E-01	6E-04	6.12E-03	1.00E-02	6E-08
	Toluene	108883	1.30E-03	8.57E-02	1.14E-01	1E-03	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	7.36E-03	8.57E-02	2.00E+00	3E-04	6.12E-03	--	--
					Total	**7E+00**		Total	3E-06
AOI 18	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	ND	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	1.50E-04	8.57E-02	9.00E-04	1E-02	6.12E-03	--	--
	Pyrene	129000	ND	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.10E-02	8.57E-02	6.30E-01	4E-03	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	5.00E-04	8.57E-02	1.40E-01	3E-04	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	4.97E-04	8.57E-02	8.60E-01	5E-05	6.12E-03	1.65E-03	5E-09
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	2E-02		Total	5E-09

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 19	2-Methylnaphthalene	91576	1.00E-03	8.57E-02	2.00E-02	4E-03	6.12E-03	--	--
	Acenaphthene	83329	4.00E-04	8.57E-02	6.00E-02	6E-04	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	5.00E-04	8.57E-02	4.00E-02	1E-03	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	ND	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	ND	8.57E-02	8.60E-01	--	6.12E-03	1.65E-03	--
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	6E-03		Total	--
AOI 20	2-Methylnaphthalene	91576	3.29E-03	8.57E-02	2.00E-02	1E-02	6.12E-03	--	--
	Acenaphthene	83329	1.50E-03	8.57E-02	6.00E-02	2E-03	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	7.50E-04	8.57E-02	4.00E-02	2E-03	6.12E-03	--	--
	Naphthalene	91203	6.50E-04	8.57E-02	9.00E-04	6E-02	6.12E-03	--	--
	Pyrene	129000	2.50E-05	8.57E-02	3.00E-02	7E-05	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	8.57E-02	2.29E-01	7E-05	6.12E-03	2.20E-02	3E-08
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	3.73E-03	8.57E-02	1.00E-01	3E-03	6.12E-03	--	--
	Benzene	71432	3.00E-04	8.57E-02	1.70E-03	2E-02	6.12E-03	2.90E-02	5E-08
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	7.00E-04	8.57E-02	8.60E-01	7E-05	6.12E-03	1.65E-03	7E-09
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	8.00E-04	8.57E-02	1.14E-01	6E-04	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	3.00E-04	8.57E-02	2.80E-02	9E-04	6.12E-03	1.50E-02	3E-08
	Xylenes (Total)	1330207	5.00E-04	8.57E-02	2.00E+00	2E-05	6.12E-03	--	--
					Total	1E-01		Total	1E-07

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 21	2-Methylnaphthalene	91576	2.24E-03	8.57E-02	2.00E-02	1E-02	6.12E-03	--	--
	Acenaphthene	83329	1.55E-03	8.57E-02	6.00E-02	2E-03	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	1.76E-03	8.57E-02	4.00E-02	4E-03	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	2.00E-03	8.57E-02	3.00E-02	6E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	5.78E-02	8.57E-02	9.00E-03	6E-01	6.12E-03	--	--
	Acetone	67641	1.20E-03	8.57E-02	1.00E-01	1E-03	6.12E-03	--	--
	Benzene	71432	2.12E-03	8.57E-02	1.70E-03	1E-01	6.12E-03	2.90E-02	4E-07
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	1.96E-03	8.57E-02	2.60E-02	6E-03	6.12E-03	3.50E-03	4E-08
	cis-1,2-Dichloroethene	156592	6.00E-02	8.57E-02	1.00E-02	5E-01	6.12E-03	--	--
	Dichloromethane	75092	ND	8.57E-02	8.60E-01	--	6.12E-03	1.65E-03	--
	Ethylbenzene	100414	2.50E-04	8.57E-02	2.90E-01	7E-05	6.12E-03	3.85E-03	6E-09
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	1.71E-03	8.57E-02	1.14E-01	1E-03	6.12E-03	--	--
	Trichloroethene	79016	2.74E-03	8.57E-02	1.00E-02	2E-02	6.12E-03	6.00E-03	1E-07
	Vinyl Chloride	75014_A	2.54E-02	8.57E-02	2.80E-02	8E-02	6.12E-03	1.50E-02	2E-06
	Xylenes (Total)	1330207	5.00E-04	8.57E-02	2.00E+00	2E-05	6.12E-03	--	--
					Total	1E+00		Total	3E-06
AOI 22A	2-Methylnaphthalene	91576	7.38E-03	8.57E-02	2.00E-02	3E-02	6.12E-03	--	--
	Acenaphthene	83329	2.47E-03	8.57E-02	6.00E-02	4E-03	6.12E-03	--	--
	Dibenzofuran	132649	4.70E-03	8.57E-02	4.00E-03	1E-01	6.12E-03	--	--
	Fluorene	86737	3.42E-03	8.57E-02	4.00E-02	7E-03	6.12E-03	--	--
	Naphthalene	91203	1.21E-03	8.57E-02	9.00E-04	1E-01	6.12E-03	--	--
	Pyrene	129000	1.73E-03	8.57E-02	3.00E-02	5E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.31E-01	8.57E-02	6.30E-01	2E-02	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	1.50E-03	8.57E-02	4.00E-03	3E-02	6.12E-03	5.60E-02	5E-07
	1,1-Dichloroethane	75343	1.00E+00	8.57E-02	1.40E-01	6E-01	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	7.50E-03	8.57E-02	1.40E-03	5E-01	6.12E-03	2.00E+00	9E-05
	1,2-Dichloroethane	107062	1.00E-03	8.57E-02	1.40E-03	6E-02	6.12E-03	9.10E-02	6E-07
	1,2-Dichloroethene	540590	1.85E+00	8.57E-02	9.00E-03	**2E+01**	6.12E-03	--	--
	Acetone	67641	6.50E-03	8.57E-02	1.00E-01	6E-03	6.12E-03	--	--
	Benzene	71432	5.91E-03	8.57E-02	1.70E-03	3E-01	6.12E-03	2.90E-02	1E-06
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.50E-02	8.57E-02	2.90E+00	3E-03	6.12E-03	2.90E-03	2E-06
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.85E+00	8.57E-02	1.00E-02	**2E+01**	6.12E-03	--	--
	Dichloromethane	75092	7.50E-04	8.57E-02	8.60E-01	7E-05	6.12E-03	1.65E-03	8E-09
	Ethylbenzene	100414	5.15E-03	8.57E-02	2.90E-01	2E-03	6.12E-03	3.85E-03	1E-07
	Tetrachloroethene	127184	3.50E-04	8.57E-02	1.40E-01	2E-04	6.12E-03	1.00E-02	2E-08
	Toluene	108883	2.45E-03	8.57E-02	1.14E-01	2E-03	6.12E-03	--	--
	Trichloroethene	79016	2.00E-03	8.57E-02	1.00E-02	2E-02	6.12E-03	6.00E-03	7E-08
	Vinyl Chloride	75014_A	1.15E+00	8.57E-02	2.80E-02	**4E+00**	6.12E-03	1.50E-02	1E-04
	Xylenes (Total)	1330207	3.50E-03	8.57E-02	2.00E+00	2E-04	6.12E-03	--	--
					Total	**4E+01**		Total	**2E-04**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 22B	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	1.15E-03	8.57E-02	6.00E-02	2E-03	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	5.00E-04	8.57E-02	4.00E-02	1E-03	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	1.50E-04	8.57E-02	3.00E-02	4E-04	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	2.20E-03	8.57E-02	2.29E-01	8E-04	6.12E-03	2.20E-02	3E-07
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	5.85E-02	8.57E-02	9.00E-03	6E-01	6.12E-03	--	--
	Acetone	67641	5.85E-03	8.57E-02	1.00E-01	5E-03	6.12E-03	--	--
	Benzene	71432	3.50E-04	8.57E-02	1.70E-03	2E-02	6.12E-03	2.90E-02	6E-08
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-02	8.57E-02	1.00E-02	1E-01	6.12E-03	--	--
	Dichloromethane	75092	1.15E-03	8.57E-02	8.60E-01	1E-04	6.12E-03	1.65E-03	1E-08
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	1.62E-03	8.57E-02	1.00E-02	1E-02	6.12E-03	6.00E-03	6E-08
	Vinyl Chloride	75014_A	1.71E-01	8.57E-02	2.80E-02	5E-01	6.12E-03	1.50E-02	2E-05
	Xylenes (Total)	1330207	7.00E-04	8.57E-02	2.00E+00	3E-05	6.12E-03	--	--
					Total	1E+00		Total	2E-05
AOI 26	2-Methylnaphthalene	91576	4.86E-03	8.57E-02	2.00E-02	2E-02	6.12E-03	--	--
	Acenaphthene	83329	4.02E-03	8.57E-02	6.00E-02	6E-03	6.12E-03	--	--
	Dibenzofuran	132649	2.68E-03	8.57E-02	4.00E-03	6E-02	6.12E-03	--	--
	Fluorene	86737	4.57E-03	8.57E-02	4.00E-02	1E-02	6.12E-03	--	--
	Naphthalene	91203	3.85E-03	8.57E-02	9.00E-04	4E-01	6.12E-03	--	--
	Pyrene	129000	4.05E-03	8.57E-02	3.00E-02	1E-02	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	9.00E-04	8.57E-02	9.00E-03	9E-03	6.12E-03	--	--
	Acetone	67641	3.60E-03	8.57E-02	1.00E-01	3E-03	6.12E-03	--	--
	Benzene	71432	6.00E-04	8.57E-02	1.70E-03	3E-02	6.12E-03	2.90E-02	1E-07
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	5.00E-04	8.57E-02	1.00E-02	4E-03	6.12E-03	--	--
	Dichloromethane	75092	8.50E-04	8.57E-02	8.60E-01	8E-05	6.12E-03	1.65E-03	9E-09
	Ethylbenzene	100414	1.20E-03	8.57E-02	2.90E-01	4E-04	6.12E-03	3.85E-03	3E-08
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	7.00E-04	8.57E-02	1.14E-01	5E-04	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	2.68E-03	8.57E-02	2.80E-02	8E-03	6.12E-03	1.50E-02	2E-07
	Xylenes (Total)	1330207	1.88E-03	8.57E-02	2.00E+00	8E-05	6.12E-03	--	--
					Total	5E-01		Total	4E-07

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 27	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	1.50E-04	8.57E-02	4.00E-02	3E-04	6.12E-03	--	--
	Naphthalene	91203	1.00E-04	8.57E-02	9.00E-04	1E-02	6.12E-03	--	--
	Pyrene	129000	ND	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	5.00E-04	8.57E-02	--	--	6.12E-03	1.10E+00	3E-06
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.43E-03	8.57E-02	9.00E-03	1E-02	6.12E-03	--	--
	Acetone	67641	5.50E-03	8.57E-02	1.00E-01	5E-03	6.12E-03	--	--
	Benzene	71432	4.00E-04	8.57E-02	1.70E-03	2E-02	6.12E-03	2.90E-02	7E-08
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-03	8.57E-02	1.00E-02	1E-02	6.12E-03	--	--
	Dichloromethane	75092	7.50E-04	8.57E-02	8.60E-01	7E-05	6.12E-03	1.65E-03	8E-09
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	1.55E-03	8.57E-02	1.00E-02	1E-02	6.12E-03	6.00E-03	6E-08
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	7E-02		Total	4E-06
AOI 30	2-Methylnaphthalene	91576	3.04E-01	8.57E-02	2.00E-02	1E+00	6.12E-03	--	--
	Acenaphthene	83329	4.62E-02	8.57E-02	6.00E-02	7E-02	6.12E-03	--	--
	Dibenzofuran	132649	2.05E-02	8.57E-02	4.00E-03	4E-01	6.12E-03	--	--
	Fluorene	86737	5.72E-02	8.57E-02	4.00E-02	1E-01	6.12E-03	--	--
	Naphthalene	91203	3.26E-02	8.57E-02	9.00E-04	**3E+00**	6.12E-03	--	--
	Pyrene	129000	2.13E-02	8.57E-02	3.00E-02	6E-02	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	1.50E-03	8.57E-02	2.29E-01	6E-04	6.12E-03	2.20E-02	2E-07
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	4.50E-03	8.57E-02	1.40E-03	3E-01	6.12E-03	2.00E+00	6E-05
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	3.16E-02	8.57E-02	9.00E-03	3E-01	6.12E-03	--	--
	Acetone	67641	8.23E-03	8.57E-02	1.00E-01	7E-03	6.12E-03	--	--
	Benzene	71432	3.98E-03	8.57E-02	1.70E-03	2E-01	6.12E-03	2.90E-02	7E-07
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.23E-03	8.57E-02	2.60E-02	1E-02	6.12E-03	3.50E-03	9E-08
	cis-1,2-Dichloroethene	156592	3.55E-02	8.57E-02	1.00E-02	3E-01	6.12E-03	--	--
	Dichloromethane	75092	3.28E-03	8.57E-02	8.60E-01	3E-04	6.12E-03	1.65E-03	3E-08
	Ethylbenzene	100414	1.60E-03	8.57E-02	2.90E-01	5E-04	6.12E-03	3.85E-03	4E-08
	Tetrachloroethene	127184	3.52E-03	8.57E-02	1.40E-01	2E-03	6.12E-03	1.00E-02	2E-07
	Toluene	108883	1.55E-03	8.57E-02	1.14E-01	1E-03	6.12E-03	--	--
	Trichloroethene	79016	1.25E-03	8.57E-02	1.00E-02	1E-02	6.12E-03	6.00E-03	5E-08
	Vinyl Chloride	75014_A	1.43E-01	8.57E-02	2.80E-02	4E-01	6.12E-03	1.50E-02	1E-05
	Xylenes (Total)	1330207	2.70E-03	8.57E-02	2.00E+00	1E-04	6.12E-03	--	--
					Total	**7E+00**		Total	7E-05

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 32	2-Methylnaphthalene	91576	7.77E-03	8.57E-02	2.00E-02	3E-02	6.12E-03	--	--
	Acenaphthene	83329	1.65E-03	8.57E-02	6.00E-02	2E-03	6.12E-03	--	--
	Dibenzofuran	132649	6.00E-04	8.57E-02	4.00E-03	1E-02	6.12E-03	--	--
	Fluorene	86737	1.70E-03	8.57E-02	4.00E-02	4E-03	6.12E-03	--	--
	Naphthalene	91203	2.60E-03	8.57E-02	9.00E-04	2E-01	6.12E-03	--	--
	Pyrene	129000	2.80E-03	8.57E-02	3.00E-02	8E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.22E-03	8.57E-02	9.00E-03	1E-02	6.12E-03	--	--
	Acetone	67641	5.00E+00	8.57E-02	1.00E-01	**4E+00**	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.19E-03	8.57E-02	2.60E-02	1E-02	6.12E-03	3.50E-03	9E-08
	cis-1,2-Dichloroethene	156592	7.25E-04	8.57E-02	1.00E-02	6E-03	6.12E-03	--	--
	Dichloromethane	75092	8.01E-01	8.57E-02	8.60E-01	8E-02	6.12E-03	1.65E-03	8E-06
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	8.00E-04	8.57E-02	1.14E-01	6E-04	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	4.08E-03	8.57E-02	2.80E-02	1E-02	6.12E-03	1.50E-02	4E-07
	Xylenes (Total)	1330207	1.30E-03	8.57E-02	2.00E+00	6E-05	6.12E-03	--	--
					Total	**5E+00**		Total	9E-06
AOI 33	2-Methylnaphthalene	91576	1.18E-01	8.57E-02	2.00E-02	5E-01	6.12E-03	--	--
	Acenaphthene	83329	1.20E-01	8.57E-02	6.00E-02	2E-01	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	3.84E-02	8.57E-02	4.00E-02	8E-02	6.12E-03	--	--
	Naphthalene	91203	2.75E+00	8.57E-02	9.00E-04	**3E+02**	6.12E-03	--	--
	Pyrene	129000	6.08E-03	8.57E-02	3.00E-02	2E-02	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	8.57E-02	2.29E-01	7E-05	6.12E-03	2.20E-02	3E-08
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	6.99E-04	8.57E-02	4.00E-03	1E-02	6.12E-03	5.60E-02	2E-07
	1,1-Dichloroethane	75343	6.79E-04	8.57E-02	1.40E-01	4E-04	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	8.74E-03	8.57E-02	1.00E-01	7E-03	6.12E-03	--	--
	Benzene	71432	3.29E-02	8.57E-02	1.70E-03	**2E+00**	6.12E-03	2.90E-02	6E-06
	Chlorodibromomethane	124481	6.97E-04	8.57E-02	2.00E-02	3E-03	6.12E-03	8.40E-02	4E-07
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	6.21E-04	8.57E-02	8.60E-01	6E-05	6.12E-03	1.65E-03	6E-09
	Ethylbenzene	100414	8.74E-01	8.57E-02	2.90E-01	3E-01	6.12E-03	3.85E-03	2E-05
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	1.69E-02	8.57E-02	1.14E-01	1E-02	6.12E-03	--	--
	Trichloroethene	79016	5.00E-04	8.57E-02	1.00E-02	4E-03	6.12E-03	6.00E-03	2E-08
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	1.06E-01	8.57E-02	2.00E+00	5E-03	6.12E-03	--	--
					Total	**3E+02**		Total	3E-05

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 34	2-Methylnaphthalene	91576	4.49E-03	8.57E-02	2.00E-02	2E-02	6.12E-03	--	--
	Acenaphthene	83329	1.43E-03	8.57E-02	6.00E-02	2E-03	6.12E-03	--	--
	Dibenzofuran	132649	2.84E-03	8.57E-02	4.00E-03	6E-02	6.12E-03	--	--
	Fluorene	86737	1.64E-03	8.57E-02	4.00E-02	4E-03	6.12E-03	--	--
	Naphthalene	91203	1.56E-03	8.57E-02	9.00E-04	1E-01	6.12E-03	--	--
	Pyrene	129000	5.50E-04	8.57E-02	3.00E-02	2E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.70E-03	8.57E-02	6.30E-01	2E-04	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	4.00E-04	8.57E-02	4.00E-03	9E-03	6.12E-03	5.60E-02	1E-07
	1,1-Dichloroethane	75343	1.43E-01	8.57E-02	1.40E-01	9E-02	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	3.00E-04	8.57E-02	1.40E-03	2E-02	6.12E-03	9.10E-02	2E-07
	1,2-Dichloroethene	540590	8.45E-03	8.57E-02	9.00E-03	8E-02	6.12E-03	--	--
	Acetone	67641	1.05E-02	8.57E-02	1.00E-01	9E-03	6.12E-03	--	--
	Benzene	71432	1.87E-03	8.57E-02	1.70E-03	9E-02	6.12E-03	2.90E-02	3E-07
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.59E-03	8.57E-02	2.90E+00	3E-04	6.12E-03	2.90E-03	2E-07
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	6.51E-03	8.57E-02	1.00E-02	6E-02	6.12E-03	--	--
	Dichloromethane	75092	1.67E-03	8.57E-02	8.60E-01	2E-04	6.12E-03	1.65E-03	2E-08
	Ethylbenzene	100414	1.50E-03	8.57E-02	2.90E-01	4E-04	6.12E-03	3.85E-03	4E-08
	Tetrachloroethene	127184	1.82E-03	8.57E-02	1.40E-01	1E-03	6.12E-03	1.00E-02	1E-07
	Toluene	108883	1.55E-03	8.57E-02	1.14E-01	1E-03	6.12E-03	--	--
	Trichloroethene	79016	1.67E-03	8.57E-02	1.00E-02	1E-02	6.12E-03	6.00E-03	6E-08
	Vinyl Chloride	75014_A	9.60E-02	8.57E-02	2.80E-02	3E-01	6.12E-03	1.50E-02	9E-06
	Xylenes (Total)	1330207	2.22E-03	8.57E-02	2.00E+00	1E-04	6.12E-03	--	--
					Total	9E-01		Total	1E-05
AOI 35	2-Methylnaphthalene	91576	1.85E-02	8.57E-02	2.00E-02	8E-02	6.12E-03	--	--
	Acenaphthene	83329	2.00E-03	8.57E-02	6.00E-02	3E-03	6.12E-03	--	--
	Dibenzofuran	132649	ND	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	2.00E-03	8.57E-02	4.00E-02	4E-03	6.12E-03	--	--
	Naphthalene	91203	5.00E-05	8.57E-02	9.00E-04	5E-03	6.12E-03	--	--
	Pyrene	129000	1.00E-04	8.57E-02	3.00E-02	3E-04	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	1.50E-04	8.57E-02	2.29E-01	6E-05	6.12E-03	2.20E-02	2E-08
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	4.41E-03	8.57E-02	1.40E-01	3E-03	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	7.00E-04	8.57E-02	9.00E-03	7E-03	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	7.70E-04	8.57E-02	8.60E-01	8E-05	6.12E-03	1.65E-03	8E-09
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	2.15E-03	8.57E-02	2.80E-02	7E-03	6.12E-03	1.50E-02	2E-07
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	1E-01		Total	2E-07

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 36	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	ND	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	ND	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	5.00E-05	8.57E-02	3.00E-02	1E-04	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	1.89E-03	8.57E-02	1.40E-01	1E-03	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.49E-03	8.57E-02	9.00E-03	1E-02	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	7.72E-04	8.57E-02	1.00E-02	7E-03	6.12E-03	--	--
	Dichloromethane	75092	5.75E-04	8.57E-02	8.60E-01	6E-05	6.12E-03	1.65E-03	6E-09
	Ethylbenzene	100414	ND	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	ND	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	1.92E-03	8.57E-02	2.80E-02	6E-03	6.12E-03	1.50E-02	2E-07
	Xylenes (Total)	1330207	ND	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	3E-02		Total	2E-07
AOI 37	2-Methylnaphthalene	91576	8.50E-02	8.57E-02	2.00E-02	4E-01	6.12E-03	--	--
	Acenaphthene	83329	9.53E-03	8.57E-02	6.00E-02	1E-02	6.12E-03	--	--
	Dibenzofuran	132649	1.08E-02	8.57E-02	4.00E-03	2E-01	6.12E-03	--	--
	Fluorene	86737	1.78E-02	8.57E-02	4.00E-02	4E-02	6.12E-03	--	--
	Naphthalene	91203	2.15E-03	8.57E-02	9.00E-04	2E-01	6.12E-03	--	--
	Pyrene	129000	1.86E-03	8.57E-02	3.00E-02	5E-03	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	8.57E-02	6.30E-01	--	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	ND	8.57E-02	1.40E-01	--	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	8.57E-02	9.00E-03	--	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	ND	8.57E-02	1.70E-03	--	6.12E-03	2.90E-02	--
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	6.50E-04	8.57E-02	8.60E-01	6E-05	6.12E-03	1.65E-03	7E-09
	Ethylbenzene	100414	3.25E-03	8.57E-02	2.90E-01	1E-03	6.12E-03	3.85E-03	8E-08
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	1.95E-03	8.57E-02	1.14E-01	1E-03	6.12E-03	--	--
	Trichloroethene	79016	ND	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	ND	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	1.30E-02	8.57E-02	2.00E+00	6E-04	6.12E-03	--	--
					Total	9E-01		Total	8E-08

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 38	2-Methylnaphthalene	91576	3.25E-01	8.57E-02	2.00E-02	1E+00	6.12E-03	--	--
	Acenaphthene	83329	7.27E-03	8.57E-02	6.00E-02	1E-02	6.12E-03	--	--
	Dibenzofuran	132649	3.34E-02	8.57E-02	4.00E-03	7E-01	6.12E-03	--	--
	Fluorene	86737	9.01E-03	8.57E-02	4.00E-02	2E-02	6.12E-03	--	--
	Naphthalene	91203	3.86E-02	8.57E-02	9.00E-04	**4E+00**	6.12E-03	--	--
	Pyrene	129000	5.06E-03	8.57E-02	3.00E-02	1E-02	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	6.89E-03	8.57E-02	2.29E-01	3E-03	6.12E-03	2.20E-02	9E-07
	bis(2-Chloroethyl)ether	111444	ND	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.59E-01	8.57E-02	6.30E-01	2E-02	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	1.54E-03	8.57E-02	4.00E-03	3E-02	6.12E-03	5.60E-02	5E-07
	1,1-Dichloroethane	75343	6.51E-02	8.57E-02	1.40E-01	4E-02	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	5.00E-04	8.57E-02	1.40E-03	3E-02	6.12E-03	9.10E-02	3E-07
	1,2-Dichloroethene	540590	2.19E-01	8.57E-02	9.00E-03	**2E+00**	6.12E-03	--	--
	Acetone	67641	3.29E-03	8.57E-02	1.00E-01	3E-03	6.12E-03	--	--
	Benzene	71432	5.01E-03	8.57E-02	1.70E-03	3E-01	6.12E-03	2.90E-02	9E-07
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.57E-02	8.57E-02	2.90E+00	5E-04	6.12E-03	2.90E-03	3E-07
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	3.62E-01	8.57E-02	1.00E-02	**3E+00**	6.12E-03	--	--
	Dichloromethane	75092	1.21E-03	8.57E-02	8.60E-01	1E-04	6.12E-03	1.65E-03	1E-08
	Ethylbenzene	100414	2.07E-02	8.57E-02	2.90E-01	6E-03	6.12E-03	3.85E-03	5E-07
	Tetrachloroethene	127184	1.70E-03	8.57E-02	1.40E-01	1E-03	6.12E-03	1.00E-02	1E-07
	Toluene	108883	6.86E-03	8.57E-02	1.14E-01	5E-03	6.12E-03	--	--
	Trichloroethene	79016	1.81E-02	8.57E-02	1.00E-02	2E-01	6.12E-03	6.00E-03	7E-07
	Vinyl Chloride	75014_A	3.47E-02	8.57E-02	2.80E-02	1E-01	6.12E-03	1.50E-02	3E-06
	Xylenes (Total)	1330207	2.81E-02	8.57E-02	2.00E+00	1E-03	6.12E-03	--	--
					Total	**1E+01**		Total	7E-06
AOI SPRR3	2-Methylnaphthalene	91576	--	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	--	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	--	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	1.80E-01	8.57E-02	9.00E-04	**2E+01**	6.12E-03	--	--
	Pyrene	129000	--	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	--	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.90E-02	8.57E-02	6.30E-01	5E-03	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	1.45E-01	8.57E-02	1.40E-01	9E-02	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.35E-01	8.57E-02	9.00E-03	1E+00	6.12E-03	--	--
	Acetone	67641	ND	8.57E-02	1.00E-01	--	6.12E-03	--	--
	Benzene	71432	2.60E-02	8.57E-02	1.70E-03	1E+00	6.12E-03	2.90E-02	5E-06
	Chlorodibromomethane	124481	ND	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.15E-01	8.57E-02	2.90E+00	3E-03	6.12E-03	2.90E-03	2E-06
	Chloromethane (Methyl chloride)	74873	ND	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.35E-01	8.57E-02	1.00E-02	1E+00	6.12E-03	--	--
	Dichloromethane	75092	4.80E-03	8.57E-02	8.60E-01	5E-04	6.12E-03	1.65E-03	5E-08
	Ethylbenzene	100414	7.50E-02	8.57E-02	2.90E-01	2E-02	6.12E-03	3.85E-03	2E-06
	Tetrachloroethene	127184	ND	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	6.00E-02	8.57E-02	1.14E-01	5E-02	6.12E-03	--	--
	Trichloroethene	79016	5.00E-04	8.57E-02	1.00E-02	4E-03	6.12E-03	6.00E-03	2E-08
	Vinyl Chloride	75014_A	1.65E-01	8.57E-02	2.80E-02	5E-01	6.12E-03	1.50E-02	2E-05
	Xylenes (Total)	1330207	4.65E-01	8.57E-02	2.00E+00	2E-02	6.12E-03	--	--
					Total	**2E+01**		Total	2E-05

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI SPRR5	2-Methylnaphthalene	91576	ND	8.57E-02	2.00E-02	--	6.12E-03	--	--
	Acenaphthene	83329	ND	8.57E-02	6.00E-02	--	6.12E-03	--	--
	Dibenzofuran	132649	--	8.57E-02	4.00E-03	--	6.12E-03	--	--
	Fluorene	86737	--	8.57E-02	4.00E-02	--	6.12E-03	--	--
	Naphthalene	91203	--	8.57E-02	9.00E-04	--	6.12E-03	--	--
	Pyrene	129000	--	8.57E-02	3.00E-02	--	6.12E-03	--	--
	1,4-Dichlorobenzene	106467	ND	8.57E-02	2.29E-01	--	6.12E-03	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	8.57E-02	--	--	6.12E-03	1.10E+00	--
	1,1,1-Trichloroethane	71556	2.00E-03	8.57E-02	6.30E-01	3E-04	6.12E-03	--	--
	1,1,2-Trichloroethane	79005	ND	8.57E-02	4.00E-03	--	6.12E-03	5.60E-02	--
	1,1-Dichloroethane	75343	4.31E-02	8.57E-02	1.40E-01	3E-02	6.12E-03	--	--
	1,2,3-Trichloropropane	96184	ND	8.57E-02	1.40E-03	--	6.12E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	8.57E-02	1.40E-03	--	6.12E-03	9.10E-02	--
	1,2-Dichloroethene	540590	3.05E-02	8.57E-02	9.00E-03	3E-01	6.12E-03	--	--
	Acetone	67641	3.00E-03	8.57E-02	1.00E-01	3E-03	6.12E-03	--	--
	Benzene	71432	3.02E-01	8.57E-02	1.70E-03	**2E+01**	6.12E-03	2.90E-02	5E-05
	Chlorodibromomethane	124481	--	8.57E-02	2.00E-02	--	6.12E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	--	8.57E-02	2.90E+00	--	6.12E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	--	8.57E-02	2.60E-02	--	6.12E-03	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	8.57E-02	1.00E-02	--	6.12E-03	--	--
	Dichloromethane	75092	--	8.57E-02	8.60E-01	--	6.12E-03	1.65E-03	--
	Ethylbenzene	100414	--	8.57E-02	2.90E-01	--	6.12E-03	3.85E-03	--
	Tetrachloroethene	127184	--	8.57E-02	1.40E-01	--	6.12E-03	1.00E-02	--
	Toluene	108883	--	8.57E-02	1.14E-01	--	6.12E-03	--	--
	Trichloroethene	79016	--	8.57E-02	1.00E-02	--	6.12E-03	6.00E-03	--
	Vinyl Chloride	75014_A	--	8.57E-02	2.80E-02	--	6.12E-03	1.50E-02	--
	Xylenes (Total)	1330207	--	8.57E-02	2.00E+00	--	6.12E-03	--	--
					Total	**2E+01**		Total	5E-05

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APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 1	2-Methylnaphthalene	91576	2.25E-03	1.96E-01	2.00E-02	2E-02	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	ND	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	ND	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	1.85E-03	1.96E-01	8.60E-01	4E-04	6.99E-02	1.65E-03	2E-07
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	2E-02		Total	2E-07
AOI 12	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	ND	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	5.00E-05	1.96E-01	3.00E-02	3E-04	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	5.00E-04	1.96E-01	4.00E-03	2E-02	6.99E-02	5.60E-02	2E-06
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	ND	1.96E-01	8.60E-01	--	6.99E-02	1.65E-03	--
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	2E-02		Total	2E-06

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 13	2-Methylnaphthalene	91576	6.50E-01	1.96E-01	2.00E-02	**6E+00**	6.99E-02	--	--
	Acenaphthene	83329	3.11E-03	1.96E-01	6.00E-02	1E-02	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	4.58E-03	1.96E-01	4.00E-02	2E-02	6.99E-02	--	--
	Naphthalene	91203	3.82E-02	1.96E-01	9.00E-04	**8E+00**	6.99E-02	--	--
	Pyrene	129000	2.48E-03	1.96E-01	3.00E-02	2E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	1.00E-03	1.96E-01	1.00E-01	2E-03	6.99E-02	--	--
	Benzene	71432	1.24E-02	1.96E-01	1.70E-03	1E+00	6.99E-02	2.90E-02	3E-05
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	2.42E-03	1.96E-01	8.60E-01	6E-04	6.99E-02	1.65E-03	3E-07
	Ethylbenzene	100414	1.34E-02	1.96E-01	2.90E-01	9E-03	6.99E-02	3.85E-03	4E-06
	Tetrachloroethene	127184	9.50E-04	1.96E-01	1.40E-01	1E-03	6.99E-02	1.00E-02	7E-07
	Toluene	108883	1.30E-03	1.96E-01	1.14E-01	2E-03	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	7.36E-03	1.96E-01	2.00E+00	7E-04	6.99E-02	--	--
					Total	**2E+01**		Total	3E-05
AOI 18	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	ND	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	1.50E-04	1.96E-01	9.00E-04	3E-02	6.99E-02	--	--
	Pyrene	129000	ND	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.10E-02	1.96E-01	6.30E-01	1E-02	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	5.00E-04	1.96E-01	1.40E-01	7E-04	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	4.97E-04	1.96E-01	8.60E-01	1E-04	6.99E-02	1.65E-03	6E-08
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	4E-02		Total	6E-08

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 19	2-Methylnaphthalene	91576	1.00E-03	1.96E-01	2.00E-02	1E-02	6.99E-02	--	--
	Acenaphthene	83329	4.00E-04	1.96E-01	6.00E-02	1E-03	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	5.00E-04	1.96E-01	4.00E-02	2E-03	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	ND	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	ND	1.96E-01	8.60E-01	--	6.99E-02	1.65E-03	--
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	1E-02		Total	--
AOI 20	2-Methylnaphthalene	91576	3.29E-03	1.96E-01	2.00E-02	3E-02	6.99E-02	--	--
	Acenaphthene	83329	1.50E-03	1.96E-01	6.00E-02	5E-03	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	7.50E-04	1.96E-01	4.00E-02	4E-03	6.99E-02	--	--
	Naphthalene	91203	6.50E-04	1.96E-01	9.00E-04	1E-01	6.99E-02	--	--
	Pyrene	129000	2.50E-05	1.96E-01	3.00E-02	2E-04	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	1.96E-01	2.29E-01	2E-04	6.99E-02	2.20E-02	3E-07
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	3.73E-03	1.96E-01	1.00E-01	7E-03	6.99E-02	--	--
	Benzene	71432	3.00E-04	1.96E-01	1.70E-03	3E-02	6.99E-02	2.90E-02	6E-07
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	7.00E-04	1.96E-01	8.60E-01	2E-04	6.99E-02	1.65E-03	8E-08
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	8.00E-04	1.96E-01	1.14E-01	1E-03	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	3.00E-04	1.96E-01	2.80E-02	2E-03	6.99E-02	1.50E-02	3E-07
	Xylenes (Total)	1330207	5.00E-04	1.96E-01	2.00E+00	5E-05	6.99E-02	--	--
					Total	2E-01		Total	1E-06

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 21	2-Methylnaphthalene	91576	2.24E-03	1.96E-01	2.00E-02	2E-02	6.99E-02	--	--
	Acenaphthene	83329	1.55E-03	1.96E-01	6.00E-02	5E-03	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	1.76E-03	1.96E-01	4.00E-02	9E-03	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	2.00E-03	1.96E-01	3.00E-02	1E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	5.78E-02	1.96E-01	9.00E-03	1E+00	6.99E-02	--	--
	Acetone	67641	1.20E-03	1.96E-01	1.00E-01	2E-03	6.99E-02	--	--
	Benzene	71432	2.12E-03	1.96E-01	1.70E-03	2E-01	6.99E-02	2.90E-02	4E-06
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	1.96E-03	1.96E-01	2.60E-02	1E-02	6.99E-02	3.50E-03	5E-07
	cis-1,2-Dichloroethene	156592	6.00E-02	1.96E-01	1.00E-02	1E+00	6.99E-02	--	--
	Dichloromethane	75092	ND	1.96E-01	8.60E-01	--	6.99E-02	1.65E-03	--
	Ethylbenzene	100414	2.50E-04	1.96E-01	2.90E-01	2E-04	6.99E-02	3.85E-03	7E-08
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	1.71E-03	1.96E-01	1.14E-01	3E-03	6.99E-02	--	--
	Trichloroethene	79016	2.74E-03	1.96E-01	1.00E-02	5E-02	6.99E-02	6.00E-03	1E-06
	Vinyl Chloride	75014_A	2.54E-02	1.96E-01	2.80E-02	2E-01	6.99E-02	1.50E-02	3E-05
	Xylenes (Total)	1330207	5.00E-04	1.96E-01	2.00E+00	5E-05	6.99E-02	--	--
					Total	**3E+00**		Total	3E-05
AOI 22A	2-Methylnaphthalene	91576	7.38E-03	1.96E-01	2.00E-02	7E-02	6.99E-02	--	--
	Acenaphthene	83329	2.47E-03	1.96E-01	6.00E-02	8E-03	6.99E-02	--	--
	Dibenzofuran	132649	4.70E-03	1.96E-01	4.00E-03	2E-01	6.99E-02	--	--
	Fluorene	86737	3.42E-03	1.96E-01	4.00E-02	2E-02	6.99E-02	--	--
	Naphthalene	91203	1.21E-03	1.96E-01	9.00E-04	3E-01	6.99E-02	--	--
	Pyrene	129000	1.73E-03	1.96E-01	3.00E-02	1E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.31E-01	1.96E-01	6.30E-01	4E-02	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	1.50E-03	1.96E-01	4.00E-03	7E-02	6.99E-02	5.60E-02	6E-06
	1,1-Dichloroethane	75343	1.00E+00	1.96E-01	1.40E-01	1E+00	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	7.50E-03	1.96E-01	1.40E-03	1E+00	6.99E-02	2.00E+00	**1E-03**
	1,2-Dichloroethane	107062	1.00E-03	1.96E-01	1.40E-03	1E-01	6.99E-02	9.10E-02	6E-06
	1,2-Dichloroethene	540590	1.85E+00	1.96E-01	9.00E-03	**4E+01**	6.99E-02	--	--
	Acetone	67641	6.50E-03	1.96E-01	1.00E-01	1E-02	6.99E-02	--	--
	Benzene	71432	5.91E-03	1.96E-01	1.70E-03	7E-01	6.99E-02	2.90E-02	1E-05
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.50E-02	1.96E-01	2.90E+00	6E-03	6.99E-02	2.90E-03	2E-05
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.85E+00	1.96E-01	1.00E-02	**4E+01**	6.99E-02	--	--
	Dichloromethane	75092	7.50E-04	1.96E-01	8.60E-01	2E-04	6.99E-02	1.65E-03	9E-08
	Ethylbenzene	100414	5.15E-03	1.96E-01	2.90E-01	3E-03	6.99E-02	3.85E-03	1E-06
	Tetrachloroethene	127184	3.50E-04	1.96E-01	1.40E-01	5E-04	6.99E-02	1.00E-02	2E-07
	Toluene	108883	2.45E-03	1.96E-01	1.14E-01	4E-03	6.99E-02	--	--
	Trichloroethene	79016	2.00E-03	1.96E-01	1.00E-02	4E-02	6.99E-02	6.00E-03	8E-07
	Vinyl Chloride	75014_A	1.15E+00	1.96E-01	2.80E-02	**8E+00**	6.99E-02	1.50E-02	**1E-03**
	Xylenes (Total)	1330207	3.50E-03	1.96E-01	2.00E+00	3E-04	6.99E-02	--	--
					Total	**9E+01**		Total	**2E-03**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 22B	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	1.15E-03	1.96E-01	6.00E-02	4E-03	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	5.00E-04	1.96E-01	4.00E-02	2E-03	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	1.50E-04	1.96E-01	3.00E-02	1E-03	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	2.20E-03	1.96E-01	2.29E-01	2E-03	6.99E-02	2.20E-02	3E-06
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	5.85E-02	1.96E-01	9.00E-03	1E+00	6.99E-02	--	--
	Acetone	67641	5.85E-03	1.96E-01	1.00E-01	1E-02	6.99E-02	--	--
	Benzene	71432	3.50E-04	1.96E-01	1.70E-03	4E-02	6.99E-02	2.90E-02	7E-07
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-02	1.96E-01	1.00E-02	3E-01	6.99E-02	--	--
	Dichloromethane	75092	1.15E-03	1.96E-01	8.60E-01	3E-04	6.99E-02	1.65E-03	1E-07
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	1.62E-03	1.96E-01	1.00E-02	3E-02	6.99E-02	6.00E-03	7E-07
	Vinyl Chloride	75014_A	1.71E-01	1.96E-01	2.80E-02	1E+00	6.99E-02	1.50E-02	**2E-04**
	Xylenes (Total)	1330207	7.00E-04	1.96E-01	2.00E+00	7E-05	6.99E-02	--	--
					Total	**3E+00**		Total	**2E-04**
AOI 26	2-Methylnaphthalene	91576	4.86E-03	1.96E-01	2.00E-02	5E-02	6.99E-02	--	--
	Acenaphthene	83329	4.02E-03	1.96E-01	6.00E-02	1E-02	6.99E-02	--	--
	Dibenzofuran	132649	2.68E-03	1.96E-01	4.00E-03	1E-01	6.99E-02	--	--
	Fluorene	86737	4.57E-03	1.96E-01	4.00E-02	2E-02	6.99E-02	--	--
	Naphthalene	91203	3.85E-03	1.96E-01	9.00E-04	8E-01	6.99E-02	--	--
	Pyrene	129000	4.05E-03	1.96E-01	3.00E-02	3E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	9.00E-04	1.96E-01	9.00E-03	2E-02	6.99E-02	--	--
	Acetone	67641	3.60E-03	1.96E-01	1.00E-01	7E-03	6.99E-02	--	--
	Benzene	71432	6.00E-04	1.96E-01	1.70E-03	7E-02	6.99E-02	2.90E-02	1E-06
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	5.00E-04	1.96E-01	1.00E-02	1E-02	6.99E-02	--	--
	Dichloromethane	75092	8.50E-04	1.96E-01	8.60E-01	2E-04	6.99E-02	1.65E-03	1E-07
	Ethylbenzene	100414	1.20E-03	1.96E-01	2.90E-01	8E-04	6.99E-02	3.85E-03	3E-07
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	7.00E-04	1.96E-01	1.14E-01	1E-03	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	2.68E-03	1.96E-01	2.80E-02	2E-02	6.99E-02	1.50E-02	3E-06
	Xylenes (Total)	1330207	1.88E-03	1.96E-01	2.00E+00	2E-04	6.99E-02	--	--
					Total	1E+00		Total	4E-06

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI 27	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	1.50E-04	1.96E-01	4.00E-02	7E-04	6.99E-02	--	--
	Naphthalene	91203	1.00E-04	1.96E-01	9.00E-04	2E-02	6.99E-02	--	--
	Pyrene	129000	ND	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	5.00E-04	1.96E-01	--	--	6.99E-02	1.10E+00	4E-05
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.43E-03	1.96E-01	9.00E-03	3E-02	6.99E-02	--	--
	Acetone	67641	5.50E-03	1.96E-01	1.00E-01	1E-02	6.99E-02	--	--
	Benzene	71432	4.00E-04	1.96E-01	1.70E-03	5E-02	6.99E-02	2.90E-02	8E-07
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-03	1.96E-01	1.00E-02	3E-02	6.99E-02	--	--
	Dichloromethane	75092	7.50E-04	1.96E-01	8.60E-01	2E-04	6.99E-02	1.65E-03	9E-08
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	1.55E-03	1.96E-01	1.00E-02	3E-02	6.99E-02	6.00E-03	6E-07
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	2E-01		Total	4E-05
AOI 30	2-Methylnaphthalene	91576	3.04E-01	1.96E-01	2.00E-02	**3E+00**	6.99E-02	--	--
	Acenaphthene	83329	4.62E-02	1.96E-01	6.00E-02	2E-01	6.99E-02	--	--
	Dibenzofuran	132649	2.05E-02	1.96E-01	4.00E-03	1E+00	6.99E-02	--	--
	Fluorene	86737	5.72E-02	1.96E-01	4.00E-02	3E-01	6.99E-02	--	--
	Naphthalene	91203	3.26E-02	1.96E-01	9.00E-04	**7E+00**	6.99E-02	--	--
	Pyrene	129000	2.13E-02	1.96E-01	3.00E-02	1E-01	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	1.50E-03	1.96E-01	2.29E-01	1E-03	6.99E-02	2.20E-02	2E-06
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	4.50E-03	1.96E-01	1.40E-03	6E-01	6.99E-02	2.00E+00	**6E-04**
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	3.16E-02	1.96E-01	9.00E-03	7E-01	6.99E-02	--	--
	Acetone	67641	8.23E-03	1.96E-01	1.00E-01	2E-02	6.99E-02	--	--
	Benzene	71432	3.98E-03	1.96E-01	1.70E-03	5E-01	6.99E-02	2.90E-02	8E-06
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.23E-03	1.96E-01	2.60E-02	3E-02	6.99E-02	3.50E-03	1E-06
	cis-1,2-Dichloroethene	156592	3.55E-02	1.96E-01	1.00E-02	7E-01	6.99E-02	--	--
	Dichloromethane	75092	3.28E-03	1.96E-01	8.60E-01	7E-04	6.99E-02	1.65E-03	4E-07
	Ethylbenzene	100414	1.60E-03	1.96E-01	2.90E-01	1E-03	6.99E-02	3.85E-03	4E-07
	Tetrachloroethene	127184	3.52E-03	1.96E-01	1.40E-01	5E-03	6.99E-02	1.00E-02	2E-06
	Toluene	108883	1.55E-03	1.96E-01	1.14E-01	3E-03	6.99E-02	--	--
	Trichloroethene	79016	1.25E-03	1.96E-01	1.00E-02	2E-02	6.99E-02	6.00E-03	5E-07
	Vinyl Chloride	75014_A	1.43E-01	1.96E-01	2.80E-02	1E+00	6.99E-02	1.50E-02	1E-04
	Xylenes (Total)	1330207	2.70E-03	1.96E-01	2.00E+00	3E-04	6.99E-02	--	--
					Total	**2E+01**		Total	**8E-04**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 32	2-Methylnaphthalene	91576	7.77E-03	1.96E-01	2.00E-02	8E-02	6.99E-02	--	--
	Acenaphthene	83329	1.65E-03	1.96E-01	6.00E-02	5E-03	6.99E-02	--	--
	Dibenzofuran	132649	6.00E-04	1.96E-01	4.00E-03	3E-02	6.99E-02	--	--
	Fluorene	86737	1.70E-03	1.96E-01	4.00E-02	8E-03	6.99E-02	--	--
	Naphthalene	91203	2.60E-03	1.96E-01	9.00E-04	6E-01	6.99E-02	--	--
	Pyrene	129000	2.80E-03	1.96E-01	3.00E-02	2E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.22E-03	1.96E-01	9.00E-03	3E-02	6.99E-02	--	--
	Acetone	67641	5.00E+00	1.96E-01	1.00E-01	**1E+01**	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.19E-03	1.96E-01	2.60E-02	3E-02	6.99E-02	3.50E-03	1E-06
	cis-1,2-Dichloroethene	156592	7.25E-04	1.96E-01	1.00E-02	1E-02	6.99E-02	--	--
	Dichloromethane	75092	8.01E-01	1.96E-01	8.60E-01	2E-01	6.99E-02	1.65E-03	9E-05
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	8.00E-04	1.96E-01	1.14E-01	1E-03	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	4.08E-03	1.96E-01	2.80E-02	3E-02	6.99E-02	1.50E-02	4E-06
	Xylenes (Total)	1330207	1.30E-03	1.96E-01	2.00E+00	1E-04	6.99E-02	--	--
					Total	**1E+01**		Total	1E-04
AOI 33	2-Methylnaphthalene	91576	1.18E-01	1.96E-01	2.00E-02	1E+00	6.99E-02	--	--
	Acenaphthene	83329	1.20E-01	1.96E-01	6.00E-02	4E-01	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	3.84E-02	1.96E-01	4.00E-02	2E-01	6.99E-02	--	--
	Naphthalene	91203	2.75E+00	1.96E-01	9.00E-04	**6E+02**	6.99E-02	--	--
	Pyrene	129000	6.08E-03	1.96E-01	3.00E-02	4E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	1.96E-01	2.29E-01	2E-04	6.99E-02	2.20E-02	3E-07
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	6.99E-04	1.96E-01	4.00E-03	3E-02	6.99E-02	5.60E-02	3E-06
	1,1-Dichloroethane	75343	6.79E-04	1.96E-01	1.40E-01	9E-04	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	8.74E-03	1.96E-01	1.00E-01	2E-02	6.99E-02	--	--
	Benzene	71432	3.29E-02	1.96E-01	1.70E-03	**4E+00**	6.99E-02	2.90E-02	7E-05
	Chlorodibromomethane	124481	6.97E-04	1.96E-01	2.00E-02	7E-03	6.99E-02	8.40E-02	4E-06
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	6.21E-04	1.96E-01	8.60E-01	1E-04	6.99E-02	1.65E-03	7E-08
	Ethylbenzene	100414	8.74E-01	1.96E-01	2.90E-01	6E-01	6.99E-02	3.85E-03	**2E-04**
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	1.69E-02	1.96E-01	1.14E-01	3E-02	6.99E-02	--	--
	Trichloroethene	79016	5.00E-04	1.96E-01	1.00E-02	1E-02	6.99E-02	6.00E-03	2E-07
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	1.06E-01	1.96E-01	2.00E+00	1E-02	6.99E-02	--	--
					Total	**6E+02**		Total	**3E-04**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 34	2-Methylnaphthalene	91576	4.49E-03	1.96E-01	2.00E-02	4E-02	6.99E-02	--	--
	Acenaphthene	83329	1.43E-03	1.96E-01	6.00E-02	5E-03	6.99E-02	--	--
	Dibenzofuran	132649	2.84E-03	1.96E-01	4.00E-03	1E-01	6.99E-02	--	--
	Fluorene	86737	1.64E-03	1.96E-01	4.00E-02	8E-03	6.99E-02	--	--
	Naphthalene	91203	1.56E-03	1.96E-01	9.00E-04	3E-01	6.99E-02	--	--
	Pyrene	129000	5.50E-04	1.96E-01	3.00E-02	4E-03	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.70E-03	1.96E-01	6.30E-01	5E-04	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	4.00E-04	1.96E-01	4.00E-03	2E-02	6.99E-02	5.60E-02	2E-06
	1,1-Dichloroethane	75343	1.43E-01	1.96E-01	1.40E-01	2E-01	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	3.00E-04	1.96E-01	1.40E-03	4E-02	6.99E-02	9.10E-02	2E-06
	1,2-Dichloroethene	540590	8.45E-03	1.96E-01	9.00E-03	2E-01	6.99E-02	--	--
	Acetone	67641	1.05E-02	1.96E-01	1.00E-01	2E-02	6.99E-02	--	--
	Benzene	71432	1.87E-03	1.96E-01	1.70E-03	2E-01	6.99E-02	2.90E-02	4E-06
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.59E-03	1.96E-01	2.90E+00	6E-04	6.99E-02	2.90E-03	2E-06
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	6.51E-03	1.96E-01	1.00E-02	1E-01	6.99E-02	--	--
	Dichloromethane	75092	1.67E-03	1.96E-01	8.60E-01	4E-04	6.99E-02	1.65E-03	2E-07
	Ethylbenzene	100414	1.50E-03	1.96E-01	2.90E-01	1E-03	6.99E-02	3.85E-03	4E-07
	Tetrachloroethene	127184	1.82E-03	1.96E-01	1.40E-01	3E-03	6.99E-02	1.00E-02	1E-06
	Toluene	108883	1.55E-03	1.96E-01	1.14E-01	3E-03	6.99E-02	--	--
	Trichloroethene	79016	1.67E-03	1.96E-01	1.00E-02	3E-02	6.99E-02	6.00E-03	7E-07
	Vinyl Chloride	75014_A	9.60E-02	1.96E-01	2.80E-02	7E-01	6.99E-02	1.50E-02	1E-04
	Xylenes (Total)	1330207	2.22E-03	1.96E-01	2.00E+00	2E-04	6.99E-02	--	--
					Total	**2E+00**		Total	1E-04
AOI 35	2-Methylnaphthalene	91576	1.85E-02	1.96E-01	2.00E-02	2E-01	6.99E-02	--	--
	Acenaphthene	83329	2.00E-03	1.96E-01	6.00E-02	7E-03	6.99E-02	--	--
	Dibenzofuran	132649	ND	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	2.00E-03	1.96E-01	4.00E-02	1E-02	6.99E-02	--	--
	Naphthalene	91203	5.00E-05	1.96E-01	9.00E-04	1E-02	6.99E-02	--	--
	Pyrene	129000	1.00E-04	1.96E-01	3.00E-02	7E-04	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	1.50E-04	1.96E-01	2.29E-01	1E-04	6.99E-02	2.20E-02	2E-07
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	4.41E-03	1.96E-01	1.40E-01	6E-03	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	7.00E-04	1.96E-01	9.00E-03	2E-02	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	7.70E-04	1.96E-01	8.60E-01	2E-04	6.99E-02	1.65E-03	9E-08
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	2.15E-03	1.96E-01	2.80E-02	2E-02	6.99E-02	1.50E-02	2E-06
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	2E-01		Total	3E-06

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 36	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	ND	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	ND	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	5.00E-05	1.96E-01	3.00E-02	3E-04	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	1.89E-03	1.96E-01	1.40E-01	3E-03	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.49E-03	1.96E-01	9.00E-03	3E-02	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	7.72E-04	1.96E-01	1.00E-02	2E-02	6.99E-02	--	--
	Dichloromethane	75092	5.75E-04	1.96E-01	8.60E-01	1E-04	6.99E-02	1.65E-03	7E-08
	Ethylbenzene	100414	ND	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	ND	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	1.92E-03	1.96E-01	2.80E-02	1E-02	6.99E-02	1.50E-02	2E-06
	Xylenes (Total)	1330207	ND	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	6E-02		Total	2E-06
AOI 37	2-Methylnaphthalene	91576	8.50E-02	1.96E-01	2.00E-02	8E-01	6.99E-02	--	--
	Acenaphthene	83329	9.53E-03	1.96E-01	6.00E-02	3E-02	6.99E-02	--	--
	Dibenzofuran	132649	1.08E-02	1.96E-01	4.00E-03	5E-01	6.99E-02	--	--
	Fluorene	86737	1.78E-02	1.96E-01	4.00E-02	9E-02	6.99E-02	--	--
	Naphthalene	91203	2.15E-03	1.96E-01	9.00E-04	5E-01	6.99E-02	--	--
	Pyrene	129000	1.86E-03	1.96E-01	3.00E-02	1E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.96E-01	6.30E-01	--	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.96E-01	1.40E-01	--	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.96E-01	9.00E-03	--	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	ND	1.96E-01	1.70E-03	--	6.99E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	6.50E-04	1.96E-01	8.60E-01	1E-04	6.99E-02	1.65E-03	7E-08
	Ethylbenzene	100414	3.25E-03	1.96E-01	2.90E-01	2E-03	6.99E-02	3.85E-03	9E-07
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	1.95E-03	1.96E-01	1.14E-01	3E-03	6.99E-02	--	--
	Trichloroethene	79016	ND	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	1.30E-02	1.96E-01	2.00E+00	1E-03	6.99E-02	--	--
					Total	**2E+00**		Total	9E-07

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	HIFNC	Noncancer Risk Inhalation RfD	RiskNC	HIFC	Cancer Risk Inhalation SF	RiskC
AOI 38	2-Methylnaphthalene	91576	3.25E-01	1.96E-01	2.00E-02	**3E+00**	6.99E-02	--	--
	Acenaphthene	83329	7.27E-03	1.96E-01	6.00E-02	2E-02	6.99E-02	--	--
	Dibenzofuran	132649	3.34E-02	1.96E-01	4.00E-03	**2E+00**	6.99E-02	--	--
	Fluorene	86737	9.01E-03	1.96E-01	4.00E-02	4E-02	6.99E-02	--	--
	Naphthalene	91203	3.86E-02	1.96E-01	9.00E-04	**8E+00**	6.99E-02	--	--
	Pyrene	129000	5.06E-03	1.96E-01	3.00E-02	3E-02	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	6.89E-03	1.96E-01	2.29E-01	6E-03	6.99E-02	2.20E-02	1E-05
	bis(2-Chloroethyl)ether	111444	ND	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.59E-01	1.96E-01	6.30E-01	5E-02	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	1.54E-03	1.96E-01	4.00E-03	8E-02	6.99E-02	5.60E-02	6E-06
	1,1-Dichloroethane	75343	6.51E-02	1.96E-01	1.40E-01	9E-02	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	5.00E-04	1.96E-01	1.40E-03	7E-02	6.99E-02	9.10E-02	3E-06
	1,2-Dichloroethene	540590	2.19E-01	1.96E-01	9.00E-03	**5E+00**	6.99E-02	--	--
	Acetone	67641	3.29E-03	1.96E-01	1.00E-01	6E-03	6.99E-02	--	--
	Benzene	71432	5.01E-03	1.96E-01	1.70E-03	6E-01	6.99E-02	2.90E-02	1E-05
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.57E-02	1.96E-01	2.90E+00	1E-03	6.99E-02	2.90E-03	3E-06
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	3.62E-01	1.96E-01	1.00E-02	**7E+00**	6.99E-02	--	--
	Dichloromethane	75092	1.21E-03	1.96E-01	8.60E-01	3E-04	6.99E-02	1.65E-03	1E-07
	Ethylbenzene	100414	2.07E-02	1.96E-01	2.90E-01	1E-02	6.99E-02	3.85E-03	6E-06
	Tetrachloroethene	127184	1.70E-03	1.96E-01	1.40E-01	2E-03	6.99E-02	1.00E-02	1E-06
	Toluene	108883	6.86E-03	1.96E-01	1.14E-01	1E-02	6.99E-02	--	--
	Trichloroethene	79016	1.81E-02	1.96E-01	1.00E-02	4E-01	6.99E-02	6.00E-03	8E-06
	Vinyl Chloride	75014_A	3.47E-02	1.96E-01	2.80E-02	2E-01	6.99E-02	1.50E-02	4E-05
	Xylenes (Total)	1330207	2.81E-02	1.96E-01	2.00E+00	3E-03	6.99E-02	--	--
					Total	**3E+01**		Total	8E-05
AOI SPRR3	2-Methylnaphthalene	91576	--	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	--	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	--	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	1.80E-01	1.96E-01	9.00E-04	**4E+01**	6.99E-02	--	--
	Pyrene	129000	--	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	--	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.90E-02	1.96E-01	6.30E-01	1E-02	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	1.45E-01	1.96E-01	1.40E-01	2E-01	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.35E-01	1.96E-01	9.00E-03	**3E+00**	6.99E-02	--	--
	Acetone	67641	ND	1.96E-01	1.00E-01	--	6.99E-02	--	--
	Benzene	71432	2.60E-02	1.96E-01	1.70E-03	**3E+00**	6.99E-02	2.90E-02	5E-05
	Chlorodibromomethane	124481	ND	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.15E-01	1.96E-01	2.90E+00	8E-03	6.99E-02	2.90E-03	2E-05
	Chloromethane (Methyl chloride)	74873	ND	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.35E-01	1.96E-01	1.00E-02	**3E+00**	6.99E-02	--	--
	Dichloromethane	75092	4.80E-03	1.96E-01	8.60E-01	1E-03	6.99E-02	1.65E-03	6E-07
	Ethylbenzene	100414	7.50E-02	1.96E-01	2.90E-01	5E-02	6.99E-02	3.85E-03	2E-05
	Tetrachloroethene	127184	ND	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	6.00E-02	1.96E-01	1.14E-01	1E-01	6.99E-02	--	--
	Trichloroethene	79016	5.00E-04	1.96E-01	1.00E-02	1E-02	6.99E-02	6.00E-03	2E-07
	Vinyl Chloride	75014_A	1.65E-01	1.96E-01	2.80E-02	1E+00	6.99E-02	1.50E-02	**2E-04**
	Xylenes (Total)	1330207	4.65E-01	1.96E-01	2.00E+00	5E-02	6.99E-02	--	--
					Total	**5E+01**		Total	**3E-04**

APPENDIX E.3 DETAILED RISK CALCULATION TABLES FOR ON-YARD WORKERS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk HIFNC	Inhalation RfD	RiskNC	Cancer Risk HIFC	Inhalation SF	RiskC
AOI SPRR5	2-Methylnaphthalene	91576	ND	1.96E-01	2.00E-02	--	6.99E-02	--	--
	Acenaphthene	83329	ND	1.96E-01	6.00E-02	--	6.99E-02	--	--
	Dibenzofuran	132649	--	1.96E-01	4.00E-03	--	6.99E-02	--	--
	Fluorene	86737	--	1.96E-01	4.00E-02	--	6.99E-02	--	--
	Naphthalene	91203	--	1.96E-01	9.00E-04	--	6.99E-02	--	--
	Pyrene	129000	--	1.96E-01	3.00E-02	--	6.99E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.96E-01	2.29E-01	--	6.99E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	1.96E-01	--	--	6.99E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	2.00E-03	1.96E-01	6.30E-01	6E-04	6.99E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.96E-01	4.00E-03	--	6.99E-02	5.60E-02	--
	1,1-Dichloroethane	75343	4.31E-02	1.96E-01	1.40E-01	6E-02	6.99E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.96E-01	1.40E-03	--	6.99E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.96E-01	1.40E-03	--	6.99E-02	9.10E-02	--
	1,2-Dichloroethene	540590	3.05E-02	1.96E-01	9.00E-03	7E-01	6.99E-02	--	--
	Acetone	67641	3.00E-03	1.96E-01	1.00E-01	6E-03	6.99E-02	--	--
	Benzene	71432	3.02E-01	1.96E-01	1.70E-03	**3E+01**	6.99E-02	2.90E-02	**6E-04**
	Chlorodibromomethane	124481	--	1.96E-01	2.00E-02	--	6.99E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	--	1.96E-01	2.90E+00	--	6.99E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	--	1.96E-01	2.60E-02	--	6.99E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.96E-01	1.00E-02	--	6.99E-02	--	--
	Dichloromethane	75092	--	1.96E-01	8.60E-01	--	6.99E-02	1.65E-03	--
	Ethylbenzene	100414	--	1.96E-01	2.90E-01	--	6.99E-02	3.85E-03	--
	Tetrachloroethene	127184	--	1.96E-01	1.40E-01	--	6.99E-02	1.00E-02	--
	Toluene	108883	--	1.96E-01	1.14E-01	--	6.99E-02	--	--
	Trichloroethene	79016	--	1.96E-01	1.00E-02	--	6.99E-02	6.00E-03	--
	Vinyl Chloride	75014_A	--	1.96E-01	2.80E-02	--	6.99E-02	1.50E-02	--
	Xylenes (Total)	1330207	--	1.96E-01	2.00E+00	--	6.99E-02	--	--
					Total	**4E+01**		Total	**6E-04**

Appendix E.4 Summary of Exposure and Risk Calculations from Soil Gas Intrusion

Station	Detected Analytes	Flux	Indoor Concentration	CTE DI (mg/kg-day)		RME DI (mg/kg-d)		Toxicity Factors		CTE Risks		RME Risks	
		ug/m^2/min	mg/m^3	Cancer	Non-cancer	Cancer	Non-cancer	SF	RfD	Cancer	Non-cancer	Cancer	Non-cancer
BKGD-01	Benzene	7.00E-03	2.80E-04	1.71E-06	2.40E-05	1.96E-05	5.48E-05	3E-02	2E-03	5E-08	1E-02	6E-07	3E-02
BKGD-01	Toluene	2.39E-02	9.56E-04	5.85E-06	8.19E-05	6.68E-05	1.87E-04	na	1E-01		7E-04		2E-03
BKGD-02	Benzene	8.00E-03	3.20E-04	1.96E-06	2.74E-05	2.24E-05	6.26E-05	3E-02	2E-03	6E-08	2E-02	6E-07	4E-02
BKGD-02	m,p-Xylene	3.32E-02	1.33E-03	8.13E-06	1.14E-04	9.28E-05	2.60E-04	na	2E+00		6E-05		1E-04
BKGD-02	Toluene	1.13E-01	4.50E-03	2.76E-05	3.86E-04	3.15E-04	8.81E-04	na	1E-01		3E-03		8E-03
BKGD-02	Trichlorofluoromethane	5.13E-02	2.05E-03	1.26E-05	1.76E-04	1.43E-04	4.02E-04	na	2E-01		9E-04		2E-03
DF-03	Methyl chloride	1.47E-02	5.88E-04	3.60E-06	5.04E-05	4.11E-05	1.15E-04	4E-03	3E-02	1E-08	2E-03	1E-07	4E-03
DF-03	Toluene	1.03E+00	4.10E-02	2.51E-04	3.52E-03	2.87E-03	8.03E-03	na	1E-01		3E-02		7E-02
DF-07	Benzene	4.40E-02	1.76E-03	1.08E-05	1.51E-04	1.23E-04	3.44E-04	3E-02	2E-03	3E-07	9E-02	4E-06	2E-01
DF-07	Dichloromethane	2.30E-02	9.20E-04	5.63E-06	7.89E-05	6.43E-05	1.80E-04	2E-03	9E-01	9E-09	9E-05	1E-07	2E-04
DF-07	Methyl chloride	4.17E-02	1.67E-03	1.02E-05	1.43E-04	1.17E-04	3.26E-04	4E-03	3E-02	4E-08	5E-03	4E-07	1E-02
DF-07	Vinyl chloride	3.00E-03	1.20E-04	7.35E-07	1.03E-05	8.39E-06	2.35E-05	2E-02	3E-02	1E-08	4E-04	1E-07	8E-04
NF-03	Vinyl chloride	1.00E-03	4.00E-05	2.45E-07	3.43E-06	2.80E-06	7.83E-06	2E-02	3E-02	4E-09	1E-04	4E-08	3E-04
NF-05	1,1-Dichloroethene	3.00E-03	1.20E-04	7.35E-07	1.03E-05	8.39E-06	2.35E-05	na	6E-02		2E-04		4E-04
NF-07	Benzene	4.00E-02	1.60E-03	9.80E-06	1.37E-04	1.12E-04	3.13E-04	3E-02	2E-03	3E-07	8E-02	3E-06	2E-01
NF-07	m,p-Xylene	1.35E-01	5.42E-03	3.32E-05	4.64E-04	3.79E-04	1.06E-03	na	2E+00		2E-04		5E-04
NF-07	Tetrachloroethylene	1.27E+00	5.06E-02	3.10E-04	4.34E-03	3.54E-03	9.90E-03	1E-02	1E-01	3E-06	3E-02	4E-05	7E-02
NF-07	Toluene	2.07E-01	8.28E-03	5.07E-05	7.09E-04	5.78E-04	1.62E-03	na	1E-01		6E-03		1E-02
NF-09	Benzene	5.20E-02	2.08E-03	1.27E-05	1.78E-04	1.45E-04	4.07E-04	3E-02	2E-03	4E-07	1E-01	4E-06	2E-01
NF-09	Ethyl benzene	4.04E-02	1.62E-03	9.89E-06	1.39E-04	1.13E-04	3.16E-04	4E-03	3E-01	4E-08	5E-04	4E-07	1E-03
NF-09	m,p-Xylene	1.86E-01	7.45E-03	4.56E-05	6.38E-04	5.21E-04	1.46E-03	na	2E+00		3E-04		7E-04
NF-09	Methyl chloride	1.94E-02	7.76E-04	4.75E-06	6.65E-05	5.42E-05	1.52E-04	4E-03	3E-02	2E-08	3E-03	2E-07	6E-03
NF-09	othro-Xylene	6.71E-02	2.68E-03	1.64E-05	2.30E-04	1.88E-04	5.25E-04	na	2E+00		1E-04		3E-04
NF-09	Toluene	4.11E-01	1.64E-02	1.01E-04	1.41E-03	1.15E-03	3.21E-03	na	1E-01		1E-02		3E-02
SF-01	1,2,4-Trimethylbenzene	4.80E-02	1.92E-03	1.18E-05	1.65E-04	1.34E-04	3.76E-04	na	2E-03		1E-01		2E-01
SF-01	4-Ethyltoluene	3.83E-02	1.53E-03	9.38E-06	1.31E-04	1.07E-04	3.00E-04	na	na				
SF-01	Benzene	5.90E-02	2.36E-03	1.44E-05	2.02E-04	1.65E-04	4.62E-04	3E-02	2E-03	4E-07	1E-01	5E-06	3E-01
SF-01	Ethyl benzene	5.23E-02	2.09E-03	1.28E-05	1.79E-04	1.46E-04	4.09E-04	4E-03	3E-01	5E-08	6E-04	6E-07	1E-03
SF-01	m,p-Xylene	1.85E-01	7.40E-03	4.53E-05	6.35E-04	5.17E-04	1.45E-03	na	2E+00		3E-04		7E-04
SF-01	othro-Xylene	7.97E-02	3.19E-03	1.95E-05	2.73E-04	2.23E-04	6.24E-04	na	2E+00		1E-04		3E-04
SF-01	Tetrachloroethylene	5.76E-02	2.30E-03	1.41E-05	1.97E-04	1.61E-04	4.51E-04	1E-02	1E-01	1E-07	1E-03	2E-06	3E-03
SF-01	Toluene	1.60E-01	6.40E-03	3.92E-05	5.49E-04	4.47E-04	1.25E-03	na	1E-01		5E-03		1E-02
SF-02	Benzene	3.50E-02	1.40E-03	8.57E-06	1.20E-04	9.78E-05	2.74E-04	3E-02	2E-03	2E-07	7E-02	3E-06	2E-01
SF-02	Vinyl chloride	1.00E-03	4.00E-05	2.45E-07	3.43E-06	2.80E-06	7.83E-06	2E-02	3E-02	4E-09	1E-04	4E-08	3E-04
SF-07	1,2,4-Trichlorobenzene	1.16E-01	4.62E-03	2.83E-05	3.96E-04	3.23E-04	9.04E-04	na	1E-03		4E-01		9E-01
SF-07	1,2,4-Trimethylbenzene	4.62E-02	1.85E-03	1.13E-05	1.58E-04	1.29E-04	3.62E-04	na	2E-03		9E-02		2E-01
SF-07	4-Ethyltoluene	7.32E-02	2.93E-03	1.79E-05	2.51E-04	2.05E-04	5.73E-04	na	na				
SF-07	Benzene	4.80E-02	1.92E-03	1.18E-05	1.65E-04	1.34E-04	3.76E-04	3E-02	2E-03	3E-07	1E-01	4E-06	2E-01
SF-07	Benzyl chloride	1.31E-01	5.24E-03	3.21E-05	4.49E-04	3.66E-04	1.02E-03	2E-01	na	5E-06		6E-05	
SF-07	Chloroethane	4.62E-02	1.85E-03	1.13E-05	1.58E-04	1.29E-04	3.62E-04	3E-03	3E+00	3E-08	5E-05	4E-07	1E-04
SF-07	m-Dichlorobenzene	7.32E-02	2.93E-03	1.79E-05	2.51E-04	2.05E-04	5.73E-04	na	3E-02		8E-03		2E-02
SF-07	Methyl chloride	8.09E-02	3.24E-03	1.98E-05	2.77E-04	2.26E-04	6.33E-04	4E-03	3E-02	7E-08	1E-02	8E-07	2E-02
SF-07	o-Dichlorobenzene	5.78E-02	2.31E-03	1.42E-05	1.98E-04	1.62E-04	4.52E-04	na	4E-02		5E-03		1E-02
SF-07	othro-Xylene	5.78E-02	2.31E-03	1.42E-05	1.98E-04	1.62E-04	4.52E-04	na	2E+00		1E-04		2E-04
SF-07	para-Dichlorobenzene	6.93E-02	2.77E-03	1.70E-05	2.38E-04	1.94E-04	5.42E-04	2E-02	2E-01	4E-07	1E-03	4E-06	2E-03
SF-07	Toluene	1.50E-01	6.01E-03	3.68E-05	5.15E-04	4.20E-04	1.18E-03	na	1E-01		5E-03		1E-02
SF-08	Benzene	4.50E-02	1.80E-03	1.10E-05	1.54E-04	1.26E-04	3.52E-04	3E-02	2E-03	3E-07	9E-02	4E-06	2E-01

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OFF-YARD RESIDENT

E.5 - INHALATION OF PM10
E.6 - INGESTION OF GROUNDWATER
E.7 - INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

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APPENDIX E.5 DETAILED RISK CALCULATION TABLES FOR RESIDENTIAL INHALATION OF PM10

Based on CTE Assumptions

Region	Chemical	CAS Number	Csoil (mg/kg)	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
Region 1	Aluminum	7429905	2.70E+04	9.25E-05	7.12E-03	1.00E-03	7E-04	9.16E-04	--	--
	Antimony	7440360	1.20E+01	4.12E-08	7.12E-03	4.00E-04	7E-07	9.16E-04	--	--
	Arsenic	7440382	4.93E+01	1.69E-07	7.12E-03	3.00E-04	4E-06	9.16E-04	1.51E+01	2E-09
	Chromium	18540299_VI	4.57E+01	1.57E-07	7.12E-03	3.00E-05	4E-05	9.16E-04	4.10E+01	6E-09
	Copper	7440508	9.32E+03	3.20E-05	7.12E-03	4.00E-02	6E-06	9.16E-04	--	--
	Lead	7439921	3.84E+02	1.32E-06	7.12E-03	--	--	9.16E-04	--	--
	Manganese	7439965_NF	8.43E+02	2.89E-06	7.12E-03	1.43E-05	1E-03	9.16E-04	--	--
	Mercury	7439976	1.85E+01	6.33E-08	7.12E-03	8.60E-05	5E-06	9.16E-04	--	--
	Selenium	7782492	8.36E+00	2.87E-08	7.12E-03	5.00E-03	4E-08	9.16E-04	--	--
	Benzo[a]anthracene	56553	2.30E+00	7.89E-09	7.12E-03	2.00E-02	3E-09	9.16E-04	3.10E-01	2E-12
	Benzo[a]pyrene	50328	3.11E+00	1.07E-08	7.12E-03	2.00E-02	4E-09	9.16E-04	3.10E+00	3E-11
	Benzo[b]fluoranthene	205992	2.90E+00	9.95E-09	7.12E-03	2.00E-02	4E-09	9.16E-04	3.10E-01	3E-12
	Benzo[k]fluoranthene	207089	2.60E+00	8.92E-09	7.12E-03	2.00E-02	3E-09	9.16E-04	3.10E-02	3E-13
	Chrysene	218019	3.11E+00	1.07E-08	7.12E-03	2.00E-02	4E-09	9.16E-04	3.10E-03	3E-14
	Dibenz[a,h]anthracene	53703	7.90E-01	2.71E-09	7.12E-03	2.00E-02	1E-09	9.16E-04	3.10E+00	8E-12
	Indeno[1,2,3-c,d]pyrene	193395	3.10E+00	1.06E-08	7.12E-03	2.00E-02	4E-09	9.16E-04	3.10E-01	3E-12
	n-Nitrosodipropylamine	621647	1.30E+00	4.46E-09	7.12E-03	--	--	9.16E-04	7.00E+00	3E-11
						Total	2E-03		Total	8E-09
Region 2	Aluminum	7429905	--	--	7.12E-03	1.00E-03	--	9.16E-04	--	--
	Antimony	7440360	--	--	7.12E-03	4.00E-04	--	9.16E-04	--	--
	Arsenic	7440382	5.01E+01	1.72E-07	7.12E-03	3.00E-04	4E-06	9.16E-04	1.51E+01	2E-09
	Chromium	18540299_VI	3.25E+02	1.12E-06	7.12E-03	3.00E-05	3E-04	9.16E-04	4.10E+01	4E-08
	Copper	7440508	--	--	7.12E-03	4.00E-02	--	9.16E-04	--	--
	Lead	7439921	3.46E+02	1.19E-06	7.12E-03	--	--	9.16E-04	--	--
	Manganese	7439965_NF	--	--	7.12E-03	1.43E-05	--	9.16E-04	--	--
	Mercury	7439976	4.86E-01	1.67E-09	7.12E-03	8.60E-05	1E-07	9.16E-04	--	--
	Selenium	7782492	1.56E+02	5.36E-07	7.12E-03	5.00E-03	8E-07	9.16E-04	--	--
	Benzo[a]anthracene	56553	1.41E+00	4.85E-09	7.12E-03	2.00E-02	2E-09	9.16E-04	3.10E-01	1E-12
	Benzo[a]pyrene	50328	1.78E+00	6.09E-09	7.12E-03	2.00E-02	2E-09	9.16E-04	3.10E+00	2E-11
	Benzo[b]fluoranthene	205992	1.83E+00	6.27E-09	7.12E-03	2.00E-02	2E-09	9.16E-04	3.10E-01	2E-12
	Benzo[k]fluoranthene	207089	1.33E+00	4.55E-09	7.12E-03	2.00E-02	2E-09	9.16E-04	3.10E-02	1E-13
	Chrysene	218019	2.11E+00	7.22E-09	7.12E-03	2.00E-02	3E-09	9.16E-04	3.10E-03	2E-14
	Dibenz[a,h]anthracene	53703	5.15E-01	1.77E-09	7.12E-03	2.00E-02	6E-10	9.16E-04	3.10E+00	5E-12
	Indeno[1,2,3-c,d]pyrene	193395	1.54E+00	5.28E-09	7.12E-03	2.00E-02	2E-09	9.16E-04	3.10E-01	1E-12
	n-Nitrosodipropylamine	621647	ND	ND	7.12E-03	--	--	9.16E-04	7.00E+00	--
						Total	3E-04		Total	4E-08
Region 3	Aluminum	7429905	--	--	7.12E-03	1.00E-03	--	9.16E-04	--	--
	Antimony	7440360	--	--	7.12E-03	4.00E-04	--	9.16E-04	--	--
	Arsenic	7440382	1.02E+01	3.51E-08	7.12E-03	3.00E-04	8E-07	9.16E-04	1.51E+01	5E-10
	Chromium	18540299_VI	1.54E+01	5.28E-08	7.12E-03	3.00E-05	1E-05	9.16E-04	4.10E+01	2E-09
	Copper	7440508	--	--	7.12E-03	4.00E-02	--	9.16E-04	--	--
	Lead	7439921	2.97E+02	1.02E-06	7.12E-03	--	--	9.16E-04	--	--
	Manganese	7439965_NF	--	--	7.12E-03	1.43E-05	--	9.16E-04	--	--
	Mercury	7439976	1.19E-01	4.10E-10	7.12E-03	8.60E-05	3E-08	9.16E-04	--	--
	Selenium	7782492	5.80E+00	1.99E-08	7.12E-03	5.00E-03	3E-08	9.16E-04	--	--
	Benzo[a]anthracene	56553	4.65E+01	1.60E-07	7.12E-03	2.00E-02	6E-08	9.16E-04	3.10E-01	5E-11
	Benzo[a]pyrene	50328	3.52E+01	1.21E-07	7.12E-03	2.00E-02	4E-08	9.16E-04	3.10E+00	3E-10
	Benzo[b]fluoranthene	205992	1.01E+02	3.45E-07	7.12E-03	2.00E-02	1E-07	9.16E-04	3.10E-01	1E-10
	Benzo[k]fluoranthene	207089	3.70E+01	1.27E-07	7.12E-03	2.00E-02	5E-08	9.16E-04	3.10E-02	4E-12
	Chrysene	218019	1.40E+02	4.80E-07	7.12E-03	2.00E-02	2E-07	9.16E-04	3.10E-03	1E-12
	Dibenz[a,h]anthracene	53703	ND	ND	7.12E-03	2.00E-02	--	9.16E-04	3.10E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	2.20E-01	7.55E-10	7.12E-03	2.00E-02	3E-10	9.16E-04	3.10E-01	2E-13
	n-Nitrosodipropylamine	621647	ND	ND	7.12E-03	--	--	9.16E-04	7.00E+00	--
						Total	1E-05		Total	3E-09
Region 4/5	Aluminum	7429905	--	--	7.12E-03	1.00E-03	--	9.16E-04	--	--
	Antimony	7440360	--	--	7.12E-03	4.00E-04	--	9.16E-04	--	--
	Arsenic	7440382	4.75E+00	1.63E-08	7.12E-03	3.00E-04	4E-07	9.16E-04	1.51E+01	2E-10
	Chromium	18540299_VI	1.28E+01	4.39E-08	7.12E-03	3.00E-05	1E-05	9.16E-04	4.10E+01	2E-09
	Copper	7440508	--	--	7.12E-03	4.00E-02	--	9.16E-04	--	--
	Lead	7439921	9.21E+01	3.16E-07	7.12E-03	--	--	9.16E-04	--	--
	Manganese	7439965_NF	--	--	7.12E-03	1.43E-05	--	9.16E-04	--	--
	Mercury	7439976	1.43E-01	4.90E-10	7.12E-03	8.60E-05	4E-08	9.16E-04	--	--
	Selenium	7782492	3.19E-01	1.09E-09	7.12E-03	5.00E-03	2E-09	9.16E-04	--	--
	Benzo[a]anthracene	56553	1.20E-01	4.12E-10	7.12E-03	2.00E-02	1E-10	9.16E-04	3.10E-01	1E-13
	Benzo[a]pyrene	50328	8.20E-02	2.81E-10	7.12E-03	2.00E-02	1E-10	9.16E-04	3.10E+00	8E-13
	Benzo[b]fluoranthene	205992	2.20E-01	7.55E-10	7.12E-03	2.00E-02	3E-10	9.16E-04	3.10E-01	2E-13
	Benzo[k]fluoranthene	207089	5.20E-02	1.78E-10	7.12E-03	2.00E-02	6E-11	9.16E-04	3.10E-02	5E-15
	Chrysene	218019	2.22E-01	7.63E-10	7.12E-03	2.00E-02	3E-10	9.16E-04	3.10E-03	2E-15
	Dibenz[a,h]anthracene	53703	ND	ND	7.12E-03	2.00E-02	--	9.16E-04	3.10E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	7.20E-02	2.47E-10	7.12E-03	2.00E-02	9E-11	9.16E-04	3.10E-01	7E-14
	n-Nitrosodipropylamine	621647	ND	ND	7.12E-03	--	--	9.16E-04	7.00E+00	--
						Total	1E-05		Total	2E-09

APPENDIX E.5 DETAILED RISK CALCULATION TABLES FOR RESIDENTIAL INHALATION OF PM10

Based on RME Assumptions

Region	Chemical	CAS Number	Csoil (mg/kg)	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
Region 1	Aluminum	7429905	2.70E+04	9.25E-05	1.81E-02	1.00E-03	2E-03	7.75E-03	--	--
	Antimony	7440360	1.20E+01	4.12E-08	1.81E-02	4.00E-04	2E-06	7.75E-03	--	--
	Arsenic	7440382	4.93E+01	1.69E-07	1.81E-02	3.00E-04	1E-05	7.75E-03	1.51E+01	2E-08
	Chromium	18540299_VI	4.57E+01	1.57E-07	1.81E-02	3.00E-05	9E-05	7.75E-03	4.10E+01	5E-08
	Copper	7440508	9.32E+03	3.20E-05	1.81E-02	4.00E-02	1E-05	7.75E-03	--	--
	Lead	7439921	3.84E+02	1.32E-06	1.81E-02	--	--	7.75E-03	--	--
	Manganese	7439965_NF	8.43E+02	2.89E-06	1.81E-02	1.43E-05	4E-03	7.75E-03	--	--
	Mercury	7439976	1.85E+01	6.33E-08	1.81E-02	8.60E-05	1E-05	7.75E-03	--	--
	Selenium	7782492	8.36E+00	2.87E-08	1.81E-02	5.00E-03	1E-07	7.75E-03	--	--
	Benzo[a]anthracene	56553	2.30E+00	7.89E-09	1.81E-02	2.00E-02	7E-09	7.75E-03	3.10E-01	2E-11
	Benzo[a]pyrene	50328	3.11E+00	1.07E-08	1.81E-02	2.00E-02	1E-08	7.75E-03	3.10E+00	3E-10
	Benzo[b]fluoranthene	205992	2.90E+00	9.95E-09	1.81E-02	2.00E-02	9E-09	7.75E-03	3.10E-01	2E-11
	Benzo[k]fluoranthene	207089	2.60E+00	8.92E-09	1.81E-02	2.00E-02	8E-09	7.75E-03	3.10E-02	2E-12
	Chrysene	218019	3.11E+00	1.07E-08	1.81E-02	2.00E-02	1E-08	7.75E-03	3.10E-03	3E-13
	Dibenz[a,h]anthracene	53703	7.90E-01	2.71E-09	1.81E-02	2.00E-02	2E-09	7.75E-03	3.10E+00	7E-11
	Indeno[1,2,3-c,d]pyrene	193395	3.10E+00	1.06E-08	1.81E-02	2.00E-02	1E-08	7.75E-03	3.10E-01	3E-11
	n-Nitrosodipropylamine	621647	1.30E+00	4.46E-09	1.81E-02	--	--	7.75E-03	7.00E+00	2E-10
						Total	5E-03		Total	7E-08
Region 2	Aluminum	7429905	--	--	1.81E-02	1.00E-03	--	7.75E-03	--	--
	Antimony	7440360	--	--	1.81E-02	4.00E-04	--	7.75E-03	--	--
	Arsenic	7440382	5.01E+01	1.72E-07	1.81E-02	3.00E-04	1E-05	7.75E-03	1.51E+01	2E-08
	Chromium	18540299_VI	3.25E+02	1.12E-06	1.81E-02	3.00E-05	7E-04	7.75E-03	4.10E+01	4E-07
	Copper	7440508	--	--	1.81E-02	4.00E-02	--	7.75E-03	--	--
	Lead	7439921	3.46E+02	1.19E-06	1.81E-02	--	--	7.75E-03	--	--
	Manganese	7439965_NF	--	--	1.81E-02	1.43E-05	--	7.75E-03	--	--
	Mercury	7439976	4.86E-01	1.67E-09	1.81E-02	8.60E-05	4E-07	7.75E-03	--	--
	Selenium	7782492	1.56E+02	5.36E-07	1.81E-02	5.00E-03	2E-06	7.75E-03	--	--
	Benzo[a]anthracene	56553	1.41E+00	4.85E-09	1.81E-02	2.00E-02	4E-09	7.75E-03	3.10E-01	1E-11
	Benzo[a]pyrene	50328	1.78E+00	6.09E-09	1.81E-02	2.00E-02	6E-09	7.75E-03	3.10E+00	1E-10
	Benzo[b]fluoranthene	205992	1.83E+00	6.27E-09	1.81E-02	2.00E-02	6E-09	7.75E-03	3.10E-01	2E-11
	Benzo[k]fluoranthene	207089	1.33E+00	4.55E-09	1.81E-02	2.00E-02	4E-09	7.75E-03	3.10E-02	1E-12
	Chrysene	218019	2.11E+00	7.22E-09	1.81E-02	2.00E-02	7E-09	7.75E-03	3.10E-03	2E-13
	Dibenz[a,h]anthracene	53703	5.15E-01	1.77E-09	1.81E-02	2.00E-02	2E-09	7.75E-03	3.10E+00	4E-11
	Indeno[1,2,3-c,d]pyrene	193395	1.54E+00	5.28E-09	1.81E-02	2.00E-02	5E-09	7.75E-03	3.10E-01	1E-11
	n-Nitrosodipropylamine	621647	ND	ND	1.81E-02	--	--	7.75E-03	7.00E+00	--
						Total	7E-04		Total	4E-07
Region 3	Aluminum	7429905	--	--	1.81E-02	1.00E-03	--	7.75E-03	--	--
	Antimony	7440360	--	--	1.81E-02	4.00E-04	--	7.75E-03	--	--
	Arsenic	7440382	1.02E+01	3.51E-08	1.81E-02	3.00E-04	2E-06	7.75E-03	1.51E+01	4E-09
	Chromium	18540299_VI	1.54E+01	5.28E-08	1.81E-02	3.00E-05	3E-05	7.75E-03	4.10E+01	2E-08
	Copper	7440508	--	--	1.81E-02	4.00E-02	--	7.75E-03	--	--
	Lead	7439921	2.97E+02	1.02E-06	1.81E-02	--	--	7.75E-03	--	--
	Manganese	7439965_NF	--	--	1.81E-02	1.43E-05	--	7.75E-03	--	--
	Mercury	7439976	1.19E-01	4.10E-10	1.81E-02	8.60E-05	9E-08	7.75E-03	--	--
	Selenium	7782492	5.80E+00	1.99E-08	1.81E-02	5.00E-03	7E-08	7.75E-03	--	--
	Benzo[a]anthracene	56553	4.65E+01	1.60E-07	1.81E-02	2.00E-02	1E-07	7.75E-03	3.10E-01	4E-10
	Benzo[a]pyrene	50328	3.52E+01	1.21E-07	1.81E-02	2.00E-02	1E-07	7.75E-03	3.10E+00	3E-09
	Benzo[b]fluoranthene	205992	1.01E+02	3.45E-07	1.81E-02	2.00E-02	3E-07	7.75E-03	3.10E-01	8E-10
	Benzo[k]fluoranthene	207089	3.70E+01	1.27E-07	1.81E-02	2.00E-02	1E-07	7.75E-03	3.10E-02	3E-11
	Chrysene	218019	1.40E+02	4.80E-07	1.81E-02	2.00E-02	4E-07	7.75E-03	3.10E-03	1E-11
	Dibenz[a,h]anthracene	53703	ND	ND	1.81E-02	2.00E-02	--	7.75E-03	3.10E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	2.20E-01	7.55E-10	1.81E-02	2.00E-02	7E-10	7.75E-03	3.10E-01	2E-12
	n-Nitrosodipropylamine	621647	ND	ND	1.81E-02	--	--	7.75E-03	7.00E+00	--
						Total	4E-05		Total	3E-08
Region 4/5	Aluminum	7429905	--	--	1.81E-02	1.00E-03	--	7.75E-03	--	--
	Antimony	7440360	--	--	1.81E-02	4.00E-04	--	7.75E-03	--	--
	Arsenic	7440382	4.75E+00	1.63E-08	1.81E-02	3.00E-04	1E-06	7.75E-03	1.51E+01	2E-09
	Chromium	18540299_VI	1.28E+01	4.39E-08	1.81E-02	3.00E-05	3E-05	7.75E-03	4.10E+01	1E-08
	Copper	7440508	--	--	1.81E-02	4.00E-02	--	7.75E-03	--	--
	Lead	7439921	9.21E+01	3.16E-07	1.81E-02	--	--	7.75E-03	--	--
	Manganese	7439965_NF	--	--	1.81E-02	1.43E-05	--	7.75E-03	--	--
	Mercury	7439976	1.43E-01	4.90E-10	1.81E-02	8.60E-05	1E-07	7.75E-03	--	--
	Selenium	7782492	3.19E-01	1.09E-09	1.81E-02	5.00E-03	4E-09	7.75E-03	--	--
	Benzo[a]anthracene	56553	1.20E-01	4.12E-10	1.81E-02	2.00E-02	4E-10	7.75E-03	3.10E-01	1E-12
	Benzo[a]pyrene	50328	8.20E-02	2.81E-10	1.81E-02	2.00E-02	3E-10	7.75E-03	3.10E+00	7E-12
	Benzo[b]fluoranthene	205992	2.20E-01	7.55E-10	1.81E-02	2.00E-02	7E-10	7.75E-03	3.10E-01	2E-12
	Benzo[k]fluoranthene	207089	5.20E-02	1.78E-10	1.81E-02	2.00E-02	2E-10	7.75E-03	3.10E-02	4E-14
	Chrysene	218019	2.22E-01	7.63E-10	1.81E-02	2.00E-02	7E-10	7.75E-03	3.10E-03	2E-14
	Dibenz[a,h]anthracene	53703	ND	ND	1.81E-02	2.00E-02	--	7.75E-03	3.10E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	7.20E-02	2.47E-10	1.81E-02	2.00E-02	2E-10	7.75E-03	3.10E-01	6E-13
	n-Nitrosodipropylamine	621647	ND	ND	1.81E-02	--	--	7.75E-03	7.00E+00	--
						Total	3E-05		Total	2E-08

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 1	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	--	1.28E-02	3.00E-04	--	1.65E-03	1.50E+00	--
	Barium	7440393	--	1.28E-02	7.00E-02	--	1.65E-03	--	--
	Cadmium	7440439_W	--	1.28E-02	5.00E-04	--	1.65E-03	--	--
	Chromium	18540299_VI	--	1.28E-02	3.00E-03	--	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	--	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	Silver	7440224	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	2-Methylnaphthalene	91576	4.50E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	ND	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	1.28E-02	2.00E-02	--	1.65E-03	1.40E-02	--
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	3.70E-03	1.28E-02	6.00E-02	8E-04	1.65E-03	7.50E-03	5E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	4E-03		Total	5E-08
AOI 12	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	8.60E-03	1.28E-02	3.00E-04	4E-01	1.65E-03	1.50E+00	2E-05
	Barium	7440393	4.01E-01	1.28E-02	7.00E-02	7E-02	1.65E-03	--	--
	Cadmium	7440439_W	4.70E-03	1.28E-02	5.00E-04	1E-01	1.65E-03	--	--
	Chromium	18540299_VI	3.15E-03	1.28E-02	3.00E-03	1E-02	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	2.40E-05	1.28E-02	3.00E-04	1E-03	1.65E-03	--	--
	Selenium	7782492	1.96E-02	1.28E-02	5.00E-03	5E-02	1.65E-03	--	--
	Silver	7440224	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	1.00E-04	1.28E-02	4.00E-02	3E-05	1.65E-03	--	--
	Fluorene	86737	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	1.00E-04	1.28E-02	3.00E-02	4E-05	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.90E-02	1.28E-02	2.00E-02	4E-02	1.65E-03	1.40E-02	1E-06
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	1.80E-03	1.28E-02	3.00E-02	8E-04	1.65E-03	1.20E-01	4E-07
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	1.00E-03	1.28E-02	4.00E-03	3E-03	1.65E-03	5.70E-02	9E-08
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	ND	1.28E-02	6.00E-02	--	1.65E-03	7.50E-03	--
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	7E-01		Total	2E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 13	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	6.40E-02	1.28E-02	3.00E-04	**3E+00**	1.65E-03	1.50E+00	**2E-04**
	Barium	7440393	1.60E+00	1.28E-02	7.00E-02	3E-01	1.65E-03	--	--
	Cadmium	7440439_W	6.70E-03	1.28E-02	5.00E-04	2E-01	1.65E-03	--	--
	Chromium	18540299_VI	2.30E-01	1.28E-02	3.00E-03	1E+00	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	Silver	7440224	1.20E-02	1.28E-02	5.00E-03	3E-02	1.65E-03	--	--
	2-Methylnaphthalene	91576	1.30E+00	1.28E-02	2.00E-02	8E-01	1.65E-03	--	--
	Acenaphthene	83329	6.23E-03	1.28E-02	6.00E-02	1E-03	1.65E-03	--	--
	Benzo[a]anthracene	56553	1.00E-04	1.28E-02	2.00E-02	6E-05	1.65E-03	7.30E-01	1E-07
	Benzo[a]pyrene	50328	1.00E-04	1.28E-02	2.00E-02	6E-05	1.65E-03	7.30E+00	1E-06
	Benzo[b]fluoranthene	205992	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	1.00E-04	1.28E-02	2.00E-02	6E-05	1.65E-03	7.30E-03	1E-09
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	5.20E-03	1.28E-02	4.00E-02	2E-03	1.65E-03	--	--
	Fluorene	86737	9.15E-03	1.28E-02	4.00E-02	3E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	7.63E-02	1.28E-02	2.00E-02	5E-02	1.65E-03	--	--
	Phenanthrene	85018	4.32E-02	1.28E-02	2.00E-02	3E-02	1.65E-03	--	--
	Pyrene	129000	4.95E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	7.40E-03	1.28E-02	1.00E-03	9E-02	1.65E-03	6.80E-01	8E-06
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.10E-01	1.28E-02	2.00E-02	3E-01	1.65E-03	1.40E-02	1E-05
	Carbazole	86748	1.00E-03	1.28E-02	--	--	1.65E-03	2.00E-02	3E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	2.00E-03	1.28E-02	1.00E-01	3E-04	1.65E-03	--	--
	Benzene	71432	2.49E-02	1.28E-02	3.00E-03	1E-01	1.65E-03	5.50E-02	2E-06
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	4.84E-03	1.28E-02	6.00E-02	1E-03	1.65E-03	7.50E-03	6E-08
	Ethylbenzene	100414	2.68E-02	1.28E-02	1.00E-01	3E-03	1.65E-03	--	--
	Tetrachloroethene	127184	1.90E-03	1.28E-02	1.00E-02	2E-03	1.65E-03	5.20E-02	2E-07
	Toluene	108883	2.60E-03	1.28E-02	2.00E-01	2E-04	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	1.47E-02	1.28E-02	2.00E+00	9E-05	1.65E-03	--	--
					Total	**6E+00**		Total	**2E-04**
AOI 18	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	3.80E-03	1.28E-02	3.00E-04	2E-01	1.65E-03	1.50E+00	9E-06
	Barium	7440393	1.07E-01	1.28E-02	7.00E-02	2E-02	1.65E-03	--	--
	Cadmium	7440439_W	1.80E-03	1.28E-02	5.00E-04	5E-02	1.65E-03	--	--
	Chromium	18540299_VI	1.50E-03	1.28E-02	3.00E-03	6E-03	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	5.20E-03	1.28E-02	5.00E-03	1E-02	1.65E-03	--	--
	Silver	7440224	3.00E-03	1.28E-02	5.00E-03	8E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	3.00E-04	1.28E-02	2.00E-02	2E-04	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	ND	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	7.00E-03	1.28E-02	2.00E-02	4E-03	1.65E-03	1.40E-02	2E-07
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	6.20E-02	1.28E-02	2.80E-01	3E-03	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	1.00E-03	1.28E-02	1.00E-01	1E-04	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	9.94E-04	1.28E-02	6.00E-02	2E-04	1.65E-03	7.50E-03	1E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	3E-01		Total	1E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 19	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	ND	1.28E-02	3.00E-04	--	1.65E-03	1.50E+00	--
	Barium	7440393	4.56E-01	1.28E-02	7.00E-02	8E-02	1.65E-03	--	--
	Cadmium	7440439_W	ND	1.28E-02	5.00E-04	--	1.65E-03	--	--
	Chromium	18540299_VI	5.80E-04	1.28E-02	3.00E-03	2E-03	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	2.34E-02	1.28E-02	5.00E-03	6E-02	1.65E-03	--	--
	Silver	7440224	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	2.00E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	--	--
	Acenaphthene	83329	8.00E-04	1.28E-02	6.00E-02	2E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	1.00E-03	1.28E-02	4.00E-02	3E-04	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	--	--
	Pyrene	129000	ND	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.00E-04	1.28E-02	2.00E-02	2E-04	1.65E-03	1.40E-02	7E-09
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	ND	1.28E-02	6.00E-02	--	1.65E-03	7.50E-03	--
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	2E-01		Total	7E-09
AOI 20	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.46E-02	1.28E-02	3.00E-04	6E-01	1.65E-03	1.50E+00	4E-05
	Barium	7440393	3.91E-01	1.28E-02	7.00E-02	7E-02	1.65E-03	--	--
	Cadmium	7440439_W	3.90E-03	1.28E-02	5.00E-04	1E-01	1.65E-03	--	--
	Chromium	18540299_VI	2.03E-02	1.28E-02	3.00E-03	9E-02	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	3.60E-05	1.28E-02	3.00E-04	2E-03	1.65E-03	--	--
	Selenium	7782492	4.00E-03	1.28E-02	5.00E-03	1E-02	1.65E-03	--	--
	Silver	7440224	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	6.58E-03	1.28E-02	2.00E-02	4E-03	1.65E-03	--	--
	Acenaphthene	83329	3.00E-03	1.28E-02	6.00E-02	6E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	1.50E-03	1.28E-02	4.00E-02	5E-04	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	1.30E-03	1.28E-02	2.00E-02	8E-04	1.65E-03	--	--
	Phenanthrene	85018	1.40E-03	1.28E-02	2.00E-02	9E-04	1.65E-03	--	--
	Pyrene	129000	5.00E-05	1.28E-02	3.00E-02	2E-05	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.00E-04	1.28E-02	3.00E-02	2E-04	1.65E-03	2.40E-02	2E-08
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	4.80E-02	1.28E-02	2.00E-02	3E-02	1.65E-03	1.40E-02	1E-06
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	7.46E-03	1.28E-02	1.00E-01	1E-03	1.65E-03	--	--
	Benzene	71432	6.00E-04	1.28E-02	3.00E-03	3E-03	1.65E-03	5.50E-02	5E-08
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	1.40E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	1.60E-03	1.28E-02	2.00E-01	1E-04	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	6.00E-04	1.28E-02	3.00E-03	3E-03	1.65E-03	7.20E-01	7E-07
	Xylenes (Total)	1330207	1.00E-03	1.28E-02	2.00E+00	6E-06	1.65E-03	--	--
					Total	9E-01		Total	4E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 21	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.76E-02	1.28E-02	3.00E-04	8E-01	1.65E-03	1.50E+00	4E-05
	Barium	7440393	2.33E-01	1.28E-02	7.00E-02	4E-02	1.65E-03	--	--
	Cadmium	7440439_W	5.30E-03	1.28E-02	5.00E-04	1E-01	1.65E-03	--	--
	Chromium	18540299_VI	3.21E-02	1.28E-02	3.00E-03	1E-01	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	9.90E-05	1.28E-02	3.00E-04	4E-03	1.65E-03	--	--
	Selenium	7782492	8.20E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	3.10E-03	1.28E-02	5.00E-03	8E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	4.49E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	--	--
	Acenaphthene	83329	3.10E-03	1.28E-02	6.00E-02	7E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	7.30E-01	2E-07
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	3.00E-04	1.28E-02	2.00E-02	2E-04	1.65E-03	7.30E-03	4E-09
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	5.00E-04	1.28E-02	4.00E-02	2E-04	1.65E-03	--	--
	Fluorene	86737	3.52E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	2.46E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	--	--
	Pyrene	129000	4.00E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	5.00E-03	1.28E-02	1.00E-04	6E-01	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	6.86E-02	1.28E-02	2.00E-02	4E-02	1.65E-03	1.40E-02	2E-06
	Carbazole	86748	1.00E-03	1.28E-02	--	--	1.65E-03	2.00E-02	3E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	7.00E-04	1.28E-02	3.00E-02	3E-04	1.65E-03	1.20E-01	1E-07
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.16E-01	1.28E-02	9.00E-03	2E-01	1.65E-03	--	--
	Acetone	67641	2.40E-03	1.28E-02	1.00E-01	3E-04	1.65E-03	--	--
	Benzene	71432	4.24E-03	1.28E-02	3.00E-03	2E-02	1.65E-03	5.50E-02	4E-07
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	3.92E-03	1.28E-02	--	--	1.65E-03	1.30E-02	8E-08
	cis-1,2-Dichloroethene	156592	1.20E-01	1.28E-02	1.00E-02	2E-01	1.65E-03	--	--
	Dichloromethane	75092	ND	1.28E-02	6.00E-02	--	1.65E-03	7.50E-03	--
	Ethylbenzene	100414	5.00E-04	1.28E-02	1.00E-01	6E-05	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	3.42E-03	1.28E-02	2.00E-01	2E-04	1.65E-03	--	--
	Trichloroethene	79016	5.48E-03	1.28E-02	3.00E-04	2E-01	1.65E-03	1.10E-02	1E-07
	Vinyl Chloride	75014_A	5.09E-02	1.28E-02	3.00E-03	2E-01	1.65E-03	7.20E-01	6E-05
	Xylenes (Total)	1330207	1.00E-03	1.28E-02	2.00E+00	6E-06	1.65E-03	--	--
					Total	**3E+00**		Total	1E-04
AOI 22A	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.66E-02	1.28E-02	3.00E-04	7E-01	1.65E-03	1.50E+00	4E-05
	Barium	7440393	4.57E-01	1.28E-02	7.00E-02	8E-02	1.65E-03	--	--
	Cadmium	7440439_W	5.12E-04	1.28E-02	5.00E-04	1E-02	1.65E-03	--	--
	Chromium	18540299_VI	3.10E-03	1.28E-02	3.00E-03	1E-02	1.65E-03	--	--
	Manganese	7439965_NF	1.02E+00	1.28E-02	2.00E-02	7E-01	1.65E-03	--	--
	Mercury	7439976	6.40E-04	1.28E-02	3.00E-04	3E-02	1.65E-03	--	--
	Selenium	7782492	5.90E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	3.20E-03	1.28E-02	5.00E-03	8E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	1.48E-02	1.28E-02	2.00E-02	9E-03	1.65E-03	--	--
	Acenaphthene	83329	4.93E-03	1.28E-02	6.00E-02	1E-03	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	9.40E-03	1.28E-02	4.00E-03	3E-02	1.65E-03	--	--
	Fluoranthene	206440	2.26E-03	1.28E-02	4.00E-02	7E-04	1.65E-03	--	--
	Fluorene	86737	6.84E-03	1.28E-02	4.00E-02	2E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	2.42E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	--	--
	Phenanthrene	85018	1.07E-02	1.28E-02	2.00E-02	7E-03	1.65E-03	--	--
	Pyrene	129000	3.46E-03	1.28E-02	3.00E-02	1E-03	1.65E-03	--	--
	Aroclor-1260	11096825	ND	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	2.00E-03	1.28E-02	5.00E-03	5E-03	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	1.28E-02	2.00E-02	6E-03	1.65E-03	1.40E-02	2E-07
	Carbazole	86748	4.00E-03	1.28E-02	--	--	1.65E-03	2.00E-02	1E-07
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	1.28E-02	3.00E-02	1E-03	1.65E-03	1.20E-01	6E-07
	1,1,1-Trichloroethane	71556	2.62E-01	1.28E-02	2.80E-01	1E-02	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	3.00E-03	1.28E-02	4.00E-03	1E-02	1.65E-03	5.70E-02	3E-07
	1,1-Dichloroethane	75343	2.00E+00	1.28E-02	1.00E-01	3E-01	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	1.50E-02	1.28E-02	6.00E-03	3E-02	1.65E-03	2.00E+00	5E-05
	1,2-Dichloroethane	107062	2.00E-03	1.28E-02	3.00E-02	9E-04	1.65E-03	9.10E-02	3E-07
	1,2-Dichloroethene	540590	3.70E+00	1.28E-02	9.00E-03	**5E+00**	1.65E-03	--	--
	Acetone	67641	1.30E-02	1.28E-02	1.00E-01	2E-03	1.65E-03	--	--
	Benzene	71432	1.18E-02	1.28E-02	3.00E-03	5E-02	1.65E-03	5.50E-02	1E-06
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.70E-01	1.28E-02	4.00E-01	5E-03	1.65E-03	2.90E-03	8E-07
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.70E+00	1.28E-02	1.00E-02	**5E+00**	1.65E-03	--	--
	Dichloromethane	75092	1.50E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	1.03E-02	1.28E-02	1.00E-01	1E-03	1.65E-03	--	--
	Tetrachloroethene	127184	7.00E-04	1.28E-02	1.00E-02	9E-04	1.65E-03	5.20E-02	6E-08
	Toluene	108883	4.90E-03	1.28E-02	2.00E-01	3E-04	1.65E-03	--	--
	Trichloroethene	79016	4.00E-03	1.28E-02	3.00E-04	2E-01	1.65E-03	1.10E-02	7E-08
	Vinyl Chloride	75014_A	2.30E+00	1.28E-02	3.00E-03	**1E+01**	1.65E-03	7.20E-01	**3E-03**
	Xylenes (Total)	1330207	7.00E-03	1.28E-02	2.00E+00	4E-05	1.65E-03	--	--
					Total	**2E+01**		Total	**3E-03**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 22B	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	7.81E-03	1.28E-02	3.00E-04	3E-01	1.65E-03	1.50E+00	2E-05
	Barium	7440393	4.07E-01	1.28E-02	7.00E-02	7E-02	1.65E-03	--	--
	Cadmium	7440439_W	6.70E-04	1.28E-02	5.00E-04	2E-02	1.65E-03	--	--
	Chromium	18540299_VI	2.30E-02	1.28E-02	3.00E-03	1E-01	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	3.38E-02	1.28E-02	5.00E-03	9E-02	1.65E-03	--	--
	Silver	7440224	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	2.30E-03	1.28E-02	6.00E-02	5E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	2.00E-04	1.28E-02	4.00E-02	6E-05	1.65E-03	--	--
	Fluorene	86737	1.00E-03	1.28E-02	4.00E-02	3E-04	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	3.00E-04	1.28E-02	2.00E-02	2E-04	1.65E-03	--	--
	Pyrene	129000	3.00E-04	1.28E-02	3.00E-02	1E-04	1.65E-03	--	--
	Aroclor-1260	11096825	ND	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.40E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	2.40E-02	2E-07
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	4.00E-04	1.28E-02	5.00E-03	1E-03	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	2.00E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	1.40E-02	5E-08
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	2.00E-03	1.28E-02	3.00E-02	9E-04	1.65E-03	1.20E-01	4E-07
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.17E-01	1.28E-02	9.00E-03	2E-01	1.65E-03	--	--
	Acetone	67641	1.17E-02	1.28E-02	1.00E-01	1E-03	1.65E-03	--	--
	Benzene	71432	7.00E-04	1.28E-02	3.00E-03	3E-03	1.65E-03	5.50E-02	6E-08
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-02	1.28E-02	1.00E-02	4E-02	1.65E-03	--	--
	Dichloromethane	75092	2.30E-03	1.28E-02	6.00E-02	5E-04	1.65E-03	7.50E-03	3E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	3.24E-03	1.28E-02	3.00E-04	1E-01	1.65E-03	1.10E-02	6E-08
	Vinyl Chloride	75014_A	3.42E-01	1.28E-02	3.00E-03	1E+00	1.65E-03	7.20E-01	**4E-04**
	Xylenes (Total)	1330207	1.40E-03	1.28E-02	2.00E+00	9E-06	1.65E-03	--	--
					Total	**2E+00**		Total	**4E-04**
AOI 26	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.21E-02	1.28E-02	3.00E-04	5E-01	1.65E-03	1.50E+00	3E-05
	Barium	7440393	2.68E-01	1.28E-02	7.00E-02	5E-02	1.65E-03	--	--
	Cadmium	7440439_W	4.10E-03	1.28E-02	5.00E-04	1E-01	1.65E-03	--	--
	Chromium	18540299_VI	2.70E-03	1.28E-02	3.00E-03	1E-02	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	1.90E-03	1.28E-02	3.00E-04	8E-02	1.65E-03	--	--
	Selenium	7782492	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	Silver	7440224	2.40E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	9.72E-03	1.28E-02	2.00E-02	6E-03	1.65E-03	--	--
	Acenaphthene	83329	8.04E-03	1.28E-02	6.00E-02	2E-03	1.65E-03	--	--
	Benzo[a]anthracene	56553	4.61E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	7.30E-01	6E-06
	Benzo[a]pyrene	50328	1.10E-03	1.28E-02	2.00E-02	7E-04	1.65E-03	7.30E+00	1E-05
	Benzo[b]fluoranthene	205992	2.30E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-01	3E-06
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	6.28E-03	1.28E-02	2.00E-02	4E-03	1.65E-03	7.30E-03	8E-08
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	5.35E-03	1.28E-02	4.00E-03	2E-02	1.65E-03	--	--
	Fluoranthene	206440	4.51E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Fluorene	86737	9.15E-03	1.28E-02	4.00E-02	3E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	1.50E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-01	2E-06
	Naphthalene	91203	7.69E-03	1.28E-02	2.00E-02	5E-03	1.65E-03	--	--
	Phenanthrene	85018	1.37E-02	1.28E-02	2.00E-02	9E-03	1.65E-03	--	--
	Pyrene	129000	8.11E-03	1.28E-02	3.00E-02	3E-03	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	1.50E-03	1.28E-02	5.00E-03	4E-03	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.90E-02	1.28E-02	2.00E-02	6E-02	1.65E-03	1.40E-02	2E-06
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.80E-03	1.28E-02	9.00E-03	3E-03	1.65E-03	--	--
	Acetone	67641	7.21E-03	1.28E-02	1.00E-01	9E-04	1.65E-03	--	--
	Benzene	71432	1.20E-03	1.28E-02	3.00E-03	5E-03	1.65E-03	5.50E-02	1E-07
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.00E-03	1.28E-02	1.00E-02	1E-03	1.65E-03	--	--
	Dichloromethane	75092	1.70E-03	1.28E-02	6.00E-02	4E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	2.40E-03	1.28E-02	1.00E-01	3E-04	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	1.40E-03	1.28E-02	2.00E-01	9E-05	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	5.37E-03	1.28E-02	3.00E-03	2E-02	1.65E-03	7.20E-01	6E-06
	Xylenes (Total)	1330207	3.76E-03	1.28E-02	2.00E+00	2E-05	1.65E-03	--	--
					Total	9E-01		Total	6E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 27	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	6.08E-03	1.28E-02	3.00E-04	3E-01	1.65E-03	1.50E+00	2E-05
	Barium	7440393	3.22E-01	1.28E-02	7.00E-02	6E-02	1.65E-03	--	--
	Cadmium	7440439_W	3.27E-03	1.28E-02	5.00E-04	8E-02	1.65E-03	--	--
	Chromium	18540299_VI	9.00E-02	1.28E-02	3.00E-03	4E-01	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	1.79E-02	1.28E-02	5.00E-03	5E-02	1.65E-03	--	--
	Silver	7440224	6.90E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	3.00E-04	1.28E-02	4.00E-02	1E-04	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	ND	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	1.00E-03	1.28E-02	--	--	1.65E-03	1.10E+00	2E-06
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	1.28E-02	2.00E-02	6E-03	1.65E-03	1.40E-02	2E-07
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	1.28E-02	3.00E-02	1E-03	1.65E-03	1.20E-01	6E-07
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.86E-03	1.28E-02	9.00E-03	4E-03	1.65E-03	--	--
	Acetone	67641	1.10E-02	1.28E-02	1.00E-01	1E-03	1.65E-03	--	--
	Benzene	71432	8.00E-04	1.28E-02	3.00E-03	3E-03	1.65E-03	5.50E-02	7E-08
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-03	1.28E-02	1.00E-02	4E-03	1.65E-03	--	--
	Dichloromethane	75092	1.50E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	3.10E-03	1.28E-02	3.00E-04	1E-01	1.65E-03	1.10E-02	6E-08
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	1E+00		Total	2E-05
AOI 30	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.91E-02	1.28E-02	3.00E-04	8E-01	1.65E-03	1.50E+00	5E-05
	Barium	7440393	7.65E-01	1.28E-02	7.00E-02	1E-01	1.65E-03	--	--
	Cadmium	7440439_W	3.07E-03	1.28E-02	5.00E-04	8E-02	1.65E-03	--	--
	Chromium	18540299_VI	4.23E-02	1.28E-02	3.00E-03	2E-01	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	4.80E-05	1.28E-02	3.00E-04	2E-03	1.65E-03	--	--
	Selenium	7782492	1.36E-02	1.28E-02	5.00E-03	3E-02	1.65E-03	--	--
	Silver	7440224	3.20E-03	1.28E-02	5.00E-03	8E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	6.07E-01	1.28E-02	2.00E-02	4E-01	1.65E-03	--	--
	Acenaphthene	83329	9.24E-02	1.28E-02	6.00E-02	2E-02	1.65E-03	--	--
	Benzo[a]anthracene	56553	2.03E-02	1.28E-02	2.00E-02	1E-02	1.65E-03	7.30E-01	2E-05
	Benzo[a]pyrene	50328	2.80E-02	1.28E-02	2.00E-02	2E-02	1.65E-03	7.30E+00	**3E-04**
	Benzo[b]fluoranthene	205992	2.84E-02	1.28E-02	2.00E-02	2E-02	1.65E-03	7.30E-01	3E-05
	Benzo[k]fluoranthene	207089	2.69E-02	1.28E-02	2.00E-02	2E-02	1.65E-03	7.30E-02	3E-06
	Chrysene	218019	2.11E-02	1.28E-02	2.00E-02	1E-02	1.65E-03	7.30E-03	3E-07
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	4.10E-02	1.28E-02	4.00E-03	1E-01	1.65E-03	--	--
	Fluoranthene	206440	3.77E-02	1.28E-02	4.00E-02	1E-02	1.65E-03	--	--
	Fluorene	86737	1.14E-01	1.28E-02	4.00E-02	4E-02	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	6.52E-02	1.28E-02	2.00E-02	4E-02	1.65E-03	--	--
	Phenanthrene	85018	1.84E-01	1.28E-02	2.00E-02	1E-01	1.65E-03	--	--
	Pyrene	129000	4.26E-02	1.28E-02	3.00E-02	2E-02	1.65E-03	--	--
	Aroclor-1260	11096825	ND	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-03	1.28E-02	3.00E-02	1E-03	1.65E-03	2.40E-02	1E-07
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	1.90E-03	1.28E-02	5.00E-03	5E-03	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.27E-01	1.28E-02	2.00E-02	8E-02	1.65E-03	1.40E-02	3E-06
	Carbazole	86748	3.00E-03	1.28E-02	--	--	1.65E-03	2.00E-02	1E-07
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.00E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	9.00E-03	1.28E-02	6.00E-03	2E-02	1.65E-03	2.00E+00	3E-05
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	6.32E-02	1.28E-02	9.00E-03	9E-02	1.65E-03	--	--
	Acetone	67641	1.65E-02	1.28E-02	1.00E-01	2E-03	1.65E-03	--	--
	Benzene	71432	7.97E-03	1.28E-02	3.00E-03	3E-02	1.65E-03	5.50E-02	7E-07
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.46E-03	1.28E-02	--	--	1.65E-03	1.30E-02	2E-07
	cis-1,2-Dichloroethene	156592	7.09E-02	1.28E-02	1.00E-02	9E-02	1.65E-03	--	--
	Dichloromethane	75092	6.56E-03	1.28E-02	6.00E-02	1E-03	1.65E-03	7.50E-03	8E-08
	Ethylbenzene	100414	3.20E-03	1.28E-02	1.00E-01	4E-04	1.65E-03	--	--
	Tetrachloroethene	127184	7.04E-03	1.28E-02	1.00E-02	9E-03	1.65E-03	5.20E-02	6E-07
	Toluene	108883	3.10E-03	1.28E-02	2.00E-01	2E-04	1.65E-03	--	--
	Trichloroethene	79016	2.50E-03	1.28E-02	3.00E-04	1E-01	1.65E-03	1.10E-02	5E-08
	Vinyl Chloride	75014_A	2.86E-01	1.28E-02	3.00E-03	1E+00	1.65E-03	7.20E-01	**3E-04**
	Xylenes (Total)	1330207	5.40E-03	1.28E-02	2.00E+00	3E-05	1.65E-03	--	--
					Total	**4E+00**		Total	**8E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 32	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.65E-02	1.28E-02	3.00E-04	7E-01	1.65E-03	1.50E+00	4E-05
	Barium	7440393	6.02E-01	1.28E-02	7.00E-02	1E-01	1.65E-03	--	--
	Cadmium	7440439_W	5.00E-03	1.28E-02	5.00E-04	1E-01	1.65E-03	--	--
	Chromium	18540299_VI	1.90E-03	1.28E-02	3.00E-03	8E-03	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	3.27E-05	1.28E-02	3.00E-04	1E-03	1.65E-03	--	--
	Selenium	7782492	6.60E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	1.50E-03	1.28E-02	5.00E-03	4E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	1.55E-02	1.28E-02	2.00E-02	1E-02	1.65E-03	--	--
	Acenaphthene	83329	3.30E-03	1.28E-02	6.00E-02	7E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	1.30E-03	1.28E-02	2.00E-02	8E-04	1.65E-03	7.30E-01	2E-06
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	1.10E-03	1.28E-02	2.00E-02	7E-04	1.65E-03	7.30E-01	1E-06
	Benzo[k]fluoranthene	207089	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	7.30E-02	2E-08
	Chrysene	218019	1.10E-03	1.28E-02	2.00E-02	7E-04	1.65E-03	7.30E-03	1E-08
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	1.20E-03	1.28E-02	4.00E-03	4E-03	1.65E-03	--	--
	Fluoranthene	206440	7.40E-03	1.28E-02	4.00E-02	2E-03	1.65E-03	--	--
	Fluorene	86737	3.40E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	5.20E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	--	--
	Phenanthrene	85018	4.50E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	--	--
	Pyrene	129000	5.60E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.40E-01	1.28E-02	2.00E-02	9E-02	1.65E-03	1.40E-02	3E-06
	Carbazole	86748	1.20E-03	1.28E-02	--	--	1.65E-03	2.00E-02	4E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	6.30E-03	1.28E-02	3.00E-02	3E-03	1.65E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.43E-03	1.28E-02	9.00E-03	3E-03	1.65E-03	--	--
	Acetone	67641	1.00E+01	1.28E-02	1.00E-01	1E+00	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.38E-03	1.28E-02	--	--	1.65E-03	1.30E-02	2E-07
	cis-1,2-Dichloroethene	156592	1.45E-03	1.28E-02	1.00E-02	2E-03	1.65E-03	--	--
	Dichloromethane	75092	1.60E+00	1.28E-02	6.00E-02	3E-01	1.65E-03	7.50E-03	2E-05
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	1.60E-03	1.28E-02	2.00E-01	1E-04	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	8.17E-03	1.28E-02	3.00E-03	3E-02	1.65E-03	7.20E-01	1E-05
	Xylenes (Total)	1330207	2.60E-03	1.28E-02	2.00E+00	2E-05	1.65E-03	--	--
					Total	**3E+00**		Total	8E-05
AOI 33	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	2.15E-03	1.28E-02	3.00E-04	9E-02	1.65E-03	1.50E+00	5E-06
	Barium	7440393	1.85E-01	1.28E-02	7.00E-02	3E-02	1.65E-03	--	--
	Cadmium	7440439_W	4.75E-04	1.28E-02	5.00E-04	1E-02	1.65E-03	--	--
	Chromium	18540299_VI	9.84E-04	1.28E-02	3.00E-03	4E-03	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	1.26E-04	1.28E-02	3.00E-04	5E-03	1.65E-03	--	--
	Selenium	7782492	3.36E-03	1.28E-02	5.00E-03	9E-03	1.65E-03	--	--
	Silver	7440224	9.96E-04	1.28E-02	5.00E-03	3E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	2.37E-01	1.28E-02	2.00E-02	2E-01	1.65E-03	--	--
	Acenaphthene	83329	2.40E-01	1.28E-02	6.00E-02	5E-02	1.65E-03	--	--
	Benzo[a]anthracene	56553	2.38E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	7.30E-01	3E-06
	Benzo[a]pyrene	50328	2.25E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E+00	3E-05
	Benzo[b]fluoranthene	205992	2.07E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-01	2E-06
	Benzo[k]fluoranthene	207089	2.16E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-02	3E-07
	Chrysene	218019	2.30E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-03	3E-08
	Dibenz[a,h]anthracene	53703	1.99E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E+00	2E-05
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	8.23E-03	1.28E-02	4.00E-02	3E-03	1.65E-03	--	--
	Fluorene	86737	7.68E-02	1.28E-02	4.00E-02	2E-02	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.14E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-01	3E-06
	Naphthalene	91203	5.49E+00	1.28E-02	2.00E-02	**4E+00**	1.65E-03	--	--
	Phenanthrene	85018	1.50E-01	1.28E-02	2.00E-02	1E-01	1.65E-03	--	--
	Pyrene	129000	1.22E-02	1.28E-02	3.00E-02	5E-03	1.65E-03	--	--
	Aroclor-1260	11096825	1.02E-04	1.28E-02	2.00E-05	7E-02	1.65E-03	2.00E+00	3E-07
	1,4-Dichlorobenzene	106467	4.00E-04	1.28E-02	3.00E-02	2E-04	1.65E-03	2.40E-02	2E-08
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	2.51E-03	1.28E-02	5.00E-03	6E-03	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.00E-03	1.28E-02	2.00E-02	6E-04	1.65E-03	1.40E-02	2E-08
	Carbazole	86748	7.02E-03	1.28E-02	--	--	1.65E-03	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	1.00E-03	1.28E-02	--	--	1.65E-03	7.00E+00	1E-05
	Pentachlorophenol (PCP)	87865	1.00E-03	1.28E-02	3.00E-02	4E-04	1.65E-03	1.20E-01	2E-07
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	1.40E-03	1.28E-02	4.00E-03	4E-03	1.65E-03	5.70E-02	1E-07
	1,1-Dichloroethane	75343	1.36E-03	1.28E-02	1.00E-01	2E-04	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	1.75E-02	1.28E-02	1.00E-01	2E-03	1.65E-03	--	--
	Benzene	71432	6.57E-02	1.28E-02	3.00E-03	3E-01	1.65E-03	5.50E-02	6E-06
	Chlorodibromomethane	124481	1.39E-03	1.28E-02	2.00E-02	9E-04	1.65E-03	8.40E-02	2E-07
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	1.24E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	1.75E+00	1.28E-02	1.00E-01	2E-01	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	3.37E-02	1.28E-02	2.00E-01	2E-03	1.65E-03	--	--
	Trichloroethene	79016	1.00E-03	1.28E-02	3.00E-04	4E-02	1.65E-03	1.10E-02	2E-08
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	2.11E-01	1.28E-02	2.00E+00	1E-03	1.65E-03	--	--
					Total	**5E+00**		Total	8E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 34	Antimony	7440360	4.95E-02	1.28E-02	4.00E-04	**2E+00**	1.65E-03	--	--
	Arsenic	7440382	2.26E-02	1.28E-02	3.00E-04	1E+00	1.65E-03	1.50E+00	6E-05
	Barium	7440393	3.81E-01	1.28E-02	7.00E-02	7E-02	1.65E-03	--	--
	Cadmium	7440439_W	1.55E-03	1.28E-02	5.00E-04	4E-02	1.65E-03	--	--
	Chromium	18540299_VI	3.66E-02	1.28E-02	3.00E-03	2E-01	1.65E-03	--	--
	Manganese	7439965_NF	1.19E+00	1.28E-02	2.00E-02	8E-01	1.65E-03	--	--
	Mercury	7439976	5.70E-04	1.28E-02	3.00E-04	2E-02	1.65E-03	--	--
	Selenium	7782492	1.04E-02	1.28E-02	5.00E-03	3E-02	1.65E-03	--	--
	Silver	7440224	2.04E-02	1.28E-02	5.00E-03	5E-02	1.65E-03	--	--
	2-Methylnaphthalene	91576	8.98E-03	1.28E-02	2.00E-02	6E-03	1.65E-03	--	--
	Acenaphthene	83329	2.86E-03	1.28E-02	6.00E-02	6E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	5.69E-03	1.28E-02	4.00E-03	2E-02	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	3.28E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	3.12E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	--	--
	Phenanthrene	85018	3.07E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	--	--
	Pyrene	129000	1.10E-03	1.28E-02	3.00E-02	5E-04	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	2.00E-03	1.28E-02	1.00E-04	3E-01	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.35E-02	1.28E-02	2.00E-02	9E-03	1.65E-03	1.40E-02	3E-07
	Carbazole	86748	2.70E-03	1.28E-02	--	--	1.65E-03	2.00E-02	9E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.84E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	3.39E-03	1.28E-02	2.80E-01	2E-04	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	8.00E-04	1.28E-02	4.00E-03	3E-03	1.65E-03	5.70E-02	8E-08
	1,1-Dichloroethane	75343	2.87E-01	1.28E-02	1.00E-01	4E-02	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	6.00E-04	1.28E-02	3.00E-02	3E-04	1.65E-03	9.10E-02	9E-08
	1,2-Dichloroethene	540590	1.69E-02	1.28E-02	9.00E-03	2E-02	1.65E-03	--	--
	Acetone	67641	2.09E-02	1.28E-02	1.00E-01	3E-03	1.65E-03	--	--
	Benzene	71432	3.75E-03	1.28E-02	3.00E-03	2E-02	1.65E-03	5.50E-02	3E-07
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.72E-02	1.28E-02	4.00E-01	6E-04	1.65E-03	2.90E-03	8E-08
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.30E-02	1.28E-02	1.00E-02	2E-02	1.65E-03	--	--
	Dichloromethane	75092	3.34E-03	1.28E-02	6.00E-02	7E-04	1.65E-03	7.50E-03	4E-08
	Ethylbenzene	100414	3.00E-03	1.28E-02	1.00E-01	4E-04	1.65E-03	--	--
	Tetrachloroethene	127184	3.64E-03	1.28E-02	1.00E-02	5E-03	1.65E-03	5.20E-02	3E-07
	Toluene	108883	3.10E-03	1.28E-02	2.00E-01	2E-04	1.65E-03	--	--
	Trichloroethene	79016	3.34E-03	1.28E-02	3.00E-04	1E-01	1.65E-03	1.10E-02	6E-08
	Vinyl Chloride	75014_A	1.92E-01	1.28E-02	3.00E-03	8E-01	1.65E-03	7.20E-01	**2E-04**
	Xylenes (Total)	1330207	4.44E-03	1.28E-02	2.00E+00	3E-05	1.65E-03	--	--
					Total	**5E+00**		Total	**3E-04**
AOI 35	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	9.50E-03	1.28E-02	3.00E-04	4E-01	1.65E-03	1.50E+00	2E-05
	Barium	7440393	3.12E-01	1.28E-02	7.00E-02	6E-02	1.65E-03	--	--
	Cadmium	7440439_W	1.50E-03	1.28E-02	5.00E-04	4E-02	1.65E-03	--	--
	Chromium	18540299_VI	2.10E-03	1.28E-02	3.00E-03	9E-03	1.65E-03	--	--
	Manganese	7439965_NF	5.80E-01	1.28E-02	2.00E-02	4E-01	1.65E-03	--	--
	Mercury	7439976	6.70E-05	1.28E-02	3.00E-04	3E-03	1.65E-03	--	--
	Selenium	7782492	7.40E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	2.90E-03	1.28E-02	5.00E-03	7E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	3.70E-02	1.28E-02	2.00E-02	2E-02	1.65E-03	--	--
	Acenaphthene	83329	4.00E-03	1.28E-02	6.00E-02	9E-04	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	ND	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	2.00E-04	1.28E-02	4.00E-02	6E-05	1.65E-03	--	--
	Fluorene	86737	4.00E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	1.00E-04	1.28E-02	2.00E-02	6E-05	1.65E-03	--	--
	Phenanthrene	85018	6.00E-03	1.28E-02	2.00E-02	4E-03	1.65E-03	--	--
	Pyrene	129000	2.00E-04	1.28E-02	3.00E-02	9E-05	1.65E-03	--	--
	Aroclor-1260	11096825	ND	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-04	1.28E-02	3.00E-02	1E-04	1.65E-03	2.40E-02	1E-08
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.80E-03	1.28E-02	2.00E-02	2E-03	1.65E-03	1.40E-02	9E-08
	Carbazole	86748	7.00E-04	1.28E-02	--	--	1.65E-03	2.00E-02	2E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	8.82E-03	1.28E-02	1.00E-01	1E-03	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	1.40E-03	1.28E-02	9.00E-03	2E-03	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	1.54E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	4.30E-03	1.28E-02	3.00E-03	2E-02	1.65E-03	7.20E-01	5E-06
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	1E+00		Total	3E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 36	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	7.50E-03	1.28E-02	3.00E-04	3E-01	1.65E-03	1.50E+00	2E-05
	Barium	7440393	3.08E-01	1.28E-02	7.00E-02	6E-02	1.65E-03	--	--
	Cadmium	7440439_W	1.90E-03	1.28E-02	5.00E-04	5E-02	1.65E-03	--	--
	Chromium	18540299_VI	2.60E-02	1.28E-02	3.00E-03	1E-01	1.65E-03	--	--
	Manganese	7439965_NF	1.21E-01	1.28E-02	2.00E-02	8E-02	1.65E-03	--	--
	Mercury	7439976	6.20E-05	1.28E-02	3.00E-04	3E-03	1.65E-03	--	--
	Selenium	7782492	6.00E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	3.00E-03	1.28E-02	5.00E-03	8E-03	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	1.00E-04	1.28E-02	3.00E-02	4E-05	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.44E-03	1.28E-02	2.00E-02	9E-04	1.65E-03	1.40E-02	3E-08
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	3.78E-03	1.28E-02	1.00E-01	5E-04	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.98E-03	1.28E-02	9.00E-03	4E-03	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.54E-03	1.28E-02	1.00E-02	2E-03	1.65E-03	--	--
	Dichloromethane	75092	1.15E-03	1.28E-02	6.00E-02	2E-04	1.65E-03	7.50E-03	1E-08
	Ethylbenzene	100414	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	ND	1.28E-02	2.00E-01	--	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	3.84E-03	1.28E-02	3.00E-03	2E-02	1.65E-03	7.20E-01	5E-06
	Xylenes (Total)	1330207	ND	1.28E-02	2.00E+00	--	1.65E-03	--	--
					Total	7E-01		Total	2E-05
AOI 37	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	--	1.28E-02	3.00E-04	--	1.65E-03	1.50E+00	--
	Barium	7440393	--	1.28E-02	7.00E-02	--	1.65E-03	--	--
	Cadmium	7440439_W	--	1.28E-02	5.00E-04	--	1.65E-03	--	--
	Chromium	18540299_VI	--	1.28E-02	3.00E-03	--	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	--	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	Silver	7440224	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	2-Methylnaphthalene	91576	1.70E-01	1.28E-02	2.00E-02	1E-01	1.65E-03	--	--
	Acenaphthene	83329	1.91E-02	1.28E-02	6.00E-02	4E-03	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	7.30E-01	2E-07
	Benzo[k]fluoranthene	207089	2.00E-04	1.28E-02	2.00E-02	1E-04	1.65E-03	7.30E-02	2E-08
	Chrysene	218019	4.00E-04	1.28E-02	2.00E-02	3E-04	1.65E-03	7.30E-03	5E-09
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	2.16E-02	1.28E-02	4.00E-03	7E-02	1.65E-03	--	--
	Fluoranthene	206440	3.40E-03	1.28E-02	4.00E-02	1E-03	1.65E-03	--	--
	Fluorene	86737	3.55E-02	1.28E-02	4.00E-02	1E-02	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	4.31E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	--	--
	Phenanthrene	85018	8.04E-02	1.28E-02	2.00E-02	5E-02	1.65E-03	--	--
	Pyrene	129000	3.72E-03	1.28E-02	3.00E-02	2E-03	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	9.00E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.30E-02	1.28E-02	2.00E-02	8E-03	1.65E-03	1.40E-02	3E-07
	Carbazole	86748	1.00E-03	1.28E-02	--	--	1.65E-03	2.00E-02	3E-08
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	1.28E-02	2.80E-01	--	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.28E-02	9.00E-03	--	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	ND	1.28E-02	3.00E-03	--	1.65E-03	5.50E-02	--
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	1.28E-02	1.00E-02	--	1.65E-03	--	--
	Dichloromethane	75092	1.30E-03	1.28E-02	6.00E-02	3E-04	1.65E-03	7.50E-03	2E-08
	Ethylbenzene	100414	6.50E-03	1.28E-02	1.00E-01	8E-04	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	3.90E-03	1.28E-02	2.00E-01	3E-04	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	ND	1.28E-02	3.00E-03	--	1.65E-03	7.20E-01	--
	Xylenes (Total)	1330207	2.60E-02	1.28E-02	2.00E+00	2E-04	1.65E-03	--	--
					Total	3E-01		Total	6E-07

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI 38	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	1.38E-02	1.28E-02	3.00E-04	6E-01	1.65E-03	1.50E+00	3E-05
	Barium	7440393	5.47E-01	1.28E-02	7.00E-02	1E-01	1.65E-03	--	--
	Cadmium	7440439_W	1.34E-03	1.28E-02	5.00E-04	3E-02	1.65E-03	--	--
	Chromium	18540299_VI	1.81E-02	1.28E-02	3.00E-03	8E-02	1.65E-03	--	--
	Manganese	7439965_NF	1.13E+00	1.28E-02	2.00E-02	7E-01	1.65E-03	--	--
	Mercury	7439976	5.40E-05	1.28E-02	3.00E-04	2E-03	1.65E-03	--	--
	Selenium	7782492	8.64E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	Silver	7440224	6.78E-03	1.28E-02	5.00E-03	2E-02	1.65E-03	--	--
	2-Methylnaphthalene	91576	6.50E-01	1.28E-02	2.00E-02	4E-01	1.65E-03	--	--
	Acenaphthene	83329	1.45E-02	1.28E-02	6.00E-02	3E-03	1.65E-03	--	--
	Benzo[a]anthracene	56553	1.20E-02	1.28E-02	2.00E-02	8E-03	1.65E-03	7.30E-01	1E-05
	Benzo[a]pyrene	50328	6.20E-03	1.28E-02	2.00E-02	4E-03	1.65E-03	7.30E+00	7E-05
	Benzo[b]fluoranthene	205992	1.00E-02	1.28E-02	2.00E-02	6E-03	1.65E-03	7.30E-01	1E-05
	Benzo[k]fluoranthene	207089	4.80E-03	1.28E-02	2.00E-02	3E-03	1.65E-03	7.30E-02	6E-07
	Chrysene	218019	1.36E-02	1.28E-02	2.00E-02	9E-03	1.65E-03	7.30E-03	2E-07
	Dibenz[a,h]anthracene	53703	3.00E-04	1.28E-02	2.00E-02	2E-04	1.65E-03	7.30E+00	4E-06
	Dibenzofuran	132649	6.68E-02	1.28E-02	4.00E-03	2E-01	1.65E-03	--	--
	Fluoranthene	206440	1.40E-02	1.28E-02	4.00E-02	4E-03	1.65E-03	--	--
	Fluorene	86737	1.80E-02	1.28E-02	4.00E-02	6E-03	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.00E-03	1.28E-02	2.00E-02	1E-03	1.65E-03	7.30E-01	2E-06
	Naphthalene	91203	7.72E-02	1.28E-02	2.00E-02	5E-02	1.65E-03	--	--
	Phenanthrene	85018	4.77E-02	1.28E-02	2.00E-02	3E-02	1.65E-03	--	--
	Pyrene	129000	1.01E-02	1.28E-02	3.00E-02	4E-03	1.65E-03	--	--
	Aroclor-1260	11096825	ND	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	1.38E-02	1.28E-02	3.00E-02	6E-03	1.65E-03	2.40E-02	5E-07
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.81E-02	1.28E-02	2.00E-02	2E-02	1.65E-03	1.40E-02	9E-07
	Carbazole	86748	1.27E-02	1.28E-02	--	--	1.65E-03	2.00E-02	4E-07
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	1.28E-02	3.00E-02	1E-03	1.65E-03	1.20E-01	6E-07
	1,1,1-Trichloroethane	71556	3.17E-01	1.28E-02	2.80E-01	1E-02	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	3.07E-03	1.28E-02	4.00E-03	1E-02	1.65E-03	5.70E-02	3E-07
	1,1-Dichloroethane	75343	1.30E-01	1.28E-02	1.00E-01	2E-02	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	1.00E-03	1.28E-02	3.00E-02	4E-04	1.65E-03	9.10E-02	2E-07
	1,2-Dichloroethene	540590	4.37E-01	1.28E-02	9.00E-03	6E-01	1.65E-03	--	--
	Acetone	67641	6.59E-03	1.28E-02	1.00E-01	8E-04	1.65E-03	--	--
	Benzene	71432	1.00E-02	1.28E-02	3.00E-03	4E-02	1.65E-03	5.50E-02	9E-07
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	3.13E-02	1.28E-02	4.00E-01	1E-03	1.65E-03	2.90E-03	1E-07
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	7.25E-01	1.28E-02	1.00E-02	9E-01	1.65E-03	--	--
	Dichloromethane	75092	2.43E-03	1.28E-02	6.00E-02	5E-04	1.65E-03	7.50E-03	3E-08
	Ethylbenzene	100414	4.14E-02	1.28E-02	1.00E-01	5E-03	1.65E-03	--	--
	Tetrachloroethene	127184	3.40E-03	1.28E-02	1.00E-02	4E-03	1.65E-03	5.20E-02	3E-07
	Toluene	108883	1.37E-02	1.28E-02	2.00E-01	9E-04	1.65E-03	--	--
	Trichloroethene	79016	3.63E-02	1.28E-02	3.00E-04	**2E+00**	1.65E-03	1.10E-02	7E-07
	Vinyl Chloride	75014_A	6.95E-02	1.28E-02	3.00E-03	3E-01	1.65E-03	7.20E-01	8E-05
	Xylenes (Total)	1330207	5.61E-02	1.28E-02	2.00E+00	4E-04	1.65E-03	--	--
					Total	**6E+00**		Total	**2E-04**
AOI SPRR3	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	--	1.28E-02	3.00E-04	--	1.65E-03	1.50E+00	--
	Barium	7440393	--	1.28E-02	7.00E-02	--	1.65E-03	--	--
	Cadmium	7440439_W	--	1.28E-02	5.00E-04	--	1.65E-03	--	--
	Chromium	18540299_VI	--	1.28E-02	3.00E-03	--	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	--	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	Silver	7440224	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	2-Methylnaphthalene	91576	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	--	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	--	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	--	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	--	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	3.60E-01	1.28E-02	2.00E-02	2E-01	1.65E-03	--	--
	Phenanthrene	85018	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	--	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	--	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	--	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	--	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	--	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	--	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	--	1.28E-02	2.00E-02	--	1.65E-03	1.40E-02	--
	Carbazole	86748	--	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	--	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	--	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	7.80E-02	1.28E-02	2.80E-01	4E-03	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	2.90E-01	1.28E-02	1.00E-01	4E-02	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	2.70E-01	1.28E-02	9.00E-03	4E-01	1.65E-03	--	--
	Acetone	67641	ND	1.28E-02	1.00E-01	--	1.65E-03	--	--
	Benzene	71432	5.20E-02	1.28E-02	3.00E-03	2E-01	1.65E-03	5.50E-02	5E-06
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	2.30E-01	1.28E-02	4.00E-01	7E-03	1.65E-03	2.90E-03	1E-06
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	2.70E-01	1.28E-02	1.00E-02	3E-01	1.65E-03	--	--
	Dichloromethane	75092	9.60E-03	1.28E-02	6.00E-02	2E-03	1.65E-03	7.50E-03	1E-07
	Ethylbenzene	100414	1.50E-01	1.28E-02	1.00E-01	2E-02	1.65E-03	--	--
	Tetrachloroethene	127184	ND	1.28E-02	1.00E-02	--	1.65E-03	5.20E-02	--
	Toluene	108883	1.20E-01	1.28E-02	2.00E-01	8E-03	1.65E-03	--	--
	Trichloroethene	79016	1.00E-03	1.28E-02	3.00E-04	4E-02	1.65E-03	1.10E-02	2E-08
	Vinyl Chloride	75014_A	3.30E-01	1.28E-02	3.00E-03	1E+00	1.65E-03	7.20E-01	**4E-04**
	Xylenes (Total)	1330207	9.30E-01	1.28E-02	2.00E+00	6E-03	1.65E-03	--	--
					Total	**3E+00**		Total	**4E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk CTE HIFNC	Oral RfD	RiskNC	Cancer Risk CTE HIFC	Oral SF	RiskC
AOI SPRR5	Antimony	7440360	--	1.28E-02	4.00E-04	--	1.65E-03	--	--
	Arsenic	7440382	3.00E-03	1.28E-02	3.00E-04	1E-01	1.65E-03	1.50E+00	7E-06
	Barium	7440393	1.49E-01	1.28E-02	7.00E-02	3E-02	1.65E-03	--	--
	Cadmium	7440439_W	7.70E-04	1.28E-02	5.00E-04	2E-02	1.65E-03	--	--
	Chromium	18540299_VI	1.40E-03	1.28E-02	3.00E-03	6E-03	1.65E-03	--	--
	Manganese	7439965_NF	--	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Mercury	7439976	ND	1.28E-02	3.00E-04	--	1.65E-03	--	--
	Selenium	7782492	5.00E-03	1.28E-02	5.00E-03	1E-02	1.65E-03	--	--
	Silver	7440224	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	2-Methylnaphthalene	91576	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Acenaphthene	83329	ND	1.28E-02	6.00E-02	--	1.65E-03	--	--
	Benzo[a]anthracene	56553	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-02	--
	Chrysene	218019	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E+00	--
	Dibenzofuran	132649	--	1.28E-02	4.00E-03	--	1.65E-03	--	--
	Fluoranthene	206440	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Fluorene	86737	ND	1.28E-02	4.00E-02	--	1.65E-03	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.28E-02	2.00E-02	--	1.65E-03	7.30E-01	--
	Naphthalene	91203	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Phenanthrene	85018	ND	1.28E-02	2.00E-02	--	1.65E-03	--	--
	Pyrene	129000	ND	1.28E-02	3.00E-02	--	1.65E-03	--	--
	Aroclor-1260	11096825	--	1.28E-02	2.00E-05	--	1.65E-03	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	1.28E-02	3.00E-02	--	1.65E-03	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	1.28E-02	1.00E-03	--	1.65E-03	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	1.28E-02	1.00E-04	--	1.65E-03	--	--
	4-Methylphenol (p-Cresol)	106445	ND	1.28E-02	5.00E-03	--	1.65E-03	--	--
	bis(2-Chloroethyl)ether	111444	ND	1.28E-02	--	--	1.65E-03	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	1.28E-02	2.00E-02	--	1.65E-03	1.40E-02	--
	Carbazole	86748	ND	1.28E-02	--	--	1.65E-03	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	1.28E-02	--	--	1.65E-03	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	1.28E-02	3.00E-02	--	1.65E-03	1.20E-01	--
	1,1,1-Trichloroethane	71556	4.00E-03	1.28E-02	2.80E-01	2E-04	1.65E-03	--	--
	1,1,2-Trichloroethane	79005	ND	1.28E-02	4.00E-03	--	1.65E-03	5.70E-02	--
	1,1-Dichloroethane	75343	8.61E-02	1.28E-02	1.00E-01	1E-02	1.65E-03	--	--
	1,2,3-Trichloropropane	96184	ND	1.28E-02	6.00E-03	--	1.65E-03	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.28E-02	3.00E-02	--	1.65E-03	9.10E-02	--
	1,2-Dichloroethene	540590	6.09E-02	1.28E-02	9.00E-03	9E-02	1.65E-03	--	--
	Acetone	67641	6.00E-03	1.28E-02	1.00E-01	8E-04	1.65E-03	--	--
	Benzene	71432	6.05E-01	1.28E-02	3.00E-03	**3E+00**	1.65E-03	5.50E-02	5E-05
	Chlorodibromomethane	124481	ND	1.28E-02	2.00E-02	--	1.65E-03	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.28E-02	4.00E-01	--	1.65E-03	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.28E-02	--	--	1.65E-03	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.03E-03	1.28E-02	1.00E-02	4E-03	1.65E-03	--	--
	Dichloromethane	75092	2.96E-02	1.28E-02	6.00E-02	6E-03	1.65E-03	7.50E-03	4E-07
	Ethylbenzene	100414	9.45E-01	1.28E-02	1.00E-01	1E-01	1.65E-03	--	--
	Tetrachloroethene	127184	2.00E-03	1.28E-02	1.00E-02	3E-03	1.65E-03	5.20E-02	2E-07
	Toluene	108883	2.47E+00	1.28E-02	2.00E-01	2E-01	1.65E-03	--	--
	Trichloroethene	79016	ND	1.28E-02	3.00E-04	--	1.65E-03	1.10E-02	--
	Vinyl Chloride	75014_A	9.47E-02	1.28E-02	3.00E-03	4E-01	1.65E-03	7.20E-01	1E-04
	Xylenes (Total)	1330207	7.90E+00	1.28E-02	2.00E+00	5E-02	1.65E-03	--	--
					Total	**4E+00**		Total	**2E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 1	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	--	2.74E-02	3.00E-04	--	1.17E-02	1.50E+00	--
	Barium	7440393	--	2.74E-02	7.00E-02	--	1.17E-02	--	--
	Cadmium	7440439_W	--	2.74E-02	5.00E-04	--	1.17E-02	--	--
	Chromium	18540299_VI	--	2.74E-02	3.00E-03	--	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	--	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	Silver	7440224	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	2-Methylnaphthalene	91576	4.50E-03	2.74E-02	2.00E-02	6E-03	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	ND	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	2.74E-02	2.00E-02	--	1.17E-02	1.40E-02	--
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	3.70E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	7.50E-03	3E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	8E-03		Total	3E-07
AOI 12	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	8.60E-03	2.74E-02	3.00E-04	8E-01	1.17E-02	1.50E+00	**2E-04**
	Barium	7440393	4.01E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	4.70E-03	2.74E-02	5.00E-04	3E-01	1.17E-02	--	--
	Chromium	18540299_VI	3.15E-03	2.74E-02	3.00E-03	3E-02	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	2.40E-05	2.74E-02	3.00E-04	2E-03	1.17E-02	--	--
	Selenium	7782492	1.96E-02	2.74E-02	5.00E-03	1E-01	1.17E-02	--	--
	Silver	7440224	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	1.00E-04	2.74E-02	4.00E-02	7E-05	1.17E-02	--	--
	Fluorene	86737	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	1.00E-04	2.74E-02	3.00E-02	9E-05	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.90E-02	2.74E-02	2.00E-02	8E-02	1.17E-02	1.40E-02	1E-05
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	1.80E-03	2.74E-02	3.00E-02	2E-03	1.17E-02	1.20E-01	3E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	1.00E-03	2.74E-02	4.00E-03	7E-03	1.17E-02	5.70E-02	7E-07
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	ND	2.74E-02	6.00E-02	--	1.17E-02	7.50E-03	--
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	1E+00		Total	**2E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 13	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	6.40E-02	2.74E-02	3.00E-04	**6E+00**	1.17E-02	1.50E+00	**1E-03**
	Barium	7440393	1.60E+00	2.74E-02	7.00E-02	6E-01	1.17E-02	--	--
	Cadmium	7440439_W	6.70E-03	2.74E-02	5.00E-04	4E-01	1.17E-02	--	--
	Chromium	18540299_VI	2.30E-01	2.74E-02	3.00E-03	**2E+00**	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	Silver	7440224	1.20E-02	2.74E-02	5.00E-03	7E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	1.30E+00	2.74E-02	2.00E-02	**2E+00**	1.17E-02	--	--
	Acenaphthene	83329	6.23E-03	2.74E-02	6.00E-02	3E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	1.00E-04	2.74E-02	2.00E-02	1E-04	1.17E-02	7.30E-01	9E-07
	Benzo[a]pyrene	50328	1.00E-04	2.74E-02	2.00E-02	1E-04	1.17E-02	7.30E+00	9E-06
	Benzo[b]fluoranthene	205992	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	7.30E-01	2E-06
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	1.00E-04	2.74E-02	2.00E-02	1E-04	1.17E-02	7.30E-03	9E-09
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	5.20E-03	2.74E-02	4.00E-02	4E-03	1.17E-02	--	--
	Fluorene	86737	9.15E-03	2.74E-02	4.00E-02	6E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	7.63E-02	2.74E-02	2.00E-02	1E-01	1.17E-02	--	--
	Phenanthrene	85018	4.32E-02	2.74E-02	2.00E-02	6E-02	1.17E-02	--	--
	Pyrene	129000	4.95E-03	2.74E-02	3.00E-02	5E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	7.40E-03	2.74E-02	1.00E-03	2E-01	1.17E-02	6.80E-01	6E-05
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	5.10E-01	2.74E-02	2.00E-02	7E-01	1.17E-02	1.40E-02	8E-05
	Carbazole	86748	1.00E-03	2.74E-02	--	--	1.17E-02	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	2.00E-03	2.74E-02	1.00E-01	5E-04	1.17E-02	--	--
	Benzene	71432	2.49E-02	2.74E-02	3.00E-03	2E-01	1.17E-02	5.50E-02	2E-05
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	4.84E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	7.50E-03	4E-07
	Ethylbenzene	100414	2.68E-02	2.74E-02	1.00E-01	7E-03	1.17E-02	--	--
	Tetrachloroethene	127184	1.90E-03	2.74E-02	1.00E-02	5E-03	1.17E-02	5.20E-02	1E-06
	Toluene	108883	2.60E-03	2.74E-02	2.00E-01	4E-04	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	1.47E-02	2.74E-02	2.00E+00	2E-04	1.17E-02	--	--
					Total	**1E+01**		Total	**1E-03**
AOI 18	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	3.80E-03	2.74E-02	3.00E-04	3E-01	1.17E-02	1.50E+00	7E-05
	Barium	7440393	1.07E-01	2.74E-02	7.00E-02	4E-02	1.17E-02	--	--
	Cadmium	7440439_W	1.80E-03	2.74E-02	5.00E-04	1E-01	1.17E-02	--	--
	Chromium	18540299_VI	1.50E-03	2.74E-02	3.00E-03	1E-02	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	5.20E-03	2.74E-02	5.00E-03	3E-02	1.17E-02	--	--
	Silver	7440224	3.00E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	3.00E-04	2.74E-02	2.00E-02	4E-04	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	ND	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	7.00E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	1.40E-02	1E-06
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	6.20E-02	2.74E-02	2.80E-01	6E-03	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	1.00E-03	2.74E-02	1.00E-01	3E-04	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	9.94E-04	2.74E-02	6.00E-02	5E-04	1.17E-02	7.50E-03	9E-08
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	6E-01		Total	7E-05

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 19	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	ND	2.74E-02	3.00E-04	--	1.17E-02	1.50E+00	--
	Barium	7440393	4.56E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	ND	2.74E-02	5.00E-04	--	1.17E-02	--	--
	Chromium	18540299_VI	5.80E-04	2.74E-02	3.00E-03	5E-03	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	2.34E-02	2.74E-02	5.00E-03	1E-01	1.17E-02	--	--
	Silver	7440224	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	2.00E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	--	--
	Acenaphthene	83329	8.00E-04	2.74E-02	6.00E-02	4E-04	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	1.00E-03	2.74E-02	4.00E-02	7E-04	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	--	--
	Pyrene	129000	ND	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.00E-04	2.74E-02	2.00E-02	4E-04	1.17E-02	1.40E-02	5E-08
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	ND	2.74E-02	6.00E-02	--	1.17E-02	7.50E-03	--
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	3E-01		Total	5E-08
AOI 20	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.46E-02	2.74E-02	3.00E-04	1E+00	1.17E-02	1.50E+00	**3E-04**
	Barium	7440393	3.91E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	3.90E-03	2.74E-02	5.00E-04	2E-01	1.17E-02	--	--
	Chromium	18540299_VI	2.03E-02	2.74E-02	3.00E-03	2E-01	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	3.60E-05	2.74E-02	3.00E-04	3E-03	1.17E-02	--	--
	Selenium	7782492	4.00E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	Silver	7440224	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	6.58E-03	2.74E-02	2.00E-02	9E-03	1.17E-02	--	--
	Acenaphthene	83329	3.00E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	1.50E-03	2.74E-02	4.00E-02	1E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	1.30E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	--	--
	Phenanthrene	85018	1.40E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	--	--
	Pyrene	129000	5.00E-05	2.74E-02	3.00E-02	5E-05	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.00E-04	2.74E-02	3.00E-02	4E-04	1.17E-02	2.40E-02	1E-07
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	4.80E-02	2.74E-02	2.00E-02	7E-02	1.17E-02	1.40E-02	8E-06
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	7.46E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	Benzene	71432	6.00E-04	2.74E-02	3.00E-03	5E-03	1.17E-02	5.50E-02	4E-07
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	1.40E-03	2.74E-02	6.00E-02	6E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	1.60E-03	2.74E-02	2.00E-01	2E-04	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	6.00E-04	2.74E-02	3.00E-03	5E-03	1.17E-02	7.20E-01	5E-06
	Xylenes (Total)	1330207	1.00E-03	2.74E-02	2.00E+00	1E-05	1.17E-02	--	--
					Total	**2E+00**		Total	**3E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 21	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.76E-02	2.74E-02	3.00E-04	**2E+00**	1.17E-02	1.50E+00	**3E-04**
	Barium	7440393	2.33E-01	2.74E-02	7.00E-02	9E-02	1.17E-02	--	--
	Cadmium	7440439_W	5.30E-03	2.74E-02	5.00E-04	3E-01	1.17E-02	--	--
	Chromium	18540299_VI	3.21E-02	2.74E-02	3.00E-03	3E-01	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	9.90E-05	2.74E-02	3.00E-04	9E-03	1.17E-02	--	--
	Selenium	7782492	8.20E-03	2.74E-02	5.00E-03	4E-02	1.17E-02	--	--
	Silver	7440224	3.10E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	4.49E-03	2.74E-02	2.00E-02	6E-03	1.17E-02	--	--
	Acenaphthene	83329	3.10E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	7.30E-01	2E-06
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	3.00E-04	2.74E-02	2.00E-02	4E-04	1.17E-02	7.30E-03	3E-08
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	5.00E-04	2.74E-02	4.00E-02	3E-04	1.17E-02	--	--
	Fluorene	86737	3.52E-03	2.74E-02	4.00E-02	2E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	2.46E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	--	--
	Pyrene	129000	4.00E-03	2.74E-02	3.00E-02	4E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	5.00E-03	2.74E-02	1.00E-04	1E+00	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	6.86E-02	2.74E-02	2.00E-02	9E-02	1.17E-02	1.40E-02	1E-05
	Carbazole	86748	1.00E-03	2.74E-02	--	--	1.17E-02	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	7.00E-04	2.74E-02	3.00E-02	6E-04	1.17E-02	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.16E-01	2.74E-02	9.00E-03	4E-01	1.17E-02	--	--
	Acetone	67641	2.40E-03	2.74E-02	1.00E-01	7E-04	1.17E-02	--	--
	Benzene	71432	4.24E-03	2.74E-02	3.00E-03	4E-02	1.17E-02	5.50E-02	3E-06
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	3.92E-03	2.74E-02	--	--	1.17E-02	1.30E-02	6E-07
	cis-1,2-Dichloroethene	156592	1.20E-01	2.74E-02	1.00E-02	3E-01	1.17E-02	--	--
	Dichloromethane	75092	ND	2.74E-02	6.00E-02	--	1.17E-02	7.50E-03	--
	Ethylbenzene	100414	5.00E-04	2.74E-02	1.00E-01	1E-04	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	3.42E-03	2.74E-02	2.00E-01	5E-04	1.17E-02	--	--
	Trichloroethene	79016	5.48E-03	2.74E-02	3.00E-04	5E-01	1.17E-02	1.10E-02	7E-07
	Vinyl Chloride	75014_A	5.09E-02	2.74E-02	3.00E-03	5E-01	1.17E-02	7.20E-01	**4E-04**
	Xylenes (Total)	1330207	1.00E-03	2.74E-02	2.00E+00	1E-05	1.17E-02	--	--
					Total	**6E+00**		Total	**8E-04**
AOI 22A	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.66E-02	2.74E-02	3.00E-04	**2E+00**	1.17E-02	1.50E+00	**3E-04**
	Barium	7440393	4.57E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	5.12E-04	2.74E-02	5.00E-04	3E-02	1.17E-02	--	--
	Chromium	18540299_VI	3.10E-03	2.74E-02	3.00E-03	3E-02	1.17E-02	--	--
	Manganese	7439965_NF	1.02E+00	2.74E-02	2.00E-02	1E+00	1.17E-02	--	--
	Mercury	7439976	6.40E-04	2.74E-02	3.00E-04	6E-02	1.17E-02	--	--
	Selenium	7782492	5.90E-03	2.74E-02	5.00E-03	3E-02	1.17E-02	--	--
	Silver	7440224	3.20E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	1.48E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	--	--
	Acenaphthene	83329	4.93E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	9.40E-03	2.74E-02	4.00E-03	6E-02	1.17E-02	--	--
	Fluoranthene	206440	2.26E-03	2.74E-02	4.00E-02	2E-03	1.17E-02	--	--
	Fluorene	86737	6.84E-03	2.74E-02	4.00E-02	5E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	2.42E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	--	--
	Phenanthrene	85018	1.07E-02	2.74E-02	2.00E-02	1E-02	1.17E-02	--	--
	Pyrene	129000	3.46E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	--	--
	Aroclor-1260	11096825	ND	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	2.00E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	1.40E-02	1E-06
	Carbazole	86748	4.00E-03	2.74E-02	--	--	1.17E-02	2.00E-02	9E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	1.20E-01	4E-06
	1,1,1-Trichloroethane	71556	2.62E-01	2.74E-02	2.80E-01	3E-02	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	3.00E-03	2.74E-02	4.00E-03	2E-02	1.17E-02	5.70E-02	2E-06
	1,1-Dichloroethane	75343	2.00E+00	2.74E-02	1.00E-01	5E-01	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	1.50E-02	2.74E-02	6.00E-03	7E-02	1.17E-02	2.00E+00	**4E-04**
	1,2-Dichloroethane	107062	2.00E-03	2.74E-02	3.00E-02	2E-03	1.17E-02	9.10E-02	2E-06
	1,2-Dichloroethene	540590	3.70E+00	2.74E-02	9.00E-03	**1E+01**	1.17E-02	--	--
	Acetone	67641	1.30E-02	2.74E-02	1.00E-01	4E-03	1.17E-02	--	--
	Benzene	71432	1.18E-02	2.74E-02	3.00E-03	1E-01	1.17E-02	5.50E-02	8E-06
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.70E-01	2.74E-02	4.00E-01	1E-02	1.17E-02	2.90E-03	6E-06
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.70E+00	2.74E-02	1.00E-02	**1E+01**	1.17E-02	--	--
	Dichloromethane	75092	1.50E-03	2.74E-02	6.00E-02	7E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	1.03E-02	2.74E-02	1.00E-01	3E-03	1.17E-02	--	--
	Tetrachloroethene	127184	7.00E-04	2.74E-02	1.00E-02	2E-03	1.17E-02	5.20E-02	4E-07
	Toluene	108883	4.90E-03	2.74E-02	2.00E-01	7E-04	1.17E-02	--	--
	Trichloroethene	79016	4.00E-03	2.74E-02	3.00E-04	4E-01	1.17E-02	1.10E-02	5E-07
	Vinyl Chloride	75014_A	2.30E+00	2.74E-02	3.00E-03	**2E+01**	1.17E-02	7.20E-01	**2E-02**
	Xylenes (Total)	1330207	7.00E-03	2.74E-02	2.00E+00	1E-04	1.17E-02	--	--
					Total	**5E+01**		Total	**2E-02**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 22B	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	7.81E-03	2.74E-02	3.00E-04	7E-01	1.17E-02	1.50E+00	1E-04
	Barium	7440393	4.07E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	6.70E-04	2.74E-02	5.00E-04	4E-02	1.17E-02	--	--
	Chromium	18540299_VI	2.30E-02	2.74E-02	3.00E-03	2E-01	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	3.38E-02	2.74E-02	5.00E-03	2E-01	1.17E-02	--	--
	Silver	7440224	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	2.30E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	2.00E-04	2.74E-02	4.00E-02	1E-04	1.17E-02	--	--
	Fluorene	86737	1.00E-03	2.74E-02	4.00E-02	7E-04	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	3.00E-04	2.74E-02	2.00E-02	4E-04	1.17E-02	--	--
	Pyrene	129000	3.00E-04	2.74E-02	3.00E-02	3E-04	1.17E-02	--	--
	Aroclor-1260	11096825	ND	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	4.40E-03	2.74E-02	3.00E-02	4E-03	1.17E-02	2.40E-02	1E-06
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	4.00E-04	2.74E-02	5.00E-03	2E-03	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	2.00E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	1.40E-02	3E-07
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	2.00E-03	2.74E-02	3.00E-02	2E-03	1.17E-02	1.20E-01	3E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.17E-01	2.74E-02	9.00E-03	4E-01	1.17E-02	--	--
	Acetone	67641	1.17E-02	2.74E-02	1.00E-01	3E-03	1.17E-02	--	--
	Benzene	71432	7.00E-04	2.74E-02	3.00E-03	6E-03	1.17E-02	5.50E-02	5E-07
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-02	2.74E-02	1.00E-02	8E-02	1.17E-02	--	--
	Dichloromethane	75092	2.30E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	7.50E-03	2E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	3.24E-03	2.74E-02	3.00E-04	3E-01	1.17E-02	1.10E-02	4E-07
	Vinyl Chloride	75014_A	3.42E-01	2.74E-02	3.00E-03	**3E+00**	1.17E-02	7.20E-01	**3E-03**
	Xylenes (Total)	1330207	1.40E-03	2.74E-02	2.00E+00	2E-05	1.17E-02	--	--
					Total	**5E+00**		Total	**3E-03**
AOI 26	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.21E-02	2.74E-02	3.00E-04	1E+00	1.17E-02	1.50E+00	**2E-04**
	Barium	7440393	2.68E-01	2.74E-02	7.00E-02	1E-01	1.17E-02	--	--
	Cadmium	7440439_W	4.10E-03	2.74E-02	5.00E-04	2E-01	1.17E-02	--	--
	Chromium	18540299_VI	2.70E-03	2.74E-02	3.00E-03	2E-02	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	1.90E-03	2.74E-02	3.00E-04	2E-01	1.17E-02	--	--
	Selenium	7782492	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	Silver	7440224	2.40E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	9.72E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	--	--
	Acenaphthene	83329	8.04E-03	2.74E-02	6.00E-02	4E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	4.61E-03	2.74E-02	2.00E-02	6E-03	1.17E-02	7.30E-01	4E-05
	Benzo[a]pyrene	50328	1.10E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	7.30E+00	9E-05
	Benzo[b]fluoranthene	205992	2.30E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-01	2E-05
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	6.28E-03	2.74E-02	2.00E-02	9E-03	1.17E-02	7.30E-03	5E-07
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	5.35E-03	2.74E-02	4.00E-03	4E-02	1.17E-02	--	--
	Fluoranthene	206440	4.51E-03	2.74E-02	4.00E-02	3E-03	1.17E-02	--	--
	Fluorene	86737	9.15E-03	2.74E-02	4.00E-02	6E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	1.50E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	7.30E-01	1E-05
	Naphthalene	91203	7.69E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	--	--
	Phenanthrene	85018	1.37E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	--	--
	Pyrene	129000	8.11E-03	2.74E-02	3.00E-02	7E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	1.50E-03	2.74E-02	5.00E-03	8E-03	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	9.90E-02	2.74E-02	2.00E-02	1E-01	1.17E-02	1.40E-02	2E-05
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.80E-03	2.74E-02	9.00E-03	5E-03	1.17E-02	--	--
	Acetone	67641	7.21E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	Benzene	71432	1.20E-03	2.74E-02	3.00E-03	1E-02	1.17E-02	5.50E-02	8E-07
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.00E-03	2.74E-02	1.00E-02	3E-03	1.17E-02	--	--
	Dichloromethane	75092	1.70E-03	2.74E-02	6.00E-02	8E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	2.40E-03	2.74E-02	1.00E-01	7E-04	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	1.40E-03	2.74E-02	2.00E-01	2E-04	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	5.37E-03	2.74E-02	3.00E-03	5E-02	1.17E-02	7.20E-01	5E-05
	Xylenes (Total)	1330207	3.76E-03	2.74E-02	2.00E+00	5E-05	1.17E-02	--	--
					Total	**2E+00**		Total	**4E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 27	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	6.08E-03	2.74E-02	3.00E-04	6E-01	1.17E-02	1.50E+00	1E-04
	Barium	7440393	3.22E-01	2.74E-02	7.00E-02	1E-01	1.17E-02	--	--
	Cadmium	7440439_W	3.27E-03	2.74E-02	5.00E-04	2E-01	1.17E-02	--	--
	Chromium	18540299_VI	9.00E-02	2.74E-02	3.00E-03	8E-01	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	1.79E-02	2.74E-02	5.00E-03	1E-01	1.17E-02	--	--
	Silver	7440224	6.90E-03	2.74E-02	5.00E-03	4E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	3.00E-04	2.74E-02	4.00E-02	2E-04	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	ND	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	1.00E-03	2.74E-02	--	--	1.17E-02	1.10E+00	1E-05
	bis(2-Ethylhexyl)phthalate	117817	9.00E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	1.40E-02	1E-06
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	1.20E-01	4E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	2.86E-03	2.74E-02	9.00E-03	9E-03	1.17E-02	--	--
	Acetone	67641	1.10E-02	2.74E-02	1.00E-01	3E-03	1.17E-02	--	--
	Benzene	71432	8.00E-04	2.74E-02	3.00E-03	7E-03	1.17E-02	5.50E-02	5E-07
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.00E-03	2.74E-02	1.00E-02	8E-03	1.17E-02	--	--
	Dichloromethane	75092	1.50E-03	2.74E-02	6.00E-02	7E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	3.10E-03	2.74E-02	3.00E-04	3E-01	1.17E-02	1.10E-02	4E-07
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	**2E+00**		Total	1E-04
AOI 30	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.91E-02	2.74E-02	3.00E-04	**2E+00**	1.17E-02	1.50E+00	**3E-04**
	Barium	7440393	7.65E-01	2.74E-02	7.00E-02	3E-01	1.17E-02	--	--
	Cadmium	7440439_W	3.07E-03	2.74E-02	5.00E-04	2E-01	1.17E-02	--	--
	Chromium	18540299_VI	4.23E-02	2.74E-02	3.00E-03	4E-01	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	4.80E-05	2.74E-02	3.00E-04	4E-03	1.17E-02	--	--
	Selenium	7782492	1.36E-02	2.74E-02	5.00E-03	7E-02	1.17E-02	--	--
	Silver	7440224	3.20E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	6.07E-01	2.74E-02	2.00E-02	8E-01	1.17E-02	--	--
	Acenaphthene	83329	9.24E-02	2.74E-02	6.00E-02	4E-02	1.17E-02	--	--
	Benzo[a]anthracene	56553	2.03E-02	2.74E-02	2.00E-02	3E-02	1.17E-02	7.30E-01	**2E-04**
	Benzo[a]pyrene	50328	2.80E-02	2.74E-02	2.00E-02	4E-02	1.17E-02	7.30E+00	**2E-03**
	Benzo[b]fluoranthene	205992	2.84E-02	2.74E-02	2.00E-02	4E-02	1.17E-02	7.30E-01	**2E-04**
	Benzo[k]fluoranthene	207089	2.69E-02	2.74E-02	2.00E-02	4E-02	1.17E-02	7.30E-02	2E-05
	Chrysene	218019	2.11E-02	2.74E-02	2.00E-02	3E-02	1.17E-02	7.30E-03	2E-06
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	4.10E-02	2.74E-02	4.00E-03	3E-01	1.17E-02	--	--
	Fluoranthene	206440	3.77E-02	2.74E-02	4.00E-02	3E-02	1.17E-02	--	--
	Fluorene	86737	1.14E-01	2.74E-02	4.00E-02	8E-02	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	6.52E-02	2.74E-02	2.00E-02	9E-02	1.17E-02	--	--
	Phenanthrene	85018	1.84E-01	2.74E-02	2.00E-02	3E-01	1.17E-02	--	--
	Pyrene	129000	4.26E-02	2.74E-02	3.00E-02	4E-02	1.17E-02	--	--
	Aroclor-1260	11096825	ND	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	2.40E-02	8E-07
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	1.90E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.27E-01	2.74E-02	2.00E-02	2E-01	1.17E-02	1.40E-02	2E-05
	Carbazole	86748	3.00E-03	2.74E-02	--	--	1.17E-02	2.00E-02	7E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.00E-03	2.74E-02	3.00E-02	5E-03	1.17E-02	1.20E-01	7E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	9.00E-03	2.74E-02	6.00E-03	4E-02	1.17E-02	2.00E+00	**2E-04**
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	6.32E-02	2.74E-02	9.00E-03	2E-01	1.17E-02	--	--
	Acetone	67641	1.65E-02	2.74E-02	1.00E-01	5E-03	1.17E-02	--	--
	Benzene	71432	7.97E-03	2.74E-02	3.00E-03	7E-02	1.17E-02	5.50E-02	5E-06
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.46E-03	2.74E-02	--	--	1.17E-02	1.30E-02	1E-06
	cis-1,2-Dichloroethene	156592	7.09E-02	2.74E-02	1.00E-02	2E-01	1.17E-02	--	--
	Dichloromethane	75092	6.56E-03	2.74E-02	6.00E-02	3E-03	1.17E-02	7.50E-03	6E-07
	Ethylbenzene	100414	3.20E-03	2.74E-02	1.00E-01	9E-04	1.17E-02	--	--
	Tetrachloroethene	127184	7.04E-03	2.74E-02	1.00E-02	2E-02	1.17E-02	5.20E-02	4E-06
	Toluene	108883	3.10E-03	2.74E-02	2.00E-01	4E-04	1.17E-02	--	--
	Trichloroethene	79016	2.50E-03	2.74E-02	3.00E-04	2E-01	1.17E-02	1.10E-02	3E-07
	Vinyl Chloride	75014_A	2.86E-01	2.74E-02	3.00E-03	**3E+00**	1.17E-02	7.20E-01	**2E-03**
	Xylenes (Total)	1330207	5.40E-03	2.74E-02	2.00E+00	7E-05	1.17E-02	--	--
					Total	**8E+00**		Total	**6E-03**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 32	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.65E-02	2.74E-02	3.00E-04	**2E+00**	1.17E-02	1.50E+00	**3E-04**
	Barium	7440393	6.02E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	5.00E-03	2.74E-02	5.00E-04	3E-01	1.17E-02	--	--
	Chromium	18540299_VI	1.90E-03	2.74E-02	3.00E-03	2E-02	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	3.27E-05	2.74E-02	3.00E-04	3E-03	1.17E-02	--	--
	Selenium	7782492	6.60E-03	2.74E-02	5.00E-03	4E-02	1.17E-02	--	--
	Silver	7440224	1.50E-03	2.74E-02	5.00E-03	8E-03	1.17E-02	--	--
	2-Methylnaphthalene	91576	1.55E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	--	--
	Acenaphthene	83329	3.30E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	1.30E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	7.30E-01	1E-05
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	1.10E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	7.30E-01	9E-06
	Benzo[k]fluoranthene	207089	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	7.30E-02	2E-07
	Chrysene	218019	1.10E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	7.30E-03	9E-08
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	1.20E-03	2.74E-02	4.00E-03	8E-03	1.17E-02	--	--
	Fluoranthene	206440	7.40E-03	2.74E-02	4.00E-02	5E-03	1.17E-02	--	--
	Fluorene	86737	3.40E-03	2.74E-02	4.00E-02	2E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	5.20E-03	2.74E-02	2.00E-02	7E-03	1.17E-02	--	--
	Phenanthrene	85018	4.50E-03	2.74E-02	2.00E-02	6E-03	1.17E-02	--	--
	Pyrene	129000	5.60E-03	2.74E-02	3.00E-02	5E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.40E-01	2.74E-02	2.00E-02	2E-01	1.17E-02	1.40E-02	2E-05
	Carbazole	86748	1.20E-03	2.74E-02	--	--	1.17E-02	2.00E-02	3E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	6.30E-03	2.74E-02	3.00E-02	6E-03	1.17E-02	1.20E-01	9E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	2.43E-03	2.74E-02	9.00E-03	7E-03	1.17E-02	--	--
	Acetone	67641	1.00E+01	2.74E-02	1.00E-01	**3E+00**	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	8.38E-03	2.74E-02	--	--	1.17E-02	1.30E-02	1E-06
	cis-1,2-Dichloroethene	156592	1.45E-03	2.74E-02	1.00E-02	4E-03	1.17E-02	--	--
	Dichloromethane	75092	1.60E+00	2.74E-02	6.00E-02	7E-01	1.17E-02	7.50E-03	1E-04
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	1.60E-03	2.74E-02	2.00E-01	2E-04	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	8.17E-03	2.74E-02	3.00E-03	7E-02	1.17E-02	7.20E-01	7E-05
	Xylenes (Total)	1330207	2.60E-03	2.74E-02	2.00E+00	4E-05	1.17E-02	--	--
					Total	**6E+00**		Total	**6E-04**
AOI 33	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	2.15E-03	2.74E-02	3.00E-04	2E-01	1.17E-02	1.50E+00	4E-05
	Barium	7440393	1.85E-01	2.74E-02	7.00E-02	7E-02	1.17E-02	--	--
	Cadmium	7440439_W	4.75E-04	2.74E-02	5.00E-04	3E-02	1.17E-02	--	--
	Chromium	18540299_VI	9.84E-04	2.74E-02	3.00E-03	9E-03	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	1.26E-04	2.74E-02	3.00E-04	1E-02	1.17E-02	--	--
	Selenium	7782492	3.36E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	Silver	7440224	9.96E-04	2.74E-02	5.00E-03	5E-03	1.17E-02	--	--
	2-Methylnaphthalene	91576	2.37E-01	2.74E-02	2.00E-02	3E-01	1.17E-02	--	--
	Acenaphthene	83329	2.40E-01	2.74E-02	6.00E-02	1E-01	1.17E-02	--	--
	Benzo[a]anthracene	56553	2.38E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-01	2E-05
	Benzo[a]pyrene	50328	2.25E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E+00	**2E-04**
	Benzo[b]fluoranthene	205992	2.07E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-01	2E-05
	Benzo[k]fluoranthene	207089	2.16E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-02	2E-06
	Chrysene	218019	2.30E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-03	2E-07
	Dibenz[a,h]anthracene	53703	1.99E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E+00	**2E-04**
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	8.23E-03	2.74E-02	4.00E-02	6E-03	1.17E-02	--	--
	Fluorene	86737	7.68E-02	2.74E-02	4.00E-02	5E-02	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.14E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-01	2E-05
	Naphthalene	91203	5.49E+00	2.74E-02	2.00E-02	**8E+00**	1.17E-02	--	--
	Phenanthrene	85018	1.50E-01	2.74E-02	2.00E-02	2E-01	1.17E-02	--	--
	Pyrene	129000	1.22E-02	2.74E-02	3.00E-02	1E-02	1.17E-02	--	--
	Aroclor-1260	11096825	1.02E-04	2.74E-02	2.00E-05	1E-01	1.17E-02	2.00E+00	2E-06
	1,4-Dichlorobenzene	106467	4.00E-04	2.74E-02	3.00E-02	4E-04	1.17E-02	2.40E-02	1E-07
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	2.51E-03	2.74E-02	5.00E-03	1E-02	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.00E-03	2.74E-02	2.00E-02	1E-03	1.17E-02	1.40E-02	2E-07
	Carbazole	86748	7.02E-03	2.74E-02	--	--	1.17E-02	2.00E-02	2E-06
	n-Nitrosodipropylamine	621647	1.00E-03	2.74E-02	--	--	1.17E-02	7.00E+00	8E-05
	Pentachlorophenol (PCP)	87865	1.00E-03	2.74E-02	3.00E-02	9E-04	1.17E-02	1.20E-01	1E-06
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	1.40E-03	2.74E-02	4.00E-03	1E-02	1.17E-02	5.70E-02	9E-07
	1,1-Dichloroethane	75343	1.36E-03	2.74E-02	1.00E-01	4E-04	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	1.75E-02	2.74E-02	1.00E-01	5E-03	1.17E-02	--	--
	Benzene	71432	6.57E-02	2.74E-02	3.00E-03	6E-01	1.17E-02	5.50E-02	4E-05
	Chlorodibromomethane	124481	1.39E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	8.40E-02	1E-06
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	1.24E-03	2.74E-02	6.00E-02	6E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	1.75E+00	2.74E-02	1.00E-01	5E-01	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	3.37E-02	2.74E-02	2.00E-01	5E-03	1.17E-02	--	--
	Trichloroethene	79016	1.00E-03	2.74E-02	3.00E-04	9E-02	1.17E-02	1.10E-02	1E-07
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	2.11E-01	2.74E-02	2.00E+00	3E-03	1.17E-02	--	--
					Total	**1E+01**		Total	**6E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 34	Antimony	7440360	4.95E-02	2.74E-02	4.00E-04	**3E+00**	1.17E-02	--	--
	Arsenic	7440382	2.26E-02	2.74E-02	3.00E-04	**2E+00**	1.17E-02	1.50E+00	**4E-04**
	Barium	7440393	3.81E-01	2.74E-02	7.00E-02	1E-01	1.17E-02	--	--
	Cadmium	7440439_W	1.55E-03	2.74E-02	5.00E-04	9E-02	1.17E-02	--	--
	Chromium	18540299_VI	3.66E-02	2.74E-02	3.00E-03	3E-01	1.17E-02	--	--
	Manganese	7439965_NF	1.19E+00	2.74E-02	2.00E-02	**2E+00**	1.17E-02	--	--
	Mercury	7439976	5.70E-04	2.74E-02	3.00E-04	5E-02	1.17E-02	--	--
	Selenium	7782492	1.04E-02	2.74E-02	5.00E-03	6E-02	1.17E-02	--	--
	Silver	7440224	2.04E-02	2.74E-02	5.00E-03	1E-01	1.17E-02	--	--
	2-Methylnaphthalene	91576	8.98E-03	2.74E-02	2.00E-02	1E-02	1.17E-02	--	--
	Acenaphthene	83329	2.86E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	5.69E-03	2.74E-02	4.00E-03	4E-02	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	3.28E-03	2.74E-02	4.00E-02	2E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	3.12E-03	2.74E-02	2.00E-02	4E-03	1.17E-02	--	--
	Phenanthrene	85018	3.07E-03	2.74E-02	2.00E-02	4E-03	1.17E-02	--	--
	Pyrene	129000	1.10E-03	2.74E-02	3.00E-02	1E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	2.00E-03	2.74E-02	1.00E-04	5E-01	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.35E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	1.40E-02	2E-06
	Carbazole	86748	2.70E-03	2.74E-02	--	--	1.17E-02	2.00E-02	6E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	5.84E-03	2.74E-02	3.00E-02	5E-03	1.17E-02	1.20E-01	8E-06
	1,1,1-Trichloroethane	71556	3.39E-03	2.74E-02	2.80E-01	3E-04	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	8.00E-04	2.74E-02	4.00E-03	5E-03	1.17E-02	5.70E-02	5E-07
	1,1-Dichloroethane	75343	2.87E-01	2.74E-02	1.00E-01	8E-02	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	6.00E-04	2.74E-02	3.00E-02	5E-04	1.17E-02	9.10E-02	6E-07
	1,2-Dichloroethene	540590	1.69E-02	2.74E-02	9.00E-03	5E-02	1.17E-02	--	--
	Acetone	67641	2.09E-02	2.74E-02	1.00E-01	6E-03	1.17E-02	--	--
	Benzene	71432	3.75E-03	2.74E-02	3.00E-03	3E-02	1.17E-02	5.50E-02	2E-06
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.72E-02	2.74E-02	4.00E-01	1E-03	1.17E-02	2.90E-03	6E-07
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.30E-02	2.74E-02	1.00E-02	4E-02	1.17E-02	--	--
	Dichloromethane	75092	3.34E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	7.50E-03	3E-07
	Ethylbenzene	100414	3.00E-03	2.74E-02	1.00E-01	8E-04	1.17E-02	--	--
	Tetrachloroethene	127184	3.64E-03	2.74E-02	1.00E-02	1E-02	1.17E-02	5.20E-02	2E-06
	Toluene	108883	3.10E-03	2.74E-02	2.00E-01	4E-04	1.17E-02	--	--
	Trichloroethene	79016	3.34E-03	2.74E-02	3.00E-04	3E-01	1.17E-02	1.10E-02	4E-07
	Vinyl Chloride	75014_A	1.92E-01	2.74E-02	3.00E-03	**2E+00**	1.17E-02	7.20E-01	**2E-03**
	Xylenes (Total)	1330207	4.44E-03	2.74E-02	2.00E+00	6E-05	1.17E-02	--	--
					Total	**1E+01**		Total	**2E-03**
AOI 35	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	9.50E-03	2.74E-02	3.00E-04	9E-01	1.17E-02	1.50E+00	**2E-04**
	Barium	7440393	3.12E-01	2.74E-02	7.00E-02	1E-01	1.17E-02	--	--
	Cadmium	7440439_W	1.50E-03	2.74E-02	5.00E-04	8E-02	1.17E-02	--	--
	Chromium	18540299_VI	2.10E-03	2.74E-02	3.00E-03	2E-02	1.17E-02	--	--
	Manganese	7439965_NF	5.80E-01	2.74E-02	2.00E-02	8E-01	1.17E-02	--	--
	Mercury	7439976	6.70E-05	2.74E-02	3.00E-04	6E-03	1.17E-02	--	--
	Selenium	7782492	7.40E-03	2.74E-02	5.00E-03	4E-02	1.17E-02	--	--
	Silver	7440224	2.90E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	3.70E-02	2.74E-02	2.00E-02	5E-02	1.17E-02	--	--
	Acenaphthene	83329	4.00E-03	2.74E-02	6.00E-02	2E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	ND	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	2.00E-04	2.74E-02	4.00E-02	1E-04	1.17E-02	--	--
	Fluorene	86737	4.00E-03	2.74E-02	4.00E-02	3E-03	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	1.00E-04	2.74E-02	2.00E-02	1E-04	1.17E-02	--	--
	Phenanthrene	85018	6.00E-03	2.74E-02	2.00E-02	8E-03	1.17E-02	--	--
	Pyrene	129000	2.00E-04	2.74E-02	3.00E-02	2E-04	1.17E-02	--	--
	Aroclor-1260	11096825	ND	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	3.00E-04	2.74E-02	3.00E-02	3E-04	1.17E-02	2.40E-02	8E-08
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.80E-03	2.74E-02	2.00E-02	5E-03	1.17E-02	1.40E-02	6E-07
	Carbazole	86748	7.00E-04	2.74E-02	--	--	1.17E-02	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	8.82E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.40E-03	2.74E-02	9.00E-03	4E-03	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	1.54E-03	2.74E-02	6.00E-02	7E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	4.30E-03	2.74E-02	3.00E-03	4E-02	1.17E-02	7.20E-01	4E-05
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	**2E+00**		Total	**2E-04**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 36	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	7.50E-03	2.74E-02	3.00E-04	7E-01	1.17E-02	1.50E+00	1E-04
	Barium	7440393	3.08E-01	2.74E-02	7.00E-02	1E-01	1.17E-02	--	--
	Cadmium	7440439_W	1.90E-03	2.74E-02	5.00E-04	1E-01	1.17E-02	--	--
	Chromium	18540299_VI	2.60E-02	2.74E-02	3.00E-03	2E-01	1.17E-02	--	--
	Manganese	7439965_NF	1.21E-01	2.74E-02	2.00E-02	2E-01	1.17E-02	--	--
	Mercury	7439976	6.20E-05	2.74E-02	3.00E-04	6E-03	1.17E-02	--	--
	Selenium	7782492	6.00E-03	2.74E-02	5.00E-03	3E-02	1.17E-02	--	--
	Silver	7440224	3.00E-03	2.74E-02	5.00E-03	2E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	1.00E-04	2.74E-02	3.00E-02	9E-05	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.44E-03	2.74E-02	2.00E-02	2E-03	1.17E-02	1.40E-02	2E-07
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	3.78E-03	2.74E-02	1.00E-01	1E-03	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	2.98E-03	2.74E-02	9.00E-03	9E-03	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	1.54E-03	2.74E-02	1.00E-02	4E-03	1.17E-02	--	--
	Dichloromethane	75092	1.15E-03	2.74E-02	6.00E-02	5E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	ND	2.74E-02	2.00E-01	--	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	3.84E-03	2.74E-02	3.00E-03	4E-02	1.17E-02	7.20E-01	3E-05
	Xylenes (Total)	1330207	ND	2.74E-02	2.00E+00	--	1.17E-02	--	--
					Total	1E+00		Total	**2E-04**
AOI 37	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	--	2.74E-02	3.00E-04	--	1.17E-02	1.50E+00	--
	Barium	7440393	--	2.74E-02	7.00E-02	--	1.17E-02	--	--
	Cadmium	7440439_W	--	2.74E-02	5.00E-04	--	1.17E-02	--	--
	Chromium	18540299_VI	--	2.74E-02	3.00E-03	--	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	--	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	Silver	7440224	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	2-Methylnaphthalene	91576	1.70E-01	2.74E-02	2.00E-02	2E-01	1.17E-02	--	--
	Acenaphthene	83329	1.91E-02	2.74E-02	6.00E-02	9E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	7.30E-01	2E-06
	Benzo[k]fluoranthene	207089	2.00E-04	2.74E-02	2.00E-02	3E-04	1.17E-02	7.30E-02	2E-07
	Chrysene	218019	4.00E-04	2.74E-02	2.00E-02	5E-04	1.17E-02	7.30E-03	3E-08
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	2.16E-02	2.74E-02	4.00E-03	1E-01	1.17E-02	--	--
	Fluoranthene	206440	3.40E-03	2.74E-02	4.00E-02	2E-03	1.17E-02	--	--
	Fluorene	86737	3.55E-02	2.74E-02	4.00E-02	2E-02	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	4.31E-03	2.74E-02	2.00E-02	6E-03	1.17E-02	--	--
	Phenanthrene	85018	8.04E-02	2.74E-02	2.00E-02	1E-01	1.17E-02	--	--
	Pyrene	129000	3.72E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	9.00E-03	2.74E-02	5.00E-03	5E-02	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	1.30E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	1.40E-02	2E-06
	Carbazole	86748	1.00E-03	2.74E-02	--	--	1.17E-02	2.00E-02	2E-07
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	ND	2.74E-02	2.80E-01	--	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-02	9.00E-03	--	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	ND	2.74E-02	3.00E-03	--	1.17E-02	5.50E-02	--
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	--	2.74E-02	1.00E-02	--	1.17E-02	--	--
	Dichloromethane	75092	1.30E-03	2.74E-02	6.00E-02	6E-04	1.17E-02	7.50E-03	1E-07
	Ethylbenzene	100414	6.50E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	3.90E-03	2.74E-02	2.00E-01	5E-04	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	ND	2.74E-02	3.00E-03	--	1.17E-02	7.20E-01	--
	Xylenes (Total)	1330207	2.60E-02	2.74E-02	2.00E+00	4E-04	1.17E-02	--	--
					Total	6E-01		Total	4E-06

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI 38	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	1.38E-02	2.74E-02	3.00E-04	1E+00	1.17E-02	1.50E+00	**2E-04**
	Barium	7440393	5.47E-01	2.74E-02	7.00E-02	2E-01	1.17E-02	--	--
	Cadmium	7440439_W	1.34E-03	2.74E-02	5.00E-04	7E-02	1.17E-02	--	--
	Chromium	18540299_VI	1.81E-02	2.74E-02	3.00E-03	2E-01	1.17E-02	--	--
	Manganese	7439965_NF	1.13E+00	2.74E-02	2.00E-02	**2E+00**	1.17E-02	--	--
	Mercury	7439976	5.40E-05	2.74E-02	3.00E-04	5E-03	1.17E-02	--	--
	Selenium	7782492	8.64E-03	2.74E-02	5.00E-03	5E-02	1.17E-02	--	--
	Silver	7440224	6.78E-03	2.74E-02	5.00E-03	4E-02	1.17E-02	--	--
	2-Methylnaphthalene	91576	6.50E-01	2.74E-02	2.00E-02	9E-01	1.17E-02	--	--
	Acenaphthene	83329	1.45E-02	2.74E-02	6.00E-02	7E-03	1.17E-02	--	--
	Benzo[a]anthracene	56553	1.20E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	7.30E-01	1E-04
	Benzo[a]pyrene	50328	6.20E-03	2.74E-02	2.00E-02	8E-03	1.17E-02	7.30E+00	**5E-04**
	Benzo[b]fluoranthene	205992	1.00E-02	2.74E-02	2.00E-02	1E-02	1.17E-02	7.30E-01	9E-05
	Benzo[k]fluoranthene	207089	4.80E-03	2.74E-02	2.00E-02	7E-03	1.17E-02	7.30E-02	4E-06
	Chrysene	218019	1.36E-02	2.74E-02	2.00E-02	2E-02	1.17E-02	7.30E-03	1E-06
	Dibenz[a,h]anthracene	53703	3.00E-04	2.74E-02	2.00E-02	4E-04	1.17E-02	7.30E+00	3E-05
	Dibenzofuran	132649	6.68E-02	2.74E-02	4.00E-03	5E-01	1.17E-02	--	--
	Fluoranthene	206440	1.40E-02	2.74E-02	4.00E-02	1E-02	1.17E-02	--	--
	Fluorene	86737	1.80E-02	2.74E-02	4.00E-02	1E-02	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	2.00E-03	2.74E-02	2.00E-02	3E-03	1.17E-02	7.30E-01	2E-05
	Naphthalene	91203	7.72E-02	2.74E-02	2.00E-02	1E-01	1.17E-02	--	--
	Phenanthrene	85018	4.77E-02	2.74E-02	2.00E-02	7E-02	1.17E-02	--	--
	Pyrene	129000	1.01E-02	2.74E-02	3.00E-02	9E-03	1.17E-02	--	--
	Aroclor-1260	11096825	ND	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	1.38E-02	2.74E-02	3.00E-02	1E-02	1.17E-02	2.40E-02	4E-06
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	3.81E-02	2.74E-02	2.00E-02	5E-02	1.17E-02	1.40E-02	6E-06
	Carbazole	86748	1.27E-02	2.74E-02	--	--	1.17E-02	2.00E-02	3E-06
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	3.00E-03	2.74E-02	3.00E-02	3E-03	1.17E-02	1.20E-01	4E-06
	1,1,1-Trichloroethane	71556	3.17E-01	2.74E-02	2.80E-01	3E-02	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	3.07E-03	2.74E-02	4.00E-03	2E-02	1.17E-02	5.70E-02	2E-06
	1,1-Dichloroethane	75343	1.30E-01	2.74E-02	1.00E-01	4E-02	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	1.00E-03	2.74E-02	3.00E-02	9E-04	1.17E-02	9.10E-02	1E-06
	1,2-Dichloroethene	540590	4.37E-01	2.74E-02	9.00E-03	1E+00	1.17E-02	--	--
	Acetone	67641	6.59E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	Benzene	71432	1.00E-02	2.74E-02	3.00E-03	9E-02	1.17E-02	5.50E-02	6E-06
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	3.13E-02	2.74E-02	4.00E-01	2E-03	1.17E-02	2.90E-03	1E-06
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	7.25E-01	2.74E-02	1.00E-02	**2E+00**	1.17E-02	--	--
	Dichloromethane	75092	2.43E-03	2.74E-02	6.00E-02	1E-03	1.17E-02	7.50E-03	2E-07
	Ethylbenzene	100414	4.14E-02	2.74E-02	1.00E-01	1E-02	1.17E-02	--	--
	Tetrachloroethene	127184	3.40E-03	2.74E-02	1.00E-02	9E-03	1.17E-02	5.20E-02	2E-06
	Toluene	108883	1.37E-02	2.74E-02	2.00E-01	2E-03	1.17E-02	--	--
	Trichloroethene	79016	3.63E-02	2.74E-02	3.00E-04	**3E+00**	1.17E-02	1.10E-02	5E-06
	Vinyl Chloride	75014_A	6.95E-02	2.74E-02	3.00E-03	6E-01	1.17E-02	7.20E-01	**6E-04**
	Xylenes (Total)	1330207	5.61E-02	2.74E-02	2.00E+00	8E-04	1.17E-02	--	--
					Total	**1E+01**		Total	**2E-03**
AOI SPRR3	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	--	2.74E-02	3.00E-04	--	1.17E-02	1.50E+00	--
	Barium	7440393	--	2.74E-02	7.00E-02	--	1.17E-02	--	--
	Cadmium	7440439_W	--	2.74E-02	5.00E-04	--	1.17E-02	--	--
	Chromium	18540299_VI	--	2.74E-02	3.00E-03	--	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	--	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	Silver	7440224	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	2-Methylnaphthalene	91576	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	--	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	--	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	--	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	--	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	3.60E-01	2.74E-02	2.00E-02	5E-01	1.17E-02	--	--
	Phenanthrene	85018	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	--	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	--	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	--	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	--	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	--	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	--	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	--	2.74E-02	2.00E-02	--	1.17E-02	1.40E-02	--
	Carbazole	86748	--	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	--	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	--	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	7.80E-02	2.74E-02	2.80E-01	8E-03	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	2.90E-01	2.74E-02	1.00E-01	8E-02	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	2.70E-01	2.74E-02	9.00E-03	8E-01	1.17E-02	--	--
	Acetone	67641	ND	2.74E-02	1.00E-01	--	1.17E-02	--	--
	Benzene	71432	5.20E-02	2.74E-02	3.00E-03	5E-01	1.17E-02	5.50E-02	3E-05
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	2.30E-01	2.74E-02	4.00E-01	2E-02	1.17E-02	2.90E-03	8E-06
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	2.70E-01	2.74E-02	1.00E-02	7E-01	1.17E-02	--	--
	Dichloromethane	75092	9.60E-03	2.74E-02	6.00E-02	4E-03	1.17E-02	7.50E-03	8E-07
	Ethylbenzene	100414	1.50E-01	2.74E-02	1.00E-01	4E-02	1.17E-02	--	--
	Tetrachloroethene	127184	ND	2.74E-02	1.00E-02	--	1.17E-02	5.20E-02	--
	Toluene	108883	1.20E-01	2.74E-02	2.00E-01	2E-02	1.17E-02	--	--
	Trichloroethene	79016	1.00E-03	2.74E-02	3.00E-04	9E-02	1.17E-02	1.10E-02	1E-07
	Vinyl Chloride	75014_A	3.30E-01	2.74E-02	3.00E-03	**3E+00**	1.17E-02	7.20E-01	**3E-03**
	Xylenes (Total)	1330207	9.30E-01	2.74E-02	2.00E+00	1E-02	1.17E-02	--	--
					Total	**6E+00**		Total	**3E-03**

APPENDIX E.6 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INGESTION OF GROUNDWATER

Based on RME Assumptions

AOI	Chemical	CAS Number	Cgw (mg/L)	Noncancer Risk RME HIFNC	Oral RfD	RiskNC	Cancer Risk RME HIFC	Oral SF	RiskC
AOI SPRR5	Antimony	7440360	--	2.74E-02	4.00E-04	--	1.17E-02	--	--
	Arsenic	7440382	3.00E-03	2.74E-02	3.00E-04	3E-01	1.17E-02	1.50E+00	5E-05
	Barium	7440393	1.49E-01	2.74E-02	7.00E-02	6E-02	1.17E-02	--	--
	Cadmium	7440439_W	7.70E-04	2.74E-02	5.00E-04	4E-02	1.17E-02	--	--
	Chromium	18540299_VI	1.40E-03	2.74E-02	3.00E-03	1E-02	1.17E-02	--	--
	Manganese	7439965_NF	--	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Mercury	7439976	ND	2.74E-02	3.00E-04	--	1.17E-02	--	--
	Selenium	7782492	5.00E-03	2.74E-02	5.00E-03	3E-02	1.17E-02	--	--
	Silver	7440224	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	2-Methylnaphthalene	91576	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Acenaphthene	83329	ND	2.74E-02	6.00E-02	--	1.17E-02	--	--
	Benzo[a]anthracene	56553	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[a]pyrene	50328	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-02	--
	Chrysene	218019	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-03	--
	Dibenz[a,h]anthracene	53703	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E+00	--
	Dibenzofuran	132649	--	2.74E-02	4.00E-03	--	1.17E-02	--	--
	Fluoranthene	206440	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Fluorene	86737	ND	2.74E-02	4.00E-02	--	1.17E-02	--	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	2.74E-02	2.00E-02	--	1.17E-02	7.30E-01	--
	Naphthalene	91203	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Phenanthrene	85018	ND	2.74E-02	2.00E-02	--	1.17E-02	--	--
	Pyrene	129000	ND	2.74E-02	3.00E-02	--	1.17E-02	--	--
	Aroclor-1260	11096825	--	2.74E-02	2.00E-05	--	1.17E-02	2.00E+00	--
	1,4-Dichlorobenzene	106467	ND	2.74E-02	3.00E-02	--	1.17E-02	2.40E-02	--
	2,6-Dinitrotoluene	606202	ND	2.74E-02	1.00E-03	--	1.17E-02	6.80E-01	--
	4,6-Dinitro-o-cresol	534521	ND	2.74E-02	1.00E-04	--	1.17E-02	--	--
	4-Methylphenol (p-Cresol)	106445	ND	2.74E-02	5.00E-03	--	1.17E-02	--	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-02	--	--	1.17E-02	1.10E+00	--
	bis(2-Ethylhexyl)phthalate	117817	ND	2.74E-02	2.00E-02	--	1.17E-02	1.40E-02	--
	Carbazole	86748	ND	2.74E-02	--	--	1.17E-02	2.00E-02	--
	n-Nitrosodipropylamine	621647	ND	2.74E-02	--	--	1.17E-02	7.00E+00	--
	Pentachlorophenol (PCP)	87865	ND	2.74E-02	3.00E-02	--	1.17E-02	1.20E-01	--
	1,1,1-Trichloroethane	71556	4.00E-03	2.74E-02	2.80E-01	4E-04	1.17E-02	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-02	4.00E-03	--	1.17E-02	5.70E-02	--
	1,1-Dichloroethane	75343	8.61E-02	2.74E-02	1.00E-01	2E-02	1.17E-02	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-02	6.00E-03	--	1.17E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-02	3.00E-02	--	1.17E-02	9.10E-02	--
	1,2-Dichloroethene	540590	6.09E-02	2.74E-02	9.00E-03	2E-01	1.17E-02	--	--
	Acetone	67641	6.00E-03	2.74E-02	1.00E-01	2E-03	1.17E-02	--	--
	Benzene	71432	6.05E-01	2.74E-02	3.00E-03	**6E+00**	1.17E-02	5.50E-02	**4E-04**
	Chlorodibromomethane	124481	ND	2.74E-02	2.00E-02	--	1.17E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-02	4.00E-01	--	1.17E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-02	--	--	1.17E-02	1.30E-02	--
	cis-1,2-Dichloroethene	156592	3.03E-03	2.74E-02	1.00E-02	8E-03	1.17E-02	--	--
	Dichloromethane	75092	2.96E-02	2.74E-02	6.00E-02	1E-02	1.17E-02	7.50E-03	3E-06
	Ethylbenzene	100414	9.45E-01	2.74E-02	1.00E-01	3E-01	1.17E-02	--	--
	Tetrachloroethene	127184	2.00E-03	2.74E-02	1.00E-02	5E-03	1.17E-02	5.20E-02	1E-06
	Toluene	108883	2.47E+00	2.74E-02	2.00E-01	3E-01	1.17E-02	--	--
	Trichloroethene	79016	ND	2.74E-02	3.00E-04	--	1.17E-02	1.10E-02	--
	Vinyl Chloride	75014_A	9.47E-02	2.74E-02	3.00E-03	9E-01	1.17E-02	7.20E-01	**8E-04**
	Xylenes (Total)	1330207	7.90E+00	2.74E-02	2.00E+00	1E-01	1.17E-02	--	--
					Total	**8E+00**		Total	**1E-03**

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APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 1	2-Methylnaphthalene	91576	2.25E-03	1.19E-01	2.00E-02	1E-02	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	ND	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	ND	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	1.85E-03	1.19E-01	8.60E-01	3E-04	1.53E-02	1.65E-03	5E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	1E-02		Total	5E-08
AOI 12	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	ND	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	5.00E-05	1.19E-01	3.00E-02	2E-04	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	5.00E-04	1.19E-01	4.00E-03	1E-02	1.53E-02	5.60E-02	4E-07
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	ND	1.19E-01	8.60E-01	--	1.53E-02	1.65E-03	--
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	2E-02		Total	4E-07

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 13	2-Methylnaphthalene	91576	6.50E-01	1.19E-01	2.00E-02	**4E+00**	1.53E-02	--	--
	Acenaphthene	83329	3.11E-03	1.19E-01	6.00E-02	6E-03	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	4.58E-03	1.19E-01	4.00E-02	1E-02	1.53E-02	--	--
	Naphthalene	91203	3.82E-02	1.19E-01	9.00E-04	**5E+00**	1.53E-02	--	--
	Pyrene	129000	2.48E-03	1.19E-01	3.00E-02	1E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	1.00E-03	1.19E-01	1.00E-01	1E-03	1.53E-02	--	--
	Benzene	71432	1.24E-02	1.19E-01	1.70E-03	9E-01	1.53E-02	2.90E-02	6E-06
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	2.42E-03	1.19E-01	8.60E-01	3E-04	1.53E-02	1.65E-03	6E-08
	Ethylbenzene	100414	1.34E-02	1.19E-01	2.90E-01	6E-03	1.53E-02	3.85E-03	8E-07
	Tetrachloroethene	127184	9.50E-04	1.19E-01	1.40E-01	8E-04	1.53E-02	1.00E-02	1E-07
	Toluene	108883	1.30E-03	1.19E-01	1.14E-01	1E-03	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	7.36E-03	1.19E-01	2.00E+00	4E-04	1.53E-02	--	--
					Total	**1E+01**		Total	7E-06
AOI 18	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	ND	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	1.50E-04	1.19E-01	9.00E-04	2E-02	1.53E-02	--	--
	Pyrene	129000	ND	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.10E-02	1.19E-01	6.30E-01	6E-03	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	5.00E-04	1.19E-01	1.40E-01	4E-04	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	4.97E-04	1.19E-01	8.60E-01	7E-05	1.53E-02	1.65E-03	1E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	3E-02		Total	1E-08

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 19	2-Methylnaphthalene	91576	1.00E-03	1.19E-01	2.00E-02	6E-03	1.53E-02	--	--
	Acenaphthene	83329	4.00E-04	1.19E-01	6.00E-02	8E-04	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	5.00E-04	1.19E-01	4.00E-02	1E-03	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	ND	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	ND	1.19E-01	8.60E-01	--	1.53E-02	1.65E-03	--
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	8E-03		Total	--
AOI 20	2-Methylnaphthalene	91576	3.29E-03	1.19E-01	2.00E-02	2E-02	1.53E-02	--	--
	Acenaphthene	83329	1.50E-03	1.19E-01	6.00E-02	3E-03	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	7.50E-04	1.19E-01	4.00E-02	2E-03	1.53E-02	--	--
	Naphthalene	91203	6.50E-04	1.19E-01	9.00E-04	9E-02	1.53E-02	--	--
	Pyrene	129000	2.50E-05	1.19E-01	3.00E-02	1E-04	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	1.19E-01	2.29E-01	1E-04	1.53E-02	2.20E-02	7E-08
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	3.73E-03	1.19E-01	1.00E-01	4E-03	1.53E-02	--	--
	Benzene	71432	3.00E-04	1.19E-01	1.70E-03	2E-02	1.53E-02	2.90E-02	1E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	7.00E-04	1.19E-01	8.60E-01	1E-04	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	8.00E-04	1.19E-01	1.14E-01	8E-04	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	3.00E-04	1.19E-01	2.80E-02	1E-03	1.53E-02	1.50E-02	7E-08
	Xylenes (Total)	1330207	5.00E-04	1.19E-01	2.00E+00	3E-05	1.53E-02	--	--
					Total	1E-01		Total	3E-07

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 21	2-Methylnaphthalene	91576	2.24E-03	1.19E-01	2.00E-02	1E-02	1.53E-02	--	--
	Acenaphthene	83329	1.55E-03	1.19E-01	6.00E-02	3E-03	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	1.76E-03	1.19E-01	4.00E-02	5E-03	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	2.00E-03	1.19E-01	3.00E-02	8E-03	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	5.78E-02	1.19E-01	9.00E-03	8E-01	1.53E-02	--	--
	Acetone	67641	1.20E-03	1.19E-01	1.00E-01	1E-03	1.53E-02	--	--
	Benzene	71432	2.12E-03	1.19E-01	1.70E-03	1E-01	1.53E-02	2.90E-02	9E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	1.96E-03	1.19E-01	2.60E-02	9E-03	1.53E-02	3.50E-03	1E-07
	cis-1,2-Dichloroethene	156592	6.00E-02	1.19E-01	1.00E-02	7E-01	1.53E-02	--	--
	Dichloromethane	75092	ND	1.19E-01	8.60E-01	--	1.53E-02	1.65E-03	--
	Ethylbenzene	100414	2.50E-04	1.19E-01	2.90E-01	1E-04	1.53E-02	3.85E-03	1E-08
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	1.71E-03	1.19E-01	1.14E-01	2E-03	1.53E-02	--	--
	Trichloroethene	79016	2.74E-03	1.19E-01	1.00E-02	3E-02	1.53E-02	6.00E-03	3E-07
	Vinyl Chloride	75014_A	2.54E-02	1.19E-01	2.80E-02	1E-01	1.53E-02	1.50E-02	6E-06
	Xylenes (Total)	1330207	5.00E-04	1.19E-01	2.00E+00	3E-05	1.53E-02	--	--
					Total	**2E+00**		Total	7E-06
AOI 22A	2-Methylnaphthalene	91576	7.38E-03	1.19E-01	2.00E-02	4E-02	1.53E-02	--	--
	Acenaphthene	83329	2.47E-03	1.19E-01	6.00E-02	5E-03	1.53E-02	--	--
	Dibenzofuran	132649	4.70E-03	1.19E-01	4.00E-03	1E-01	1.53E-02	--	--
	Fluorene	86737	3.42E-03	1.19E-01	4.00E-02	1E-02	1.53E-02	--	--
	Naphthalene	91203	1.21E-03	1.19E-01	9.00E-04	2E-01	1.53E-02	--	--
	Pyrene	129000	1.73E-03	1.19E-01	3.00E-02	7E-03	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.31E-01	1.19E-01	6.30E-01	2E-02	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	1.50E-03	1.19E-01	4.00E-03	4E-02	1.53E-02	5.60E-02	1E-06
	1,1-Dichloroethane	75343	1.00E+00	1.19E-01	1.40E-01	9E-01	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	7.50E-03	1.19E-01	1.40E-03	6E-01	1.53E-02	2.00E+00	**2E-04**
	1,2-Dichloroethane	107062	1.00E-03	1.19E-01	1.40E-03	9E-02	1.53E-02	9.10E-02	1E-06
	1,2-Dichloroethene	540590	1.85E+00	1.19E-01	9.00E-03	**2E+01**	1.53E-02	--	--
	Acetone	67641	6.50E-03	1.19E-01	1.00E-01	8E-03	1.53E-02	--	--
	Benzene	71432	5.91E-03	1.19E-01	1.70E-03	4E-01	1.53E-02	2.90E-02	3E-06
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.50E-02	1.19E-01	2.90E+00	3E-03	1.53E-02	2.90E-03	4E-06
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.85E+00	1.19E-01	1.00E-02	**2E+01**	1.53E-02	--	--
	Dichloromethane	75092	7.50E-04	1.19E-01	8.60E-01	1E-04	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	5.15E-03	1.19E-01	2.90E-01	2E-03	1.53E-02	3.85E-03	3E-07
	Tetrachloroethene	127184	3.50E-04	1.19E-01	1.40E-01	3E-04	1.53E-02	1.00E-02	5E-08
	Toluene	108883	2.45E-03	1.19E-01	1.14E-01	3E-03	1.53E-02	--	--
	Trichloroethene	79016	2.00E-03	1.19E-01	1.00E-02	2E-02	1.53E-02	6.00E-03	2E-07
	Vinyl Chloride	75014_A	1.15E+00	1.19E-01	2.80E-02	**5E+00**	1.53E-02	1.50E-02	**3E-04**
	Xylenes (Total)	1330207	3.50E-03	1.19E-01	2.00E+00	2E-04	1.53E-02	--	--
					Total	**5E+01**		Total	**5E-04**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 22B	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	1.15E-03	1.19E-01	6.00E-02	2E-03	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	5.00E-04	1.19E-01	4.00E-02	1E-03	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	1.50E-04	1.19E-01	3.00E-02	6E-04	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	2.20E-03	1.19E-01	2.29E-01	1E-03	1.53E-02	2.20E-02	7E-07
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	5.85E-02	1.19E-01	9.00E-03	8E-01	1.53E-02	--	--
	Acetone	67641	5.85E-03	1.19E-01	1.00E-01	7E-03	1.53E-02	--	--
	Benzene	71432	3.50E-04	1.19E-01	1.70E-03	2E-02	1.53E-02	2.90E-02	2E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-02	1.19E-01	1.00E-02	2E-01	1.53E-02	--	--
	Dichloromethane	75092	1.15E-03	1.19E-01	8.60E-01	2E-04	1.53E-02	1.65E-03	3E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	1.62E-03	1.19E-01	1.00E-02	2E-02	1.53E-02	6.00E-03	1E-07
	Vinyl Chloride	75014_A	1.71E-01	1.19E-01	2.80E-02	7E-01	1.53E-02	1.50E-02	4E-05
	Xylenes (Total)	1330207	7.00E-04	1.19E-01	2.00E+00	4E-05	1.53E-02	--	--
					Total	**2E+00**		Total	4E-05
AOI 26	2-Methylnaphthalene	91576	4.86E-03	1.19E-01	2.00E-02	3E-02	1.53E-02	--	--
	Acenaphthene	83329	4.02E-03	1.19E-01	6.00E-02	8E-03	1.53E-02	--	--
	Dibenzofuran	132649	2.68E-03	1.19E-01	4.00E-03	8E-02	1.53E-02	--	--
	Fluorene	86737	4.57E-03	1.19E-01	4.00E-02	1E-02	1.53E-02	--	--
	Naphthalene	91203	3.85E-03	1.19E-01	9.00E-04	5E-01	1.53E-02	--	--
	Pyrene	129000	4.05E-03	1.19E-01	3.00E-02	2E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	9.00E-04	1.19E-01	9.00E-03	1E-02	1.53E-02	--	--
	Acetone	67641	3.60E-03	1.19E-01	1.00E-01	4E-03	1.53E-02	--	--
	Benzene	71432	6.00E-04	1.19E-01	1.70E-03	4E-02	1.53E-02	2.90E-02	3E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	5.00E-04	1.19E-01	1.00E-02	6E-03	1.53E-02	--	--
	Dichloromethane	75092	8.50E-04	1.19E-01	8.60E-01	1E-04	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	1.20E-03	1.19E-01	2.90E-01	5E-04	1.53E-02	3.85E-03	7E-08
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	7.00E-04	1.19E-01	1.14E-01	7E-04	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	2.68E-03	1.19E-01	2.80E-02	1E-02	1.53E-02	1.50E-02	6E-07
	Xylenes (Total)	1330207	1.88E-03	1.19E-01	2.00E+00	1E-04	1.53E-02	--	--
					Total	7E-01		Total	1E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 27	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	1.50E-04	1.19E-01	4.00E-02	4E-04	1.53E-02	--	--
	Naphthalene	91203	1.00E-04	1.19E-01	9.00E-04	1E-02	1.53E-02	--	--
	Pyrene	129000	ND	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	5.00E-04	1.19E-01	--	--	1.53E-02	1.10E+00	8E-06
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.43E-03	1.19E-01	9.00E-03	2E-02	1.53E-02	--	--
	Acetone	67641	5.50E-03	1.19E-01	1.00E-01	7E-03	1.53E-02	--	--
	Benzene	71432	4.00E-04	1.19E-01	1.70E-03	3E-02	1.53E-02	2.90E-02	2E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-03	1.19E-01	1.00E-02	2E-02	1.53E-02	--	--
	Dichloromethane	75092	7.50E-04	1.19E-01	8.60E-01	1E-04	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	1.55E-03	1.19E-01	1.00E-02	2E-02	1.53E-02	6.00E-03	1E-07
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	1E-01		Total	9E-06
AOI 30	2-Methylnaphthalene	91576	3.04E-01	1.19E-01	2.00E-02	**2E+00**	1.53E-02	--	--
	Acenaphthene	83329	4.62E-02	1.19E-01	6.00E-02	9E-02	1.53E-02	--	--
	Dibenzofuran	132649	2.05E-02	1.19E-01	4.00E-03	6E-01	1.53E-02	--	--
	Fluorene	86737	5.72E-02	1.19E-01	4.00E-02	2E-01	1.53E-02	--	--
	Naphthalene	91203	3.26E-02	1.19E-01	9.00E-04	**4E+00**	1.53E-02	--	--
	Pyrene	129000	2.13E-02	1.19E-01	3.00E-02	8E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	1.50E-03	1.19E-01	2.29E-01	8E-04	1.53E-02	2.20E-02	5E-07
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	4.50E-03	1.19E-01	1.40E-03	4E-01	1.53E-02	2.00E+00	1E-04
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	3.16E-02	1.19E-01	9.00E-03	4E-01	1.53E-02	--	--
	Acetone	67641	8.23E-03	1.19E-01	1.00E-01	1E-02	1.53E-02	--	--
	Benzene	71432	3.98E-03	1.19E-01	1.70E-03	3E-01	1.53E-02	2.90E-02	2E-06
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.23E-03	1.19E-01	2.60E-02	2E-02	1.53E-02	3.50E-03	2E-07
	cis-1,2-Dichloroethene	156592	3.55E-02	1.19E-01	1.00E-02	4E-01	1.53E-02	--	--
	Dichloromethane	75092	3.28E-03	1.19E-01	8.60E-01	5E-04	1.53E-02	1.65E-03	8E-08
	Ethylbenzene	100414	1.60E-03	1.19E-01	2.90E-01	7E-04	1.53E-02	3.85E-03	9E-08
	Tetrachloroethene	127184	3.52E-03	1.19E-01	1.40E-01	3E-03	1.53E-02	1.00E-02	5E-07
	Toluene	108883	1.55E-03	1.19E-01	1.14E-01	2E-03	1.53E-02	--	--
	Trichloroethene	79016	1.25E-03	1.19E-01	1.00E-02	1E-02	1.53E-02	6.00E-03	1E-07
	Vinyl Chloride	75014_A	1.43E-01	1.19E-01	2.80E-02	6E-01	1.53E-02	1.50E-02	3E-05
	Xylenes (Total)	1330207	2.70E-03	1.19E-01	2.00E+00	2E-04	1.53E-02	--	--
					Total	**9E+00**		Total	**2E-04**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 32	2-Methylnaphthalene	91576	7.77E-03	1.19E-01	2.00E-02	5E-02	1.53E-02	--	--
	Acenaphthene	83329	1.65E-03	1.19E-01	6.00E-02	3E-03	1.53E-02	--	--
	Dibenzofuran	132649	6.00E-04	1.19E-01	4.00E-03	2E-02	1.53E-02	--	--
	Fluorene	86737	1.70E-03	1.19E-01	4.00E-02	5E-03	1.53E-02	--	--
	Naphthalene	91203	2.60E-03	1.19E-01	9.00E-04	3E-01	1.53E-02	--	--
	Pyrene	129000	2.80E-03	1.19E-01	3.00E-02	1E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.22E-03	1.19E-01	9.00E-03	2E-02	1.53E-02	--	--
	Acetone	67641	5.00E+00	1.19E-01	1.00E-01	**6E+00**	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.19E-03	1.19E-01	2.60E-02	2E-02	1.53E-02	3.50E-03	2E-07
	cis-1,2-Dichloroethene	156592	7.25E-04	1.19E-01	1.00E-02	9E-03	1.53E-02	--	--
	Dichloromethane	75092	8.01E-01	1.19E-01	8.60E-01	1E-01	1.53E-02	1.65E-03	2E-05
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	8.00E-04	1.19E-01	1.14E-01	8E-04	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	4.08E-03	1.19E-01	2.80E-02	2E-02	1.53E-02	1.50E-02	9E-07
	Xylenes (Total)	1330207	1.30E-03	1.19E-01	2.00E+00	8E-05	1.53E-02	--	--
					Total	**7E+00**		Total	2E-05
AOI 33	2-Methylnaphthalene	91576	1.18E-01	1.19E-01	2.00E-02	7E-01	1.53E-02	--	--
	Acenaphthene	83329	1.20E-01	1.19E-01	6.00E-02	2E-01	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	3.84E-02	1.19E-01	4.00E-02	1E-01	1.53E-02	--	--
	Naphthalene	91203	2.75E+00	1.19E-01	9.00E-04	**4E+02**	1.53E-02	--	--
	Pyrene	129000	6.08E-03	1.19E-01	3.00E-02	2E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	1.19E-01	2.29E-01	1E-04	1.53E-02	2.20E-02	7E-08
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	6.99E-04	1.19E-01	4.00E-03	2E-02	1.53E-02	5.60E-02	6E-07
	1,1-Dichloroethane	75343	6.79E-04	1.19E-01	1.40E-01	6E-04	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	8.74E-03	1.19E-01	1.00E-01	1E-02	1.53E-02	--	--
	Benzene	71432	3.29E-02	1.19E-01	1.70E-03	**2E+00**	1.53E-02	2.90E-02	1E-05
	Chlorodibromomethane	124481	6.97E-04	1.19E-01	2.00E-02	4E-03	1.53E-02	8.40E-02	9E-07
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	6.21E-04	1.19E-01	8.60E-01	9E-05	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	8.74E-01	1.19E-01	2.90E-01	4E-01	1.53E-02	3.85E-03	5E-05
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	1.69E-02	1.19E-01	1.14E-01	2E-02	1.53E-02	--	--
	Trichloroethene	79016	5.00E-04	1.19E-01	1.00E-02	6E-03	1.53E-02	6.00E-03	5E-08
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	1.06E-01	1.19E-01	2.00E+00	6E-03	1.53E-02	--	--
					Total	**4E+02**		Total	7E-05

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 34	2-Methylnaphthalene	91576	4.49E-03	1.19E-01	2.00E-02	3E-02	1.53E-02	--	--
	Acenaphthene	83329	1.43E-03	1.19E-01	6.00E-02	3E-03	1.53E-02	--	--
	Dibenzofuran	132649	2.84E-03	1.19E-01	4.00E-03	8E-02	1.53E-02	--	--
	Fluorene	86737	1.64E-03	1.19E-01	4.00E-02	5E-03	1.53E-02	--	--
	Naphthalene	91203	1.56E-03	1.19E-01	9.00E-04	2E-01	1.53E-02	--	--
	Pyrene	129000	5.50E-04	1.19E-01	3.00E-02	2E-03	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.70E-03	1.19E-01	6.30E-01	3E-04	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	4.00E-04	1.19E-01	4.00E-03	1E-02	1.53E-02	5.60E-02	3E-07
	1,1-Dichloroethane	75343	1.43E-01	1.19E-01	1.40E-01	1E-01	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	3.00E-04	1.19E-01	1.40E-03	3E-02	1.53E-02	9.10E-02	4E-07
	1,2-Dichloroethene	540590	8.45E-03	1.19E-01	9.00E-03	1E-01	1.53E-02	--	--
	Acetone	67641	1.05E-02	1.19E-01	1.00E-01	1E-02	1.53E-02	--	--
	Benzene	71432	1.87E-03	1.19E-01	1.70E-03	1E-01	1.53E-02	2.90E-02	8E-07
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.59E-03	1.19E-01	2.90E+00	4E-04	1.53E-02	2.90E-03	4E-07
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	6.51E-03	1.19E-01	1.00E-02	8E-02	1.53E-02	--	--
	Dichloromethane	75092	1.67E-03	1.19E-01	8.60E-01	2E-04	1.53E-02	1.65E-03	4E-08
	Ethylbenzene	100414	1.50E-03	1.19E-01	2.90E-01	6E-04	1.53E-02	3.85E-03	9E-08
	Tetrachloroethene	127184	1.82E-03	1.19E-01	1.40E-01	2E-03	1.53E-02	1.00E-02	3E-07
	Toluene	108883	1.55E-03	1.19E-01	1.14E-01	2E-03	1.53E-02	--	--
	Trichloroethene	79016	1.67E-03	1.19E-01	1.00E-02	2E-02	1.53E-02	6.00E-03	2E-07
	Vinyl Chloride	75014_A	9.60E-02	1.19E-01	2.80E-02	4E-01	1.53E-02	1.50E-02	2E-05
	Xylenes (Total)	1330207	2.22E-03	1.19E-01	2.00E+00	1E-04	1.53E-02	--	--
					Total	1E+00		Total	2E-05
AOI 35	2-Methylnaphthalene	91576	1.85E-02	1.19E-01	2.00E-02	1E-01	1.53E-02	--	--
	Acenaphthene	83329	2.00E-03	1.19E-01	6.00E-02	4E-03	1.53E-02	--	--
	Dibenzofuran	132649	ND	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	2.00E-03	1.19E-01	4.00E-02	6E-03	1.53E-02	--	--
	Naphthalene	91203	5.00E-05	1.19E-01	9.00E-04	7E-03	1.53E-02	--	--
	Pyrene	129000	1.00E-04	1.19E-01	3.00E-02	4E-04	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	1.50E-04	1.19E-01	2.29E-01	8E-05	1.53E-02	2.20E-02	5E-08
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	4.41E-03	1.19E-01	1.40E-01	4E-03	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	7.00E-04	1.19E-01	9.00E-03	9E-03	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	7.70E-04	1.19E-01	8.60E-01	1E-04	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	2.15E-03	1.19E-01	2.80E-02	9E-03	1.53E-02	1.50E-02	5E-07
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	1E-01		Total	6E-07

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 36	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	ND	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	ND	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	5.00E-05	1.19E-01	3.00E-02	2E-04	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	1.89E-03	1.19E-01	1.40E-01	2E-03	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.49E-03	1.19E-01	9.00E-03	2E-02	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	7.72E-04	1.19E-01	1.00E-02	9E-03	1.53E-02	--	--
	Dichloromethane	75092	5.75E-04	1.19E-01	8.60E-01	8E-05	1.53E-02	1.65E-03	1E-08
	Ethylbenzene	100414	ND	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	ND	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	1.92E-03	1.19E-01	2.80E-02	8E-03	1.53E-02	1.50E-02	4E-07
	Xylenes (Total)	1330207	ND	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	4E-02		Total	5E-07
AOI 37	2-Methylnaphthalene	91576	8.50E-02	1.19E-01	2.00E-02	5E-01	1.53E-02	--	--
	Acenaphthene	83329	9.53E-03	1.19E-01	6.00E-02	2E-02	1.53E-02	--	--
	Dibenzofuran	132649	1.08E-02	1.19E-01	4.00E-03	3E-01	1.53E-02	--	--
	Fluorene	86737	1.78E-02	1.19E-01	4.00E-02	5E-02	1.53E-02	--	--
	Naphthalene	91203	2.15E-03	1.19E-01	9.00E-04	3E-01	1.53E-02	--	--
	Pyrene	129000	1.86E-03	1.19E-01	3.00E-02	7E-03	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	1.19E-01	6.30E-01	--	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	ND	1.19E-01	1.40E-01	--	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	ND	1.19E-01	9.00E-03	--	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	ND	1.19E-01	1.70E-03	--	1.53E-02	2.90E-02	--
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	6.50E-04	1.19E-01	8.60E-01	9E-05	1.53E-02	1.65E-03	2E-08
	Ethylbenzene	100414	3.25E-03	1.19E-01	2.90E-01	1E-03	1.53E-02	3.85E-03	2E-07
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	1.95E-03	1.19E-01	1.14E-01	2E-03	1.53E-02	--	--
	Trichloroethene	79016	ND	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	ND	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	1.30E-02	1.19E-01	2.00E+00	8E-04	1.53E-02	--	--
					Total	1E+00		Total	2E-07

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI 38	2-Methylnaphthalene	91576	3.25E-01	1.19E-01	2.00E-02	**2E+00**	1.53E-02	--	--
	Acenaphthene	83329	7.27E-03	1.19E-01	6.00E-02	1E-02	1.53E-02	--	--
	Dibenzofuran	132649	3.34E-02	1.19E-01	4.00E-03	1E+00	1.53E-02	--	--
	Fluorene	86737	9.01E-03	1.19E-01	4.00E-02	3E-02	1.53E-02	--	--
	Naphthalene	91203	3.86E-02	1.19E-01	9.00E-04	**5E+00**	1.53E-02	--	--
	Pyrene	129000	5.06E-03	1.19E-01	3.00E-02	2E-02	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	6.89E-03	1.19E-01	2.29E-01	4E-03	1.53E-02	2.20E-02	2E-06
	bis(2-Chloroethyl)ether	111444	ND	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.59E-01	1.19E-01	6.30E-01	3E-02	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	1.54E-03	1.19E-01	4.00E-03	5E-02	1.53E-02	5.60E-02	1E-06
	1,1-Dichloroethane	75343	6.51E-02	1.19E-01	1.40E-01	6E-02	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	5.00E-04	1.19E-01	1.40E-03	4E-02	1.53E-02	9.10E-02	7E-07
	1,2-Dichloroethene	540590	2.19E-01	1.19E-01	9.00E-03	**3E+00**	1.53E-02	--	--
	Acetone	67641	3.29E-03	1.19E-01	1.00E-01	4E-03	1.53E-02	--	--
	Benzene	71432	5.01E-03	1.19E-01	1.70E-03	4E-01	1.53E-02	2.90E-02	2E-06
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.57E-02	1.19E-01	2.90E+00	6E-04	1.53E-02	2.90E-03	7E-07
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	3.62E-01	1.19E-01	1.00E-02	**4E+00**	1.53E-02	--	--
	Dichloromethane	75092	1.21E-03	1.19E-01	8.60E-01	2E-04	1.53E-02	1.65E-03	3E-08
	Ethylbenzene	100414	2.07E-02	1.19E-01	2.90E-01	9E-03	1.53E-02	3.85E-03	1E-06
	Tetrachloroethene	127184	1.70E-03	1.19E-01	1.40E-01	1E-03	1.53E-02	1.00E-02	3E-07
	Toluene	108883	6.86E-03	1.19E-01	1.14E-01	7E-03	1.53E-02	--	--
	Trichloroethene	79016	1.81E-02	1.19E-01	1.00E-02	2E-01	1.53E-02	6.00E-03	2E-06
	Vinyl Chloride	75014_A	3.47E-02	1.19E-01	2.80E-02	1E-01	1.53E-02	1.50E-02	8E-06
	Xylenes (Total)	1330207	2.81E-02	1.19E-01	2.00E+00	2E-03	1.53E-02	--	--
					Total	**2E+01**		Total	2E-05
AOI SPRR3	2-Methylnaphthalene	91576	--	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	--	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	--	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	1.80E-01	1.19E-01	9.00E-04	**2E+01**	1.53E-02	--	--
	Pyrene	129000	--	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	--	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.90E-02	1.19E-01	6.30E-01	7E-03	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	1.45E-01	1.19E-01	1.40E-01	1E-01	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	1.35E-01	1.19E-01	9.00E-03	**2E+00**	1.53E-02	--	--
	Acetone	67641	ND	1.19E-01	1.00E-01	--	1.53E-02	--	--
	Benzene	71432	2.60E-02	1.19E-01	1.70E-03	**2E+00**	1.53E-02	2.90E-02	1E-05
	Chlorodibromomethane	124481	ND	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.15E-01	1.19E-01	2.90E+00	5E-03	1.53E-02	2.90E-03	5E-06
	Chloromethane (Methyl chloride)	74873	ND	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.35E-01	1.19E-01	1.00E-02	**2E+00**	1.53E-02	--	--
	Dichloromethane	75092	4.80E-03	1.19E-01	8.60E-01	7E-04	1.53E-02	1.65E-03	1E-07
	Ethylbenzene	100414	7.50E-02	1.19E-01	2.90E-01	3E-02	1.53E-02	3.85E-03	4E-06
	Tetrachloroethene	127184	ND	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	6.00E-02	1.19E-01	1.14E-01	6E-02	1.53E-02	--	--
	Trichloroethene	79016	5.00E-04	1.19E-01	1.00E-02	6E-03	1.53E-02	6.00E-03	5E-08
	Vinyl Chloride	75014_A	1.65E-01	1.19E-01	2.80E-02	7E-01	1.53E-02	1.50E-02	4E-05
	Xylenes (Total)	1330207	4.65E-01	1.19E-01	2.00E+00	3E-02	1.53E-02	--	--
					Total	**3E+01**		Total	6E-05

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on CTE Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk CTE HIFNC	Inhalation RfD	RiskNC	Cancer Risk CTE HIFC	Inhalation SF	RiskC
AOI SPRR5	2-Methylnaphthalene	91576	ND	1.19E-01	2.00E-02	--	1.53E-02	--	--
	Acenaphthene	83329	ND	1.19E-01	6.00E-02	--	1.53E-02	--	--
	Dibenzofuran	132649	--	1.19E-01	4.00E-03	--	1.53E-02	--	--
	Fluorene	86737	--	1.19E-01	4.00E-02	--	1.53E-02	--	--
	Naphthalene	91203	--	1.19E-01	9.00E-04	--	1.53E-02	--	--
	Pyrene	129000	--	1.19E-01	3.00E-02	--	1.53E-02	--	--
	1,4-Dichlorobenzene	106467	ND	1.19E-01	2.29E-01	--	1.53E-02	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	1.19E-01	--	--	1.53E-02	1.10E+00	--
	1,1,1-Trichloroethane	71556	2.00E-03	1.19E-01	6.30E-01	4E-04	1.53E-02	--	--
	1,1,2-Trichloroethane	79005	ND	1.19E-01	4.00E-03	--	1.53E-02	5.60E-02	--
	1,1-Dichloroethane	75343	4.31E-02	1.19E-01	1.40E-01	4E-02	1.53E-02	--	--
	1,2,3-Trichloropropane	96184	ND	1.19E-01	1.40E-03	--	1.53E-02	2.00E+00	--
	1,2-Dichloroethane	107062	ND	1.19E-01	1.40E-03	--	1.53E-02	9.10E-02	--
	1,2-Dichloroethene	540590	3.05E-02	1.19E-01	9.00E-03	4E-01	1.53E-02	--	--
	Acetone	67641	3.00E-03	1.19E-01	1.00E-01	4E-03	1.53E-02	--	--
	Benzene	71432	3.02E-01	1.19E-01	1.70E-03	**2E+01**	1.53E-02	2.90E-02	1E-04
	Chlorodibromomethane	124481	--	1.19E-01	2.00E-02	--	1.53E-02	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	--	1.19E-01	2.90E+00	--	1.53E-02	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	--	1.19E-01	2.60E-02	--	1.53E-02	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	1.19E-01	1.00E-02	--	1.53E-02	--	--
	Dichloromethane	75092	--	1.19E-01	8.60E-01	--	1.53E-02	1.65E-03	--
	Ethylbenzene	100414	--	1.19E-01	2.90E-01	--	1.53E-02	3.85E-03	--
	Tetrachloroethene	127184	--	1.19E-01	1.40E-01	--	1.53E-02	1.00E-02	--
	Toluene	108883	--	1.19E-01	1.14E-01	--	1.53E-02	--	--
	Trichloroethene	79016	--	1.19E-01	1.00E-02	--	1.53E-02	6.00E-03	--
	Vinyl Chloride	75014_A	--	1.19E-01	2.80E-02	--	1.53E-02	1.50E-02	--
	Xylenes (Total)	1330207	--	1.19E-01	2.00E+00	--	1.53E-02	--	--
					Total	**2E+01**		Total	1E-04

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 1	2-Methylnaphthalene	91576	2.25E-03	2.74E-01	2.00E-02	3E-02	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	ND	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	ND	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	1.85E-03	2.74E-01	8.60E-01	6E-04	1.17E-01	1.65E-03	4E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	3E-02		Total	4E-07
AOI 12	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	ND	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	5.00E-05	2.74E-01	3.00E-02	5E-04	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	5.00E-04	2.74E-01	4.00E-03	3E-02	1.17E-01	5.60E-02	3E-06
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	ND	2.74E-01	8.60E-01	--	1.17E-01	1.65E-03	--
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	3E-02		Total	3E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 13	2-Methylnaphthalene	91576	6.50E-01	2.74E-01	2.00E-02	**9E+00**	1.17E-01	--	--
	Acenaphthene	83329	3.11E-03	2.74E-01	6.00E-02	1E-02	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	4.58E-03	2.74E-01	4.00E-02	3E-02	1.17E-01	--	--
	Naphthalene	91203	3.82E-02	2.74E-01	9.00E-04	**1E+01**	1.17E-01	--	--
	Pyrene	129000	2.48E-03	2.74E-01	3.00E-02	2E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	1.00E-03	2.74E-01	1.00E-01	3E-03	1.17E-01	--	--
	Benzene	71432	1.24E-02	2.74E-01	1.70E-03	**2E+00**	1.17E-01	2.90E-02	4E-05
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	2.42E-03	2.74E-01	8.60E-01	8E-04	1.17E-01	1.65E-03	5E-07
	Ethylbenzene	100414	1.34E-02	2.74E-01	2.90E-01	1E-02	1.17E-01	3.85E-03	6E-06
	Tetrachloroethene	127184	9.50E-04	2.74E-01	1.40E-01	2E-03	1.17E-01	1.00E-02	1E-06
	Toluene	108883	1.30E-03	2.74E-01	1.14E-01	3E-03	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	7.36E-03	2.74E-01	2.00E+00	1E-03	1.17E-01	--	--
					Total	**2E+01**		Total	5E-05
AOI 18	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	ND	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	1.50E-04	2.74E-01	9.00E-04	5E-02	1.17E-01	--	--
	Pyrene	129000	ND	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.10E-02	2.74E-01	6.30E-01	1E-02	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	5.00E-04	2.74E-01	1.40E-01	1E-03	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	4.97E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	6E-02		Total	1E-07

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 19	2-Methylnaphthalene	91576	1.00E-03	2.74E-01	2.00E-02	1E-02	1.17E-01	--	--
	Acenaphthene	83329	4.00E-04	2.74E-01	6.00E-02	2E-03	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	5.00E-04	2.74E-01	4.00E-02	3E-03	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	ND	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	ND	2.74E-01	8.60E-01	--	1.17E-01	1.65E-03	--
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	2E-02		Total	--
AOI 20	2-Methylnaphthalene	91576	3.29E-03	2.74E-01	2.00E-02	5E-02	1.17E-01	--	--
	Acenaphthene	83329	1.50E-03	2.74E-01	6.00E-02	7E-03	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	7.50E-04	2.74E-01	4.00E-02	5E-03	1.17E-01	--	--
	Naphthalene	91203	6.50E-04	2.74E-01	9.00E-04	2E-01	1.17E-01	--	--
	Pyrene	129000	2.50E-05	2.74E-01	3.00E-02	2E-04	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	2.74E-01	2.29E-01	2E-04	1.17E-01	2.20E-02	5E-07
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	3.73E-03	2.74E-01	1.00E-01	1E-02	1.17E-01	--	--
	Benzene	71432	3.00E-04	2.74E-01	1.70E-03	5E-02	1.17E-01	2.90E-02	1E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	7.00E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	8.00E-04	2.74E-01	1.14E-01	2E-03	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	3.00E-04	2.74E-01	2.80E-02	3E-03	1.17E-01	1.50E-02	5E-07
	Xylenes (Total)	1330207	5.00E-04	2.74E-01	2.00E+00	7E-05	1.17E-01	--	--
					Total	3E-01		Total	2E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 21	2-Methylnaphthalene	91576	2.24E-03	2.74E-01	2.00E-02	3E-02	1.17E-01	--	--
	Acenaphthene	83329	1.55E-03	2.74E-01	6.00E-02	7E-03	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	1.76E-03	2.74E-01	4.00E-02	1E-02	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	2.00E-03	2.74E-01	3.00E-02	2E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	5.78E-02	2.74E-01	9.00E-03	**2E+00**	1.17E-01	--	--
	Acetone	67641	1.20E-03	2.74E-01	1.00E-01	3E-03	1.17E-01	--	--
	Benzene	71432	2.12E-03	2.74E-01	1.70E-03	3E-01	1.17E-01	2.90E-02	7E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	1.96E-03	2.74E-01	2.60E-02	2E-02	1.17E-01	3.50E-03	8E-07
	cis-1,2-Dichloroethene	156592	6.00E-02	2.74E-01	1.00E-02	**2E+00**	1.17E-01	--	--
	Dichloromethane	75092	ND	2.74E-01	8.60E-01	--	1.17E-01	1.65E-03	--
	Ethylbenzene	100414	2.50E-04	2.74E-01	2.90E-01	2E-04	1.17E-01	3.85E-03	1E-07
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	1.71E-03	2.74E-01	1.14E-01	4E-03	1.17E-01	--	--
	Trichloroethene	79016	2.74E-03	2.74E-01	1.00E-02	8E-02	1.17E-01	6.00E-03	2E-06
	Vinyl Chloride	75014_A	2.54E-02	2.74E-01	2.80E-02	2E-01	1.17E-01	1.50E-02	4E-05
	Xylenes (Total)	1330207	5.00E-04	2.74E-01	2.00E+00	7E-05	1.17E-01	--	--
					Total	**4E+00**		Total	5E-05
AOI 22A	2-Methylnaphthalene	91576	7.38E-03	2.74E-01	2.00E-02	1E-01	1.17E-01	--	--
	Acenaphthene	83329	2.47E-03	2.74E-01	6.00E-02	1E-02	1.17E-01	--	--
	Dibenzofuran	132649	4.70E-03	2.74E-01	4.00E-03	3E-01	1.17E-01	--	--
	Fluorene	86737	3.42E-03	2.74E-01	4.00E-02	2E-02	1.17E-01	--	--
	Naphthalene	91203	1.21E-03	2.74E-01	9.00E-04	4E-01	1.17E-01	--	--
	Pyrene	129000	1.73E-03	2.74E-01	3.00E-02	2E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.31E-01	2.74E-01	6.30E-01	6E-02	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	1.50E-03	2.74E-01	4.00E-03	1E-01	1.17E-01	5.60E-02	1E-05
	1,1-Dichloroethane	75343	1.00E+00	2.74E-01	1.40E-01	**2E+00**	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	7.50E-03	2.74E-01	1.40E-03	1E+00	1.17E-01	2.00E+00	**2E-03**
	1,2-Dichloroethane	107062	1.00E-03	2.74E-01	1.40E-03	2E-01	1.17E-01	9.10E-02	1E-05
	1,2-Dichloroethene	540590	1.85E+00	2.74E-01	9.00E-03	**6E+01**	1.17E-01	--	--
	Acetone	67641	6.50E-03	2.74E-01	1.00E-01	2E-02	1.17E-01	--	--
	Benzene	71432	5.91E-03	2.74E-01	1.70E-03	1E+00	1.17E-01	2.90E-02	2E-05
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.50E-02	2.74E-01	2.90E+00	8E-03	1.17E-01	2.90E-03	3E-05
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.85E+00	2.74E-01	1.00E-02	**5E+01**	1.17E-01	--	--
	Dichloromethane	75092	7.50E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	5.15E-03	2.74E-01	2.90E-01	5E-03	1.17E-01	3.85E-03	2E-06
	Tetrachloroethene	127184	3.50E-04	2.74E-01	1.40E-01	7E-04	1.17E-01	1.00E-02	4E-07
	Toluene	108883	2.45E-03	2.74E-01	1.14E-01	6E-03	1.17E-01	--	--
	Trichloroethene	79016	2.00E-03	2.74E-01	1.00E-02	5E-02	1.17E-01	6.00E-03	1E-06
	Vinyl Chloride	75014_A	1.15E+00	2.74E-01	2.80E-02	**1E+01**	1.17E-01	1.50E-02	**2E-03**
	Xylenes (Total)	1330207	3.50E-03	2.74E-01	2.00E+00	5E-04	1.17E-01	--	--
					Total	**1E+02**		Total	**4E-03**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 22B	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	1.15E-03	2.74E-01	6.00E-02	5E-03	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	5.00E-04	2.74E-01	4.00E-02	3E-03	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	1.50E-04	2.74E-01	3.00E-02	1E-03	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	2.20E-03	2.74E-01	2.29E-01	3E-03	1.17E-01	2.20E-02	6E-06
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	5.85E-02	2.74E-01	9.00E-03	**2E+00**	1.17E-01	--	--
	Acetone	67641	5.85E-03	2.74E-01	1.00E-01	2E-02	1.17E-01	--	--
	Benzene	71432	3.50E-04	2.74E-01	1.70E-03	6E-02	1.17E-01	2.90E-02	1E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-02	2.74E-01	1.00E-02	4E-01	1.17E-01	--	--
	Dichloromethane	75092	1.15E-03	2.74E-01	8.60E-01	4E-04	1.17E-01	1.65E-03	2E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	1.62E-03	2.74E-01	1.00E-02	4E-02	1.17E-01	6.00E-03	1E-06
	Vinyl Chloride	75014_A	1.71E-01	2.74E-01	2.80E-02	**2E+00**	1.17E-01	1.50E-02	**3E-04**
	Xylenes (Total)	1330207	7.00E-04	2.74E-01	2.00E+00	1E-04	1.17E-01	--	--
					Total	**4E+00**		Total	**3E-04**
AOI 26	2-Methylnaphthalene	91576	4.86E-03	2.74E-01	2.00E-02	7E-02	1.17E-01	--	--
	Acenaphthene	83329	4.02E-03	2.74E-01	6.00E-02	2E-02	1.17E-01	--	--
	Dibenzofuran	132649	2.68E-03	2.74E-01	4.00E-03	2E-01	1.17E-01	--	--
	Fluorene	86737	4.57E-03	2.74E-01	4.00E-02	3E-02	1.17E-01	--	--
	Naphthalene	91203	3.85E-03	2.74E-01	9.00E-04	1E+00	1.17E-01	--	--
	Pyrene	129000	4.05E-03	2.74E-01	3.00E-02	4E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	9.00E-04	2.74E-01	9.00E-03	3E-02	1.17E-01	--	--
	Acetone	67641	3.60E-03	2.74E-01	1.00E-01	1E-02	1.17E-01	--	--
	Benzene	71432	6.00E-04	2.74E-01	1.70E-03	1E-01	1.17E-01	2.90E-02	2E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	5.00E-04	2.74E-01	1.00E-02	1E-02	1.17E-01	--	--
	Dichloromethane	75092	8.50E-04	2.74E-01	8.60E-01	3E-04	1.17E-01	1.65E-03	2E-07
	Ethylbenzene	100414	1.20E-03	2.74E-01	2.90E-01	1E-03	1.17E-01	3.85E-03	5E-07
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	7.00E-04	2.74E-01	1.14E-01	2E-03	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	2.68E-03	2.74E-01	2.80E-02	3E-02	1.17E-01	1.50E-02	5E-06
	Xylenes (Total)	1330207	1.88E-03	2.74E-01	2.00E+00	3E-04	1.17E-01	--	--
					Total	**2E+00**		Total	7E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 27	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	1.50E-04	2.74E-01	4.00E-02	1E-03	1.17E-01	--	--
	Naphthalene	91203	1.00E-04	2.74E-01	9.00E-04	3E-02	1.17E-01	--	--
	Pyrene	129000	ND	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	5.00E-04	2.74E-01	--	--	1.17E-01	1.10E+00	6E-05
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	1.43E-03	2.74E-01	9.00E-03	4E-02	1.17E-01	--	--
	Acetone	67641	5.50E-03	2.74E-01	1.00E-01	2E-02	1.17E-01	--	--
	Benzene	71432	4.00E-04	2.74E-01	1.70E-03	6E-02	1.17E-01	2.90E-02	1E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.50E-03	2.74E-01	1.00E-02	4E-02	1.17E-01	--	--
	Dichloromethane	75092	7.50E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	1.55E-03	2.74E-01	1.00E-02	4E-02	1.17E-01	6.00E-03	1E-06
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	2E-01		Total	7E-05
AOI 30	2-Methylnaphthalene	91576	3.04E-01	2.74E-01	2.00E-02	**4E+00**	1.17E-01	--	--
	Acenaphthene	83329	4.62E-02	2.74E-01	6.00E-02	2E-01	1.17E-01	--	--
	Dibenzofuran	132649	2.05E-02	2.74E-01	4.00E-03	1E+00	1.17E-01	--	--
	Fluorene	86737	5.72E-02	2.74E-01	4.00E-02	4E-01	1.17E-01	--	--
	Naphthalene	91203	3.26E-02	2.74E-01	9.00E-04	**1E+01**	1.17E-01	--	--
	Pyrene	129000	2.13E-02	2.74E-01	3.00E-02	2E-01	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	1.50E-03	2.74E-01	2.29E-01	2E-03	1.17E-01	2.20E-02	4E-06
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	4.50E-03	2.74E-01	1.40E-03	9E-01	1.17E-01	2.00E+00	**1E-03**
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	3.16E-02	2.74E-01	9.00E-03	1E+00	1.17E-01	--	--
	Acetone	67641	8.23E-03	2.74E-01	1.00E-01	2E-02	1.17E-01	--	--
	Benzene	71432	3.98E-03	2.74E-01	1.70E-03	6E-01	1.17E-01	2.90E-02	1E-05
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.23E-03	2.74E-01	2.60E-02	4E-02	1.17E-01	3.50E-03	2E-06
	cis-1,2-Dichloroethene	156592	3.55E-02	2.74E-01	1.00E-02	1E+00	1.17E-01	--	--
	Dichloromethane	75092	3.28E-03	2.74E-01	8.60E-01	1E-03	1.17E-01	1.65E-03	6E-07
	Ethylbenzene	100414	1.60E-03	2.74E-01	2.90E-01	2E-03	1.17E-01	3.85E-03	7E-07
	Tetrachloroethene	127184	3.52E-03	2.74E-01	1.40E-01	7E-03	1.17E-01	1.00E-02	4E-06
	Toluene	108883	1.55E-03	2.74E-01	1.14E-01	4E-03	1.17E-01	--	--
	Trichloroethene	79016	1.25E-03	2.74E-01	1.00E-02	3E-02	1.17E-01	6.00E-03	9E-07
	Vinyl Chloride	75014_A	1.43E-01	2.74E-01	2.80E-02	1E+00	1.17E-01	1.50E-02	**3E-04**
	Xylenes (Total)	1330207	2.70E-03	2.74E-01	2.00E+00	4E-04	1.17E-01	--	--
					Total	**2E+01**		Total	**1E-03**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 32	2-Methylnaphthalene	91576	7.77E-03	2.74E-01	2.00E-02	1E-01	1.17E-01	--	--
	Acenaphthene	83329	1.65E-03	2.74E-01	6.00E-02	8E-03	1.17E-01	--	--
	Dibenzofuran	132649	6.00E-04	2.74E-01	4.00E-03	4E-02	1.17E-01	--	--
	Fluorene	86737	1.70E-03	2.74E-01	4.00E-02	1E-02	1.17E-01	--	--
	Naphthalene	91203	2.60E-03	2.74E-01	9.00E-04	8E-01	1.17E-01	--	--
	Pyrene	129000	2.80E-03	2.74E-01	3.00E-02	3E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	1.22E-03	2.74E-01	9.00E-03	4E-02	1.17E-01	--	--
	Acetone	67641	5.00E+00	2.74E-01	1.00E-01	**1E+01**	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	4.19E-03	2.74E-01	2.60E-02	4E-02	1.17E-01	3.50E-03	2E-06
	cis-1,2-Dichloroethene	156592	7.25E-04	2.74E-01	1.00E-02	2E-02	1.17E-01	--	--
	Dichloromethane	75092	8.01E-01	2.74E-01	8.60E-01	3E-01	1.17E-01	1.65E-03	**2E-04**
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	8.00E-04	2.74E-01	1.14E-01	2E-03	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	4.08E-03	2.74E-01	2.80E-02	4E-02	1.17E-01	1.50E-02	7E-06
	Xylenes (Total)	1330207	1.30E-03	2.74E-01	2.00E+00	2E-04	1.17E-01	--	--
					Total	**2E+01**		Total	**2E-04**
AOI 33	2-Methylnaphthalene	91576	1.18E-01	2.74E-01	2.00E-02	**2E+00**	1.17E-01	--	--
	Acenaphthene	83329	1.20E-01	2.74E-01	6.00E-02	5E-01	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	3.84E-02	2.74E-01	4.00E-02	3E-01	1.17E-01	--	--
	Naphthalene	91203	2.75E+00	2.74E-01	9.00E-04	**8E+02**	1.17E-01	--	--
	Pyrene	129000	6.08E-03	2.74E-01	3.00E-02	6E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	2.00E-04	2.74E-01	2.29E-01	2E-04	1.17E-01	2.20E-02	5E-07
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	6.99E-04	2.74E-01	4.00E-03	5E-02	1.17E-01	5.60E-02	5E-06
	1,1-Dichloroethane	75343	6.79E-04	2.74E-01	1.40E-01	1E-03	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	8.74E-03	2.74E-01	1.00E-01	2E-02	1.17E-01	--	--
	Benzene	71432	3.29E-02	2.74E-01	1.70E-03	**5E+00**	1.17E-01	2.90E-02	1E-04
	Chlorodibromomethane	124481	6.97E-04	2.74E-01	2.00E-02	1E-02	1.17E-01	8.40E-02	7E-06
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	6.21E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	8.74E-01	2.74E-01	2.90E-01	8E-01	1.17E-01	3.85E-03	**4E-04**
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	1.69E-02	2.74E-01	1.14E-01	4E-02	1.17E-01	--	--
	Trichloroethene	79016	5.00E-04	2.74E-01	1.00E-02	1E-02	1.17E-01	6.00E-03	4E-07
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	1.06E-01	2.74E-01	2.00E+00	1E-02	1.17E-01	--	--
					Total	**8E+02**		Total	**5E-04**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 34	2-Methylnaphthalene	91576	4.49E-03	2.74E-01	2.00E-02	6E-02	1.17E-01	--	--
	Acenaphthene	83329	1.43E-03	2.74E-01	6.00E-02	7E-03	1.17E-01	--	--
	Dibenzofuran	132649	2.84E-03	2.74E-01	4.00E-03	2E-01	1.17E-01	--	--
	Fluorene	86737	1.64E-03	2.74E-01	4.00E-02	1E-02	1.17E-01	--	--
	Naphthalene	91203	1.56E-03	2.74E-01	9.00E-04	5E-01	1.17E-01	--	--
	Pyrene	129000	5.50E-04	2.74E-01	3.00E-02	5E-03	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.70E-03	2.74E-01	6.30E-01	7E-04	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	4.00E-04	2.74E-01	4.00E-03	3E-02	1.17E-01	5.60E-02	3E-06
	1,1-Dichloroethane	75343	1.43E-01	2.74E-01	1.40E-01	3E-01	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	3.00E-04	2.74E-01	1.40E-03	6E-02	1.17E-01	9.10E-02	3E-06
	1,2-Dichloroethene	540590	8.45E-03	2.74E-01	9.00E-03	3E-01	1.17E-01	--	--
	Acetone	67641	1.05E-02	2.74E-01	1.00E-01	3E-02	1.17E-01	--	--
	Benzene	71432	1.87E-03	2.74E-01	1.70E-03	3E-01	1.17E-01	2.90E-02	6E-06
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	8.59E-03	2.74E-01	2.90E+00	8E-04	1.17E-01	2.90E-03	3E-06
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	6.51E-03	2.74E-01	1.00E-02	2E-01	1.17E-01	--	--
	Dichloromethane	75092	1.67E-03	2.74E-01	8.60E-01	5E-04	1.17E-01	1.65E-03	3E-07
	Ethylbenzene	100414	1.50E-03	2.74E-01	2.90E-01	1E-03	1.17E-01	3.85E-03	7E-07
	Tetrachloroethene	127184	1.82E-03	2.74E-01	1.40E-01	4E-03	1.17E-01	1.00E-02	2E-06
	Toluene	108883	1.55E-03	2.74E-01	1.14E-01	4E-03	1.17E-01	--	--
	Trichloroethene	79016	1.67E-03	2.74E-01	1.00E-02	5E-02	1.17E-01	6.00E-03	1E-06
	Vinyl Chloride	75014_A	9.60E-02	2.74E-01	2.80E-02	9E-01	1.17E-01	1.50E-02	**2E-04**
	Xylenes (Total)	1330207	2.22E-03	2.74E-01	2.00E+00	3E-04	1.17E-01	--	--
					Total	**3E+00**		Total	**2E-04**
AOI 35	2-Methylnaphthalene	91576	1.85E-02	2.74E-01	2.00E-02	3E-01	1.17E-01	--	--
	Acenaphthene	83329	2.00E-03	2.74E-01	6.00E-02	9E-03	1.17E-01	--	--
	Dibenzofuran	132649	ND	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	2.00E-03	2.74E-01	4.00E-02	1E-02	1.17E-01	--	--
	Naphthalene	91203	5.00E-05	2.74E-01	9.00E-04	2E-02	1.17E-01	--	--
	Pyrene	129000	1.00E-04	2.74E-01	3.00E-02	9E-04	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	1.50E-04	2.74E-01	2.29E-01	2E-04	1.17E-01	2.20E-02	4E-07
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	4.41E-03	2.74E-01	1.40E-01	9E-03	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	7.00E-04	2.74E-01	9.00E-03	2E-02	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	ND	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	7.70E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	2.15E-03	2.74E-01	2.80E-02	2E-02	1.17E-01	1.50E-02	4E-06
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	3E-01		Total	4E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Noncancer Risk Inhalation RfD	Noncancer Risk RiskNC	Cancer Risk RME HIFC	Cancer Risk Inhalation SF	Cancer Risk RiskC
AOI 36	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	ND	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	ND	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	5.00E-05	2.74E-01	3.00E-02	5E-04	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	1.89E-03	2.74E-01	1.40E-01	4E-03	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	1.49E-03	2.74E-01	9.00E-03	5E-02	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	7.72E-04	2.74E-01	1.00E-02	2E-02	1.17E-01	--	--
	Dichloromethane	75092	5.75E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	ND	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	ND	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	1.92E-03	2.74E-01	2.80E-02	2E-02	1.17E-01	1.50E-02	3E-06
	Xylenes (Total)	1330207	ND	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	9E-02		Total	3E-06
AOI 37	2-Methylnaphthalene	91576	8.50E-02	2.74E-01	2.00E-02	1E+00	1.17E-01	--	--
	Acenaphthene	83329	9.53E-03	2.74E-01	6.00E-02	4E-02	1.17E-01	--	--
	Dibenzofuran	132649	1.08E-02	2.74E-01	4.00E-03	7E-01	1.17E-01	--	--
	Fluorene	86737	1.78E-02	2.74E-01	4.00E-02	1E-01	1.17E-01	--	--
	Naphthalene	91203	2.15E-03	2.74E-01	9.00E-04	7E-01	1.17E-01	--	--
	Pyrene	129000	1.86E-03	2.74E-01	3.00E-02	2E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	ND	2.74E-01	6.30E-01	--	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	ND	2.74E-01	1.40E-01	--	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	ND	2.74E-01	9.00E-03	--	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	ND	2.74E-01	1.70E-03	--	1.17E-01	2.90E-02	--
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	ND	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	6.50E-04	2.74E-01	8.60E-01	2E-04	1.17E-01	1.65E-03	1E-07
	Ethylbenzene	100414	3.25E-03	2.74E-01	2.90E-01	3E-03	1.17E-01	3.85E-03	1E-06
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	1.95E-03	2.74E-01	1.14E-01	5E-03	1.17E-01	--	--
	Trichloroethene	79016	ND	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	ND	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	1.30E-02	2.74E-01	2.00E+00	2E-03	1.17E-01	--	--
					Total	**3E+00**		Total	2E-06

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI 38	2-Methylnaphthalene	91576	3.25E-01	2.74E-01	2.00E-02	**4E+00**	1.17E-01	--	--
	Acenaphthene	83329	7.27E-03	2.74E-01	6.00E-02	3E-02	1.17E-01	--	--
	Dibenzofuran	132649	3.34E-02	2.74E-01	4.00E-03	**2E+00**	1.17E-01	--	--
	Fluorene	86737	9.01E-03	2.74E-01	4.00E-02	6E-02	1.17E-01	--	--
	Naphthalene	91203	3.86E-02	2.74E-01	9.00E-04	**1E+01**	1.17E-01	--	--
	Pyrene	129000	5.06E-03	2.74E-01	3.00E-02	5E-02	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	6.89E-03	2.74E-01	2.29E-01	8E-03	1.17E-01	2.20E-02	2E-05
	bis(2-Chloroethyl)ether	111444	ND	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	1.59E-01	2.74E-01	6.30E-01	7E-02	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	1.54E-03	2.74E-01	4.00E-03	1E-01	1.17E-01	5.60E-02	1E-05
	1,1-Dichloroethane	75343	6.51E-02	2.74E-01	1.40E-01	1E-01	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	5.00E-04	2.74E-01	1.40E-03	1E-01	1.17E-01	9.10E-02	5E-06
	1,2-Dichloroethene	540590	2.19E-01	2.74E-01	9.00E-03	**7E+00**	1.17E-01	--	--
	Acetone	67641	3.29E-03	2.74E-01	1.00E-01	9E-03	1.17E-01	--	--
	Benzene	71432	5.01E-03	2.74E-01	1.70E-03	8E-01	1.17E-01	2.90E-02	2E-05
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.57E-02	2.74E-01	2.90E+00	1E-03	1.17E-01	2.90E-03	5E-06
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	3.62E-01	2.74E-01	1.00E-02	**1E+01**	1.17E-01	--	--
	Dichloromethane	75092	1.21E-03	2.74E-01	8.60E-01	4E-04	1.17E-01	1.65E-03	2E-07
	Ethylbenzene	100414	2.07E-02	2.74E-01	2.90E-01	2E-02	1.17E-01	3.85E-03	9E-06
	Tetrachloroethene	127184	1.70E-03	2.74E-01	1.40E-01	3E-03	1.17E-01	1.00E-02	2E-06
	Toluene	108883	6.86E-03	2.74E-01	1.14E-01	2E-02	1.17E-01	--	--
	Trichloroethene	79016	1.81E-02	2.74E-01	1.00E-02	5E-01	1.17E-01	6.00E-03	1E-05
	Vinyl Chloride	75014_A	3.47E-02	2.74E-01	2.80E-02	3E-01	1.17E-01	1.50E-02	6E-05
	Xylenes (Total)	1330207	2.81E-02	2.74E-01	2.00E+00	4E-03	1.17E-01	--	--
					Total	**4E+01**		Total	1E-04
AOI SPRR3	2-Methylnaphthalene	91576	--	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	--	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	--	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	1.80E-01	2.74E-01	9.00E-04	**5E+01**	1.17E-01	--	--
	Pyrene	129000	--	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	--	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	3.90E-02	2.74E-01	6.30E-01	2E-02	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	1.45E-01	2.74E-01	1.40E-01	3E-01	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	1.35E-01	2.74E-01	9.00E-03	**4E+00**	1.17E-01	--	--
	Acetone	67641	ND	2.74E-01	1.00E-01	--	1.17E-01	--	--
	Benzene	71432	2.60E-02	2.74E-01	1.70E-03	**4E+00**	1.17E-01	2.90E-02	9E-05
	Chlorodibromomethane	124481	ND	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	1.15E-01	2.74E-01	2.90E+00	1E-02	1.17E-01	2.90E-03	4E-05
	Chloromethane (Methyl chloride)	74873	ND	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	1.35E-01	2.74E-01	1.00E-02	**4E+00**	1.17E-01	--	--
	Dichloromethane	75092	4.80E-03	2.74E-01	8.60E-01	2E-03	1.17E-01	1.65E-03	9E-07
	Ethylbenzene	100414	7.50E-02	2.74E-01	2.90E-01	7E-02	1.17E-01	3.85E-03	3E-05
	Tetrachloroethene	127184	ND	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	6.00E-02	2.74E-01	1.14E-01	1E-01	1.17E-01	--	--
	Trichloroethene	79016	5.00E-04	2.74E-01	1.00E-02	1E-02	1.17E-01	6.00E-03	4E-07
	Vinyl Chloride	75014_A	1.65E-01	2.74E-01	2.80E-02	**2E+00**	1.17E-01	1.50E-02	**3E-04**
	Xylenes (Total)	1330207	4.65E-01	2.74E-01	2.00E+00	6E-02	1.17E-01	--	--
					Total	**7E+01**		Total	**5E-04**

APPENDIX E.7 DETAILED RISK CALCULATION TABLES FOR RESIDENTS FROM INHALATION OF GROUNDWATER RELEASE TO INDOOR AIR

Based on RME Assumptions

AOI	Chemical	CAS Number	Cair (mg/m3)	Noncancer Risk RME HIFNC	Inhalation RfD	RiskNC	Cancer Risk RME HIFC	Inhalation SF	RiskC
AOI SPRR5	2-Methylnaphthalene	91576	ND	2.74E-01	2.00E-02	--	1.17E-01	--	--
	Acenaphthene	83329	ND	2.74E-01	6.00E-02	--	1.17E-01	--	--
	Dibenzofuran	132649	--	2.74E-01	4.00E-03	--	1.17E-01	--	--
	Fluorene	86737	--	2.74E-01	4.00E-02	--	1.17E-01	--	--
	Naphthalene	91203	--	2.74E-01	9.00E-04	--	1.17E-01	--	--
	Pyrene	129000	--	2.74E-01	3.00E-02	--	1.17E-01	--	--
	1,4-Dichlorobenzene	106467	ND	2.74E-01	2.29E-01	--	1.17E-01	2.20E-02	--
	bis(2-Chloroethyl)ether	111444	--	2.74E-01	--	--	1.17E-01	1.10E+00	--
	1,1,1-Trichloroethane	71556	2.00E-03	2.74E-01	6.30E-01	9E-04	1.17E-01	--	--
	1,1,2-Trichloroethane	79005	ND	2.74E-01	4.00E-03	--	1.17E-01	5.60E-02	--
	1,1-Dichloroethane	75343	4.31E-02	2.74E-01	1.40E-01	8E-02	1.17E-01	--	--
	1,2,3-Trichloropropane	96184	ND	2.74E-01	1.40E-03	--	1.17E-01	2.00E+00	--
	1,2-Dichloroethane	107062	ND	2.74E-01	1.40E-03	--	1.17E-01	9.10E-02	--
	1,2-Dichloroethene	540590	3.05E-02	2.74E-01	9.00E-03	9E-01	1.17E-01	--	--
	Acetone	67641	3.00E-03	2.74E-01	1.00E-01	8E-03	1.17E-01	--	--
	Benzene	71432	3.02E-01	2.74E-01	1.70E-03	**5E+01**	1.17E-01	2.90E-02	**1E-03**
	Chlorodibromomethane	124481	--	2.74E-01	2.00E-02	--	1.17E-01	8.40E-02	--
	Chloroethane (Ethyl chloride)	75003	--	2.74E-01	2.90E+00	--	1.17E-01	2.90E-03	--
	Chloromethane (Methyl chloride)	74873	--	2.74E-01	2.60E-02	--	1.17E-01	3.50E-03	--
	cis-1,2-Dichloroethene	156592	--	2.74E-01	1.00E-02	--	1.17E-01	--	--
	Dichloromethane	75092	--	2.74E-01	8.60E-01	--	1.17E-01	1.65E-03	--
	Ethylbenzene	100414	--	2.74E-01	2.90E-01	--	1.17E-01	3.85E-03	--
	Tetrachloroethene	127184	--	2.74E-01	1.40E-01	--	1.17E-01	1.00E-02	--
	Toluene	108883	--	2.74E-01	1.14E-01	--	1.17E-01	--	--
	Trichloroethene	79016	--	2.74E-01	1.00E-02	--	1.17E-01	6.00E-03	--
	Vinyl Chloride	75014_A	--	2.74E-01	2.80E-02	--	1.17E-01	1.50E-02	--
	Xylenes (Total)	1330207	--	2.74E-01	2.00E+00	--	1.17E-01	--	--
					Total	**5E+01**		Total	**1E-03**

OFF-YARD RECREATIONAL VISITOR
(ADULTS & CHILDREN)

E.8 - INGESTION OF SURFACE WATER
E.9 - INGESTION OF SEDIMENT
E.10 - INGESTION OF SURFACE SOIL
E.11 - INGESTION OF FISH
E.12 - INGESTION OF PCBS (AS TEQ) IN FISH

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APPENDIX E.8 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE WATER

Based on CTE Assumptions for Adults

AOI	Chemical	CAS Number	Csw	Noncancer Risk			Cancer Risk		
			(mg/L)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
21st Street Pond	Dichloromethane	75092	9.84E-04	9.78E-06	6.00E-02	2E-07	2.10E-06	7.50E-03	2E-11
					Total	2E-07		Total	2E-11
Buena Ventura Park Pond	Dichloromethane	75092	ND	9.78E-06	6.00E-02	--	2.10E-06	7.50E-03	--
					Total	--		Total	--
Ogden River - Reach B	Dichloromethane	75092	1.42E-03	9.78E-06	6.00E-02	2E-07	2.10E-06	7.50E-03	2E-11
					Total	2E-07		Total	2E-11
Weber River - Reach A	Dichloromethane	75092	ND	9.78E-06	6.00E-02	--	2.10E-06	7.50E-03	--
					Total	--		Total	--
Weber River - Reach B	Dichloromethane	75092	5.80E+00	9.78E-06	6.00E-02	9E-04	2.10E-06	7.50E-03	9E-08
					Total	9E-04		Total	9E-08
Weber River - Reach C	Dichloromethane	75092	1.67E-03	9.78E-06	6.00E-02	3E-07	2.10E-06	7.50E-03	3E-11
					Total	3E-07		Total	3E-11
Weber River - Reach D	Dichloromethane	75092	2.00E+00	9.78E-06	6.00E-02	3E-04	2.10E-06	7.50E-03	3E-08
					Total	3E-04		Total	3E-08

APPENDIX E.8 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE WATER

Based on CTE Assumptions for Children

AOI	Chemical	CAS Number	Csw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Dichloromethane	75092	9.84E-04	8.34E-05	6.00E-02	1E-06	5.96E-06	7.50E-03	4E-11
					Total	1E-06		Total	4E-11
Buena Ventura Park Pond	Dichloromethane	75092	ND	8.34E-05	6.00E-02	--	5.96E-06	7.50E-03	--
					Total	--		Total	--
Ogden River - Reach B	Dichloromethane	75092	1.42E-03	8.34E-05	6.00E-02	2E-06	5.96E-06	7.50E-03	6E-11
					Total	2E-06		Total	6E-11
Weber River - Reach A	Dichloromethane	75092	ND	8.34E-05	6.00E-02	--	5.96E-06	7.50E-03	--
					Total	--		Total	--
Weber River - Reach B	Dichloromethane	75092	5.80E+00	8.34E-05	6.00E-02	8E-03	5.96E-06	7.50E-03	3E-07
					Total	8E-03		Total	3E-07
Weber River - Reach C	Dichloromethane	75092	1.67E-03	8.34E-05	6.00E-02	2E-06	5.96E-06	7.50E-03	7E-11
					Total	2E-06		Total	7E-11
Weber River - Reach D	Dichloromethane	75092	2.00E+00	8.34E-05	6.00E-02	3E-03	5.96E-06	7.50E-03	9E-08
					Total	3E-03		Total	9E-08

APPENDIX E.8 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE WATER

Based on RME Assumptions for Adults

AOI	Chemical	CAS Number	Csw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Dichloromethane	75092	9.84E-04	3.91E-05	6.00E-02	6E-07	1.68E-05	7.50E-03	1E-10
					Total	6E-07		Total	1E-10
Buena Ventura Park Pond	Dichloromethane	75092	ND	3.91E-05	6.00E-02	--	1.68E-05	7.50E-03	--
					Total	--		Total	--
Ogden River - Reach B	Dichloromethane	75092	1.42E-03	3.91E-05	6.00E-02	9E-07	1.68E-05	7.50E-03	2E-10
					Total	9E-07		Total	2E-10
Weber River - Reach A	Dichloromethane	75092	ND	3.91E-05	6.00E-02	--	1.68E-05	7.50E-03	--
					Total	--		Total	--
Weber River - Reach B	Dichloromethane	75092	5.80E+00	3.91E-05	6.00E-02	4E-03	1.68E-05	7.50E-03	7E-07
					Total	4E-03		Total	7E-07
Weber River - Reach C	Dichloromethane	75092	1.67E-03	3.91E-05	6.00E-02	1E-06	1.68E-05	7.50E-03	2E-10
					Total	1E-06		Total	2E-10
Weber River - Reach D	Dichloromethane	75092	2.00E+00	3.91E-05	6.00E-02	1E-03	1.68E-05	7.50E-03	3E-07
					Total	1E-03		Total	3E-07

APPENDIX E.8 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE WATER

Based on RME Assumptions for Children

AOI	Chemical	CAS Number	Csw (mg/L)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Dichloromethane	75092	9.84E-04	3.34E-04	6.00E-02	5E-06	4.76E-05	7.50E-03	4E-10
					Total	5E-06		Total	4E-10
Buena Ventura Park Pond	Dichloromethane	75092	ND	3.34E-04	6.00E-02	--	4.76E-05	7.50E-03	--
					Total	--		Total	--
Ogden River - Reach B	Dichloromethane	75092	1.42E-03	3.34E-04	6.00E-02	8E-06	4.76E-05	7.50E-03	5E-10
					Total	8E-06		Total	5E-10
Weber River - Reach A	Dichloromethane	75092	ND	3.34E-04	6.00E-02	--	4.76E-05	7.50E-03	--
					Total	--		Total	--
Weber River - Reach B	Dichloromethane	75092	5.80E+00	3.34E-04	6.00E-02	3E-02	4.76E-05	7.50E-03	2E-06
					Total	3E-02		Total	2E-06
Weber River - Reach C	Dichloromethane	75092	1.67E-03	3.34E-04	6.00E-02	9E-06	4.76E-05	7.50E-03	6E-10
					Total	9E-06		Total	6E-10
Weber River - Reach D	Dichloromethane	75092	2.00E+00	3.34E-04	6.00E-02	1E-02	4.76E-05	7.50E-03	7E-07
					Total	1E-02		Total	7E-07

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on CTE Assumptions for Adults

AOI	Chemical	CAS #	Csed	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	1.30E-01	1.96E-08	2.00E-05	1E-04	4.19E-09	2.00E+00	1E-09
	Benzo[a]anthracene	56553	2.45E+01	1.96E-08	2.00E-02	2E-05	4.19E-09	7.30E-01	8E-08
	Benzo[a]pyrene	50328	2.57E+01	1.96E-08	2.00E-02	3E-05	4.19E-09	7.30E+00	8E-07
	Benzo[b]fluoranthene	205992	1.21E+01	1.96E-08	2.00E-02	1E-05	4.19E-09	7.30E-01	4E-08
	Benzo[k]fluoranthene	207089	1.27E+01	1.96E-08	2.00E-02	1E-05	4.19E-09	7.30E-02	4E-09
	Dibenz[a,h]anthracene	53703	5.06E+00	1.96E-08	2.00E-02	5E-06	4.19E-09	7.30E+00	2E-07
	Indeno[1,2,3-c,d]pyrene	193395	1.23E+01	1.96E-08	2.00E-02	1E-05	4.19E-09	7.30E-01	4E-08
					Total	2E-04		Total	1E-06
Buena Ventura Park Pond	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	3.80E-02	1.96E-08	2.00E-02	4E-08	4.19E-09	7.30E-01	1E-10
	Benzo[a]pyrene	50328	3.90E-02	1.96E-08	2.00E-02	4E-08	4.19E-09	7.30E+00	1E-09
	Benzo[b]fluoranthene	205992	6.10E-02	1.96E-08	2.00E-02	6E-08	4.19E-09	7.30E-01	2E-10
	Benzo[k]fluoranthene	207089	3.50E-02	1.96E-08	2.00E-02	3E-08	4.19E-09	7.30E-02	1E-11
	Dibenz[a,h]anthracene	53703	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	1.60E-02	1.96E-08	2.00E-02	2E-08	4.19E-09	7.30E-01	5E-11
					Total	2E-07		Total	2E-09
Ogden River - Reach A	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	1.30E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E-01	4E-10
	Benzo[a]pyrene	50328	1.40E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E+00	4E-09
	Benzo[b]fluoranthene	205992	9.90E-02	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E-01	3E-10
	Benzo[k]fluoranthene	207089	8.70E-02	1.96E-08	2.00E-02	9E-08	4.19E-09	7.30E-02	3E-11
	Dibenz[a,h]anthracene	53703	2.40E-02	1.96E-08	2.00E-02	2E-08	4.19E-09	7.30E+00	7E-10
	Indeno[1,2,3-c,d]pyrene	193395	6.60E-02	1.96E-08	2.00E-02	6E-08	4.19E-09	7.30E-01	2E-10
					Total	5E-07		Total	6E-09
Ogden River - Reach B	Aroclor-1260	11096825	4.20E+00	1.96E-08	2.00E-05	4E-03	4.19E-09	2.00E+00	4E-08
	Benzo[a]anthracene	56553	3.80E-01	1.96E-08	2.00E-02	4E-07	4.19E-09	7.30E-01	1E-09
	Benzo[a]pyrene	50328	3.20E-01	1.96E-08	2.00E-02	3E-07	4.19E-09	7.30E+00	1E-08
	Benzo[b]fluoranthene	205992	2.30E-01	1.96E-08	2.00E-02	2E-07	4.19E-09	7.30E-01	7E-10
	Benzo[k]fluoranthene	207089	2.60E-01	1.96E-08	2.00E-02	3E-07	4.19E-09	7.30E-02	8E-11
	Dibenz[a,h]anthracene	53703	5.90E-02	1.96E-08	2.00E-02	6E-08	4.19E-09	7.30E+00	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.80E-01	1.96E-08	2.00E-02	2E-07	4.19E-09	7.30E-01	6E-10
					Total	4E-03		Total	5E-08
Ogden River - Reach C	Aroclor-1260	11096825	2.30E-01	1.96E-08	2.00E-05	2E-04	4.19E-09	2.00E+00	2E-09
	Benzo[a]anthracene	56553	1.30E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E-01	4E-10
	Benzo[a]pyrene	50328	1.10E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E+00	3E-09
	Benzo[b]fluoranthene	205992	1.00E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E-01	3E-10
	Benzo[k]fluoranthene	207089	9.40E-02	1.96E-08	2.00E-02	9E-08	4.19E-09	7.30E-02	3E-11
	Dibenz[a,h]anthracene	53703	2.20E-02	1.96E-08	2.00E-02	2E-08	4.19E-09	7.30E+00	7E-10
	Indeno[1,2,3-c,d]pyrene	193395	6.00E-02	1.96E-08	2.00E-02	6E-08	4.19E-09	7.30E-01	2E-10
					Total	2E-04		Total	7E-09
Weber River - Reach A	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
					Total	--		Total	--
Weber River - Reach B	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
					Total	--		Total	--

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on CTE Assumptions for Adults

AOI	Chemical	CAS #	Csed (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
Weber River - Reach C	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	8.50E-02	1.96E-08	2.00E-02	8E-08	4.19E-09	7.30E-01	3E-10
	Benzo[a]pyrene	50328	7.60E-02	1.96E-08	2.00E-02	7E-08	4.19E-09	7.30E+00	2E-09
	Benzo[b]fluoranthene	205992	1.10E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E-01	3E-10
	Benzo[k]fluoranthene	207089	3.70E-02	1.96E-08	2.00E-02	4E-08	4.19E-09	7.30E-02	1E-11
	Dibenz[a,h]anthracene	53703	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
					Total	3E-07		Total	3E-09
Weber River - Reach D	Aroclor-1260	11096825	ND	1.96E-08	2.00E-05	--	4.19E-09	2.00E+00	--
	Benzo[a]anthracene	56553	8.00E-02	1.96E-08	2.00E-02	8E-08	4.19E-09	7.30E-01	2E-10
	Benzo[a]pyrene	50328	5.40E-02	1.96E-08	2.00E-02	5E-08	4.19E-09	7.30E+00	2E-09
	Benzo[b]fluoranthene	205992	7.50E-02	1.96E-08	2.00E-02	7E-08	4.19E-09	7.30E-01	2E-10
	Benzo[k]fluoranthene	207089	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E-01	--
					Total	2E-07		Total	2E-09

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on CTE Assumptions for Children

AOI	Chemical	CAS #	Csed (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	1.30E-01	1.67E-07	2.00E-05	1E-03	1.19E-08	2.00E+00	3E-09
	Benzo[a]anthracene	56553	2.45E+01	1.67E-07	2.00E-02	2E-04	1.19E-08	7.30E-01	2E-07
	Benzo[a]pyrene	50328	2.57E+01	1.67E-07	2.00E-02	2E-04	1.19E-08	7.30E+00	2E-06
	Benzo[b]fluoranthene	205992	1.21E+01	1.67E-07	2.00E-02	1E-04	1.19E-08	7.30E-01	1E-07
	Benzo[k]fluoranthene	207089	1.27E+01	1.67E-07	2.00E-02	1E-04	1.19E-08	7.30E-02	1E-08
	Dibenz[a,h]anthracene	53703	5.06E+00	1.67E-07	2.00E-02	4E-05	1.19E-08	7.30E+00	4E-07
	Indeno[1,2,3-c,d]pyrene	193395	1.23E+01	1.67E-07	2.00E-02	1E-04	1.19E-08	7.30E-01	1E-07
					Total	2E-03		Total	3E-06
Buena Ventura Park Pond	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	3.80E-02	1.67E-07	2.00E-02	3E-07	1.19E-08	7.30E-01	3E-10
	Benzo[a]pyrene	50328	3.90E-02	1.67E-07	2.00E-02	3E-07	1.19E-08	7.30E+00	3E-09
	Benzo[b]fluoranthene	205992	6.10E-02	1.67E-07	2.00E-02	5E-07	1.19E-08	7.30E-01	5E-10
	Benzo[k]fluoranthene	207089	3.50E-02	1.67E-07	2.00E-02	3E-07	1.19E-08	7.30E-02	3E-11
	Dibenz[a,h]anthracene	53703	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	1.60E-02	1.67E-07	2.00E-02	1E-07	1.19E-08	7.30E-01	1E-10
					Total	2E-06		Total	4E-09
Ogden River - Reach A	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	1.30E-01	1.67E-07	2.00E-02	1E-06	1.19E-08	7.30E-01	1E-09
	Benzo[a]pyrene	50328	1.40E-01	1.67E-07	2.00E-02	1E-06	1.19E-08	7.30E+00	1E-08
	Benzo[b]fluoranthene	205992	9.90E-02	1.67E-07	2.00E-02	8E-07	1.19E-08	7.30E-01	9E-10
	Benzo[k]fluoranthene	207089	8.70E-02	1.67E-07	2.00E-02	7E-07	1.19E-08	7.30E-02	8E-11
	Dibenz[a,h]anthracene	53703	2.40E-02	1.67E-07	2.00E-02	2E-07	1.19E-08	7.30E+00	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	6.60E-02	1.67E-07	2.00E-02	6E-07	1.19E-08	7.30E-01	6E-10
					Total	5E-06		Total	2E-08
Ogden River - Reach B	Aroclor-1260	11096825	4.20E+00	1.67E-07	2.00E-05	4E-02	1.19E-08	2.00E+00	1E-07
	Benzo[a]anthracene	56553	3.80E-01	1.67E-07	2.00E-02	3E-06	1.19E-08	7.30E-01	3E-09
	Benzo[a]pyrene	50328	3.20E-01	1.67E-07	2.00E-02	3E-06	1.19E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	205992	2.30E-01	1.67E-07	2.00E-02	2E-06	1.19E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	207089	2.60E-01	1.67E-07	2.00E-02	2E-06	1.19E-08	7.30E-02	2E-10
	Dibenz[a,h]anthracene	53703	5.90E-02	1.67E-07	2.00E-02	5E-07	1.19E-08	7.30E+00	5E-09
	Indeno[1,2,3-c,d]pyrene	193395	1.80E-01	1.67E-07	2.00E-02	2E-06	1.19E-08	7.30E-01	2E-09
					Total	4E-02		Total	1E-07
Ogden River - Reach C	Aroclor-1260	11096825	2.30E-01	1.67E-07	2.00E-05	2E-03	1.19E-08	2.00E+00	5E-09
	Benzo[a]anthracene	56553	1.30E-01	1.67E-07	2.00E-02	1E-06	1.19E-08	7.30E-01	1E-09
	Benzo[a]pyrene	50328	1.10E-01	1.67E-07	2.00E-02	9E-07	1.19E-08	7.30E+00	1E-08
	Benzo[b]fluoranthene	205992	1.00E-01	1.67E-07	2.00E-02	8E-07	1.19E-08	7.30E-01	9E-10
	Benzo[k]fluoranthene	207089	9.40E-02	1.67E-07	2.00E-02	8E-07	1.19E-08	7.30E-02	8E-11
	Dibenz[a,h]anthracene	53703	2.20E-02	1.67E-07	2.00E-02	2E-07	1.19E-08	7.30E+00	2E-09
	Indeno[1,2,3-c,d]pyrene	193395	6.00E-02	1.67E-07	2.00E-02	5E-07	1.19E-08	7.30E-01	5E-10
					Total	2E-03		Total	2E-08
Weber River - Reach A	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
					Total	--		Total	--
Weber River - Reach B	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
					Total	--		Total	--

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on CTE Assumptions for Children

AOI	Chemical	CAS #	Csed (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
Weber River - Reach C	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.50E-02	1.67E-07	2.00E-02	7E-07	1.19E-08	7.30E-01	7E-10
	Benzo[a]pyrene	50328	7.60E-02	1.67E-07	2.00E-02	6E-07	1.19E-08	7.30E+00	7E-09
	Benzo[b]fluoranthene	205992	1.10E-01	1.67E-07	2.00E-02	9E-07	1.19E-08	7.30E-01	1E-09
	Benzo[k]fluoranthene	207089	3.70E-02	1.67E-07	2.00E-02	3E-07	1.19E-08	7.30E-02	3E-11
	Dibenz[a,h]anthracene	53703	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
					Total	3E-06		Total	8E-09
Weber River - Reach D	Aroclor-1260	11096825	ND	1.67E-07	2.00E-05	--	1.19E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.00E-02	1.67E-07	2.00E-02	7E-07	1.19E-08	7.30E-01	7E-10
	Benzo[a]pyrene	50328	5.40E-02	1.67E-07	2.00E-02	5E-07	1.19E-08	7.30E+00	5E-09
	Benzo[b]fluoranthene	205992	7.50E-02	1.67E-07	2.00E-02	6E-07	1.19E-08	7.30E-01	7E-10
	Benzo[k]fluoranthene	207089	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E-01	--
					Total	2E-06		Total	6E-09

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on RME Assumptions for Adults

AOI	Chemical	CAS Number	Csed	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	1.30E-01	7.83E-08	2.00E-05	5E-04	3.35E-08	2.00E+00	9E-09
	Benzo[a]anthracene	56553	2.45E+01	7.83E-08	2.00E-02	1E-04	3.35E-08	7.30E-01	6E-07
	Benzo[a]pyrene	50328	2.57E+01	7.83E-08	2.00E-02	1E-04	3.35E-08	7.30E+00	6E-06
	Benzo[b]fluoranthene	205992	1.21E+01	7.83E-08	2.00E-02	5E-05	3.35E-08	7.30E-01	3E-07
	Benzo[k]fluoranthene	207089	1.27E+01	7.83E-08	2.00E-02	5E-05	3.35E-08	7.30E-02	3E-08
	Dibenz[a,h]anthracene	53703	5.06E+00	7.83E-08	2.00E-02	2E-05	3.35E-08	7.30E+00	1E-06
	Indeno[1,2,3-c,d]pyrene	193395	1.23E+01	7.83E-08	2.00E-02	5E-05	3.35E-08	7.30E-01	3E-07
					Total	9E-04		Total	9E-06
Buena Ventura Park Pond	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	3.80E-02	7.83E-08	2.00E-02	1E-07	3.35E-08	7.30E-01	9E-10
	Benzo[a]pyrene	50328	3.90E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E+00	1E-08
	Benzo[b]fluoranthene	205992	6.10E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E-01	1E-09
	Benzo[k]fluoranthene	207089	3.50E-02	7.83E-08	2.00E-02	1E-07	3.35E-08	7.30E-02	9E-11
	Dibenz[a,h]anthracene	53703	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	1.60E-02	7.83E-08	2.00E-02	6E-08	3.35E-08	7.30E-01	4E-10
					Total	7E-07		Total	1E-08
Ogden River - Reach A	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	1.30E-01	7.83E-08	2.00E-02	5E-07	3.35E-08	7.30E-01	3E-09
	Benzo[a]pyrene	50328	1.40E-01	7.83E-08	2.00E-02	5E-07	3.35E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	205992	9.90E-02	7.83E-08	2.00E-02	4E-07	3.35E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	207089	8.70E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E-02	2E-10
	Dibenz[a,h]anthracene	53703	2.40E-02	7.83E-08	2.00E-02	9E-08	3.35E-08	7.30E+00	6E-09
	Indeno[1,2,3-c,d]pyrene	193395	6.60E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E-01	2E-09
					Total	2E-06		Total	5E-08
Ogden River - Reach B	Aroclor-1260	11096825	4.20E+00	7.83E-08	2.00E-05	2E-02	3.35E-08	2.00E+00	3E-07
	Benzo[a]anthracene	56553	3.80E-01	7.83E-08	2.00E-02	1E-06	3.35E-08	7.30E-01	9E-09
	Benzo[a]pyrene	50328	3.20E-01	7.83E-08	2.00E-02	1E-06	3.35E-08	7.30E+00	8E-08
	Benzo[b]fluoranthene	205992	2.30E-01	7.83E-08	2.00E-02	9E-07	3.35E-08	7.30E-01	6E-09
	Benzo[k]fluoranthene	207089	2.60E-01	7.83E-08	2.00E-02	1E-06	3.35E-08	7.30E-02	6E-10
	Dibenz[a,h]anthracene	53703	5.90E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E+00	1E-08
	Indeno[1,2,3-c,d]pyrene	193395	1.80E-01	7.83E-08	2.00E-02	7E-07	3.35E-08	7.30E-01	4E-09
					Total	2E-02		Total	4E-07
Ogden River - Reach C	Aroclor-1260	11096825	2.30E-01	7.83E-08	2.00E-05	9E-04	3.35E-08	2.00E+00	2E-08
	Benzo[a]anthracene	56553	1.30E-01	7.83E-08	2.00E-02	5E-07	3.35E-08	7.30E-01	3E-09
	Benzo[a]pyrene	50328	1.10E-01	7.83E-08	2.00E-02	4E-07	3.35E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	205992	1.00E-01	7.83E-08	2.00E-02	4E-07	3.35E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	207089	9.40E-02	7.83E-08	2.00E-02	4E-07	3.35E-08	7.30E-02	2E-10
	Dibenz[a,h]anthracene	53703	2.20E-02	7.83E-08	2.00E-02	9E-08	3.35E-08	7.30E+00	5E-09
	Indeno[1,2,3-c,d]pyrene	193395	6.00E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E-01	1E-09
					Total	9E-04		Total	6E-08
Weber River - Reach A	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
					Total	--		Total	--
Weber River - Reach B	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
					Total	--		Total	--

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on RME Assumptions for Adults

AOI	Chemical	CAS Number	Csed	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
Weber River - Reach C	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.50E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E-01	2E-09
	Benzo[a]pyrene	50328	7.60E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E+00	2E-08
	Benzo[b]fluoranthene	205992	1.10E-01	7.83E-08	2.00E-02	4E-07	3.35E-08	7.30E-01	3E-09
	Benzo[k]fluoranthene	207089	3.70E-02	7.83E-08	2.00E-02	1E-07	3.35E-08	7.30E-02	9E-11
	Dibenz[a,h]anthracene	53703	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
					Total	1E-06		Total	2E-08
Weber River - Reach D	Aroclor-1260	11096825	ND	7.83E-08	2.00E-05	--	3.35E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.00E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E-01	2E-09
	Benzo[a]pyrene	50328	5.40E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E+00	1E-08
	Benzo[b]fluoranthene	205992	7.50E-02	7.83E-08	2.00E-02	3E-07	3.35E-08	7.30E-01	2E-09
	Benzo[k]fluoranthene	207089	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E-01	--
					Total	8E-07		Total	2E-08

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on RME Assumptions for Children

AOI	Chemical	CAS Number	Csed	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	1.30E-01	6.67E-07	2.00E-05	4E-03	9.53E-08	2.00E+00	2E-08
	Benzo[a]anthracene	56553	2.45E+01	6.67E-07	2.00E-02	8E-04	9.53E-08	7.30E-01	2E-06
	Benzo[a]pyrene	50328	2.57E+01	6.67E-07	2.00E-02	9E-04	9.53E-08	7.30E+00	2E-05
	Benzo[b]fluoranthene	205992	1.21E+01	6.67E-07	2.00E-02	4E-04	9.53E-08	7.30E-01	8E-07
	Benzo[k]fluoranthene	207089	1.27E+01	6.67E-07	2.00E-02	4E-04	9.53E-08	7.30E-02	9E-08
	Dibenz[a,h]anthracene	53703	5.06E+00	6.67E-07	2.00E-02	2E-04	9.53E-08	7.30E+00	4E-06
	Indeno[1,2,3-c,d]pyrene	193395	1.23E+01	6.67E-07	2.00E-02	4E-04	9.53E-08	7.30E-01	9E-07
					Total	7E-03		Total	2E-05
Buena Ventura Park Pond	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	3.80E-02	6.67E-07	2.00E-02	1E-06	9.53E-08	7.30E-01	3E-09
	Benzo[a]pyrene	50328	3.90E-02	6.67E-07	2.00E-02	1E-06	9.53E-08	7.30E+00	3E-08
	Benzo[b]fluoranthene	205992	6.10E-02	6.67E-07	2.00E-02	2E-06	9.53E-08	7.30E-01	4E-09
	Benzo[k]fluoranthene	207089	3.50E-02	6.67E-07	2.00E-02	1E-06	9.53E-08	7.30E-02	2E-10
	Dibenz[a,h]anthracene	53703	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	1.60E-02	6.67E-07	2.00E-02	5E-07	9.53E-08	7.30E-01	1E-09
					Total	6E-06		Total	4E-08
Ogden River - Reach A	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	1.30E-01	6.67E-07	2.00E-02	4E-06	9.53E-08	7.30E-01	9E-09
	Benzo[a]pyrene	50328	1.40E-01	6.67E-07	2.00E-02	5E-06	9.53E-08	7.30E+00	1E-07
	Benzo[b]fluoranthene	205992	9.90E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-01	7E-09
	Benzo[k]fluoranthene	207089	8.70E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-02	6E-10
	Dibenz[a,h]anthracene	53703	2.40E-02	6.67E-07	2.00E-02	8E-07	9.53E-08	7.30E+00	2E-08
	Indeno[1,2,3-c,d]pyrene	193395	6.60E-02	6.67E-07	2.00E-02	2E-06	9.53E-08	7.30E-01	5E-09
					Total	2E-05		Total	1E-07
Ogden River - Reach B	Aroclor-1260	11096825	4.20E+00	6.67E-07	2.00E-05	1E-01	9.53E-08	2.00E+00	8E-07
	Benzo[a]anthracene	56553	3.80E-01	6.67E-07	2.00E-02	1E-05	9.53E-08	7.30E-01	3E-08
	Benzo[a]pyrene	50328	3.20E-01	6.67E-07	2.00E-02	1E-05	9.53E-08	7.30E+00	2E-07
	Benzo[b]fluoranthene	205992	2.30E-01	6.67E-07	2.00E-02	8E-06	9.53E-08	7.30E-01	2E-08
	Benzo[k]fluoranthene	207089	2.60E-01	6.67E-07	2.00E-02	9E-06	9.53E-08	7.30E-02	2E-09
	Dibenz[a,h]anthracene	53703	5.90E-02	6.67E-07	2.00E-02	2E-06	9.53E-08	7.30E+00	4E-08
	Indeno[1,2,3-c,d]pyrene	193395	1.80E-01	6.67E-07	2.00E-02	6E-06	9.53E-08	7.30E-01	1E-08
					Total	1E-01		Total	1E-06
Ogden River - Reach C	Aroclor-1260	11096825	2.30E-01	6.67E-07	2.00E-05	8E-03	9.53E-08	2.00E+00	4E-08
	Benzo[a]anthracene	56553	1.30E-01	6.67E-07	2.00E-02	4E-06	9.53E-08	7.30E-01	9E-09
	Benzo[a]pyrene	50328	1.10E-01	6.67E-07	2.00E-02	4E-06	9.53E-08	7.30E+00	8E-08
	Benzo[b]fluoranthene	205992	1.00E-01	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-01	7E-09
	Benzo[k]fluoranthene	207089	9.40E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-02	7E-10
	Dibenz[a,h]anthracene	53703	2.20E-02	6.67E-07	2.00E-02	7E-07	9.53E-08	7.30E+00	2E-08
	Indeno[1,2,3-c,d]pyrene	193395	6.00E-02	6.67E-07	2.00E-02	2E-06	9.53E-08	7.30E-01	4E-09
					Total	8E-03		Total	2E-07
Weber River - Reach A	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
					Total	--		Total	--
Weber River - Reach B	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
	Benzo[a]pyrene	50328	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Benzo[b]fluoranthene	205992	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
	Benzo[k]fluoranthene	207089	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
					Total	--		Total	--

APPENDIX E.9 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SEDIMENT

Based on RME Assumptions for Children

AOI	Chemical	CAS Number	Csed	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
Weber River - Reach C	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.50E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-01	6E-09
	Benzo[a]pyrene	50328	7.60E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E+00	5E-08
	Benzo[b]fluoranthene	205992	1.10E-01	6.67E-07	2.00E-02	4E-06	9.53E-08	7.30E-01	8E-09
	Benzo[k]fluoranthene	207089	3.70E-02	6.67E-07	2.00E-02	1E-06	9.53E-08	7.30E-02	3E-10
	Dibenz[a,h]anthracene	53703	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
					Total	1E-05		Total	7E-08
Weber River - Reach D	Aroclor-1260	11096825	ND	6.67E-07	2.00E-05	--	9.53E-08	2.00E+00	--
	Benzo[a]anthracene	56553	8.00E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-01	6E-09
	Benzo[a]pyrene	50328	5.40E-02	6.67E-07	2.00E-02	2E-06	9.53E-08	7.30E+00	4E-08
	Benzo[b]fluoranthene	205992	7.50E-02	6.67E-07	2.00E-02	3E-06	9.53E-08	7.30E-01	5E-09
	Benzo[k]fluoranthene	207089	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-02	--
	Dibenz[a,h]anthracene	53703	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
	Indeno[1,2,3-c,d]pyrene	193395	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E-01	--
					Total	7E-06		Total	5E-08

APPENDIX E.10 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE SOIL

Based on CTE Assumptions for Adults

AOI	Chemical	CAS Number	Csoil	Noncancer Risk			Cancer Risk		
			(mg/kg)	HIFNC	Oral RfD	RiskNC	HIFC	Oral SF	RiskC
21st Street Pond	Arsenic	7440382	9.16E+00	1.96E-08	3.00E-04	6E-04	4.19E-09	1.50E+00	6E-08
	Benzo[a]pyrene	50328	9.28E-01	1.96E-08	2.00E-02	9E-07	4.19E-09	7.30E+00	3E-08
					Total	6E-04		Total	9E-08
Weber River - Reach A	Arsenic	7440382	2.20E+01	1.96E-08	3.00E-04	1E-03	4.19E-09	1.50E+00	1E-07
	Benzo[a]pyrene	50328	ND	1.96E-08	2.00E-02	--	4.19E-09	7.30E+00	--
					Total	1E-03		Total	1E-07
Weber River - Reach B	Arsenic	7440382	3.73E+00	1.96E-08	3.00E-04	2E-04	4.19E-09	1.50E+00	2E-08
	Benzo[a]pyrene	50328	4.40E-01	1.96E-08	2.00E-02	4E-07	4.19E-09	7.30E+00	1E-08
					Total	2E-04		Total	4E-08
Weber River - Reach C	Arsenic	7440382	7.40E+00	1.96E-08	3.00E-04	5E-04	4.19E-09	1.50E+00	5E-08
	Benzo[a]pyrene	50328	4.00E-02	1.96E-08	2.00E-02	4E-08	4.19E-09	7.30E+00	1E-09
					Total	5E-04		Total	5E-08
Weber River - Reach D	Arsenic	7440382	4.15E+00	1.96E-08	3.00E-04	3E-04	4.19E-09	1.50E+00	3E-08
	Benzo[a]pyrene	50328	1.40E-01	1.96E-08	2.00E-02	1E-07	4.19E-09	7.30E+00	4E-09
					Total	3E-04		Total	3E-08

APPENDIX E.10 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE SOIL

Based on CTE Assumptions for Children

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Arsenic	7440382	9.16E+00	1.67E-07	3.00E-04	5E-03	1.19E-08	1.50E+00	2E-07
	Benzo[a]pyrene	50328	9.28E-01	1.67E-07	2.00E-02	8E-06	1.19E-08	7.30E+00	8E-08
					Total	5E-03		Total	2E-07
Weber River - Reach A	Arsenic	7440382	2.20E+01	1.67E-07	3.00E-04	1E-02	1.19E-08	1.50E+00	4E-07
	Benzo[a]pyrene	50328	ND	1.67E-07	2.00E-02	--	1.19E-08	7.30E+00	--
					Total	1E-02		Total	4E-07
Weber River - Reach B	Arsenic	7440382	3.73E+00	1.67E-07	3.00E-04	2E-03	1.19E-08	1.50E+00	7E-08
	Benzo[a]pyrene	50328	4.40E-01	1.67E-07	2.00E-02	4E-06	1.19E-08	7.30E+00	4E-08
					Total	2E-03		Total	1E-07
Weber River - Reach C	Arsenic	7440382	7.40E+00	1.67E-07	3.00E-04	4E-03	1.19E-08	1.50E+00	1E-07
	Benzo[a]pyrene	50328	4.00E-02	1.67E-07	2.00E-02	3E-07	1.19E-08	7.30E+00	3E-09
					Total	4E-03		Total	1E-07
Weber River - Reach D	Arsenic	7440382	4.15E+00	1.67E-07	3.00E-04	2E-03	1.19E-08	1.50E+00	7E-08
	Benzo[a]pyrene	50328	1.40E-01	1.67E-07	2.00E-02	1E-06	1.19E-08	7.30E+00	1E-08
					Total	2E-03		Total	9E-08

APPENDIX E.10 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE SOIL

Based on RME Assumptions for Adults

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Arsenic	7440382	9.16E+00	7.83E-08	3.00E-04	2E-03	3.35E-08	1.50E+00	5E-07
	Benzo[a]pyrene	50328	9.28E-01	7.83E-08	2.00E-02	4E-06	3.35E-08	7.30E+00	2E-07
					Total	2E-03		Total	7E-07
Weber River - Reach A	Arsenic	7440382	2.20E+01	7.83E-08	3.00E-04	6E-03	3.35E-08	1.50E+00	1E-06
	Benzo[a]pyrene	50328	ND	7.83E-08	2.00E-02	--	3.35E-08	7.30E+00	--
					Total	6E-03		Total	1E-06
Weber River - Reach B	Arsenic	7440382	3.73E+00	7.83E-08	3.00E-04	1E-03	3.35E-08	1.50E+00	2E-07
	Benzo[a]pyrene	50328	4.40E-01	7.83E-08	2.00E-02	2E-06	3.35E-08	7.30E+00	1E-07
					Total	1E-03		Total	3E-07
Weber River - Reach C	Arsenic	7440382	7.40E+00	7.83E-08	3.00E-04	2E-03	3.35E-08	1.50E+00	4E-07
	Benzo[a]pyrene	50328	4.00E-02	7.83E-08	2.00E-02	2E-07	3.35E-08	7.30E+00	1E-08
					Total	2E-03		Total	4E-07
Weber River - Reach D	Arsenic	7440382	4.15E+00	7.83E-08	3.00E-04	1E-03	3.35E-08	1.50E+00	2E-07
	Benzo[a]pyrene	50328	1.40E-01	7.83E-08	2.00E-02	5E-07	3.35E-08	7.30E+00	3E-08
					Total	1E-03		Total	2E-07

APPENDIX E.10 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM SURFACE SOIL

Based on RME Assumptions for Children

AOI	Chemical	CAS Number	Csoil (mg/kg)	Noncancer Risk HIFNC	Oral RfD	RiskNC	Cancer Risk HIFC	Oral SF	RiskC
21st Street Pond	Arsenic	7440382	9.16E+00	6.67E-07	3.00E-04	2E-02	9.53E-08	1.50E+00	1E-06
	Benzo[a]pyrene	50328	9.28E-01	6.67E-07	2.00E-02	3E-05	9.53E-08	7.30E+00	6E-07
					Total	2E-02		Total	2E-06
Weber River - Reach A	Arsenic	7440382	2.20E+01	6.67E-07	3.00E-04	5E-02	9.53E-08	1.50E+00	3E-06
	Benzo[a]pyrene	50328	ND	6.67E-07	2.00E-02	--	9.53E-08	7.30E+00	--
					Total	5E-02		Total	3E-06
Weber River - Reach B	Arsenic	7440382	3.73E+00	6.67E-07	3.00E-04	8E-03	9.53E-08	1.50E+00	5E-07
	Benzo[a]pyrene	50328	4.40E-01	6.67E-07	2.00E-02	1E-05	9.53E-08	7.30E+00	3E-07
					Total	8E-03		Total	8E-07
Weber River - Reach C	Arsenic	7440382	7.40E+00	6.67E-07	3.00E-04	2E-02	9.53E-08	1.50E+00	1E-06
	Benzo[a]pyrene	50328	4.00E-02	6.67E-07	2.00E-02	1E-06	9.53E-08	7.30E+00	3E-08
					Total	2E-02		Total	1E-06
Weber River - Reach D	Arsenic	7440382	4.15E+00	6.67E-07	3.00E-04	9E-03	9.53E-08	1.50E+00	6E-07
	Benzo[a]pyrene	50328	1.40E-01	6.67E-07	2.00E-02	5E-06	9.53E-08	7.30E+00	1E-07
					Total	9E-03		Total	7E-07

APPENDIX E.11 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM FISH

Based on CTE Assumptions for Adults

AOI	Chemical	CAS Number	Cfish	Noncancer Risk			Cancer Risk		
			(mg/kg ww)	CTE HIFNC	Oral RfD	RiskNC	CTE HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	8.04E-01	2.19E-05	2.00E-05	9E-01	4.70E-06	2.00E+00	8E-06
	4,4'-DDE	72559	3.54E-01	2.19E-05	5.00E-04	2E-02	4.70E-06	3.40E-01	6E-07
	bis(2-Ethylhexyl)phthalate	117817	1.48E+00	2.19E-05	2.00E-02	2E-03	4.70E-06	1.40E-02	1E-07
					Total	9E-01		Total	8E-06
					PCB	9E-01		PCB	8E-06
					Non-PCB	2E-02		Non-PCB	7E-07

APPENDIX E.11 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM FISH

Based on CTE Assumptions for Children

AOI	Chemical	CAS Number	Cfish	Noncancer Risk			Cancer Risk		
			(mg/kg ww)	CTE HIFNC	Oral RfD	RiskNC	CTE HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	8.04E-01	1.95E-05	2.00E-05	8E-01	1.39E-06	2.00E+00	2E-06
	4,4'-DDE	72559	3.54E-01	1.95E-05	5.00E-04	1E-02	1.39E-06	3.40E-01	2E-07
	bis(2-Ethylhexyl)phthalate	117817	1.48E+00	1.95E-05	2.00E-02	1E-03	1.39E-06	1.40E-02	3E-08
					Total	8E-01		Total	2E-06
					PCB	8E-01		PCB	2E-06
					Non-PCB	2E-02		Non-PCB	2E-07

APPENDIX E.11 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM FISH

Based on RME Assumptions for Adults

AOI	Chemical	CAS Number	Cfish	Noncancer Risk			Cancer Risk		
			(mg/kg ww)	RME HIFNC	Oral RfD	RiskNC	RME HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	8.04E-01	1.37E-04	2.00E-05	**6E+00**	5.87E-05	2.00E+00	9E-05
	4,4'-DDE	72559	3.54E-01	1.37E-04	5.00E-04	1E-01	5.87E-05	3.40E-01	7E-06
	bis(2-Ethylhexyl)phthalate	117817	1.48E+00	1.37E-04	2.00E-02	1E-02	5.87E-05	1.40E-02	1E-06
					Total	**6E+00**		Total	1E-04
					PCB	**6E+00**		PCB	9E-05
					Non-PCB	1E-01		Non-PCB	8E-06

APPENDIX E.11 DETAILED RISK CALCULATION TABLES FOR RECREATIONAL VISITORS FROM FISH

Based on RME Assumptions for Children

AOI	Chemical	CAS Number	Cfish	Noncancer Risk			Cancer Risk		
			(mg/kg ww)	RME HIFNC	Oral RfD	RiskNC	RME HIFC	Oral SF	RiskC
21st Street Pond	Aroclor-1260	11096825	8.04E-01	1.22E-04	2.00E-05	**5E+00**	1.74E-05	2.00E+00	3E-05
	4,4'-DDE	72559	3.54E-01	1.22E-04	5.00E-04	9E-02	1.74E-05	3.40E-01	2E-06
	bis(2-Ethylhexyl)phthalate	117817	1.48E+00	1.22E-04	2.00E-02	9E-03	1.74E-05	1.40E-02	4E-07
					Total	**5E+00**		Total	3E-05
					PCB	**5E+00**		PCB	3E-05
					Non-PCB	1E-01		Non-PCB	2E-06

APPENDIX E.12 DETAILED RISK CALCULATIONS FOR RECREATIONAL VISITORS FROM INGESTION OF PCBs (AS CONGENERS) IN FISH

Sample ID	Reach	Media	Matrix	Species Type	Parameter	CAS	Adj Units	Adj Conc	TEF_Mammals	TEQ (ppt)	Total TEQ (ppt)
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	863	0.0001	0.0863	1.2
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	55.2	0.0005	0.0276	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	2360	0.0001	0.236	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	42.4	0.0001	0.00424	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	5.35	0.1	0.535	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	293	0.0005	0.1465	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	64.5	0.0005	0.03225	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	136	0.00001	0.00136	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	10.7	0.01	0.107	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	10.7	0.0001	0.00107	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	43	0.0001	0.0043	
3-OG-03042	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	1.07	0.0001	0.000107	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-105	32598-14-4	ppt ww	6710	0.0001	0.671	17.5
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-114	74472-37-0	ppt ww	694	0.0005	0.347	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-118	31508-00-6	ppt ww	33900	0.0001	3.39	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-123	65510-44-3	ppt ww	422	0.0001	0.0422	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-126	57465-28-8	ppt ww	73.5	0.1	7.35	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-156	38380-08-4	ppt ww	9380	0.0005	4.69	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-157	69782-90-7	ppt ww	994	0.0005	0.497	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-167	52663-72-6	ppt ww	6350	0.00001	0.0635	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-169	32774-16-6	ppt ww	26	0.01	0.26	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-189	39635-31-9	ppt ww	1890	0.0001	0.189	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-77	32598-13-3	ppt ww	2.18	0.0001	0.000218	
3-OG-03053	Ogden River - Reach B	Fish Tissue	whole body	Other	PCB-81	70362-50-4	ppt ww	2.24	0.0001	0.000224	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	1650	0.0001	0.165	5.8
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	98.8	0.0005	0.0494	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	6210	0.0001	0.621	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	9.9	0.0001	0.00099	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	25.7	0.1	2.57	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	3970	0.0005	1.985	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	353	0.0005	0.1765	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	1410	0.00001	0.0141	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.65	0.01	0.0965	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	719	0.0001	0.0719	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	37.9	0.0001	0.00379	
3-OG-03060	Ogden River - Reach B	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.965	0.0001	0.0000965	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	446	0.0001	0.0446	0.8
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	35.3	0.0005	0.01765	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	1210	0.0001	0.121	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	4.755	0.0001	0.0004755	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	4.755	0.1	0.4755	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	138	0.0005	0.069	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	29.4	0.0005	0.0147	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	72.5	0.00001	0.000725	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.5	0.01	0.095	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	9.5	0.0001	0.00095	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	34.2	0.0001	0.00342	
3-OG-03084	Buena Ventura Park Pond	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.95	0.0001	0.000095	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	570	0.0001	0.057	3.2
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	44.1	0.0005	0.02205	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	2310	0.0001	0.231	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	10.95	0.0001	0.001095	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	23.3	0.1	2.33	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	718	0.0005	0.359	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	84.2	0.0005	0.0421	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	429	0.00001	0.00429	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.65	0.01	0.0965	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	156	0.0001	0.0156	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	33.9	0.0001	0.00339	
3-OG-03120	21st Street Pond	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.965	0.0001	0.0000965	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	376	0.0001	0.0376	2.0
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	30.2	0.0005	0.0151	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	1510	0.0001	0.151	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	10.65	0.0001	0.001065	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	13.7	0.1	1.37	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	475	0.0005	0.2375	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	54.5	0.0005	0.02725	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	250	0.00001	0.0025	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.7	0.01	0.097	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	95.3	0.0001	0.00953	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	26.2	0.0001	0.00262	
3-OG-03121	21st Street Pond	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.97	0.0001	0.000097	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	586	0.0001	0.0586	1.8
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	38	0.0005	0.019	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	1670	0.0001	0.167	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	8.1	0.0001	0.00081	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	11.3	0.1	1.13	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	496	0.0005	0.248	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	61.3	0.0005	0.03065	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	136	0.00001	0.00136	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.8	0.01	0.098	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	45.5	0.0001	0.00455	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	48.8	0.0001	0.00488	
3-OG-03133	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.98	0.0001	0.000098	

APPENDIX E.12 DETAILED RISK CALCULATIONS FOR RECREATIONAL VISITORS FROM INGESTION OF PCBs (AS CONGENERS) IN FISH

Sample ID	Reach	Media	Matrix	Species Type	Parameter	CAS	Adj Units	Adj Conc	TEF_Mammals	TEQ (ppt)	Total TEQ (ppt)
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	2530	0.0001	0.253	3.7
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	161	0.0005	0.0805	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	7250	0.0001	0.725	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	15.15	0.0001	0.001515	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	18	0.1	1.8	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	970	0.0005	0.485	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	235	0.0005	0.1175	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	495	0.00001	0.00495	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	16.35	0.01	0.1635	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	106	0.0001	0.0106	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	109	0.0001	0.0109	
3-OG-03156	Weber River - Reach D	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.95	0.0001	0.000095	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	1200	0.0001	0.12	4.1
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	73.5	0.0005	0.03675	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	4490	0.0001	0.449	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	15.7	0.0001	0.00157	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	24.4	0.1	2.44	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	1650	0.0005	0.825	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	163	0.0005	0.0815	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	681	0.00001	0.00681	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.75	0.01	0.0975	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	269	0.0001	0.0269	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	56	0.0001	0.0056	
3-OG-03195	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.975	0.0001	0.0000975	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	1680	0.0001	0.168	7.7
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	104	0.0005	0.052	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	6370	0.0001	0.637	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	15.4	0.0001	0.00154	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	30	0.1	3	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	2280	0.0005	1.14	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	228	0.0005	0.114	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	994	0.00001	0.00994	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	250	0.01	2.5	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	428	0.0001	0.0428	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	76.6	0.0001	0.00766	
3-OG-03196	Ogden River - Reach C	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	1	0.0001	0.0001	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-105	32598-14-4	ppt ww	699	0.0001	0.0699	1.0
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-114	74472-37-0	ppt ww	44.9	0.0005	0.02245	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-118	31508-00-6	ppt ww	1830	0.0001	0.183	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-123	65510-44-3	ppt ww	4.88	0.0001	0.000488	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-126	57465-28-8	ppt ww	4.88	0.1	0.488	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-156	38380-08-4	ppt ww	223	0.0005	0.1115	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-157	69782-90-7	ppt ww	51.9	0.0005	0.02595	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-167	52663-72-6	ppt ww	94	0.00001	0.00094	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-169	32774-16-6	ppt ww	9.75	0.01	0.0975	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-189	39635-31-9	ppt ww	9.75	0.0001	0.000975	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-77	32598-13-3	ppt ww	21.6	0.0001	0.00216	
3-OG-03246	Ogden River - Reach A	Fish Tissue	fillet	Game	PCB-81	70362-50-4	ppt ww	0.975	0.0001	0.0000975	

APPENDIX E.12 DETAILED RISK CALCULATIONS FOR RECREATIONAL VISITORS FROM INGESTION OF PCBs (AS CONGENERS) IN FISH

Location	Sample ID	Total TEQ (ppt)	Cancer Risk			
			Adult CTE	Child CTE	Adult RME	Child RME
Ogden River - Reach A	3-OG-03042	1.2	8E-07	2E-07	1E-05	3E-06
Ogden River - Reach B	3-OG-03053	17.5	1E-05	4E-06	**2E-04**	5E-05
Ogden River - Reach B	3-OG-03060	5.8	4E-06	1E-06	5E-05	1E-05
Buena Ventura Park Pond	3-OG-03084	0.8	6E-07	2E-07	7E-06	2E-06
21st Street Pond	3-OG-03120	3.2	2E-06	7E-07	3E-05	8E-06
21st Street Pond	3-OG-03121	2.0	1E-06	4E-07	2E-05	5E-06
Weber River - Reach D	3-OG-03133	1.8	1E-06	4E-07	2E-05	5E-06
Weber River - Reach D	3-OG-03156	3.7	3E-06	8E-07	3E-05	1E-05
Ogden River - Reach C	3-OG-03195	4.1	3E-06	9E-07	4E-05	1E-05
Ogden River - Reach C	3-OG-03196	7.7	5E-06	2E-06	7E-05	2E-05
Ogden River - Reach A	3-OG-03246	1.0	7E-07	2E-07	9E-06	3E-06