
Final Report

**Focused Human Health Risk
Assessment Report
Honeywell 34th Street Facility
Phoenix, Arizona**

Prepared for
Honeywell International Inc.

March 2011



Executive Summary

This Focused Human Health Risk Assessment (FHHRA) was prepared for the Honeywell International Inc. (Honeywell) 34th Street Engines Product Center (Facility or Honeywell facility) and the north-central portion of Phoenix Sky Harbor International Airport (PSHIA or the Airport). The FHHRA provides an update to the *Health Assessment, Honeywell 34th Street Facility, Phoenix, Arizona* (2005 Health Assessment; CH2M HILL, 2005a), consistent with Honeywell responses (Honeywell, 2008) to the United States Environmental Protection Agency's (USEPA's) June 6, 2008 comments on the 2005 Health Assessment (USEPA, 2008).

This FHHRA focuses on the potential risks to receptors associated with sources originating from Honeywell which differ from potential risks associated with the Motorola 52nd Street Superfund Site commingled regional CVOC plume. Risk and hazard estimates associated with the regional commingled CVOC groundwater plume in the Offsite Exposure Area (i.e., area to the east, north, and west of the Facility) are included in this report as an appendix for informational purposes and potential consideration during the OU2 Sitewide Remedial Investigation/Feasibility Study (RI/FS).

The 2005 Health Assessment was presented as Appendix L in the *Final Focused Remedial Investigation Report, Honeywell 34th Street Facility, Phoenix, Arizona* (Final FRI Report; CH2M HILL, 2005b) pursuant to the September 19, 1999 Administrative Order on Consent with the Arizona Department of Environmental Quality (ADEQ, 1999). In response to USEPA's June 6, 2008 comments (USEPA, 2008), Honeywell proposed to update the 2005 Health Assessment and incorporate FRI-related sampling conducted since the Final FRI Report and the *Focused Remedial Investigation Report Addendum, Honeywell 34th Street Facility, Phoenix, Arizona* (FRI Addendum) (CH2M HILL, 2008a), including sampling conducted in support of the biologically-enhanced soil vapor extraction (BSVE) remedial alternative selected and approved for the leaking underground storage tank (LUST) Area of Interest (AOI) (LUST File #0393.02-.10, .15-.20, Facility ID #0-002227).¹ In addition, and consistent with discussions involving the City of Phoenix (COP), data used in risk assessments conducted for the LUST program are also incorporated into this FHHRA. This resulted in expanding the 2005 Health Assessment study area further south onto the PSHIA property to address Facility-related petroleum hydrocarbon impacts.

Figure ES-1 presents the Facility in relation to the larger Motorola 52nd Street Superfund Site. Figure ES-2 presents the FHHRA study area within Operable Unit Two (OU2) of the Motorola 52nd Street Superfund Site.

¹ Note: Ongoing data collection, evaluation, and risk management decisions related to the remediation of site-related petroleum hydrocarbons are being reported in the semi-annual (formerly quarterly) remediation status reports for Honeywell's LUST File Nos. 0393.02-.10, .15-.20, Facility ID No. 0 002227. This is consistent with agreements with ADEQ's Underground Storage Tank program, the Maricopa County Air Quality District, and the City of Phoenix Aviation Department.

ES.1 Overview

Specific objectives for this FHHRA include:

- Identifying the relevant site characterization data and summarizing its usability for assessing potential risks and hazards.
- Presenting a site conceptual exposure model (SCEM) that describes potential chemical sources, migration pathways, and human receptors.
- Identifying the Facility-related chemicals of potential concern (COPCs) to be quantitatively evaluated in the FHHRA.
- Estimating potential exposure and characterizing potential risks to the human receptors identified in the SCEM.
- Discussing the primary uncertainties associated with the risk estimates.
- Summarizing the overall FHHRA conclusions.

ES.1.1 Background

The Honeywell facility is located within OU2 of the Motorola 52nd Street Superfund Site at 111 South 34th Street in Phoenix, Arizona (Figure ES-1 and Figure ES-2) and has been in operation since 1951. During that time, Honeywell and its predecessors have used a variety of chemicals as part of the design, manufacturing, assembly, testing, and repair of aircraft engines and ancillary equipment, including chlorinated solvents and jet fuel.

ES.2 Data Evaluation/Hazard Identification

Multiple phases of Honeywell 34th Street site characterization investigations have produced extensive information about the nature, extent, fate, and transport of site-related impacts. A list of the historical Honeywell work plans, field sampling plans, quality assurance project plans, sampling reports, and site characterization reports which were considered for use in this FHHRA is provided in Appendix E. The purposes of this section are to (1) briefly summarize the nature and extent of potential site-related impacts, (2) describe the process for determining the data from these investigations that were used in the FHHRA, and (3) describe the methods for distilling these data into a form appropriate for the risk assessment. Included in this process is the identification of COPCs in each medium. COPCs are defined as those chemicals with a potential to result in cancer risks or non-cancer hazards above target levels for the identified receptors. The overarching goal of this data evaluation was to select data of sufficient quality to represent site conditions and support the calculations and conclusions presented in subsequent sections of this FHHRA.

ES.2.1 Site Characterization Summary

The primary potential site-related chemicals identified at the Facility include fuel-related chemicals (i.e., benzene, ethylbenzene, toluene, and xylenes [BTEX] and methyl tert-butyl ether [MTBE]) and chlorinated VOCs (e.g., TCE and associated daughter products, 1,1,1-TCA and associated daughter products, and tetrachloroethene [PCE]) based primarily on

historical use and detection in environmental media. 1,4-dioxane was included in the Final FRI Report (CH2M HILL, 2005b) by request from USEPA and ADEQ.

Vadose zone impacts were characterized primarily through soil and soil-gas sampling at various locations and depths. The impact of soil contamination in the vadose zone on groundwater concentrations was evaluated using the model VLEACH. This modeling predicted that concentrations of CVOCs in the vadose zone did not impact the groundwater above the maximum contaminant levels (MCLs). Further, travel-time calculations suggested that hundreds of years could be required for surface infiltration from rainfall to transport contaminants from the vadose zone to the water table (CH2M HILL, 2005b).

Groundwater data evaluated as part of the Final FRI Report (CH2M HILL, 2005b) indicated that concentrations of CVOCs detected beneath and downgradient of the Honeywell facility in the SRG sub-unit, Basin Fill sub-unit, and bedrock were associated with releases of TCE and 1,1,1-TCA from operations at the Facility as well as the regional CVOC groundwater plume associated with the Motorola 52nd Street Superfund Site that originates upgradient of the Facility. The dissolved-phase TCE-related plume that currently exists beneath and downgradient of the Honeywell facility is a remnant of historical releases of TCE from Honeywell's operations (both degraded and non-degraded), commingled with the regional CVOC groundwater plume. This commingled plume migrates in a westerly-northwesterly direction to the OU2 groundwater extraction well field. As presented in the Final FRI Report (CH2M HILL, 2005b), it is not possible to separate this commingled regional CVOC groundwater plume into one plume attributable solely to Honeywell and one attributable to other non-Honeywell sources.

ES.2.2 Data Selection

Data used in this FHHRA were collected over many years, for many purposes, and to meet a variety of data quality objectives (DQOs). The data primarily served site-characterization purposes such as delineating the nature and extent of contamination. While human-health risk characterization was typically not the explicit purpose of data collection, the majority of site data are suitable for this purpose. Discussion is provided in this document when specific data limitations were identified, such as the elevated detection limits for certain soil-gas grab samples (see Section ES.6).

- **Soil Data:** Soil data were used in this FHHRA to evaluate potential risks from contact with soil (i.e., incidental ingestion, dermal contact, and inhalation).
- **Groundwater Data:** Groundwater data were used in this FHHRA to assess direct exposure pathways (i.e., tap water ingestion and dermal contact) and indirect pathways (inhalation of volatiles from indoor tap water use and vapor intrusion).
- **Soil-gas Data:** Soil-gas data were used to assess the soil-gas-to-indoor-air pathway.

ES.2.3 Identification of COPCs

Chemicals that were detected at least once in soil, groundwater, or soil-gas samples were retained for further evaluation. A selection process consistent with USEPA Risk Assessment Guidance for Superfund (RAGS; USEPA, 1989) was used to identify preliminary COPCs for estimating potential cancer risks and non-cancer hazards. This process focuses the FHHRA

calculations on the most relevant chemicals, media, exposure scenarios, and health effects. The following steps were used to identify preliminary COPCs:

- Identification of detected chemicals
- Elimination of essential nutrients
- Comparison of sampling results to risk-based screening levels
- Evaluation of availability toxicity factors
- Evaluation of the potential to be site-related
- Evaluation of volatility when considering the vapor intrusion pathway

ES.3 Exposure Assessment

The exposure assessment is used to estimate the type and magnitude of exposures to COPCs that may result under current site conditions and from reasonably anticipated potential uses of the land in the FHHRA study area. The exposure assessment identifies the populations that might be exposed; the routes by which these individuals might become exposed; and the magnitude, frequency, and duration of potential exposures. The exposure assessment includes the following:

- Finalization of the SCEM
- Identification of exposure point concentrations
- Development of exposure assumptions
- Estimation of exposure for each COPC

Per USEPA RAGS, the first step in evaluating potential exposure at the Facility is to characterize the physical setting as well as the potentially exposed receptors (USEPA, 1989). Human receptors that could be potentially exposed to COPCs in soil, groundwater, or soil gas include:

- Current and future commercial/industrial workers in the North, South, and PSHIA Exposure Areas.
- Current and future construction workers in the North, South, and PSHIA Exposure Areas.
- Current and future residents in the Offsite Exposure Area.
- Current and future visitors to the Honeywell facility (North and South Exposure Areas) or the PSHIA (PSHIA Exposure Area).

The following exposure pathways were selected for quantification in this FHHRA:

- **Soil - Commercial/Industrial Worker and Construction Worker Exposure** (incidental ingestion, dermal contact, and inhalation)
- **Groundwater - Residential Exposure** (incidental ingestion, dermal contact, and inhalation)
- **Indoor air - Commercial/Industrial Worker and Resident** (inhalation)

ES.4 Toxicity Assessment

The types of health effects that may result from exposure to each COPC, the quantitative relationship between the amount of exposure, and the extent of potential effects must be identified. These were evaluated using toxicity factors for both cancer and non-cancer effects. These were derived from a hierarchy of sources specified by the USEPA. The toxicity assessment contains two steps: hazard characterization and dose-response evaluation. Hazard characterization identifies the types of toxic effects a chemical can exert.

ES.5 Risk Characterization

The objectives of the risk characterization are to (1) review the results from the exposure and toxicity assessments, (2) quantitatively estimate the potential for cancer (i.e., risk) and non-cancer (i.e., hazard) effects, and (3) assess and discuss the results. Results from the exposure and toxicity assessments are integrated to provide quantitative estimates of potential health risks or hazards. A summary of the risk characterization results are presented in Section ES.7.

ES.6 Uncertainty Analysis

Various sources of uncertainty affect the overall estimates of potential excess lifetime cancer risks (ELCRs) and non-cancer hazards as presented in this FHHRA. These sources are generally associated with data evaluation, COPC selection, exposure assumptions, toxicity values, and risk characterization. Many of these uncertainties are not site-specific, but are inherent to the exposure and toxicity assessment methodologies and assumptions specified in the USEPA's RAGS framework. These general uncertainties are unlikely to affect the use of the risk results presented in this FHHRA with respect to site management decision-making. Therefore, the uncertainty analysis focuses on uncertainties unique to this FHHRA, particularly those that may significantly influence the interpretation and use of the results.

ES.7 Risk Summary by Potential Receptor

ES.7.1 FHHRA Conclusions

Risks and hazards were estimated for current and reasonably anticipated future receptors potentially exposed to soil, groundwater, and soil-gas COPCs. This FHHRA focused primarily on potential exposures to current and future industrial receptors within the Facility boundary (i.e., North and South Exposure Areas) and COPC sources originating at the Facility (e.g., fuel releases, chlorinated solvents, and daughter products). Risks and hazards were estimated for potential industrial receptors in the PSHIA Exposure Area because the petroleum hydrocarbon plume in this area was determined to be related to Facility activities and not generally commingled with COPCs from other sources (CH2M HILL, 2004a-b; 2005b; and Honeywell, 2002b).

Exhibit ES-1 provides an overall summary of the risks and hazards for the North, South, and PSHIA Exposure Areas. Risk and hazards that exceed their respective target criteria are

shown as red dots (●); risks and hazards that are below their respective target criteria are shown as green dots (●); risks that are within the target range are shown as yellow dots (●).

EXHIBIT ES-1**Risk Summaries by Exposure Area**

Potential Receptor	Honeywell Facility North Exposure Area		Honeywell Facility South Exposure Area		Offsite PSHIA Exposure Area	
	ELCR (Cancer)	HI (Non-Cancer)	ELCR (Cancer)	HI (Non-Cancer)	ELCR (Cancer)	HI (Non-Cancer)
Soil						
Industrial/Commercial Worker	●	●	●	●	NA	NA
Construction Worker	●	●	●	●	NA	NA
Groundwater						
Resident	●	●	●	●	●	●
Soil Gas to Indoor Air						
Industrial/Commercial Worker	●	●	●	●	●	●
Groundwater to Indoor Air						
Industrial/Commercial Worker	●	●	●	●	●	●

Notes:

ELCR = excess lifetime cancer risk; HI = hazard index; NA = not applicable

Conclusions of this FHHRA include the following:

- No further action is warranted for soil within the FHHRA study area boundary based on ELCR and HI estimates for current and reasonably anticipated future industrial workers. The maximum ELCR for the soil exposure scenario was 2E-06 (North Exposure Area; Location ID: Sump 2-H), which is at the lower end of the target risk range and does not warrant further action since (1) it only slightly exceeded the lower end of the NCP target risk range (1E-06 to 1E-04), and (2) the risk driver was an anomalous detection of 1,4-dichlorobenzene.
- Screening level vapor intrusion ELCR estimates using soil-gas and groundwater data exceeded target criteria. Therefore, the significance of the vapor intrusion pathway cannot confidently be determined without further investigation. Honeywell and the Agencies (Honeywell, 2010) have agreed to perform the next phase of a vapor intrusion assessment that will be documented in a separate vapor intrusion technical memorandum/work plan. The magnitude and spatial distribution of the screening level vapor intrusion estimates presented in this FHHRA, including the uncertainties associated with the SQLs, are being considered during the next phase of the vapor

intrusion assessment. A more definitive determination of whether this pathway is complete and significant will better inform decisions about the need for remedial or mitigation responses to address vapor intrusion.

- Although the exposure pathways for groundwater used as tap water are incomplete, the appropriateness of considering fuel COPCs (e.g., benzene and naphthalene) and CVOCs in groundwater during the Facility Focused Feasibility Study (FFS) may need to be addressed since (1) estimated risks and hazards exceeded NCP target levels for these hypothetical groundwater (as tap water) exposure pathways, and (2) groundwater beneath the FHHRA study area lies within the Water Service Area of the COP. It is important to note that the petroleum hydrocarbon-related COPCs are currently being addressed through ADEQ's LUST program and in accordance with the ADEQ approved-CAP.

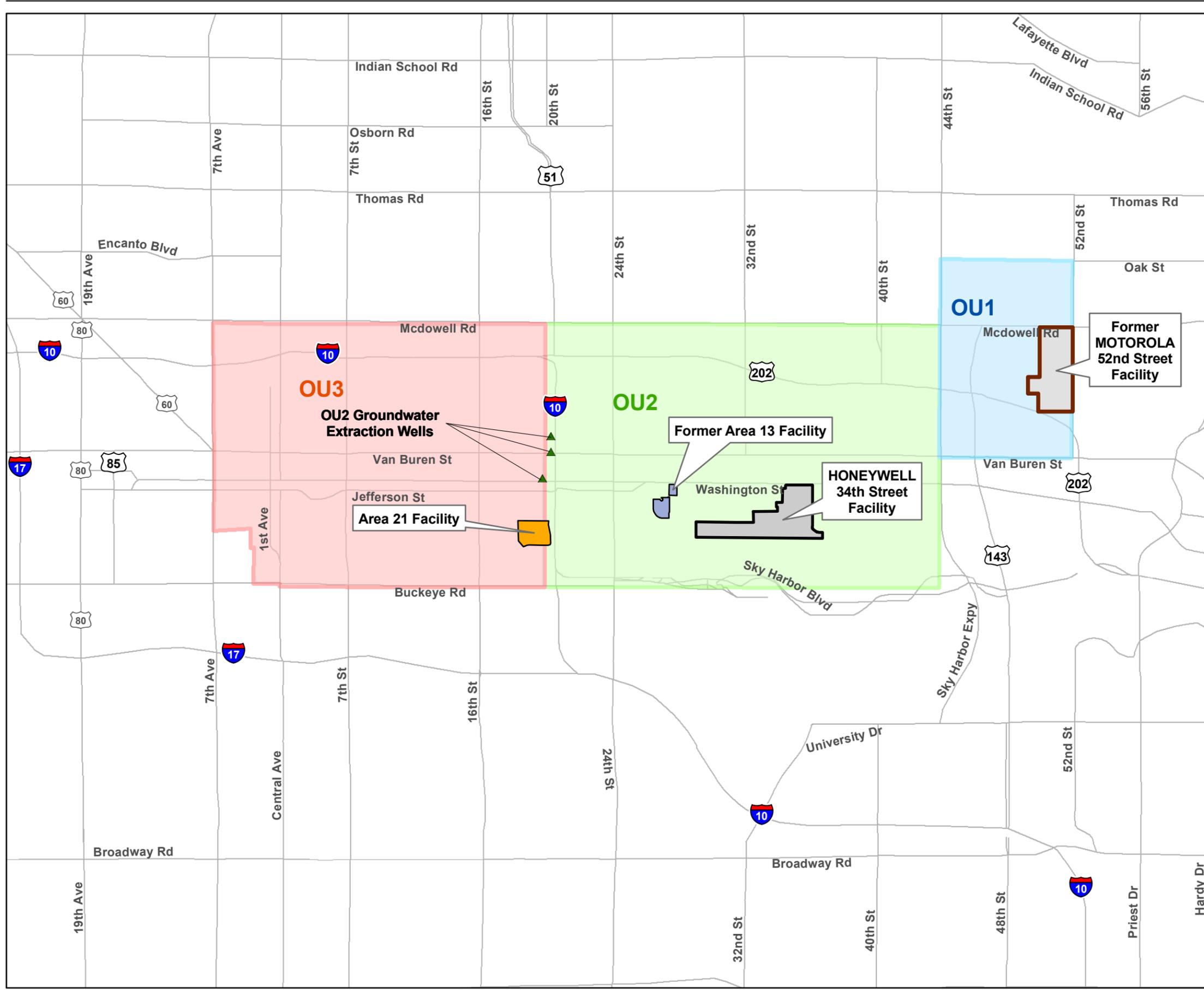
A key data need for the forthcoming Facility FFS is the identification of COPCs. The analysis presented in Section ES.2 identified preliminary COPCs, meaning COPCs that required further evaluation in this FHHRA. The COPC list can be further refined based on the risk characterization and uncertainty evaluation presented in Sections ES.5 and ES.6. COPCs to be carried forward into the Facility FFS include those for which the ELCR exceeded $1E-06$ and/or the HI exceeded one (1) for a given matrix and scenario. Naturally occurring metals and analytes that are otherwise unlikely to be related to site releases (e.g., trihalomethanes) were excluded. Exhibit ES-2 summarizes COPCs to be considered in the Facility FFS. In addition to the information contained in this FHHRA, the Facility FFS will consider Applicable or Relevant and Appropriate Requirements (ARARs) and other factors to determine whether any of these chemicals constitute chemicals of concern (COCs) requiring evaluation of potential remedies in the Facility FFS.

EXHIBIT ES-2
COPCs by Media and Scenario

Groundwater (Direct Exposure)	Soil Gas-to-Indoor Air	Groundwater-to-Indoor Air
1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1-Dichloroethane
1,1,2-Trichloroethane	1,1,2-Trichloroethane	Benzene
1,1-Dichloroethane	1,1-Dichloroethane	Ethylbenzene
1,2,4-Trimethylbenzene	1,2-Dichloroethane	Naphthalene
1,2-Dichloroethane	Benzene	Tetrachloroethene
1,4-Dioxane ¹	Ethylbenzene	Trichloroethene
Benzene	Naphthalene	Vinyl chloride
Benzo(a)anthracene ⁽¹⁾	Tetrachloroethene	
Benzo(a)pyrene ⁽¹⁾	Trichloroethene	
Bis(2-ethylhexyl)phthalate ⁽¹⁾	Vinyl chloride	
Ethylbenzene		
Methyl tert-butyl ether		
Methylene chloride ⁽¹⁾		
Naphthalene		
Tetrachloroethene		
Trichloroethene		
Vinyl chloride		

Notes:

⁽¹⁾ While 1,4-Dioxane, Benzo(a)anthracene, Benzo(a)pyrene, Bis(2-ethylhexyl)phthalate, and methylene chloride are listed as COPCs for groundwater the detection frequencies for the chemicals are less than 5% (0.6% (Benzo(a)anthracene) to 4.2% (1,4-Dioxane). As Honeywell moves into the Facility FFS, the COPC list will be further refined based on the most current groundwater data set.



- LEGEND
- ▲ OU2 Groundwater Extraction Wells
 - Former Area 13 Facility
 - Area 21 Facility
 - Honeywell 34th Street Facility
 - Former Motorola 52nd Street Facility

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

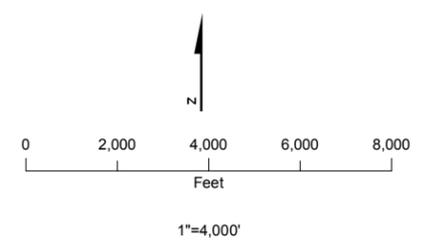
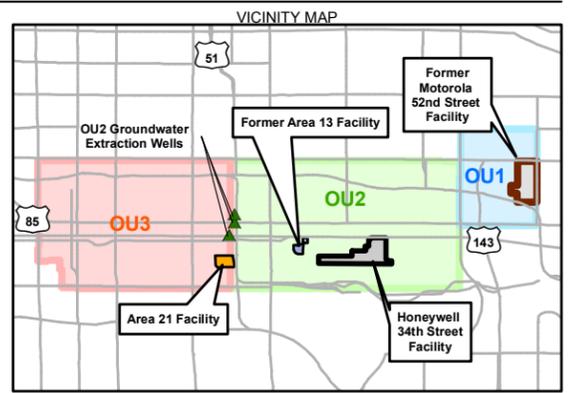
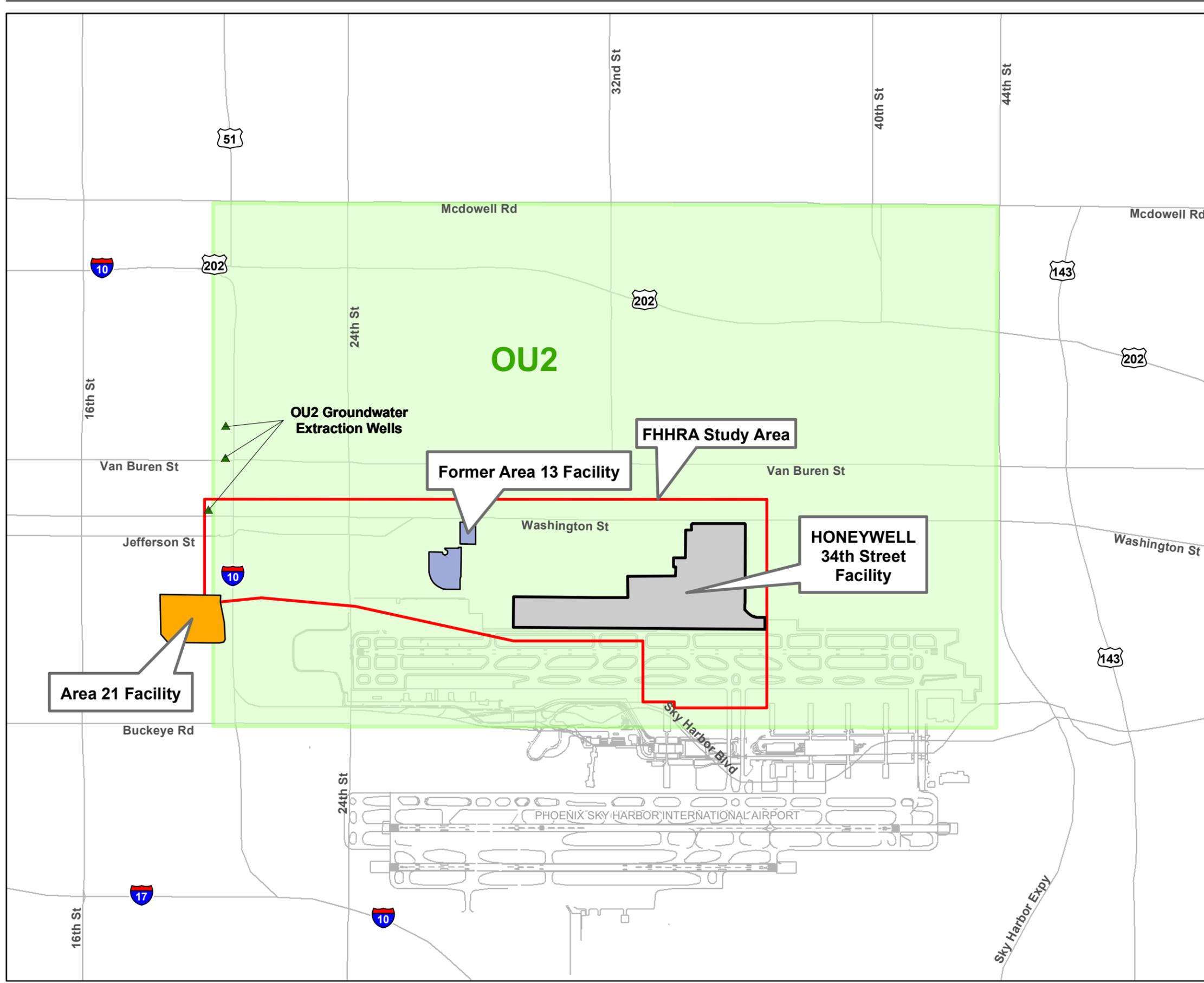


FIGURE ES-1
MOTOROLA 52ND STREET
SUPERFUND SITE
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

- ▲ OU2 Groundwater Extraction Wells
- Former Area 13 Facility
- Area 21 Facility
- Honeywell 34th Street Facility
- FHHRA Study Area
- OU2

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

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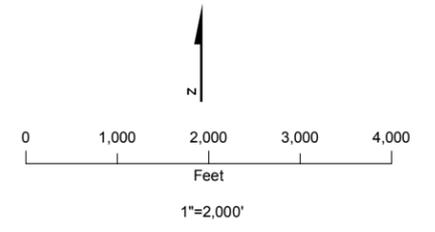


FIGURE ES-2
HONEYWELL 34TH STREET
FACILITY FHHRA STUDY AREA
WITHIN OU2
 Honeywell 34th Street Facility
 Phoenix, Arizona

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Acronyms & Abbreviations

°C	degrees Celsius
µg/L	microgram per liter
µg/m ³	micrograms per cubic meter
1,1,1-TCA	1,1,1-trichloroethane
A.A.C.	Arizona Administrative Code
ACH	air change per hour
ADEQ	Arizona Department of Environmental Quality
ADHS	Arizona Department of Health Services
ADWR	Arizona Department of Water Resources
Agencies	ADEQ and USEPA
AOI	Area of Interest
A.R.S.	Arizona Revised Statutes
ATSDR	Agency for Toxic Substances and Disease Registry
AWQS	aquifer water quality standard
bgs	below ground surface
BSVE	biologically-enhanced soil vapor extraction
BTEX	benzene, ethylbenzene, toluene, and xylenes
Cal/EPA	California Environmental Protection Agency
CAP	Corrective Action Plan
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
COC	chemical of concern
COP	City of Phoenix
COPC	chemical of potential concern
CSM	Conceptual Site Model
CVOC	chlorinated volatile organic compound

DCA	dichloroethane
DCE	dichloroethene
DQOs	data quality objectives
EIMS	Environmental Information Management System
ELCR	excess lifetime cancer risk
EPC	exposure point concentration
Facility	34 th Street Engines Product Center
FFS	Focused Feasibility Study
FHHRA	Focused Human Health Risk Assessment
FRI	Focused Remedial Investigation
FS	Feasibility Study
GIABS	gastrointestinal absorptivity
HEAST	Health Effects Assessment Summary Tables
HHRA	human health risk assessment
HI	hazard index
Honeywell	Honeywell International Inc.
HQ	hazard quotient
IRIS	Integrated Risk Information System
ITRC	Interstate Technology and Regulatory Council
IUR	inhalation unit risk
J&E	Johnson & Ettinger
LACC	large-altitude cooling chamber
LFR	Levine-Fricke Rincon, Inc.
LNAPL	light non-aqueous phase liquid
LUST	leaking underground storage tank
m	meter
MCL	maximum contaminant level
MDL	method detection limit
mg/kg	milligrams per kilograms
mg/m ³	milligrams per cubic meter

MTBE	methyl tert-butyl ether
NAPL	nonaqueous-phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
OEHHA	Office of Environmental Health Hazard Assessment
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OU1	Operable Unit One
OU2	Operable Unit Two
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PEF	particulate emission factor
PID	photoionization detector
PPRTVs	Provisional Peer-Reviewed Toxicity Values
PRP	Potentially Responsible Party
PSHIA	Phoenix Sky Harbor International Airport
QA/QC	quality assurance/quality control
QAPP	Quality Assurance Project Plan
RAGS	Risk Assessment Guidance for Superfund
RBCA	risk-based corrective action
RBSL	risk-based screening level
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RfC	inhalation reference concentration
RfD	reference dose
RME	reasonable maximum exposure
RSL	Regional Screening Level
SCEM	site conceptual exposure model
SQL	sample quantitation limit
SRG	Salt River Gravels

SRL	soil remediation level
SVE	soil vapor extraction
TCE	trichloroethene
TM	technical memorandum
TPH	total petroleum hydrocarbons
TTA	target treatment area
UAU	upper alluvial unit
UCL	upper confidence limit
UCL95	95 percent upper confidence limit
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VAAL	vault air action level
VAL	vapor action level
VOC	volatile organic compound
WSRV	West Salt River Valley

1.0 Introduction

This Focused Human Health Risk Assessment (FHHRA) was prepared for the Honeywell International Inc. (Honeywell) 34th Street Engines Product Center (Facility or Honeywell facility) and the north-central portion of Phoenix Sky Harbor International Airport (PSHIA or the Airport). The FHHRA provides an update to the *Health Assessment, Honeywell 34th Street Facility, Phoenix, Arizona* (2005 Health Assessment; CH2M HILL, 2005a), consistent with Honeywell responses (Honeywell, 2008) to the United States Environmental Protection Agency's (USEPA's) June 6, 2008 comments on the 2005 Health Assessment (USEPA, 2008).

The 2005 Health Assessment was presented as Appendix L in the *Final Focused Remedial Investigation Report, Honeywell 34th Street Facility, Phoenix, Arizona* (Final FRI Report; CH2M HILL, 2005b) pursuant to the September 19, 1999 Administrative Order on Consent with the Arizona Department of Environmental Quality (ADEQ; 1999). In response to USEPA's June 6, 2008 comments (USEPA, 2008), Honeywell proposed to update the 2005 Health Assessment and incorporate FRI-related sampling conducted since the Final FRI Report and the *Focused Remedial Investigation Report Addendum Honeywell 34th Street Facility, Phoenix, Arizona* (FRI Addendum) (CH2M HILL, 2008a), including sampling conducted in support of the biologically-enhanced soil vapor extraction (BSVE) remedial alternative selected and approved for the leaking underground storage tank (LUST) Area of Interest (AOI) (LUST File #0393.02-.10, .15-.20, Facility ID #0-002227).² In addition, and consistent with discussions involving the City of Phoenix (COP), data used in risk assessments conducted for the LUST program are also incorporated into this FHHRA. This resulted in expanding the 2005 Health Assessment study area further south onto the PSHIA property to address Facility-related petroleum hydrocarbon impacts. Historical human health risk assessments (HHRAs) conducted for the Honeywell facility are summarized in Section 1.2.7, including the 2005 Health Assessment.

Figure 1-1 presents the Facility in relation to the larger Motorola 52nd Street Superfund Site. Figure 1-2 presents the FHHRA study area within Operable Unit Two (OU2) of the Motorola 52nd Street Superfund Site. The FHHRA study area is based primarily on the 2005 Health Assessment study area (CH2M HILL, 2005a-b) shown in Figure 1-3, which has its origins from the areas at and around the Facility assessed during the *Baseline Risk Assessment, Motorola, Inc. 52nd Street Facility, Phoenix, Arizona* prepared by the Arizona Department of Health Services (ADHS, 1992). Figure 1-4 presents the four exposure areas (Honeywell Facility North Exposure Area [North Exposure Area], Honeywell Facility South Exposure Area [South Exposure Area], and Offsite PSHIA Exposure Area [PSHIA Exposure Area], Offsite Exposure Area) within the FHHRA study area (refer to Section 3 for a detailed discussion of these exposure areas).

² Note: Ongoing data collection, evaluation, and risk management decisions related to the remediation of site-related petroleum hydrocarbons are being reported in the semi-annual (formerly quarterly) remediation status reports for Honeywell's LUST File Nos. 0393.02-.10, .15-.20, Facility ID No. 0 002227. This is consistent with agreements with ADEQ's Underground Storage Tank program, the Maricopa County Air Quality District, and the City of Phoenix Aviation Department.

1.1 Overview

Groundwater impacts that have resulted from historical Facility activities are commingled with the Motorola 52nd Street Superfund Site regional chlorinated volatile organic compound (CVOC) groundwater plume. Risks and hazards associated with the commingled groundwater plume will be incorporated into the OU2 Sitewide Remedial Investigation/ Feasibility Study (RI/FS). This FHHRA focuses on the potential risks to receptors within the North Exposure Area, South Exposure Area, and PSHIA Exposure Area that are associated with sources originating at the Honeywell facility. Risk and hazard estimates associated with the commingled groundwater plume in the Offsite Exposure Area are included in this report as an appendix for informational purposes and potential consideration during the OU2 Sitewide RI/FS.

Specific objectives for this FHHRA include:

- Identifying the relevant site characterization data and summarizing its usability for assessing potential risks and hazards.
- Presenting a site conceptual exposure model (SCEM) that describes potential chemical sources, migration pathways, and human receptors.
- Identifying the Facility-related chemicals of potential concern (COPCs) to be quantitatively evaluated in the FHHRA.
- Estimating potential exposure and characterizing potential risks to the human receptors identified in the SCEM.
- Discussing the primary uncertainties associated with the risk estimates.
- Summarizing the overall FHHRA conclusions.

1.2 Background

A general description of the Facility location, layout, and operational history; physical setting; chemical use; potential site-related sources; historical and current remediation activities; and historical HHRA documents are provided in this section. General site characteristics, including a depiction of site- and offsite-related chemical impacts, are summarized on the overall site conceptual site model (CSM) (see Figure 1-5). The nature and extent of site-related impacts are summarized in Section 2 (Data Evaluation/Hazard Identification).

1.2.1 Facility Location, Layout, and Operational History

The Honeywell facility is located within OU2 of the Motorola 52nd Street Superfund Site at 111 South 34th Street in Phoenix, Arizona (Figure 1-1 and Figure 1-2). The Facility occupies approximately 118 acres in the northeast quarter of Section 11 and the northwest quarter of Section 12, Township 1 North, Range 3 East.

Honeywell and its predecessors have used the Facility for the design, manufacturing, assembly, testing, and repair of aircraft engines and ancillary equipment since 1951. The

Facility includes five operational areas (Areas 1 through 5), as shown in Figure 1-6. The land situated north of Air Lane (Areas 2, 3, and 5) is owned by Honeywell; the land south of Air Lane (Areas 1 and 4) is leased by Honeywell from the COP under two separate 99-year leases that expire in 2049 and 2053, respectively. These operational areas are roughly defined by the activities that occur in that portion of the Facility and/or by the sequence in which facilities were constructed or acquired. The following bullets summarize each operational area.

- **Area 1** has housed, or is currently housing, administrative offices, manufacturing facilities, plating operations, testing facilities, and storage areas. During the early 1950s, the main chip, oil, and acid storage area for the Facility was located on a slab in an area now covered by the western extension of Building 102. In approximately 1958, the area around Buildings 108 and 140 became the primary oil and chemical storage area for Area 1. This area, which is commonly called the “Area 1 Oil Yard,” was the primary locus of trichloroethene (TCE) and 1,1,1-trichloroethane (1,1,1-TCA) handling, storage, and recycling at the plant from 1958 until use of those chemicals at the Facility ceased in the mid-1970s and mid-1990s, respectively. Key potential source areas for CVOCs as identified in the Final FRI Report for Area 1 are the “Area 1 Oil Yard” (i.e., the area around Buildings 108 and 140), Building 102, Building 105, and test cell Building 115. Area 1 does not contain key potential source areas for the petroleum hydrocarbon-related volatile organic compounds (VOCs).
- **Area 2** has historically consisted of chemical and fuel storage areas (e.g., Area 2 Fuel Farm) and also housed the majority of the test cell areas. Key potential source areas for CVOCs as identified in the Final FRI Report for Area 2 are the test cells identified as large-altitude cooling chamber (LACC) units housed in Building 202 and the test cell Buildings 203 and 204. Primary source areas for petroleum hydrocarbon-related VOCs include the original Area 2 Fuel Farm, which was located in the southwest corner of the current footprint of Building 230, the small tank farm north of Building 203, piping adjacent to Building 211 and Building 223, and the current Area 2 Fuel Farm located in the southeast corner of Area 2.
- **Area 3** contains administrative buildings as well as some manufacturing and assembly facilities. Buildings 301 and 302 constitute the primary non-administrative buildings in Area 3. Building 301 originally housed pneumatic valve manufacturing processes and the offices for the valve engineering staff. The southwest corner of the original building also served as a manufacturing area where experimental parts were produced, cleaned, and assembled into working sub-systems. Currently, this building serves as an assembly area for auxiliary power units and propulsion engines along with design, developmental laboratories, and shipping functions. Building 302 was constructed in about 1979 and historically housed engineering lab offices, materials engineering labs, and storage of finished parts. The Final FRI Report did not identify any key potential source areas for CVOCs, nor does Area 3 contain key potential source areas for the petroleum hydrocarbon-related VOCs.
- **Area 4** has been primarily used for repair and overhaul activities on aircraft engines and components, shipping and receiving, warehousing, maintenance, manufacturing, and support activities. Honeywell leases Area 4 from the COP under a lease that expires in

2053. Key potential source areas for CVOCs as identified in the Final FRI Report are Buildings 404, 417, and 422. Area 4 does not contain key potential source areas for the petroleum hydrocarbon-related VOCs.

- **Area 5** has historically been used for administrative buildings, with the exception of the former motor pool service station located in the northeast portion of Area 5. Honeywell operated the service station between 1964 and 2001. The Final FRI Report did not identify any key potential source areas for CVOCs, nor does Area 5 contain key potential source areas for the petroleum hydrocarbon-related VOCs.

Additional information related to the Facility history can be found in the Final FRI Report and the FRI Addendum (CH2M HILL, 2005b and 2008a).

1.2.2 Physical Setting

The following subsections present the physical setting for the Honeywell facility and FHHRA study area.

1.2.2.1 Geology/Hydrogeology

The Honeywell facility and the FHHRA study area are located in the West Salt River Valley (WSRV) Sub-basin, which consists of a heterogeneous mixture of valley-fill deposits (Reeter and Remick, 1986). The sub-basin is bounded on the east by the Union Hills, Phoenix Mountains, and Papago Buttes; on the south by South Mountain, the Sierra Estrella Mountains, and Buckeye Hills; on the west by the White Tank Mountains; and on the north by the Hieroglyphic Mountains. Water-bearing units occur within the valley-fill deposits and can be divided based on lithologic characteristics.

1.2.2.2 Lithology

To visualize the interrelation of the hydrogeologic setting and contaminant distribution, an east-west geologic cross section is presented in Figure 1-7. The material generally found in the upper portion of the subsurface near the FHHRA study area is predominantly composed of unconsolidated sand, gravel, and cobbles, with minor amounts of silt and fine-grained sand. Locally, these coarse-grained sediments are referred to as the Salt River Gravels (SRG) sub-unit (previously described by ADEQ as Sub-unit A) (CH2M HILL, 2005b).

A finer-grained section of sediment, referred to as the Basin Fill sub-unit (previously described by ADEQ as Sub-unit B), is frequently found underlying the SRG sub-unit. At and adjacent to the Honeywell facility, the Basin Fill sub-unit generally comprises an upper portion of silts and silty sands, with some clayey silts and clay stringers, and an interbedded coarser-grained lower portion. While there are some minor variabilities to that sequence throughout the OU2 area and FHHRA study area, the Basin Fill sub-unit is composed of finer-grained materials compared to the SRG sub-unit, as indicated by the difference in hydraulic characteristics between the two sub-units.

Bedrock (previously described by ADEQ as Sub-unit C) underlies the Basin Fill sub-unit and is comprised of both crystalline plutonic rocks and cemented Tertiary sedimentary rocks.

1.2.2.3 Groundwater Occurrence and Flow/Hydrogeology

The water-bearing units in the WSRV and the FHHRA study area in descending order include the upper alluvial unit (UAU), the middle fine-grained unit, and the lower conglomerate unit (i.e., bedrock). The primary source of groundwater is the regional alluvial aquifer, which is comprised of the previously described SRG and Basin Fill sub-units of the UAU. Groundwater in the alluvial aquifer occurs under unconfined, or water table, conditions and multiple aquifers do not exist. The materials comprising the alluvial aquifer occur throughout the FHHRA area, with saturated thicknesses ranging from zero in areas where bedrock is encountered at elevations above the water table, to approximately 200 feet near the western boundary. The saturated thickness of the alluvial aquifer generally increases from east to west due to the slope of the bedrock.

Depths to water within the UAU vary temporally and areally. In the vicinity of the FHHRA study area, depths to groundwater range from about 50 feet below ground surface (bgs) to 100 feet bgs, with an average depth to water of approximately 70 feet bgs. Since early January 2008, groundwater levels have generally shown an overall upward trend in the FHHRA study area. Vertical gradients measured in well pairs on the eastern portion of the Facility are minimal, indicating that groundwater flow beneath the Facility is generally horizontal, with minimal vertical mixing. Confining and semi-confining layers within the UAU do not exist.

Aquifer testing data indicate that the hydraulic conductivity of the SRG sub-unit is significantly greater than the hydraulic conductivity of the Basin Fill sub-unit. In summary, the hydraulic conductivity of the Basin Fill sub-unit averages 37 feet/day and varies over a narrow range. The hydraulic conductivity of the SRG sub-unit is about 200 feet/day near the Honeywell facility and about 450 feet/day near the OU2 groundwater extraction wells which are located northwest of the Facility and in the northwest corner of the FHHRA study area. The mean hydraulic conductivity of the bedrock across the entire OU2 area is 0.023 foot/day.

1.2.3 Chemical Use at the Facility

Operations at the Facility have included the use of a variety of chemicals in Areas 1 through 5. The design and manufacturing operations typically have consisted of metal fabrication, machining, painting, and plating. The operations have included the use of a variety of chemicals, including lubricating and cutting oils in the machining operations, various solvents for degreasing, acids for etching, metal solutions for plating, and paints. The engine assembly, testing, and repair operations also have included the use of various chemicals such as lubricating oils, various types of jet fuel, solvents used for cleaning engine parts, cleaning compounds for the maintenance of test facilities, and TCE and other compounds used as refrigerants for cooling engine test facilities.

Based on available information, a variety of aviation fuels, lubricating oils, diesel fuels, and gasoline have been stored in underground and aboveground storage tanks at the Facility.

1.2.4 Potential Site-Related Chemical Sources

The primary sources of potential site-related chemicals within the FHHRA study area include:

- Historical CVOC solvent use in the manufacturing processes at the Honeywell facility, as well as by other Motorola 52nd Street Superfund Site (Operable Unit 1 [OU1] and OU2) Potentially Responsible Parties (PRPs).
- Jet fuel stored in underground storage tanks (USTs) at the Honeywell facility for jet engine testing operations.
- Mercury historically used in manometers.
- There have been releases of TCE and 1,1,1-TCA to the environment for much of the operational history of the Facility. The great majority of these releases have been to air, though there have also been releases to surface or near-surface soils. The total hypothetical estimated mass of TCE and 1,1,1-TCA released to soil for all sources that could be quantified ranged from 18,000 to 31,000 pounds (most-probable to worst case) (CH2M HILL, 2005b). Other releases may also have occurred over the operational history but are not quantifiable. Estimates of mass released are highly uncertain because little information is available and many simplifying assumptions were necessary.

Figure 1-8 provides a summary of the potential sources at the Facility that have been investigated and shows the areas that have been reported as key potential sources for CVOCs (CH2M HILL, 2005b; 2008a; 2008b) and petroleum hydrocarbon-related VOCs (Honeywell, 2002b; and CH2M HILL, 2004a-b).

1.2.5 Historical Vadose Zone Remediation Activities

Historical vadose zone remediation performed at the Facility is summarized in this section; additional details can found in the following documents:

- Final FRI Report (CH2M HILL, 2005b)
 - Soil removal action resulting from TCE release in 1984. Additional details regarding this removal action can also be found in the *Draft Phase I Record Search Report of Airport Facility (Currently Garrett Engine Division) of Allied Signal Aerospace Company, Phoenix, Arizona in the WQARF East Washington Area, Attachment 10-1, Trichloroethylene (TCE) Spill Report* (Allied-Signal Aerospace Company, 1991)
 - Building 140 soil vapor extraction (SVE) system
 - Building 301 mercury remedial activities. Additional details regarding these remedial activities can also be found in the *Investigation Report – Honeywell 34th Street Facility, Building 301 Mercury Investigation, Phoenix, Arizona* (CH2M HILL, 2003)
- Quarterly Remediation Status Reports for LUST file numbers 0393.02-.10, .15-.20
- *Initial Site Characterization Report LUST File No. 0393.14 – Anti Rust Oil Product Piping at UST #108, Facility ID No. 0-002227, Honeywell 34th Street Facility, Phoenix, Arizona* (Initial Site Characterization Report; Honeywell, 2005)

- *Characterization and Remediation of the 2005 Building 103 Used Oil Spill Report, Honeywell 34th Street Facility, Phoenix, Arizona (CH2M HILL, 2008c)*

1.2.5.1 Soil Removal Action Resulting from TCE Release in 1984

This removal action was conducted to remediate a release of TCE that resulted from a corroded gasket in piping on the top and north side of one of the LACCs located in Building 202. The TCE release was estimated at approximately 60 to 70 gallons. Additional information can be found in the Final FRI Report (CH2M HILL, 2005b) and the *Draft Phase I Record Search Report of Airport Facility (Currently Garrett Engine Division) of Allied Signal Aerospace Company, Phoenix, Arizona in the WQARF East Washington Area, Attachment 10-1, Trichloroethylene (TCE) Spill Report (Allied-Signal Aerospace Company, 1991)*.

1.2.5.2 Building 140 SVE System

The objective of this system was to remediate chlorinated solvents detected in the vadose zone near Building 140 during soil-gas investigations conducted in 1994 (Facility-wide shallow soil-gas investigation) and 1997 (focused soil-gas investigation in the area near Building 140) (CH2M HILL, 2005b). Based primarily on the 1997 results, Honeywell voluntarily implemented a full-scale SVE system near Building 140. The system was installed between April 6 and 25, 1998, began operating on April 27, 1998, and continued for approximately 89 percent of the time between April 27, 1998, and November 29, 1999.

As described in the Final FRI Report (CH2M HILL, 2005b), the SVE system is estimated to have removed approximately 2,600 pounds of CVOCs and an estimated 400,000 plus pounds of petroleum hydrocarbons. The SVE system exceeded the minimum required removal efficiency of 90 percent of CVOCs.

1.2.5.3 Building 301 Mercury Remedial Activities

While cleaning storm drains along the southern wall of Building 301 in March 2001, Honeywell personnel discovered a small amount of elemental mercury in one of the 2-foot-square by 2-foot-deep grated concrete storm-drain junction boxes.

Soil samples were collected to determine the vertical extent of mercury impacts, and soil was excavated at locations and depths where concentrations exceeded the residential soil remediation levels adopted on December 4, 1997 (1997 residential soil remediation levels [SRLs]) and included in the Arizona Administrative Code (A.A.C.) Title 18, Chapter 7, Article 2, Appendix A, Soil Remediation Levels (A.A.C., 1997). Soils with mercury concentrations exceeding the 1997 residential SRLs were removed (CH2M HILL, 2005b). Additional information can be found in the *Investigation Report - Honeywell 34th Street Facility, Building 301 Mercury Investigation, Phoenix, Arizona (CH2M HILL, 2003)*. The Building 301 confirmation soil samples were not included in the 2005 Health Assessment because the mercury concentrations did not exceed the Arizona SRLs. The SRL screening step was not included in this FHHRA, so these samples were retained for comparison to the current USEPA Regional Screening Levels (RSLs).

1.2.5.4 Free Product Removal

Honeywell initiated corrective actions in June 1999 to recover the free-phase hydrocarbons (free product) discovered in monitoring wells ASE-19A and ASE-20A in April 1999; free

product recovery was continuing as of the date this FHHRA was published. As of the date of this report, Honeywell has recovered approximately 7,500 gallons of free product jet fuel from its monitoring wells. Additional details about free product removal activities can be found in the semi-annual (formerly quarterly) remediation status reports for LUST file numbers 0393.02-.10, .15-.20.

1.2.5.5 Building 108 Cutting Oil Spill Remedial Activities

On June 15, 2005, Honeywell submitted the Initial Site Characterization Report (Honeywell, 2005) to ADEQ for a Mobilmet Sigma cutting oil spill that occurred on the south side of Building 108. Honeywell performed initial sampling followed by excavation and confirmation sampling. On August 4, 2005, ADEQ determined that the Corrective Action Section's investigative and remedial requirements had been satisfied and closed out LUST File No. 0393.14 (ADEQ, 2005). Additional information can be found in the Initial Site Characterization Report.

1.2.5.6 Building 103 Used Oil Spill Remedial Activities

On August 20, 2008, Honeywell submitted the *Characterization and Remediation of the 2005 Building 103 Used Oil Spill Report, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2008c) to document emergency response, subsurface soil sampling, and remediation activities associated with a spill of used oil and water that occurred at the Facility on April 25, 2005. These activities were conducted in accordance with the *Honeywell Building 103 Spill Removal Work Plan and Field Sampling Plan, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2005c) submitted to ADEQ on January 5, 2006 and approved by ADEQ's Solid Waste Inspections & Compliance Unit on January 18, 2006 (ADEQ, 2006).

Initial emergency response actions included removal of soil between 0.5 and 1 foot bgs and collection of soil samples at the base of the excavation to determine if the impacted soil was removed from the area. Analytical results indicated that total petroleum hydrocarbon (TPH) concentrations exceeded the 1997 residential SRLs and that additional soil removal and confirmation sampling were required. Additional soil removal (average depth of excavation of approximately 3 feet bgs) and confirmation sampling activities were performed between January 31 and February 2, 2006. Analytical results indicated that TPH, polynuclear aromatic hydrocarbons (PAHs), VOCs, polychlorinated biphenyls (PCBs), and total Resource Conservation and Recovery Act (RCRA) metals (with the exception of arsenic) were below the 1997 residential SRLs and the 2007 residential SRLs. Although arsenic concentrations ranging from 10 milligrams per kilogram (mg/kg) to 14 mg/kg exceeded both the 1997 and 2007 residential SRL of 10 mg/kg, arsenic concentrations were consistent with background concentrations at the Honeywell facility near the spill location. Additional information can be found in the *Characterization and Remediation of the 2005 Building 103 Used Oil Spill Report, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2008c).

1.2.6 Ongoing Vadose Zone Remediation Activities

The following subsection describes the current vadose zone remedial activities that are being performed at the Facility and PSHIA.

1.2.6.1 BSVE System

As stated in Section 1.2.5.4, free product was detected at the Honeywell facility, and an investigation was initiated under the ADEQ UST Corrective Action Section. Since that time, Honeywell has investigated the extent of contamination, initiated corrective actions to recover free product, received approval from ADEQ of the Corrective Action Plan (CAP), and commenced operation of the ADEQ-approved BSVE remedial alternative.

BSVE is implemented by aerating the subsurface through injection and extraction of air from wells screened within the unsaturated zone. The primary objective is to oxygenate the subsurface, thereby stimulating biodegradation of the petroleum hydrocarbons. Remediation also occurs as the result of volatilization and extraction of the more volatile compounds. The extracted vapor is treated, as necessary, to meet air quality requirements before being released to the atmosphere. The BSVE target treatment area (TTA), shown in Figure 1-4, was developed based on the historical extent of light nonaqueous-phase liquids (LNAPL) and other evidence of hydrocarbon contamination. The BSVE TTA is also the approximate extent of the LUST AOI.

Initial ramp-up of the BSVE system began on May 27, 2009 and the system became fully operational in May 2010. Additional details regarding the BSVE system are presented in Appendix A and included in the *Operation and Maintenance Manual for the Biologically-Enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Revision 4, Phoenix, Arizona, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-.20* (CH2M HILL, 2010a).

Ongoing data collection, evaluation, and risk management decisions related to the remediation of site-related petroleum hydrocarbons are being reported in the semi-annual (formerly quarterly) remediation status reports for Honeywell's LUST File Nos. 0393.02-.10, .15-.20, Facility ID No. 0 002227. This is consistent with agreements with ADEQ's UST program, the Maricopa County Air Quality District, and the COP Aviation Department.

1.2.7 Previous Human Health Risk Assessments

The following subsections summarize the various HHRA documents that have been prepared for the Facility, including those documents that are specific to communications between Honeywell and the COP.

1.2.7.1 2004 Revised Corrective Action Plan – Comparison of COCs to Corrective Action Standards

As part of the ADEQ-approved *Revised Corrective Action Plan, Honeywell 34th Street Facility, Phoenix, Arizona. ADEQ Facility No 0-002227, LUST File Nos. 0393.02 through 0393.10* (the CAP; CH2M HILL, 2004a-b), data collected for the site characterization investigation associated with the LUST AOI was compared to the corrective action standards. The corrective action standards are based on risk assessment and regulatory requirements, as outlined in Section 6 of the *Arizona Department of Environmental Quality UST Program Release Reporting & Corrective Action Guidance* (ADEQ, 2002) and A.A.C. R18-12-263.01 and 18-12-263.02. Based on the results of the site characterization efforts, benzene, toluene, ethylbenzene, and xylenes (collectively referred to as BTEX), methyl tert-butyl ether (MTBE), PAHs, and TPH were identified as the fuel-related chemicals of concern (COCs) for

soil and groundwater. These COC detections were compared to the following Tier 1 corrective action standards (ADEQ, 2002):

- **Surface and subsurface soil** – The Tier 1 corrective action standards for surface and subsurface soil are based on residential risk-based standards for soil exposures included in Table 6.1.2a of the *Arizona Department of Environmental Quality UST Program Release Reporting & Corrective Action Guidance* (ADEQ, 2002). The Tier 1 corrective action standards for surface soil are based on the minimum of the residential SRLs and soil leaching (i.e., groundwater protection level standards) (ADEQ, 2002).
- **Groundwater** – The Tier 1 Risk Based Corrective Action (RBCA) Standards are the same for both the residential and non-residential exposure scenarios and are based on drinking water standards and risk-based levels. Thus the minimum value of the primary drinking water standards published by the USEPA Office of Drinking Water for maximum contaminant levels (MCLs), the aquifer water quality standards (AWQS), and the risk-based level published in Table 6.1.2.a of the *Arizona Department of Environmental Quality UST Program Release Reporting & Corrective Action Guidance* (ADEQ, 2002) are the Tier 1 RBCA standards for exposures to impacted groundwater. There are no Tier 1 corrective action standards for TPH in groundwater.
- **Free-phase Hydrocarbons** – ADEQ has not adopted a quantitative corrective action standard for the free-phase hydrocarbons. However, Arizona Revised Statute [A.R.S.] 49-1005 (H) stipulates that all corrective actions shall be consistent with 40 Code of Federal Regulations (CFR) sections 280.60 through 280.67. Pertaining to free-product removal, 40 CFR 280.64 stipulates that “owners and operators must remove free product to the maximum extent practicable as determined by implementing agency” and “in a manner that minimized the spread of contamination into previously uncontaminated zones” (CFR, 2002; A.R.S., 2000). These provisions are consistent with the remedial action objectives for the Honeywell facility LUST AOI but do not provide quantitative corrective action standards.

Based on the available data and conclusions of the comparison of detected COCs to the Tier 1 corrective action standards, the only COPCs identified as requiring further evaluations or further actions were benzene, MTBE, and naphthalene in groundwater. The Tier 1 corrective action standards were presented in Table 15 of the CAP (CH2MHILL, 2004a-b).

Because no Tier 1 corrective action standards existed for the vapor intrusion pathway at the time of the CAP, this pathway was addressed under the Occupational Safety and Health Administration (OSHA) regulations. Therefore the approach for addressing vapor intrusion as presented in the CAP was as follows:

- Conclusions regarding the need to conduct active remediation to specifically address the vapor intrusion exposure pathway will be evaluated after the remediation of the current primary source (i.e., dissolved contamination in groundwater and the free-phase hydrocarbon plume).
- The vapor intrusion pathway will be addressed as part of the site closure activities and could include an evaluation of the magnitude and extent of COPCs in groundwater, soil vapor, vapor intrusion modeling, risk assessment, and monitoring.

- During implementation of the remedial action (i.e., BSVE), monitoring will be performed to track potential intrusion of vapors into buildings or spreading of contamination as a result of the remedial system.

Per the CAP, the vapor intrusion pathway will be addressed periodically during operation and after source removal is complete. Therefore, no specific COPCs were identified for the vapor intrusion pathway.

The residual levels of MTBE, naphthalene, and benzene remaining in groundwater will be evaluated at the completion of the active remediation of groundwater and free-phase hydrocarbons. The levels of remaining MTBE and naphthalene in groundwater will be compared to standards that exist at that time.

1.2.7.2 2005 Health Assessment

The purpose of the 2005 Health Assessment (CH2M HILL, 2005a-b) was to evaluate the potential for adverse health effects from potential exposure to site-related chemicals from the Facility under current and reasonably anticipated land use. It was designed as a supplement to the *Baseline Risk Assessment, Motorola, Inc. 52nd Street Facility, Phoenix, Arizona* (ADHS, 1992). As discussed in the introductory paragraphs of Section 1.0, the 2005 Health Assessment study area boundary (Figure 1-3) was based on the areas at and around the Facility considered in the *Baseline Risk Assessment, Motorola, Inc. 52nd Street Facility, Phoenix, Arizona* (ADHS, 1992). The conclusions of the 2005 Health Assessment (CH2M HILL, 2005a-b) are summarized in the following paragraphs.

Offsite current and hypothetical future residential risks from exposure to site-related chemicals in groundwater were within USEPA's risk management range (1E-06 to 1E-04) (USEPA, 1991a). TCE (SRG and Basin Fill sub-units) and vinyl chloride (bedrock) were the primary risk drivers for the drinking water exposure pathway. Additionally, TCE was the primary risk driver for the subsurface-to-indoor air exposure pathway. Vapor intrusion risks were estimated using the screening level Johnson and Ettinger (J&E) model.

Eleven soil vapor locations in the LUST AOI had onsite indoor worker screening level vapor intrusion risks above USEPA's risk management range, with benzene as the primary risk driver. Refined onsite indoor worker risks using site-specific inputs and the J&E model were within the risk management range.

1.2.8 Additional City of Phoenix Risk-Related Evaluations

The following subsections present the risk-related evaluations that have been submitted to the COP.

1.2.8.1 Preliminary Technical Memoranda (May 15 and 17, 2006) and the Draft Risk Assessment Update (September 6, 2006)

At the request of the COP, the comparison with corrective action standards and discussion of the vapor intrusion pathway contained in the CAP (CH2M HILL, 2004a-b) was supplemented with two preliminary technical memoranda (TMs): the *Preliminary Methane Evaluation Technical Memorandum, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2006a) and *Preliminary Human Health Risk Assessment Technical Memorandum, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2006b), which were submitted to

the COP on May 15, 2006 and May 17, 2006, respectively. These preliminary TMs were then combined into the *Draft Risk Assessment Update, Honeywell 34th Street Facility, Phoenix, Arizona* (Draft Risk Assessment Update; CH2M HILL, 2006c) and submitted to the COP on September 6, 2006. The Draft Risk Assessment Update concluded the following:

- The air injection pilot test did not appear to have substantially changed concentrations of VOCs within the soil vapor monitoring points at the Honeywell facility and at PSHIA, and did not appear to have resulted in concentrations of VOCs above action levels in PSHIA subsurface utility vaults. The risks associated with potential exposures to soil and soil vapor by onsite workers was within or below the USEPA's risk management range.
- The risks associated with potential exposure to groundwater, impacted by the LUST AOI groundwater plume, by offsite residents was low.
- The risks associated with potential exposure to soil vapor, impacted by the petroleum hydrocarbon-related plume, by offsite residents was low due to an incomplete exposure pathway.
- VOC migration will be reduced or curtailed during full-scale BSVE operation because vapor extraction will be conducted simultaneously with air injection.

1.2.8.2 Derivation of Proposed Air Action Levels for Underground Utility Vaults (July 14, 2006)

The technical memorandum *Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona Technical Memorandum* (Derivation of Proposed Air Action Levels TM; CH2M HILL, 2006d) was submitted to the COP on July 14, 2006. At the request of the City, the purpose of this memorandum was to present risk-based vault air action levels (VAALs) to address potential worker exposure associated with underground utility vaults located at the Airport and within the LUST AOI. The VAALs were based on a target cancer risk of 1E-05 or non-cancer hazard quotient (HQ) of one, USEPA methodologies, and conservative exposure assumptions. This technical memorandum is included in Appendix B and is also included in the *Operation and Maintenance Manual for the Biologically-Enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Revision 4, Phoenix, Arizona, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-.20* (CH2M HILL, 2010a). An errata sheet has been included in Appendix B that provides a description of additions or edits to the Derivation of Proposed Air Action Levels TM (CH2M HILL, 2006d) that address the Agencies' (ADEQ and USEPA) comments (ADEQ, 2010). This VAAL TM is provided for informational purposes only because protection of workers entering vaults is covered under OSHA's Confined Entry Guidelines 29 CFR, Part 1910.146 (OSHA, 1970).

1.2.8.3 Exposure Point Concentrations Calculation Methods Technical Memorandum (July 25, 2006)

The technical memorandum *Exposure Point Concentrations Calculation Methods Technical Memorandum for the Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2006e) was submitted on July 25, 2006. This TM provides a description of the analytical data, additional details on the derivation of exposure-point concentrations (EPCs), and a table of the draft exposure parameters used for the *Draft Risk Assessment Update, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2006c).

1.2.8.4 Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Technical Memorandum (August 31, 2007)

The technical memorandum *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Technical Memorandum* (CH2M HILL, 2007a) was submitted to the COP on August 31, 2007. This TM presented an evaluation of the results of air samples collected from within subsurface utility vaults located at PSHIA and within the LUST AOI during sampling events conducted in January and June 2007. All VOC concentrations were below the VAALs (except acrolein) and occupational exposure limits. A review of various lines of evidence indicated acrolein detections were likely associated with PSHIA-related activities (i.e., combustion of jet fuel).

1.2.8.5 Vapor Action Levels (March 22, 2010)

The technical memorandum *Derivation of Vapor Action Levels Technical Memorandum, Honeywell 34th Street Facility, Phoenix Arizona* (Derivation of VALs TM; CH2M HILL, 2010b) dated March 22, 2010 was prepared to evaluate the existing risk-based vapor action levels (VALs) for the LUST AOI monitoring program and to consider any modifications that should be made to the VALs in anticipation of full operation of the BSVE system. Initially, these VALs were developed in cooperation with the COP in 2005 (CH2M HILL and Hydro Geo Chem, Inc., 2005) and 2006 (CH2M HILL, 2006c). The VALs were developed as a tool to support efforts to monitor and mitigate potential worker exposure; the VALs are risk-based soil-vapor concentrations that are intended to be protective of workers inhaling VOCs found in soil vapor that could migrate from the subsurface to air within buildings or structures. The Derivation of VALs TM is provided in Appendix C for information purposes as well as the *Operation and Maintenance Manual for the Biologically-Enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Revision 4, Phoenix, Arizona, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-.20* (CH2M HILL, 2010a).

As noted in the above sections, Honeywell has prepared various risk assessment-related documents designed to address requirements and comments from ADEQ, USEPA, and the COP. The risk-based concentrations applicable during the operation of the BSVE system (i.e., VAALs and VALs) are presented in Appendix B and Appendix C, respectively, as agreed between Honeywell and USEPA and documented in Honeywell's response (Honeywell, 2010) to ADEQ and USEPA comments (ADEQ, 2010) on the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility, Phoenix Arizona* (Draft FHHRA Report) dated January 2009 (CH2M HILL, 2009a).

Historically, the COP expressed concern with the potential occurrence of methane at the site. As agreed between Honeywell and USEPA and documented in Honeywell's response (Honeywell, 2010) to ADEQ and USEPA comments on the Draft FHHRA Report (ADEQ, 2010), the discussion of the issues and concerns associated with methane, as well as how these concerns were handled, is presented in Appendix D.

1.3 Guidance Documents

The FHHRA was conducted in accordance with USEPA Office of Solid Waste and Emergency Response (OSWER) policy as defined by the Risk Assessment Guidance for Superfund (RAGS) guidance documents, including the following:

- Part A: Human Health Evaluation Manual (RAGS Part A) (USEPA, 1989)
- Part B: Development of Risk-based Preliminary Remediation Goals (RAGS Part B) (USEPA, 1991b)
- Part E: Supplemental Guidance for Dermal Risk Assessment (RAGS Part E) (USEPA, 2004)
- Part F: Supplemental Guidance for Inhalation Risk Assessment (RAGS Part F) (USEPA, 2009)

Other primary guidance and reference documents used during the FHHRA include:

- Soil Screening Guidance: User's Guide (USEPA, 1996a) and Soil Screening Guidance: Technical Background Document (USEPA, 1996b)
- Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, 2002a)
- OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance) (USEPA, 2002b)
- USEPA Risk-based Concentration Table: User's Guide (USEPA, 2010a)

2.0 Data Evaluation/Hazard Identification

Multiple phases of site characterization investigations at the Honeywell facility have produced extensive information about the nature, extent, fate, and transport of site-related impacts. A list of the historical Honeywell work plans, field sampling plans, quality assurance project plans (QAPPs), sampling reports, and site characterization reports which were considered for use in this FHHRA is provided in Appendix E. The purposes of this section are to (1) briefly summarize the nature and extent of potential site-related impacts, (2) describe the process for determining the data from these investigations that will be used in the FHHRA, and (3) describe the methods for distilling these data into a form appropriate for the risk assessment. Included in this process is the identification of COPCs in each medium. COPCs are defined as those chemicals with a potential to result in cancer risks or non-cancer hazards above target levels for the identified receptors. The overarching goal of this data evaluation was to select data of sufficient quality to represent site conditions and support the calculation and conclusions presented in subsequent sections of this FHHRA.

2.1 Site Characterization Summary

The primary site-related chemicals identified at the Facility include fuel-related chemicals (i.e., BTEX and MTBE) and chlorinated VOCs (i.e., TCE and associated daughter products, 1,1,1-TCA and associated daughter products, and tetrachloroethene [PCE]) based primarily on historical use and detection in environmental media. 1,4-dioxane was included in the Final FRI Report by request from USEPA and ADEQ. A detailed discussion of the nature and extent of chemical impacts in soil, soil gas, and groundwater can be found in Section 4 of the Final FRI Report (CH2M HILL, 2005b) and FRI Addendum (CH2M HILL, 2008a) and will not be repeated herein. The magnitude and extent of petroleum hydrocarbon free product is summarized in the *UST Site Characterization Report, Honeywell International, Inc. 34th Street Facility, Phoenix, Arizona* (Honeywell, 2002b), the *Revised Corrective Action Plan, Honeywell 34th Street Facility, Phoenix, Arizona. ADEQ Facility No 0-002227, LUST File Nos. 0393.02 through 0393.10 (CAP)* (CH2M HILL, 2004a-b), and subsequent quarterly status reports submitted to ADEQ between January 2006 and December 2010.

Vadose zone impacts were characterized primarily through soil and soil-gas sampling at various locations and depths. The impact of soil contamination in the vadose zone on groundwater concentrations was evaluated using the model VLEACH. Modeling performed by ADEQ's consultant Levine-Fricke Rincon, Inc. (LFR) predicted that the compounds included in their evaluation will not affect groundwater above MCLs (LFR, 2004). CH2M HILL also predicted no impact to the groundwater by CVOCs above the MCL (CH2M HILL, 2005b). Further, travel-time calculations suggest that up to hundreds of years could be required for surface infiltration from rainfall to transport contaminants from the vadose zone to the water table. Additional details regarding this analysis can be found in the Final FRI Report (CH2M HILL, 2005b). Based on these prior evaluations, the soil-to-groundwater pathway was not addressed quantitatively in this FHHRA.

Groundwater data evaluated as part of the Final FRI Report (CH2M HILL, 2005b) indicated that concentrations of CVOCs detected beneath and downgradient of the Honeywell facility in the SRG sub-unit, Basin Fill sub-unit, and bedrock were associated with releases of TCE and 1,1,1-TCA from operations at the Facility and the regional CVOC groundwater plume. The dissolved-phase TCE-related plume that currently exists beneath and downgradient of the Honeywell facility is a remnant of historical releases of TCE from Honeywell's operations (both degraded and undegraded), commingled with a regional TCE plume that originates upgradient of the Facility. This commingled plume migrates in a westerly-northwesterly direction to the OU2 groundwater extraction well field. As discussed in the Final FRI Report, it is not possible to separate this commingled regional CVOC groundwater plume into one plume attributable solely to Honeywell and one attributable to other non-Honeywell sources.

Historical data (as far back as 1992) indicate elevated concentrations of CVOCs associated with key potential sources in Area 1 and Area 2 of the Honeywell facility. The presence of the free-phase hydrocarbons in the LUST AOI has important implications for the fate and transport of CVOCs in the vadose zone and groundwater. Free-phase hydrocarbons may:

- Serve as a CVOC trap (due to the CVOCs' affinity for dissolving into free-phase hydrocarbons), intercepting CVOCs infiltrating downward through the vadose zone after release from the Honeywell facility.
- Release as well as remove CVOCs to and from groundwater due to partitioning effects.
- Serve as a source of carbon feeding the anaerobic degradation process, resulting in biodegradation of the CVOCs.

These processes may explain the low levels of CVOCs in groundwater because fuels and CVOCs were used concurrently at the Facility and there is a close correlation between TPH and CVOC findings (CH2M HILL, 2005b).

The areal extent of the benzene plume associated with releases from the Honeywell facility and in the area of the LUST AOI is stable and has generally not changed since quarterly UST groundwater monitoring began in December 2005. In September 2010, benzene was the only petroleum hydrocarbon-related VOC detected above its established aquifer water quality standard or MCL in groundwater collected from Honeywell monitoring wells (CH2M HILL, 2010c).

Potential sources identified in Area 4 of the Honeywell facility were more difficult to discern through groundwater data due to the higher concentrations emanating from the upgradient sources, including Area 1 and Area 2.

2.2 Data Selection

Not all data collected to date will be directly useful for the FHHRA. For example, some samples were collected from locations or depths where human exposure is unlikely, and some samples represent conditions that no longer exist. For instance, soil excavation may render some analytical results irrelevant. Additionally, some data may not be usable for evaluating a baseline (pre-remedy) condition. For example, soil-gas samples collected within the BSVE TTA after system activation cannot be used to assess baseline conditions. It is important to note that the data selection and reduction requirements for the overall site characterization differ from those for the FHHRA. Many data excluded from the quantitative FHHRA dataset are useful for site characterization and developing the CSM.

Historical soil, groundwater, and soil-gas samples considered in this FHHRA were collected, analyzed, and validated according to the various work plans, field sampling plans, and QAPPs in effect at the time. Appendix E provides a list of these various documents. Data rejected during the data validation process were not used for site characterization or risk assessment.

Data used in this FHHRA were collected over many years, for many purposes and to meet a variety of data quality objectives (DQOs). The data primarily served site-characterization purposes such as delineating the nature and extent of contamination. The QAPPs, work plans and reports identified in Appendix E identify these purposes and DQOs and, when applicable, limitations of the data for meeting these objectives. While human-health risk characterization was typically not the explicit purpose of data collection, the majority of site data are suitable for this purpose. Discussion is provided in this document when specific data limitations were identified, such as the elevated detection limits for certain soil-gas grab samples (see Section 6.0).

The following paragraphs describe the data selection process for site analytical data, as well as for non-analytical data, that will help formulate the assumptions in the exposure and risk assessment (see Section 3.0). Section 3.1 presents details on the Site Conceptual Exposure Model (SCEM), which describes the selection of representative receptors and exposure scenarios for the Honeywell facility. A basic understanding of the human receptors, exposure scenarios, and the general types of data needed to support exposure and risk calculations is necessary during site characterization and the data selection process (refer to Exhibit 2-1 for a summary). The information presented in Exhibit 2-1 is needed for the data selection process so that data can be identified for environmental media pertinent to this human-health risk assessment and is therefore presented in this section. Further discussion regarding the receptors and exposure scenarios identified in Exhibit 2-1 are discussed in detail in Section 3.0.

The analytical data noted in Exhibit 2-1 were used as inputs to estimate exposure point concentrations in the various environmental media. EPCs are intended to be representative of the concentrations of chemicals in a given medium to which a receptor may be chronically exposed. In addition, other types of data, inputs, and models were needed to complete the exposure and risk calculations, including:

- Exposure and toxicity factors (Sections 3.0 and 4.0).

- Data pertaining to the physical setting used to develop site-specific input parameters for the fate and transport models (Section 1.2.2). For example, information regarding the vadose zone thickness and characteristics were used to develop site-specific parameters for use in USEPA's (2004b) version of the Johnson and Ettinger (1991) model that was used to develop vapor intrusion screening levels.
- Fate and transport factors or models such as volatilization factors, particulate emission factors, and vapor intrusion models.

EXHIBIT 2-1

Receptors, Exposure Scenarios, and Data Needs

Exposure Pathways	Exposure Scenarios			Analytical Data			
	Current and future industrial workers in the North, South, and PSHIA Exposure Areas	Current and future construction workers	Current and future industrial workers and residents in the Offsite Exposure Area	Soil data	Groundwater data (all depths)	Shallow (water table) groundwater data	Soil-gas data
Soil direct exposure	X	X		X			
Groundwater: Tap water use			(1)		X		
Groundwater-to-indoor air	X		(1)			X	
Soil gas-to-indoor air	X		(2)				X

Notes:

- (1) Offsite Exposure Area risk estimates for these exposure pathways are provided in Appendix H because they are associated with the regional Motorola 52nd Street Superfund Site plume.
- (2) There are insufficient soil-gas data in the Offsite Exposure Area to evaluate this pathway.

2.2.1 Analytical Data Sources and Selection Criteria

The primary purpose of the analytical data selection process is to identify quantitative analytical results for use in calculating EPCs for locations and media of interest in the FHHRA. Appendix E summarizes the major Honeywell facility field sampling plans, work plans, QAPPs, investigations, and reports from which the majority of analytical data used in the FHHRA were derived. The FHHRA dataset was derived from the Facility's Environmental Information Management System (EIMS) database (Locus Technologies). This large database contains both applicable and inapplicable results for the FHHRA. Many results were marked for exclusion based on data validation criteria specified in the QAPPs in effect at the time the data were collected. The most common reasons for data rejection involved failure to meet one or more of a QAPP's laboratory quality control criteria – for example, a laboratory control spike recovery out of the specified range. The exclusion codes were accepted at face value, and results marked as “rejected” or “excluded” were not

imported from the main EIMS database and are not present in the Appendix F tables. Analytical results flagged as “estimated” (“J” flagged) were included.

The data selection process began with importing non-excluded EIMS data to a local database. Results associated with normal (i.e., “parent”) samples and field duplicate samples were initially retained, and those associated with other sample types (such as laboratory quality control samples, equipment blanks, etc.) were excluded. Next, criteria were applied to exclude non-applicable results for specific matrices and intended uses (e.g., groundwater data for evaluating vapor intrusion). For transparency, the excluded results are maintained in the main data table but were coded showing that they were excluded as well as the reason for the exclusion.

The data selection criteria used to derive the FHHRA analytical dataset are summarized in Table 2-1. Each record is coded as to whether or not it was selected for the FHHRA dataset and the rationale for inclusion or exclusion (see Table 2-1 for specific database fields and codes). The rationale descriptions in the Appendix F FHHRA dataset correspond to those presented in Table 2-1. The data marked as selected formed the basis of the summary statistics and concentration terms used in the FHHRA.

The final FHHRA dataset is provided electronically in Appendix F, which includes close to one million records of analytical data (e.g., VOCs, SVOCs, TPH, metals, and pesticides/herbicides). Data for things such as major ions, redox conditions, and physical properties (e.g., moisture content) were excluded from the FHHRA dataset because they are not directly applicable to assessing exposures and risks.

The minimum criteria for retaining analytical data for the FHHRA are:

- The data must represent an environmental medium of interest, specifically, one to which a receptor could be exposed directly (e.g., surface soil or groundwater) or indirectly (e.g., soil gas via the vapor intrusion pathway). For example, free-phase product (i.e., nonaqueous-phase liquid [NAPL]) data are excluded because direct exposure is unlikely given that the defined extent of NAPL is at or near the water table (more than 60 feet bgs) and indirect exposure to NAPL via volatilization and subsequent inhalation is addressed using soil-gas data.
- The data must represent locations and media where exposures could occur for the receptors of interest. For example, hazardous waste characterization data from inside tanks and drums are not appropriate for use. Other waste-characterization data such as Toxicity Characteristic Leachate Procedure (TCLP) data were also excluded.
- Data should reflect conditions representative of the baseline conditions being evaluated in the FHHRA. For example, analytical results for soils that were excavated are excluded. To the extent possible, more recent analytical results would be favored over older data, but this preference may be balanced based on other factors such as spatial coverage.
- The results must be for a parameter of interest for evaluating human exposures and risks. Metals and most organic chemicals are typically considered. General water or soil properties such as pH, total dissolved solids, total organic carbon, etc. are excluded. TPH results were also excluded because they cannot be used directly to assess risks.

However, they were useful for identifying areas impacted by fuel releases. In such areas, there is ample analytical data coverage for the individual petroleum hydrocarbons such as benzene, naphthalene and certain PAHs to assess potential exposures and risks.

- The data must be of sufficient quality for use in quantitative risk assessment. Validated laboratory analytical results are generally included. Field analyses, such as photoionization detector (PID) results, are generally excluded.
- Tentatively identified compounds (TICs) reported by the laboratory were also excluded based on data quality. TIC results are for non-standard analyte and are based on a comparison of an instrument's spectra with a library of possible matches. Such results are not supported by the analytical method's quality assurance/quality control (QA/QC) procedures, including instrument calibration and QC sampling/analysis (e.g., laboratory control spikes). Thus, both the analyte's identification and its quantification are uncertain and such results are not suitable for risk-assessment purposes.
- Only sufficiently volatile chemicals are applicable for assessing the vapor intrusion pathway. The USEPA's criterion that a chemical's Henry's law coefficient must be $>1E5 \text{ atm}\cdot\text{m}^3/\text{mol}$ was applied for selecting analytes for assessing vapor intrusion.
- Both filtered and unfiltered metals results are commonly reported for the same sample. In such cases, the unfiltered results were selected because it was assumed that the hypothetical groundwater exposure medium would not be filtered to remove particles less than 0.45 microns.

Four exposure areas were evaluated in the FHHRA: the Honeywell Facility North Exposure Area, Honeywell Facility South Exposure Area, Offsite PSHIA Exposure Area, and Offsite Exposure Area (see Section 3.2.1). These exposure areas were delineated based on factors such as land ownership and control, actual or probable receptor populations, and the nature and extent of site-related impacts. Sample locations that comprise the FHHRA dataset are presented by media in Figures 2-1A, 2-1B, 2-1C, 2-2A, 2-2B, 2-2C, 2-3 and 2-4. Simple descriptive summary statistics for soil and groundwater data are presented in Tables 2-2 and 2-3, respectively.

The types of available data and their use are further described below.

2.2.1.1 Soil Data

Analytical soil data considered in this FHHRA include historical data collected from 1984 to July 2008. Soil analytical data were available for the North, South, and PSHIA Exposure Areas; however, soil data were not available for the Offsite Exposure Area due to a lack of Facility-related surficial releases or viable transport mechanisms. While non-intrusive industrial workers are only likely to be exposed to the top few inches of soil, analytical soil data to a depth of 15 feet bgs were used when assessing potential worker exposure to account for the potential for impacted soil to be brought to the surface during future construction activities. Fifteen feet bgs is a reasonable practical limit of excavation; therefore, deeper soil data were excluded for the receptors and soil exposure pathways discussed in Section 3.

Soil data collected prior to October 16, 2008 were included in the FFHRA dataset. Later data were not included because they may represent conditions affected by operation of the BSVE system and not baseline (pre-remedy) conditions. Some soil data pre-date 2008 by ten or more years and may be less representative of the 2008 baseline conditions. This is particularly true for volatile chemicals which may decrease in concentration over time due to volatilization. However, excluding earlier data would substantially reduce spatial coverage, so no lower date limit was included for soil data.

2.2.1.2 Groundwater Data Used to Assess Direct Exposure Pathways

Analytical groundwater data evaluated for the FFHRA include sampling results from March 2005 through September 2008. The most recent 3 years of groundwater data prior to BSVE operation were selected to be reasonably representative of pre-BSVE baseline conditions. There are sufficient high-quality groundwater data within the selected timeframe such that excluding earlier data did not reduce spatial coverage.

Some monitoring wells (ASE-33A, ASE-67A, ASE-129A, ASE-130A, and PHXA-04) were not sampled regularly during the date range used in the FFHRA. Reasons for the reduced temporal coverage for these wells include:

- The well was consistently dry (ASE-33A).
- The well was placed in service for free-product recovery (i.e., ongoing free-product skimming operation at ASE-67A).
- The well was installed in 2008, toward the end of the date range (ASE-129A and ASE-130A).
- The well was not part of the approved Honeywell facility groundwater monitoring network and is sampled by the COP (PHXA-04).

Groundwater data were aggregated both by exposure area (North, South, PSHIA, and Offsite Exposure Areas) and hydrostratigraphic units (i.e., SRG sub-unit, Basin Fill sub-unit, and bedrock). No depth criteria were applied to exclude data for groundwater direct exposure scenarios because it was assumed that a hypothetical production well could be screened anywhere in the aquifer.

2.2.1.3 Soil-Gas Data Used to Screen for Vapor Intrusion

Soil-gas VOC data from various depths in the unsaturated (vadose) zone were used to evaluate potential soil gas-to-indoor air (i.e., vapor intrusion) exposures. Soil-gas samples where the bottom of the sampling interval was deeper than 50 feet bgs were excluded from the dataset. While the approximate average water table depth is closer to 70 feet bgs, soil-gas samples were collected during periods of higher groundwater elevations. Fifty feet is a reasonable cutoff that retains the majority of deep soil-gas samples with sampling intervals above the water table.

Soil-gas data are from deeper locations, however these data were collected to support BSVE design and optimization, but not to delineate the nature and extent of soil-gas contamination.

Soil gas-to-indoor air data were not aggregated (i.e., by exposure area); rather, each location was assessed individually consistent with the need to evaluate potential vapor intrusion for a current or future building with a fixed location. Each depth interval at co-located nested probes was also evaluated separately because the screening levels used in the FHHRA are depth-specific (see Section 5.2.3). The soil-gas risk results were aggregated much later in the process for the purpose of presenting the results on risk maps (see Section 5.2.3).

Analytical results for samples collected from 1994 to 2008 were included for the soil gas-to-indoor air pathway. Data collected closer to the BSVE system installation would provide better characterization of the baseline condition than older data. However, similar to the situation with soil, excluding data based on date greatly reduces spatial coverage, so no lower limit was set on the date range. The uncertainties associated with using older soil-gas data and aggregating depth-specific results are discussed in the uncertainty evaluation (Section 6.0).

Leak testing was conducted during the 2002 soil gas investigation performed in accordance with the *Revised Work Plan, Potential Source Areas Investigation – Phase II Honeywell International, Inc. 34th Street Facility, Phoenix Arizona* (Honeywell, 2002a). Also, as part of Honeywell's standard operating procedures for soil-gas sample collection that are included in the ADEQ-approved Master Field Sampling Plan (CH2M HILL, 2007) and in the *Air Injection Pilot Test Work Plan Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport North Airfield Phoenix, Arizona, ADEQ Facility No. 0-002227 LUST File Nos. 0393.02 through 0393.10* (CH2M HILL and HydroGeoChem, Inc. [HGC], 2005), leak check testing was performed for sampling train equipment and fittings prior to the sample collection by closing valves on the sampling manifold, isolating the vacuum gauge and vacuum pump, and turning on the pump. Additionally, Honeywell evaluated 90 monitoring wells within the BSVE TTA for well dilution effects, including 76 wells that were leak-tested using helium tracer gas between June 2006 and November 2006. Evidence of some leakage was identified in only 11 of the 90 monitoring wells. Overall, most of the leaks were small and resulted in only minor impacts on the soil-gas data. The well dilution evaluation and helium tracer gas leak testing is documented in the *Evaluation of Well Dilution Effects, Honeywell 34th Street Facility and Phoenix Sky Harbor International Airport, Phoenix, Arizona Technical Memorandum* (CH2M HILL, 2007c).

Although soil gas concentrations and the subsequent vapor intrusion risk estimates likely account for volatilization from groundwater, groundwater-to-indoor air risks were estimated (see Section 2.2.1.4 below) in order to help determine if the vapors were originating in groundwater and/or the vadose zone.

2.2.1.4 Groundwater Data Used to Screen for Vapor Intrusion

Groundwater VOC data characterizing the upper portion of the saturated zone were used to evaluate potential groundwater-to-indoor air (i.e., vapor intrusion) exposures. Only conditions at the water table are pertinent when evaluating groundwater as a potential subsurface vapor source, but such concentrations are challenging to measure given the variability in water levels over time and the range of well-screen depths and length. The approximate average depth to the water table is 70 feet bgs, but varies by tens of feet over time.

As a practical solution, wells where the top of screen interval was less than or equal to 100 feet bgs were considered to provide reasonable estimates of conditions at or near the water table. This approach is preferable to selecting all wells in the SRG sub-unit because several wells in this sub-unit have screen intervals that begin at more than 100 feet bgs.

The same date-range criteria used for the groundwater direct exposures dataset were used for the groundwater-to-indoor air dataset, based on the same rationale. The groundwater-to-indoor air data were not aggregated (i.e., by exposure area); rather, each well was assessed individually consistent with the need to evaluate potential vapor intrusion for a current or future building with a fixed location.

2.3 Data Usability and Reduction

Additional data reduction was performed as part of the data usability for risk assessment process to resolve instances where multiple valid analytical results exist for a single analyte from a single sample. This resulted when (1) analytical results exist for both a parent sample and a field duplicate sample, (2) multiple analytical results exist due to serial dilutions, (3) an analyte was measured by more than one analytical method, or (4) samples were reanalyzed to address analytical quality issues.

Where multiple analytical results exist, data reduction was performed using the following procedures:

- The higher of two detections from duplicate samples (as defined by the same location, depth, and sample date) was used.
- The result from the lowest dilution within the instrument's calibration range was used.
- The lower of the two sample quantitation limits (SQLs) was used for duplicates and dilutions where all results were non-detect.
- The detected concentration was used for duplicates and dilutions where at least one result was a detection.

For each analytical method used to generate the data used in this FHHRA, there is a concentration below which the analytes cannot be reliably detected or quantified. For this risk assessment, this concentration is called the sample quantitation limit, defined as the laboratories' reported method detection limit (MDL) corrected for sample dilution and other sample-specific adjustments (USEPA, 1992).

When a result is reported as below the SQL, there is an uncertainty regarding whether the analyte was absent or was present at some concentration between zero and the SQL. SQLs vary between laboratories, over time, and even between samples. Most commonly, higher SQLs exist when samples are diluted to account for high concentrations of an analyte. This can result in higher SQLs for other analytes as well. Elevated SQLs due to dilutions comprise only a small fraction of the dataset.

Analytes that were never detected (0 percent detection frequency) were excluded from the FHHRA dataset. In such cases, when the lowest SQL in the dataset is greater than the numerical criteria used to select potential chemicals of potential concern (i.e., risk-based

screening levels [RBSLs]), the theoretical possibility exists that the analyte could be present at the site but was prematurely excluded. This hypothetical condition would occur if the analyte were present across the site at concentrations between the SQL and its numerical criterion.

The SQLs were compared with residential RBSLs (e.g., USEPA RSLs) as a conservative measure to assess the possibility that an analyte was prematurely excluded (see Table 2-4). Table 2-4 shows some analytes that were not detected at the Facility in a given matrix and had SQLs exceeding the lowest screening levels.

Two factors warrant consideration when reviewing Table 2-4:

- The analytes with SQLs above the conservative residential RSLs are not necessarily target analytes for the Facility and are usually reported as part of a standard suite for an analytical method. The simple fact that they were analyzed does not mean they require further evaluation as potential site-related chemicals.
- Many of the analytes had a large number of samples without a single detection. This is strongly suggestive that these analytes are absent or lack a widespread presence at the Facility, as opposed to ubiquitous presence between the screening level and the SQL.

A small number of analytes with SQLs above residential RSLs is normal and expected, especially given the size of the Honeywell facility dataset. These findings did not materially affect the outcome of the FHHRA.

While Table 2-4 provides a sitewide perspective on SQLs for analytes never detected, elevated SQLs in specific samples or sampling events can introduce uncertainties. This is most notable in the case of soil-gas data analyzed in an onsite mobile laboratory, which generally had higher SQLs than a fixed laboratory. The SQLs may be adequate for the source-delineation goals of the investigation under which they were generated, but may exceed conservative vapor-intrusion screening levels. This uncertainty is addressed further in Section 6.0.

2.4 Exposure Fate-and-Transport Modeling

As discussed in the RAGS Part A guidance document (USEPA, 1989), modeling is needed to estimate the transfer of chemicals between environmental media for cases in which measured data are not available. One example is the estimation of outdoor air concentration resulting from particulate emissions from soil. A simple model was used to simulate this process. Models have also been used by USEPA (2010a) when developing the RSLs to account for physiological processes such as the transdermal transfer of chemicals from water into the body during bathing.

The following models have been integrated into the USEPA (2010a) RSLs used in this FHHRA. Information and references for these models are provided in the RSL documentation (Appendix G).

- Volatilization Factor from Tap Water to Air
- Volatilization and Particulate Emission Factors from Soil to Outdoor Air

- Dermal Absorbed Dose per Event for Tap Water Exposures

In addition, the following site-specific models were used:

- Particulate Emission Factors from Soil to Outdoor Air for a construction worker scenario
- Volatilization Term from Groundwater to Soil Gas (i.e., temperature-adjusted Henry's Law)
- Soil Gas-to-Indoor Air Attenuation Factors

Estimates of VOC concentrations in indoor air from VOC concentrations in soil gas (≤ 5 to 50 feet bgs) and groundwater were evaluated using USEPA's (2004b) version of the J&E vapor intrusion model. This model incorporates both advective and diffusive mechanisms for estimating the transport of vapors volatilizing from subsurface soils or groundwater into indoor air. Model input parameters include soil properties (e.g., porosity, moisture content, and heterogeneity), building properties (e.g., dimensions, air exchange rate, pressure difference), chemical properties (e.g., diffusivity, Henry's Law constant), and exposure assumptions (e.g., frequency, duration); additional details are provided in Appendix G.

2.5 COPC Identification

A selection process consistent with USEPA RAGS Part A (1989) was used to identify preliminary COPCs for estimating potential cancer risks and non-cancer hazards. This process focuses the FHHRA calculations on the most relevant chemicals, media, exposure scenarios, and health effects. The following steps were used to identify preliminary COPCs:

- Identification of detected chemicals
- Elimination of essential nutrients
- Comparison of sampling results to RBSLs
- Evaluation of availability toxicity factors
- Evaluation of the potential to be site-related

2.5.1 Detected Chemicals and Elimination of Essential Nutrients

Chemicals that were detected at least once in soil, groundwater, or soil-gas samples were retained for further evaluation. Tables 2-2 and 2-3 include basic sitewide summary statistics for soil and groundwater, such as detection frequency and sample count. Essential nutrients are those chemicals that are considered essential for human nutrition and not likely to be toxic except at high doses. Daily recommended intakes are developed for essential nutrients to estimate safe and adequate daily dietary intakes (National Academy of Sciences, 2004). Calcium, magnesium, potassium, and sodium were eliminated as preliminary COPCs since they are considered essential nutrients and generally recognized as having low toxicity. Other essential nutrients, such as chromium, copper, iron, and zinc, were retained for further evaluation because of the availability of USEPA (2010b) RSLs.

2.5.2 Comparison to Screening Levels and Availability of Toxicity Factors

Soil and groundwater analytes were retained for further evaluation as preliminary COPCs if:

- Toxicity data and RBSL s were available in the most current USEPA (2010b) RSL table; and
- The maximum sitewide concentration for chemicals retained from the previous screening steps (i.e., detection and essential nutrient screening) exceeded the lowest applicable RBSL.

This risk-based screening step was not performed for soil gas or for the groundwater-to-indoor air pathway because (1) all VOCs detected at least once were considered preliminary vapor intrusion COPCs, and (2) the vapor intrusion scenario was assessed on a point-by-point basis using the maximum detected concentration and reducing the number of chemicals would not significantly improve computational efficiency. In contrast, soil and tap water EPCs were calculated using statistics and USEPA's ProUCL software; this risk-based screening step reduced the number of necessary EPC calculations (see Section 3.3).

Some detected analytes lack suitable toxicity factors. In such cases, the potential hazards or risks associated with the analyte cannot be estimated using the methods described in Section 4. While this may introduce an unknown quantitative bias in the risk estimates, it is unlikely to fundamentally alter the conclusions of the FHHRA or limit its usability for remedy-selection or site-management decision making.

The results of the risk-based comparisons are shown in Tables 2-5 and 2-6.

2.5.3 Potential to be Site-Related

The final step in identifying preliminary COPCs involved determining if an analyte's presence in a particular medium was likely from a site-related source. This evaluation was conservatively only applied to inorganics based on the availability of information on background concentrations. Arsenic, hexavalent chromium, iron, and manganese were eliminated from further consideration as COPCs because it was concluded in the Final FRI Report (CH2M HILL, 2005b) that they are not considered to be constituents of Facility-related releases, but are present due to widespread natural background conditions. For example, the maximum detected concentration (29 mg/kg) of arsenic in soil at the Facility is within the background ranges reported from two separate studies. The *Evaluation of Background Metals Concentrations in Arizona Soils* (Earth Technology Corporation, 1991) and *Element Concentrations in Soils and Other Surficial Materials of the Conterminous United States* (Shacklette and Boerngen, 1984) indicate that arsenic background concentrations in Arizona soils range from 3.1 to 24 mg/kg and from 1.4 to 97 mg/kg, respectively. However, potential risks associated with these background metals are presented in Section 7.0 for informational purposes and may provide insight to those making risk management decisions.

2.5.4 Summary

Table 2-7 summarizes the results of the COPC selection process and presents the preliminary COPCs. Potential exposure and subsequent cancer risks and non-cancer hazards were estimated for these preliminary COPCs in subsequent sections of this FHHRA. Based on the risk characterization (Section 5.0) and uncertainty evaluation (Section 6.0), the list of initial COPCs was further refined to identify COPCs that may require consideration in the Facility Focused Feasibility Study (FFS) (see Section 7.0).

3.0 Exposure Assessment

The exposure assessment is used to estimate the type and magnitude of exposures to COPCs that may result under current site conditions and from reasonably anticipated potential uses of the land in the FHHRA study area. Per USEPA RAGS, the exposure assessment identifies the populations that might be exposed; the routes by which these individuals might become exposed; and the magnitude, frequency, and duration of potential exposures. The results of the exposure assessment are combined with results from the toxicity assessment (Section 4) to characterize potential risks (Section 5) (USEPA, 1989). Per USEPA RAGS, exposure assessment is a three-step process involving characterization of the exposure setting, identification of exposure pathways, and quantification of exposure (USEPA, 1989). The exposure assessment includes the following:

- Finalization of the SCEM
- Identification of EPCs
- Development of exposure assumptions
- Estimation of exposure for each COPC

3.1 Characterization of Exposure Setting

Per USEPA RAGS, the first step in evaluating potential exposure at the Facility is to characterize the physical setting as well as the potentially exposed receptors (USEPA, 1989). This information will support the identification of exposure pathways and appropriate input assumptions for quantifying exposure.

3.1.1 Physical Setting

The geology, lithology, groundwater occurrence/flow, and hydrogeology in the vicinity of the Facility are summarized in Section 1.2.2 of this report, and detailed discussions are provided in Section 3 of the Final FRI Report (CH2MHILL, 2005b). The CSM is presented in Figure 1-5.

3.1.2 Potentially Exposed Receptors

Human receptors that could be potentially exposed to COPCs in soil, groundwater, or soil gas include:

- Current and future commercial/industrial workers in the North, South, and PSHIA Exposure Areas.
- Current and future construction workers in the North, South, and PSHIA Exposure Areas.
- Current and future residents in the Offsite Exposure Area.
- Current and future visitors to the Honeywell facility (North and South Exposure Areas) or the PSHIA (PSHIA Exposure Area).

Currently, there may be sensitive subpopulations that work at the Facility (e.g., long-term employees with chronic health issues). Exposures by these potential sensitive subpopulations are incorporated into the exposure assumptions (Section 3.3). There are no other sensitive subpopulations (e.g., school children, hospital patients, or day care children) within the North, South, and PSHIA Exposure Areas. Potential exposures by sensitive receptors in the Offsite Exposure Area are also incorporated into the exposure assumptions.

3.1.3 Land Use

The Facility is zoned for industrial use, and the surrounding areas are predominantly municipal, industrial, and commercial with a few residential areas (Figure 3-1). Areas south of the Facility include the PSHIA airport terminals, runways, administrative buildings, commercial air companies, industrial facilities, and other businesses associated with the PSHIA. To the west of the Facility are primarily commercial and industrial properties that are currently used as construction support areas for the Airport expansion or as ancillary private operations to the Airport. The property adjoining the Facility to the west was previously occupied by a manufacturing operation conducted by ITT Cannon (an OU2 PRP) and is currently owned by the COP. Property east of the Facility is zoned commercial and industrial and is occupied by businesses that include machine shops, auto shops, and support industries to the aerospace industry and to the PSHIA.

The overall future land use of the Facility and adjacent properties is likely to remain predominantly industrial based on land use planning included in the COP General Plan (adopted by the City Council Resolution on December 5, 2001 in accordance with action taken at its final public hearing on November 7, 2001) (COP, 2002) and the PSHIA Master Plan Update Technical Report dated September 1989 (Howard Needles Tammen & Bergendoff, 1989). Future land use and zoning information based on the COP General Plan and PSHIA Master Plan Update Technical Report are shown in Figure 3-2. Should Honeywell, which leases a portion of the Facility from COP, reduce or eliminate operations in the leased areas of the Facility, the COP is likely to use the area for PSHIA infrastructure or for flight operations.

3.1.4 Groundwater Use

There are no groundwater wells currently used for drinking water or irrigation in the FHHRA study area. The nearest production well currently used for turf irrigation is located approximately 1.8 miles west. The Arizona Department of Water Resources (ADWR) requires permits prior to the installation of groundwater wells, including in the residential area west of the Facility. ADWR regulates the installation of groundwater supply wells through the issuance of permits for drilling and by approving a formal determination of adequate water supply (A.A.C., 2008a-b). ADWR will issue a negative determination (and will not approve well installation permits) for applications that are made in areas where groundwater has already been determined to be part of a previous applicant's adequate supply. The area surrounding the Facility was included in COP's application for Assured Water Supply #26-002030.0000 that was approved and issued by ADWR on December 31, 1997. As such, only the COP can approve installation of wells in this area (with approval from ADWR) and only within the approved schedule contained in this permit.

In summary, there are no current private groundwater wells and future private groundwater drinking and production wells are not likely to be installed within the FHHRA study area.

3.2 Identification of Exposure Pathways

The sources and receiving media, as well as fate and transport in release media, are discussed in detail in Section 4 of the Final FRI Report (CH2MHILL, 2005b). The SCEM incorporates the relationship between the exposure setting (i.e., COPC sources, transport mechanisms, impacted media, and exposure routes) and potential receptors to identify potentially complete human exposure pathways for the FHHRA study area. An exposure pathway is the physical course that a COPC can take from the point of release to a receptor. The exposure route is the means by which a receptor can come in contact with a COPC. Each of the following components must be present for an exposure pathway to be complete:

- A source
- A mechanism of chemical release
- An impacted environmental medium
- A route for chemical transport
- A receptor or exposed population

In the absence of any one of these components, an exposure pathway is considered incomplete and, by definition, there is no risk or hazard. A summary of the final SCEM is provided in Figure 3-3 and the details are provided in the following sections for the FHHRA study area.

In addition, Exhibit 3-1 summarizes 1) the range of possible exposure pathways, 2) whether each of the five components listed above exists for a given pathway and 3) whether the pathway is complete or incomplete.

EXHIBIT 3-1

Exposure Pathway Summary

Exposure Area	Source	Release Mechanism	Impacted Medium	Transport Mechanism	Receptor			Is the Pathway Complete for the Exposure Area?
					Resident	Industrial Worker	Construction Worker	
Exposure Pathway: Inhalation of Volatiles and Particulates in Outdoor Air from Impacted Soil								
Honeywell Facility North Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Honeywell Facility South Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Offsite PSHIA Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Offsite Exposure Area	○	○	○	○	✓	✓	✓	No
Exposure Pathway: Ingestion of and Dermal Contact with Impacted Surface Soil								
Honeywell Facility North Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Honeywell Facility South Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Offsite PSHIA Exposure Area	✓	✓	✓	✓	○	✓	✓	Yes (for industrial and construction workers)
Offsite Exposure Area	○	○	○	○	✓	✓	✓	Yes (for all potential receptors)
Exposure Pathway: Ingestion of and Dermal Contact with Impacted Subsurface Soil								
Honeywell Facility North Exposure Area	✓	✓	✓	✓	○	○	✓	Yes (for construction workers only)
Honeywell Facility South Exposure Area	✓	✓	✓	✓	○	○	✓	Yes (for construction workers only)
Offsite PSHIA Exposure Area	✓	✓	✓	✓	○	○	✓	Yes (for construction workers only)
Offsite Exposure Area	○	○	○	○	○	○	✓	Yes (for construction workers only)
Exposure Pathway: Ingestion of, Inhalation of, and Dermal Contact with Impacted Tap Water								
Honeywell Facility North Exposure Area	✓	✓	✓	✓	✓	○	○	Yes (for residential receptors only)
Honeywell Facility South Exposure Area	✓	✓	✓	✓	✓	○	○	Yes (for residential receptors only)
Offsite PSHIA Exposure Area	✓	✓	✓	✓	✓	○	○	Yes (for residential receptors only)
Offsite Exposure Area	✓	✓	✓	✓	✓	○	○	Yes (for residential receptors only)
Exposure Pathway: Inhalation of Volatiles in Indoor Air from Impacted Soil Gas and Groundwater								
Honeywell Facility North Exposure Area	✓	✓	✓	✓	○	✓	○	Yes (for industrial workers only)
Honeywell Facility South Exposure Area	✓	✓	✓	✓	○	✓	○	Yes (for industrial workers only)
Offsite PSHIA Exposure Area	✓	✓	✓	✓	○	✓	○	Yes (for industrial workers only)
Offsite Exposure Area	✓	✓	✓	✓	✓	✓	○	Yes (for industrial workers and residential receptors)

Notes:

✓ = Component Present

○ = Component Insignificant or **NOT** Present

3.2.1 Exposure Areas

Per USEPA guidance, an exposure area is defined as a geographical area within which a receptor can be expected to move randomly and may be exposed to COPCs over time (USEPA, 1996). The following four exposure areas within the FHHRA study area were also introduced and described in Section 1 and are shown in Figure 1-4:

- (1) **Honeywell Facility North Exposure Area**– the Honeywell-owned portion of the Facility, which is north of Air Lane
- (2) **Honeywell Facility South Exposure Area**– the Honeywell-leased portion of the Facility, which is south of Air Lane
- (3) **Offsite PSHIA Exposure Area**– the north-central portion of the Airport, including a portion of Runway 8-26 located north of Taxiway C
- (4) **Offsite Exposure Area** – the area within the FHHRA study area but outside the Facility boundary and the Offsite PSHIA Exposure Area

This FHHRA focuses primarily on potential exposures to receptors within the Facility boundary (i.e., North and South Exposure Areas) and COPC sources originating at the Facility (e.g., fuel releases, chlorinated solvents and daughter products). It was concluded in the Final FRI Report (CH2M HILL, 2005b) that the petroleum hydrocarbon plume immediately south of the North and South Exposure Areas and on PSHIA property is related to Facility activities and not generally commingled with COPCs from other sources. Therefore, this FHHRA also focuses on the PSHIA Exposure Area.

As described in Section 1 and Section 2, site-related groundwater impacts from the Facility are commingled with the Motorola 52nd Street Superfund Site regional CVOC groundwater plume. Therefore, the potential risks and hazards associated with the commingled regional CVOC groundwater plume are provided primarily for informational purposes and will be incorporated into the overall OU2 RI/FS. As such, this FHHRA is focused on risks posed to potential receptors within the North, South, and PSHIA Exposure Areas associated with sources originating at the Honeywell facility. However, risk and hazard estimates associated with groundwater impacts in the Offsite Exposure Area are provided for informational purposes in Appendix H.

3.2.2 Exposure Pathways

For exposure to occur there must be a complete pathway by which chemicals move from the impacted media and are either ingested, inhaled, or dermally absorbed by a receptor. Potential exposure pathways within the FHHRA study area are summarized in Figure 3-3. Exposure pathways considered in this FHHRA are described in the following sections.

3.2.2.1 Commercial/Industrial Worker Exposure Pathways

- **Incidental ingestion, inhalation of ambient air volatiles/particulates, and dermal contact with soil COPCs.** These soil exposure pathways apply to potential current and future exposure to COPCs in soil (0 to 15 feet bgs) in the North, South, and PSHIA Exposure Areas. While industrial and commercial workers would only be exposed to COPCs in the top few inches of surface soil, it was assumed that exposure could occur to

COPCs in soils to a depth of 15 feet bgs to account for impacted soil potentially being brought to the surface during future construction activities. Fifteen feet bgs is a reasonable practical limit of excavation; therefore, exposure to COPCs in soil deeper than 15 ft bgs was not evaluated. Exposure pathways for COPCs in soil within the Offsite Exposure Area are incomplete due to a lack of Facility-related soil COPCs in offsite soil.

- **Inhalation of VOCs in indoor air via soil gas-to-indoor air vapor intrusion.** Preliminary (i.e., screening level) soil gas-to-indoor air exposures were estimated for this potential current and future exposure pathway using exterior and limited subslab soil-gas data. Consistent with USEPA and Interstate Technology and Regulatory Council (ITRC) vapor intrusion guidance (USEPA, 2002b; ITRC, 2007), screening level risk and hazard estimates are used to assess whether further evaluation (e.g., indoor air sampling) is needed. Preliminary vapor intrusion risk estimates were provided to the Agencies on October 22, 2010 (CH2M HILL, 2010d). Honeywell and the Agencies (Honeywell, 2010) have agreed to perform the next phase of a vapor intrusion assessment that will be documented in a separate vapor intrusion technical memorandum/work plan. Preliminary vapor intrusion exposure estimates for the North, South, and PSHIA Exposure Areas are provided in subsequent sections (see Section 5), while estimates for the Offsite Exposure Area are provided in Appendix H.
- **Inhalation of VOCs in indoor air via groundwater-to-indoor air vapor intrusion.** Preliminary (i.e., screening level) groundwater-to-indoor air exposures were estimated for this potential current and future exposure pathway to assess groundwater as a potential VOC source and assess whether further evaluation is needed. Results for this pathway are discussed in relation to the soil gas-to-indoor air exposure pathway results because vapors off-gassing from groundwater are captured in the soil-gas results (i.e., volatilization from both groundwater and soil VOC sources is characterized via soil-gas sampling). As with the soil gas-to-indoor air pathway, preliminary groundwater-to-indoor air risk estimates for the North, South, and PSHIA Exposure Areas are provided in subsequent sections (see Section 5); preliminary groundwater-to-indoor air estimates for the Offsite Exposure Area are provided in Appendix H.

3.2.2.2 Site Visitor Exposure Pathways

Potential current and future exposure pathways associated with Honeywell and PSHIA visitors (i.e., non-employees) are conservatively bounded by the commercial/industrial worker pathway and estimates. Potential exposures by site visitors were not estimated quantitatively in this FHHRA because their frequency and duration of exposure are less than those for full-time current and future workers; therefore, the worker risk estimates can be used to conservatively represent potential risks to visitors.

3.2.2.3 Construction Worker Exposure Pathways

Construction worker exposure pathways evaluated in the FHHRA consist of incidental ingestion, inhalation of ambient air particulates, and dermal contact of soil COPCs. These soil exposure pathways involve potential current and future exposure to COPCs in soil (0 to 15 feet bgs) in the North, South, and PSHIA Exposure Areas. Exposure to COPCs in soil to 15 ft bgs was evaluated to account for exposure during future construction or maintenance

activities. Construction worker exposure pathways for COPCs in soil within the Offsite Exposure Area are incomplete due to a lack of Facility-related soil COPCs in offsite soil.

3.2.2.4 Residential Exposure Pathways

There are no current or reasonably anticipated residential receptors in the North, South, and PSHIA Exposure Areas (Section 3.1.2); therefore the residential exposure pathways in those exposure scenarios are incomplete. However, the following hypothetical residential groundwater exposure pathways were evaluated quantitatively for informational purposes or because groundwater beneath the FHHRA study area lies within the Water Service Area of the COP and could hypothetically be supplied for residential use (A.R.S. 45-492):

- **Ingestion, dermal contact, and inhalation of volatile COPCs during hypothetical domestic use of groundwater (e.g., drinking, showering, and other household activities).** Although these exposure pathways are incomplete, they are evaluated quantitatively in subsequent sections for the North, South, and PSHIA Exposure Areas because of the groundwater beneficial use classification. These hypothetical groundwater exposure pathways were also evaluated quantitatively for the Offsite Exposure Area (see Appendix H).
- **Inhalation of VOCs in indoor air via groundwater- and soil gas-to-indoor air vapor intrusion.** These residential exposure pathways are incomplete for the North, South, and PSHIA Exposure Areas based on current and reasonably anticipated industrial/commercial land use (Section 3.1.3). Some residences do exist within the Offsite Exposure Area, which overlies the commingled regional CVOC groundwater plume. Preliminary (i.e., screening level) vapor intrusion risk estimates are provided (Appendix H) for the groundwater-to-indoor air and soil gas-to-indoor air vapor intrusion in the Offsite Exposure Area. These results, provided for information only, may be useful for the overall OU 2 RI/FS.

3.2.2.5 Leaching of COPCs from Soil to Groundwater

As shown in Figure 3-3, leaching of COPCs in soil to groundwater is considered a potentially complete but insignificant pathway based on modeling results using VLEACH (CH2M HILL, 2005b). Modeling predicted that vadose zone chemicals will not impact groundwater to concentrations above MCLs; therefore, this transport pathway was not evaluated quantitatively in this FHHRA.

3.2.3 Summary of Exposure Pathways to be Quantified in the FHHRA

The following exposure pathways were selected for quantification in this FHHRA:

- **Soil - Commercial/Industrial Worker and Construction Worker Exposure** (incidental ingestion, dermal contact, and inhalation)
- **Groundwater - Residential Exposure** (incidental ingestion, dermal contact, and inhalation)
- **Indoor air - Commercial/Industrial Worker and Resident** (inhalation)

3.3 Quantification of Exposure

This step of the exposure assessment involves quantifying the magnitude, frequency, and duration of exposure to the identified receptors (USEPA, 1989). Media-specific EPCs were estimated based on the assumed receptors and exposure pathway. The EPCs were then used to estimate chemical intake or exposure. This report does not explicitly present the estimated intakes or exposures, but these estimates are incorporated into the subsequent risk calculations through the application of an EPC/screening level ratio methodology (see Section 4.0).

3.3.1 Exposure Point Concentrations (EPCs)

EPCs represent a conservative estimate of the average concentration that an exposed individual may encounter over an exposure period. The methods for determining the EPC vary depending on the media and exposure pathways being addressed. In some exposure scenarios, the 95 percent upper confidence limit (UCL95) on the arithmetic average over the exposure area was used as an estimate of the EPC. However, in other scenarios it was more appropriate to assess potential risks on a sample location-by-sample location basis rather than using a UCL. For example, it is more appropriate to use individual sampling locations (or location clusters) than UCLs for the vapor intrusion exposure pathway since it is specific to individual buildings rather than entire exposure areas. The rationale and methodology for deriving EPCs for each exposure medium are described below.

- **Commercial/Industrial Worker and Construction Worker Exposure to Soil:** EPCs were calculated for soil (0 to 15 feet bgs) for the North, South, and PSHIA Exposure Areas using available data collected during the site characterization activities from 1984 to 2008. Soil data were grouped by exposure area to calculate EPCs for each preliminary COPC, which were then used in the risk calculations. For the incidental ingestion and dermal routes of exposure to soil, EPCs are represented by concentrations directly measured in soil. For the inhalation route, modeling was performed to estimate constituent concentrations in air from particulate and vapor emissions. A summary of EPCs for soil is provided in Table 3-1.
- **Residential Exposure to Groundwater:** EPCs were calculated for groundwater using groundwater samples collected from 2005 through 2008 in the SRG sub-unit, Basin Fill sub-unit, and bedrock in the four exposure areas. Groundwater data are grouped by exposure area and hydrostratigraphic unit to calculate UCL95 EPCs for each preliminary COPC, which were then used in the risk estimates. For the incidental ingestion and dermal routes of exposure to groundwater, EPCs are represented by concentrations directly measured in groundwater. For the inhalation route, the Andelman model (USEPA, 1991) was used to estimate constituent concentrations in air from vapor emissions during showering and other household water use. A summary of EPCs for groundwater is provided in Table 3-2.
- **Exposure via Inhalation of VOCs in Indoor Air:** It was assumed that a receptor's exposure would occur primarily at one location (i.e., at one building) for the vapor intrusion exposure pathway. Therefore, soil-gas and groundwater data were evaluated on a location-by-location basis. Wells that were installed specifically as multi-port wells were considered "clusters" in this assessment and only the maximum cumulative risk

for any depth in that cluster is presented. Location clusters used in this FHHRA are presented in Table 3-3. Data from (1) soil-gas sampling results collected from 1994 to 2008, and (2) groundwater sampling results collected between 2005 and 2008 were used to evaluate the vapor intrusion pathway. Soil gas-to-indoor air and groundwater-to-indoor air EPCs are provided in Tables 3-4 and 3-5, respectively.

For the soil and groundwater scenarios, UCLs were developed using methods specified by USEPA (2002a). ProUCL 4 (version 4.00.05), a statistical software package developed by USEPA (2010c), was used to calculate the UCL95 values for soil and groundwater. The UCL95 is calculated from the distribution type of the dataset (normal, lognormal, or gamma) or by using a non-parametric technique. ProUCL 4 includes numerous statistical methods to derive a UCL and provides a recommended method or methods for each dataset. The recommended method used for each analyte is listed in Tables 3-1 and 3-2. EPCs were established as the lesser of the maximum detected concentration and the UCL95 on the mean concentration. The recommended method was used unless the UCL95 was higher than the maximum detected result. The maximum detected result was also used in cases where ProUCL 4 determined that there were too few unique detected values or there were fewer than five samples.

3.3.2 Estimation of Chemical Intakes and Exposures

The quantification of exposure requires numerous assumptions (e.g., exposure duration, exposure frequency, ingestion rates). The upper-bound exposure assumptions used to estimate reasonable maximum exposure (RME) conditions (i.e., the highest exposure that is reasonably expected to occur at a site) for the soil and groundwater exposure scenarios are listed in Table 3-6. The RME approach provides estimates covering the general population as well as sensitive subpopulations. While central tendency exposure estimates can provide useful perspective, only the RME estimates will form the basis of risk management decisions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process as defined in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 CFR Section 300) and the RAGS documents. Therefore, central tendency exposure estimates were not used in this FHHRA.

The RME exposure assumption for the industrial worker and residential scenarios were based on USEPA default values that have been incorporated in the RSLs (USEPA, 2010a) (see RSL documentation in Appendices G-1, G-2, and G-3). Default exposure assumptions are not available for the construction worker scenario, so reasonable site-specific assumptions were developed consistent with the exposure methodology presented in the *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (USEPA, 2002a).

The vapor intrusion risk estimates presented in Sections 5 and 7 were based on the assumption that the VOCs detected in a specific soil-gas or groundwater sampling location could migrate through soil beneath a building and be transported into the building.

For the groundwater-to-indoor air pathway, the depth used in the J&E model was based on an assumed water table depth of 35 ft bgs, which is conservative because the average depth to the water table was approximately 70 feet. Other exposure assumptions for the vapor intrusion scenario are detailed in Appendix G-1 and Section 3.3.4.

3.3.3 Exposure Equations for Soil and Groundwater (Tap Water Use)

Receptor and exposure-route specific (i.e., ingestion, dermal, inhalation) RSLs were used to quantify exposures and risks for the residential and industrial exposures, with the exception of vapor intrusion (see Section 3.3.4). This included specific equations for the following exposure pathways:

- Incidental ingestion of soil
- Dermal contact with soil
- Inhalation of volatiles and particulates from soil
- Ingestion of groundwater (residential tap water)
- Inhalation of vapors during domestic use of groundwater

The RSL equations and supporting references are provided in USEPA's RSL User's Guide, which has been reproduced and provided in Appendix G-2. According to the User's Guide (USEPA, 2010a):

The tap water calculations do not include the dermal exposure route. It was determined that too many analytes were outside of the EPA Superfund Dermal Risk Assessment Guidance (RAGS Part E)'s Effective Predictive Domain (EPD) to include a dermal permeability constant (Kp).

Calculated dermal absorption exposures and risks for water are typically lower than those associated with direct ingestion; therefore the lack of dermal exposure quantification introduces limited uncertainties.

The equations for the construction worker soil exposures are the same as those for workers presented in the USEPA RSL User's Guide (USEPA, 2010a). A site-specific particulate emission factor was derived consistent with USEPA's *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (USEPA, 2002a). A summary of the construction worker calculations is provided in Appendix G-4.

3.3.4 Vapor Intrusion Exposure Pathway

Risk-based screening levels were calculated for soil gas and groundwater that are protective of indoor industrial workers and residents who may be exposed to VOCs in indoor air. Location-specific soil-gas and groundwater concentrations were compared to the calculated RBSLs to assess whether indoor air exposures may result in risk or hazard estimates above target risk levels. The RBSLs were calculated using the advanced version of the J&E model (USEPA, 2004b) for subsurface vapor intrusion into buildings.

Default values were used for building parameters with the exception of the indoor/outdoor air exchange rate for the industrial scenario, where a value of 1 exchange/ hour was applied in lieu of the default 0.25 exchange/hour based on site-specific estimates tabulated in Appendix I. The basic inhalation exposure assumptions (exposure duration, exposure frequency, etc.) for both scenarios are summarized in Table 3-6. Details of the model inputs are provided in Appendix G-5.

Site-specific subsurface characteristic assumptions were incorporated as follows:

- Soil types were selected for specific depths to generally reflect the stratigraphy observed beneath the Facility; specifically, loamy sand lithology to 5 feet bgs and sand to 15, 30, or 60 feet bgs (site-specific assumption based on default range of soil types from Table 11 in USEPA, 2004b).
- The depth to groundwater was assumed to be 35 feet bgs, which is conservative because the average depth is approximately 70 feet bgs. Use of the shallower depth accounts for periodic rises in the water table.
- Three sets of soil-gas screening levels (5 feet, 15 feet and 30 feet) were calculated to account for the range of soil-gas probe depths at the Facility. Site samples were grouped by depth for comparison to the applicable set of soil-gas screening levels; site samples were conservatively assigned to one of three groups, with assignments based on the distance to the top of the probe interval. For example, a probe at 6 feet bgs was associated with the 5-foot screening level and a probe at 17 feet bgs was associated with the 15-foot screening level. Comparing soil-gas concentrations with RBSL for shallower depths is conservative because shallower RBSLs are lower values than deeper RBSLs due to less attenuation between soil gas and indoor air.
- Average soil temperature was assumed to be 22 degrees Celsius (°C).
- Air exchange rate was assumed to be 1 air change per hour (ACH) for industrial worker scenarios (DTSC, 2005) and 0.25 ACH for residential scenarios (default from USEPA, 2004b).
- Building dimensions were assumed to be 10 meters (m) x 10 m x 2.44 m (industrial worker exposure scenario [2.44 m mixing height based on the default value for a slab-on-grade residence]) and 10 m x 10 m x 3.66 m (residential exposure scenario [2.44 m mixing height based on the default value for a residence with a basement]) (from USEPA, 2004b).
- Foundations were assumed to be slab-on-grade (industrial worker exposure scenario) and basement (residential exposure scenario). The effects on the risk estimates of assuming a future industrial building with a basement is considered in the uncertainty evaluation (Section 6).
- Average vapor flow rate into buildings (Q_{soil}) was assumed to be 5 liters/minute (from USEPA, 2004b).

There is considerable uncertainty associated with the RBSLs derived from the J&E model used in this FHHRA. The J&E model is considered a screening model (both the “screening level” and “advanced” versions) with the intent that actual indoor air concentrations should not be higher than the modeled concentrations. However, as of March 2011, this model has been subject to only limited validation by USEPA. Consequently, the correlation between model predictions and actual conditions is not clearly understood. Specific uncertainties related to the J&E model are discussed in Section 6.

4.0 Toxicity Assessment

The types of health effects that may result from exposure to each COPC, as well as the quantitative relationship between the amount of exposure and the extent of potential effects, must be identified. Per USEPA (1989), the toxicity assessment step includes the identification of appropriate exposure periods (e.g., chronic) and carcinogenic and non-carcinogenic toxicity factors. The objectives of the toxicity assessment are to weigh available toxicological evidence regarding the potential for COPCs to cause adverse effects in exposed individuals and to provide, where possible, a quantitative estimate of the relationship between the extent of exposure to a COPC and the increased likelihood and/or severity of adverse effects (i.e., toxicity factors). The toxicity assessment contains two steps: hazard characterization and dose-response evaluation, which are discussed in the following two subsections. The toxicity-assessment framework described below is adopted by the State of Arizona (ADHS, 1999) and is applied across the USEPA regions, including Region IX.

4.1 Hazard Characterization

Hazard characterization identifies the types of toxic effects a chemical can exert. For the human health toxicity assessment, toxicity effects are divided into two broad categories: non-carcinogenic effects and carcinogenic effects. Carcinogens are those chemicals known or reasonably suspected to cause cancer following exposure; non-carcinogenic effects cover a wide variety of systemic effects, such as liver toxicity or developmental effects. Some chemicals (e.g., PCE) elicit both carcinogenic and non-carcinogenic responses.

Information considered in assessing carcinogenicity includes human studies of the association between cancer incidence and exposure, as well as long-term animal studies under controlled laboratory conditions. Other supporting evidence considered includes short-term tests for genotoxicity, metabolic and pharmacokinetics properties, toxicological effects other than cancer, structure-activity relationships, and physical and chemical properties of the COPC. For non-cancer effects, toxicity values are based on the critical toxic endpoint (i.e., the most sensitive adverse effect in the available studies).

4.2 Dose-response Evaluation

The magnitude of chemical toxicity depends on the dose to a receptor. Dose refers to exposure to a chemical concentration over a specified period. Human exposures are generally classified as acute (24 hours or less), short-term (24 hours to 30 days), subchronic (about 2 weeks to 7 years), or chronic (7 years to a lifetime). This FHHRA specifically addresses chronic exposure durations. One exception is that while the exposure duration for the construction worker scenario is only 1 year (subchronic), the scenario is assessed using chronic toxicity values due to the lack of available subchronic toxicity factors for most COPCs. Use of chronic rather than subchronic toxicity factors for the construction worker results in overestimating risks or hazards since chronic toxicity values are generally more conservative than subchronic toxicity values.

A dose-response curve describes the relationship between the degree of exposure (the dose) and the incidence of the adverse effects (the response) in the exposed population. USEPA uses this dose-response information to establish toxicity values.

4.3 Toxicity Values

Reference doses (RfDs) and inhalation reference concentrations (RfCs) were used to evaluate potential adverse non-cancer health effects (i.e., hazards). Cancer slope factors and inhalation unit risk (IUR) factors were used to evaluate potential cancer risks.

A hierarchy of sources for toxicity values is presented in *Human Health Toxicity Values in Superfund Risk Assessments* (USEPA, 2003) (in order of preference):

- **Tier 1: USEPA Online Integrated Risk Information System (IRIS).** IRIS is an online database that contains USEPA-approved RfDs, RfCs, IURs, and slope factors. It also contains health risk and USEPA regulatory information. The IRIS database is available online (USEPA, 2011) through the USEPA National Center for Environmental Assessment in Cincinnati, Ohio. RfDs, RfCs, IURs, and slope factors have undergone extensive review and are recognized as Agency-wide consensus information.
- **Tier 2: USEPA Online Provisional Peer-Reviewed Toxicity Values (PPRTVs).** The PPRTVs are developed by USEPA's Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Assessment Technical Support Center and are contained in an online database. The PPRTVs are developed on a chemical-specific basis when requested by the USEPA's Superfund Program. According to USEPA (<http://hhpprtv.ornl.gov/>), all PPRTVs are reviewed by an internal panel of USEPA scientists and externally by independent scientific experts.
- **Tier 3: Other Peer-Reviewed Toxicity Values.** Tier 3 includes additional USEPA and non-USEPA sources of toxicity information. The USEPA recommends giving preference to those Tier 3 values that have a clear and transparent basis, are publicly available, have undergone peer review, have multiple endpoints addressed in the study, are relatively recent, etc. Examples of Tier 3 sources include the following:
 - The Agency for Toxic Substances and Disease Registry (ATSDR) minimal risk levels.
 - California Environmental Protection Agency (Cal/EPA) Cancer Potency List and Chronic Reference Exposure Levels (Cal/EPA, 2005);
 - Office of Environmental Health Hazard Assessment (OEHHHA) (www.oehha.ca.gov/risk/ChemicalDB/index.asp).
 - USEPA's Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997). HEAST is a compilation of toxicity values published in various health effects documents issued by USEPA. HEAST provides a listing of provisional RfDs and slope factors that have undergone agency review but have not achieved Agency-wide consensus.

Toxicity values listed in the USEPA (2010b) RSL table were used, either through use of the RSLs or in calculation of the risk screening levels for the construction worker and vapor intrusion scenarios.

4.3.1 Reference Doses and Reference Concentrations for Non-cancer Effects

The RfD is a toxicity value describing the dose-response relationship for non-cancer effects. For non-carcinogenic effects, the body's protective mechanisms must be overcome before an adverse effect is manifested. If exposure is high enough and these protective mechanisms (or thresholds) are exceeded, adverse health effects could occur. USEPA's goal is to identify the upper bound of this tolerance range in the development of non-cancer toxicity values. The toxic threshold value is used with uncertainty factors to derive an RfD, which is defined by USEPA (1989) as follows:

In general, 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 generally expressed in units of mg/kg-day.

Non-cancer inhalation toxicity is assessed by using inhalation RfCs. The RfC has units of milligrams per cubic meter (mg/m^3) on IRIS. As defined in USEPA (2009) RAGS Part F, the RfC is "an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without appreciable risk of deleterious effects during a lifetime." The RfDs and RfCs used in this FHHRA are provided in Appendix G-1.

4.3.2 Slope Factors and Unit Risks for Cancer Effects

The oral dose-response relationship for cancer effects is expressed as a cancer slope factor that can be used to convert estimated intake directly to excess lifetime cancer risk (ELCR). Slope factors are presented in units of risk per level of intake. The data used for estimating the dose-response relationship are taken from lifetime animal studies or human occupational or epidemiological studies where excess cancer risk has been associated with chemical exposure. However, because risk at low intake levels cannot be directly measured in animal or human epidemiological studies, a number of mathematical models and procedures have been developed to extrapolate from the high doses used in the studies to the low doses typically associated with environmental exposures. The model choice leads to uncertainty. USEPA assumes linearity at low doses and uses the linearized multistage procedure when uncertainty exists about the mechanism of action of a carcinogen and when information suggesting non-linearity is absent.

It is assumed that if a cancer response occurs at the dose levels used in the study, then there is some probability that a response will occur at lower exposure levels (that is, a dose-response relationship with no threshold). Uncertainty and conservatism are built into the USEPA risk extrapolation approach. USEPA (1996c) has stated that cancer risks estimated by this method produce estimates that "provide a rough but plausible upper limit of risk." In other words, it is not likely that the true risk would be much more than the estimated risk, but "the true value of the risk is unknown and may be as low as zero." The cancer slope factors used in this assessment are summarized in Appendix G-1.

Inhalation-related carcinogenicity is quantified through use of the IUR factor. The IUR factors used in this FHHRA have units of $(\text{mg}/\text{m}^3)^{-1}$, or the inverse units of air concentration. By convention, IUR values are often tabulated using micrograms instead of milligrams (i.e., $[\mu\text{g}/\text{m}^3]^{-1}$), but the milligram units were used in this report to maintain

consistent mass units across all exposure pathways. The IUR is defined in RAGS Part F as “the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 $\mu\text{g}/\text{m}^3$ in air” (USEPA, 2009). Similar to the oral slope factor, the IUR is calculated by a linear extrapolation from exposures observed in the animal or human occupational study. The cancer slope factors and unit risk factors that were applied in the supplemental HHRA are summarized in Appendix G-1.

4.3.3 Dermal Toxicity Factors

Toxicity values are not available for the dermal exposure route. Therefore, adjustment of the oral toxicity factors to represent an absorbed rather than administered dose is necessary (USEPA, 2004). For most COPCs in the FHHRA study area, the adjustment factor (gastrointestinal absorptivity [GIABS]) is one (1), and the oral toxicity value is used as the dermal toxicity value (USEPA, 2004). The GIABS values applied in the FHHRA are summarized in Appendix G-1.

5.0 Risk Characterization

The objectives of the risk characterization are to (1) review the results from the exposure (Section 3) and toxicity (Section 4) assessments, (2) quantitatively estimate the potential for cancer (i.e., risk) and non-cancer (i.e., hazard) effects, and (3) assess and discuss the results. Results from the exposure and toxicity assessments are integrated to provide quantitative estimates of potential health risks or hazards. The quantification approach differs for potential non-cancer and cancer effects, as described in the following subsections.

Although this FHHRA produces numerical estimates of risk, these numbers do not predict actual health outcomes because they are based largely on hypothetical assumptions. Their purpose is to provide a frame of reference for risk management decisions. Any actual risks are likely to be lower than these estimates and may even be zero (USEPA, 1989). Interpretation of the risk estimates provided should consider the nature and weight of evidence supporting these estimates and the magnitude of uncertainty surrounding them.

5.1 Methods

The following subsections present the equations for non-cancer risk estimation and cancer risk estimation methods.

5.1.1 Non-cancer Risk Estimation Method

The potential for individuals to experience effects other than cancer are generally evaluated by comparing an exposure dose or lifetime averaged inhalation exposure concentration over a specific exposure period with an RfD or RfC developed for a similar exposure period (USEPA, 1989 and 2009a). This comparison is termed the hazard quotient (HQ) and can be calculated as shown in Equations 5-1 (ingestion) and 5-2 (inhalation).

EQUATION 5-1: NON-CANCER HQ (INGESTION)

$$HQ = \frac{CDI}{RfD}$$

where:

- HQ = Non-cancer HQ (unitless); receptor-, age-, exposure-pathway-, and analyte-specific
- CDI = Chronic daily intake averaged over a lifetime (mg/kg-day); referred to as "intake" in Section 3.0
- RfD = Oral reference dose for chronic exposure (mg/kg-day)⁻¹; chemical-specific

EQUATION 5-2: NON-CANCER HQ (INHALATION)

$$HQ = LEC / RfC$$

where:

LEC = Lifetime-averaged exposure concentration (mg/m³); chemical-specific

RfC = Inhalation reference concentration for chronic exposure (mg/m³);
chemical-specific

The HQ is not a mathematical prediction of the incidence or severity of effects (i.e., probability) but is instead a numerical index used to assess whether the estimated exposure may present potential non-cancer health effects. When the daily intake or estimated lifetime-averaged exposure concentration of a chemical exceeds the RfD or RfC (i.e., HQ greater than one), there is a potential for non-cancer health effects.

Equations 5-1 and 5-2 were not applied explicitly in this FHHRA to estimate HQ values, but these equations are incorporated into the "ratio method" (USEPA, 2010a) that was used to estimate non-cancer risks. The non-cancer risk screening levels applied in this FHHRA represent concentrations corresponding to a target HQ of one with the given exposure assumptions and toxicity values. Therefore, the HQ for each COPC, pathway, and receptor was calculated using Equation 5-3.

EQUATION 5-3: HQ FOR AN INDIVIDUAL CHEMICAL

$$HQ_i = \frac{EPC_i}{RBSL_{nc-i}} \times HQ_{target} = EPC_i / RBSL_{nc-i}$$

where:

HQ_i = Non-cancer HQ for an individual chemical

EPC_i = Exposure point concentration for a given exposure unit (i.e., area or point) and chemical

RBSL_{nc-i} = Non-cancer RBSL for an individual chemical and exposure pathway

HQ_{target} = Target HQ (equal to one in this FHHRA)

To assess the potential for non-cancer effects posed by exposure to multiple chemicals and/or multiple exposure pathways (e.g., ingestion and dermal contact), a hazard index (HI) approach was used consistent with USEPA (1989) guidance. This approach assumes that the non-cancer hazard associated with exposure to more than one chemical and exposure pathway is additive; therefore, synergistic or antagonistic interactions between chemicals are not quantitatively addressed. The HI may exceed one even if the individual HQs are less than one. The HI was calculated using Equation 5-4.

EQUATION 5-4: HAZARD INDEX

$$HI = \sum_i^N HQ_i$$

where:

- HI = Total hazard index for the exposure scenario
- HQ_i = Non-cancer HQ (unitless) for an individual chemical and exposure pathway
- N = Number of chemicals and exposure pathways combinations for a given exposure scenario

5.1.2 Cancer Risk Estimation Method

The ELCR for carcinogens represents the incremental probability that a receptor may develop cancer over a lifetime as a result of exposure to a carcinogen (USEPA, 1989). Cancer slope factors developed by the USEPA represent upper-bound estimates, so any cancer risks generated in this assessment should be regarded as an upper bound on the potential cancer risks rather than actual estimates of cancer risk. The true cancer risk is likely to be less than that predicted and may even be as low as zero (USEPA, 1989). ELCRs are generally estimated using Equations 5-5 (ingestion) and 5-6 (inhalation):

EQUATION 5-5: ELCR (INGESTION)

$$ELCR = CDI \times SF_o$$

where:

- ELCR = Excess lifetime cancer risk (unitless probability); receptor-, age-, exposure pathway-, and analyte-specific
- CDI = Chronic daily intake averaged over a lifetime (mg/kg-day); referred to as "intake" in Section 3.3
- SF_o = Oral slope factor ([mg/kg-day]⁻¹); chemical-specific

EQUATION 5-6: ELCR (INHALATION)

$$ELCR = LEC \times IUR$$

where:

- LEC = Lifetime-averaged exposure concentration (mg/m³); chemical-specific
- IUR = Inhalation unit risk ([mg/m³]⁻¹); chemical-specific

Equations 5-5 and 5-6 were not applied explicitly in this FHHRA to estimate ELCR values, but these equations are incorporated into the “ratio method” (USEPA, 2010a) that was used to estimate cancer risks. The cancer risk screening levels applied in this FHHRA represent concentrations corresponding to a target ELCR of one in one million (1E-06) with the given exposure assumptions and toxicity values. Therefore, the ELCR for each COPC, pathway, and receptor was calculated using Equation 5-7.

EQUATION 5-7: ELCR FOR AN INDIVIDUAL CHEMICAL

$$ELCR_i = \frac{EPC_i}{RSL_{c-i}} \times 10^{-6}$$

where:

- ELCR_i = Excess lifetime cancer risk for an individual chemical
- EPC_i = Exposure point concentration for a given exposure unit (i.e., area or point) and chemical
- RSL_{c-i} = Cancer Regional Screening Level for an individual chemical and exposure pathway
- ELCR_{target} = Target ELCR (equal to 1E-06 in this FHHRA)

Although synergistic or antagonistic interactions might occur between cancer-causing chemicals and other chemicals, information is generally lacking in the toxicological literature to quantitatively predict the effects of these potential interactions. Therefore, cancer risks for individual chemicals are treated as additive (i.e., were summed) within an exposure scenario in this assessment. This is consistent with the USEPA guidelines on chemical mixtures (USEPA, 1986). Cumulative ELCR levels from exposure to multiple carcinogens from a single exposure route were estimated using the following equation:

EQUATION 5-8: TOTAL ELCR

$$ELCR_T = \sum_1^N ELCR_i$$

where:

- ELCR_T = Total cancer risk for the exposure scenario
- ELCR_i = Cancer risk for the ith chemical and exposure pathway
- N = Number of chemicals and exposure pathways combinations for a given exposure scenario

5.1.3 Risk Management Criteria

The NCP (40 CFR Part 300) establishes acceptable exposure levels for “systemic toxicants” (non-cancer effects) and carcinogens. The following subsections present the calculated risk in the context of the acceptable levels described in the NCP. The NCP acceptable target non-cancer HI is one. Estimates of HI values greater than one generally trigger discussion about the potential need for remedial action.

The NCP specifies an acceptable excess lifetime cancer risk range of 1E-06 to 1E-04 (one in a million to one in ten thousand), as opposed to a single value. Cumulative ELCRs less than 1E-06 typically indicate no further action, while values greater than 1E-04 trigger discussions about the potential need for remedial action. Risk managers will typically weigh site-specific information in determining the need for remedial action if cumulative ELCRs are between 1E-06 and 1E-04.

USEPA’s (1991) memorandum, *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions*, discusses the risk management criteria mentioned above. It also provides further guidance on the interaction of the risk assessment results and Applicable or Relevant and Appropriate Requirements (ARARs) in making remedial site-management decisions under CERCLA and the NCP. The Focused Feasibility Study (FFS), which will be developed following this FHHRA report, will provide analysis of the risk assessment results, ARARs, and their combined impact on establishing remediation goals, as necessary.

5.2 Risk Results

The following subsections summarize the risk results.

5.2.1 Soil Risk Estimates

This section summarizes the soil risk estimates for current and future commercial/industrial and construction workers. The preliminary COPCs identified for soil (0 to 15 feet bgs) are described in Section 2.0 and are presented in Table 2-7. Summaries of the risk estimates associated with potential exposure to COPCs for each of the soil exposure scenarios are provided in Tables 5-1A and 5-1B and discussed below.

5.2.1.1 Current and Future Commercial/Industrial Worker Soil Exposure Scenario

Cumulative risk estimates, hazard estimates, and risk drivers for the commercial/industrial worker soil exposure scenario in the North and South Exposure Areas are presented in Table 5-1A and summarized in Exhibit 5-1. Commercial/industrial soil risks and hazards were not quantified for the PSHIA Exposure Area because there were no COPCs identified during the COPC selection process (Section 2.0). Risk drivers are defined as those COPCs individually contributing 10 percent or more of the cumulative risk or hazard and generally account for 90 percent or more of the cumulative total.

With the exception of the ELCR for 1,4-dichlorobenzene within the North Exposure Area, estimated ELCRs and HQs are at or below 1E-06 and one, respectively. The cumulative ELCR for the North Exposure Area only slightly (2 times) exceeded 1E-06, the low end of the NCP target risk range (1E-06 to 1E-04). The ELCR associated with 1,4-dichlorobenzene is likely overestimated and anomalous because it was based on the maximum detected

concentration and 1,4-dichlorobenzene was only detected once in 221 samples (Table 2-5). Per USEPA (1989) RAGS and other risk guidance (e.g., USEPA Region 8, 1994), low detection frequencies (e.g., < 5 percent) are considered anomalous. In addition, the non-cancer hazard index was below the target value of one. Therefore, no further action is recommended based on potential exposure to soil COPCs for the current and future commercial/industrial worker scenario.

EXHIBIT 5-1
Industrial/Commercial Worker Soil Exposure Risk and Hazard Summary

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
Honeywell Facility North Exposure Area				
Ingestion	1E-07	1,4-Dichlorobenzene (63%)	2E-02	Mercury (60%); 1,2,4-Trimethylbenzene (28%)
Inhalation	2E-06		1E-01	
Dermal	5E-08		3E-04	
Total	2E-06		1E-01	
Honeywell Facility South Exposure Area				
Ingestion	5E-07	Tetrachloroethene (PCE) (86%)	3E-04	1,2,4-Trimethylbenzene (86%)
Inhalation	6E-07		2E-02	
Dermal	3E-08		3E-05	
Total	1E-06		2E-02	

Notes:

Risks and hazards exceeding respective target criteria are in **bold** text.

NCP target criteria for ELCR is 1E-06 to 1E-04.

NCP target criteria for the Hazard Index is 1E+00 or 1.

ELCR = excess lifetime cancer risk; HI = hazard index

5.2.1.2 Current and Future Construction Worker Soil Exposure Scenario

Screening levels were calculated for a hypothetical future construction worker soil exposure scenario for the North and South Exposure Areas. This exposure scenario assumes a worker is exposed to soil (from ground surface to approximately 15 feet bgs) during hypothetical future construction activities including surface work and intrusive work such as trenching. The screening levels were calculated assuming a one-year construction project for a full-time worker (8 hours day and 250 days/year), and they incorporated a construction-worker pathway exposure factor (PEF) based on USEPA's *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (USEPA, 2002a). As discussed in Section 4.2, chronic exposure factors were applied for the construction-worker calculations. This overestimated potential risks since the 1-year exposure duration is less than the 6-year duration that separates subchronic from chronic exposures. The calculated screening levels are included in Appendix G-4.

Construction worker risks were evaluated for the seven preliminary soil COPCs identified in Table 2-7. Cumulative risk estimates, hazard estimates, and risk drivers for the

construction worker soil exposure scenario in the North and South Exposure Areas are presented in Table 5-1B and summarized in Exhibit 5-2 below.

EXHIBIT 5-2
 Construction Worker Soil Exposure Risk and Hazard Summary

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
Honeywell Facility North Exposure Area				
Ingestion	2E-08	1,4-Dichlorobenzene (57%); Naphthalene (15%)	5E-02	Mercury (69%); 1,2,4-Trimethylbenzene (21%)
Inhalation	8E-08		1E-01	
Dermal	3E-09		4E-04	
Total	1E-07		2E-01	
Honeywell Facility South Exposure Area				
Ingestion	7E-08	Tetrachloroethene (PCE) (89%)	1E-03	1,2,4-Trimethylbenzene (83%)
Inhalation	2E-08		2E-02	
Dermal	2E-09		5E-05	
Total	1E-07		2E-02	

Notes:
 Risks and hazards exceeding respective target criteria are in **bold** text.
 NCP target criteria for ELCR is 1E-06 to 1E-04.
 NCP target criteria for the Hazard Index is 1E+00 or 1.
 ELCR = excess lifetime cancer risk; HI = hazard index

None of the preliminary soil COPCs exceeded their respective construction worker screening levels. Thus, risks and hazards for the construction worker scenario do not exceed their respective target range and value.

5.2.2 Groundwater Risk and Hazard Estimates (Hypothetical Tap Water Use)

As discussed in Section 3, there are no current or reasonably anticipated groundwater wells in the FHHRA used for supplying tap water; therefore exposure pathways via tap water use are incomplete. However, risks and hazards to hypothetical residents potentially exposed to COPCs in groundwater used as tap water were evaluated quantitatively because groundwater beneath the FHHRA study area lies within the Water Service Area of the COP and, in theory, could be supplied for residential use (A.R.S. 45-492).

Cumulative risk estimates, hazard estimates, and the risk drivers for hypothetical residential tap water use of groundwater are summarized in the following sections and were based on ingestion, dermal contact, and inhalation of COPCs during showering or other household activities. A summary of the risk estimates for each hydrostratigraphic unit in the North, South, and PSHIA Exposure Areas is provided in Table 5-2. Risk and hazard estimates for hypothetical exposure to groundwater used as tap water in the Offsite Exposure Area are summarized in Appendix H.

Exhibit 5-3 summarizes the hypothetical risk/hazard estimates and risk drivers for SRG sub-unit groundwater used as tap water.

EXHIBIT 5-3

Summary of Hypothetical Risk and Hazard Estimates for SRG Sub-unit Groundwater Used as Tap Water

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
Honeywell Facility North Exposure Area				
Ingestion	1E-03	Benzene (49%); Naphthalene (26%); Vinyl chloride (22%)	5E+00	Naphthalene (53%); Benzene (42%)
Inhalation	2E-03		3E+01	
Total	4E-03		4E+01	
Honeywell Facility South Exposure Area				
Ingestion	8E-04	Benzene (65%); Naphthalene (15%); Vinyl chloride (13%)	4E+00	Benzene (58%); Naphthalene (33%)
Inhalation	1E-03		2E+01	
Total	2E-03		2E+01	
Offsite PSHIA Exposure Area				
Ingestion	2E-04	Benzene (27%); Naphthalene (28%); Benzo(a)pyrene (14%); Vinyl chloride (12%)	9E-01	Naphthalene (58%); Benzene (24%)
Inhalation	3E-04		4E+00	
Total	5E-04		5E+00	

Notes:

Risks and hazards exceeding respective target criteria are in **bold** text.

NCP target criteria for ELCR is 1E-06 to 1E-04.

NCP target criteria for the Hazard Index is 1E+00 or 1.

ELCR = excess lifetime cancer risk; HI = hazard index

Exhibit 5-4 summarizes the hypothetical risk/hazard estimates and risk drivers for Basin Fill sub-unit groundwater used as tap water.

EXHIBIT 5-4

Summary of Hypothetical Risk and Hazard Estimates for Basin Fill Sub-unit Groundwater Used as Tap Water

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
Honeywell Facility North Exposure Area				
Ingestion	1E-05	Naphthalene (46%); Tetrachlorethene (PCE) (16%); Methyl tert-butyl ether (12%); Chloroform (12%)	9E-03	Naphthalene (95%)
Inhalation	3E-05		5E-01	
Total	4E-05		5E-01	
Honeywell Facility South Exposure Area				
Ingestion	2E-04	Vinyl chloride (56%); Trichloroethene (TCE) (25%)	4E-02	Naphthalene (81%)
Inhalation	9E-05		5E-01	
Total	2E-04		6E-01	
Offsite PSHIA Exposure Area				
Ingestion	2E-06	TCE (91%)	5E-03	1,1-Dichloroethene (1,1-DCE) (99%)
Inhalation	1E-05		2E-02	
Total	1E-05		3E-02	

EXHIBIT 5-4
 Summary of Hypothetical Risk and Hazard Estimates for Basin Fill Sub-unit Groundwater Used as Tap Water

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
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Notes:
 Risks and hazards exceeding respective target criteria are in **bold** text.
 NCP target criteria for ELCR is 1E-06 to 1E-04.
 NCP target criteria for the Hazard Index is 1E+00 or 1.
 ELCR = excess lifetime cancer risk; HI = hazard index

Exhibit 5-5 summarizes the hypothetical risk/hazard estimates and risk drivers for bedrock groundwater used as tap water.

EXHIBIT 5-5
 Summary of Hypothetical Risk and Hazard Estimates for Bedrock Groundwater Used as Tap Water

Exposure Route	ELCR (Cancer)	Risk Drivers	Hazard Index (Non-cancer)	Risk Drivers
Honeywell Facility North Exposure Area				
Ingestion	4E-05	Trichloroethene (TCE) (63%); Tetrachloroethene (PCE) (30%)	1E-02	PCE (63%); chloroform (37%)
Inhalation	6E-05		1E-02	
Total	1E-04		2E-02	
Honeywell Facility South Exposure Area				
Ingestion	1E-05	Chloroform (25%); Chlorodibromomethane (24%); Bromodichloromethane (22%); TCE (20%)	3E-02	Benzene (33%); 1,1-Dichloroethene (1,1-DCE) (31%); Chloroform (28%)
Inhalation	7E-05		7E-02	
Total	8E-05		1E-01	
Offsite PSHIA Exposure Area				
Ingestion	9E-05	Vinyl chloride (100%); TCE (38%); PCE (12%)	4E-02	Benzene (57%); 1,1-DCE (21%); Vinyl chloride (10%)
Inhalation	7E-05		1E-01	
Total	2E-04		1E-01	

Notes:
 Risks and hazards exceeding respective target criteria are in **bold** text.
 NCP target criteria for ELCR is 1E-06 to 1E-04.
 NCP target criteria for the Hazard Index is 1E+00 or 1.
 ELCR = excess lifetime cancer risk; HI = hazard index

Key observations for the risks and hazards summarized above for exposure to COPCs in groundwater hypothetically used as tap water include the following:

- Cumulative ELCRs in a number of the exposure area and hydrostratigraphic-unit groupings were near or greater than the upper end of the NCP target risk range (1E-06 to 1E-04). The Basin Fill sub-unit/PSHIA Exposure Area group had cumulative ELCRs closer to the middle of the range with a cumulative ELCR of 1E-05.
- The non-cancer hazard index was greater than the target criteria of one in SRG subunit groundwater. The Basin Fill and Bedrock sub-units exhibited hazard indices below one.

- The estimated ELCRs were highest for the SRG sub-unit.
- The dominant potential site-related cancer risk drivers were naphthalene, benzene, PCE, TCE, and vinyl chloride. Benzene and naphthalene were the predominant non-cancer risk drivers.

Trihalomethanes, including chloroform, bromodichloromethane, and chlorodibromomethane, also contributed greater than 10 percent of cumulative ELCRs in three of the eight exposure-area/hydrostratigraphic-unit groupings. Trihalomethanes are ubiquitous anthropogenic background contaminants in groundwater (USGS, 2006) suggesting that these chemicals may not be site-related. These chemicals are widespread in groundwater, public water supplies, and private wells throughout the industrialized world. They are formed by the reactions of the halogens chlorine and bromine and naturally occurring organic matter in disinfected drinking water and in public and private wastewater systems. Septic systems and leaking water supply and sewer lines are common sources of trihalomethane groundwater contamination.

5.2.3 Screening-Level Vapor Intrusion Risk Estimates

Preliminary (i.e., screening-level) soil gas-to-indoor air exposures and subsequent risks and hazards were estimated for two vapor intrusion scenarios: (1) soil gas-to-indoor air; and (2) groundwater-to-indoor air (see Table 5-3 and 5-4, respectively). Consistent with USEPA (2002b) and ITRC (2007) vapor intrusion guidance, screening level vapor intrusion estimates are used to determine if further evaluation (e.g., indoor air sampling) is needed. As discussed in Section 3.0, USEPA and ADEQ have reviewed preliminary vapor intrusion estimates provided to the Agencies on October 27, 2010. Based on the Agencies review of the preliminary vapor intrusion estimates, Honeywell and the Agencies (Honeywell, 2010) have agreed to perform the next phase of a vapor intrusion assessment that will be documented in a separate vapor intrusion technical memorandum/work plan. Therefore, one objective of this FHHRA is to document the screening level vapor intrusion risk and hazard estimates reviewed by the Agencies. Estimates for current and future industrial workers in the North, South, and PSHIA Exposure Areas are presented in the following subsections. Estimates for current and future residents in the Offsite Exposure Area are included in Appendix H.

As discussed in Section 3.3.1, it was assumed for the vapor intrusion evaluation that exposure would occur within an individual building, so each sample location was evaluated as an exposure point. This approach provides information on the spatial distribution of the potential risks and hazards across each of the exposure areas.

Screening level cumulative vapor intrusion risk estimates, hazard estimates, and the risk drivers for the soil gas-to-indoor air and groundwater-to-indoor air pathways are presented on a series of figures to depict the results spatially. The cumulative results used to generate the figures and the supporting J&E calculation worksheets for each of the exposure scenarios are provided in Appendix G.

Screening level cumulative vapor intrusion estimates for industrial workers, along with the risk drivers, are presented in the following figures:

- **Figure 5-1A:** This figure presents the screening level cumulative cancer risks for soil gas-to-industrial indoor air based on detected COPCs. If multiple sampling depths were present at a location (i.e., a location “cluster”), the cumulative risk for each interval was calculated separately, but only the highest calculated risk is shown in the figure. Figures showing upper-bound hypothetical cancer risks based only on non-detect reporting limits (i.e., SQLs) are presented and discussed in the uncertainty section (Section 6.0). Non-cancer hazards are not presented because cumulative hazards were less than the NCP target of one.
- **Figure 5-1B:** This figure is an inset, magnified view of Figure 5-1A.
- **Figure 5-2:** This figure presents the screening level cancer risks for groundwater-to-industrial indoor air based on detected COPCs.
- **Figure 5-3:** This figure presents the screening level non-cancer hazards for groundwater-to-industrial indoor air based on detected COPCs.

Key observations from the screening level vapor intrusion risk and hazard maps include the following:

- Screening level cumulative industrial vapor intrusion ELCRs using detected COPCs ranged from less than $1E-06$ to slightly greater than $1E-04$ (Figures 5-1A, 5-1B, 5-2, and 5-3). Per USEPA (2002b) vapor intrusion guidance and consistent with USEPA comments (USEPA, 2010b), further investigation is warranted. Honeywell and the Agencies (Honeywell, 2010) have agreed to perform the next phase of a vapor intrusion assessment that will be documented in a separate vapor intrusion technical memorandum/work plan.
- The highest calculated ELCRs and HIs for both the soil-gas and groundwater datasets were in the eastern-central portion of the South Exposure Area. There was only one location (DSV-2; ELCR is $3E-04$) with a cumulative ELCR greater than the upper end of the NCP target risk range of $1E-04$ (see Figure 5-1A). However, ELCRs from nearby (between approximately 35 and 70 feet away) locations (e.g., SG-12, P-3, P-1, and SSG-22) were nearly two orders of magnitude lower (Figure 5-1B). None of the groundwater-to-indoor air screening level ELCR estimates exceeded $1E-04$ (Figure 5-2).
- The dominant potential site-related cancer risk drivers were benzene, ethylbenzene, naphthalene, PCE, TCE, and vinyl chloride. Benzene was the predominant non-cancer risk driver. Benzene, naphthalene, and ethylbenzene exceedances greater than $1E-06$ ELCR estimates were limited to within the BSVE TTA (i.e., the approximate extent of the LUST AOI), with the exception of two locations: PSI-059 (ethylbenzene [100%], located approximately 300 feet to the west of the BSVE TTA) and P-28 (naphthalene [99%], located approximately 200 feet to the east of the BSVE TTA).
- Trihalomethanes were also cancer risk drivers at some locations. As discussed above in Section 5.2.2, trihalomethanes may not be site-related because they may be related to anthropogenic background levels.

- One location exhibited a non-cancer hazard index greater than one for the groundwater to indoor air scenario (Figure 5-3). Otherwise the vapor-intrusion non-cancer hazard index values were below the target value of one for both soil gas and groundwater.

The screening level industrial vapor intrusion results summarized here are based on extrapolation from subsurface media (soil gas and groundwater) to indoor air. Thus, risk results exceeding target criteria are, at most, suggestive of potential vapor intrusion. A definitive determination regarding whether or not vapor intrusion is occurring and significant is being evaluated.

6.0 Uncertainty Analysis

Risk assessments involve the use of assumptions, professional judgments, and imperfect data to varying degrees, which results in uncertainty in the final estimates of hazard and risk. Risk assessment in general is highly conservative and often is based on conservative assumptions and scenarios. As discussed in USEPA (1989) RAGS, the characterization of human health risks and hazards should be accompanied by a discussion of the uncertainties. Uncertainties in the risk estimation process may result in the numerical estimates either under- or over-estimating risks.

Various sources of uncertainty affect the overall estimates of potential ELCRs and non-cancer hazards as presented in this FHHRA. These sources are generally associated with data evaluation, COPC selection, exposure assumptions, toxicity values, and risk characterization. Many of these uncertainties are not site-specific, but are inherent to the exposure and toxicity assessment methodologies and assumptions specified in the USEPA's RAGS framework. These methodologies underlie the RME approach and risk characterization calculations, which are intended to yield upper-bound (i.e., conservative) exposure and risk estimates. These types of uncertainties are adequately addressed in the RAGS documents and other supporting references such as the IRIS toxicity profiles and the Exposure Factors Handbooks (USEPA, 1997; 2008). They are also unlikely to affect the use of the risk results presented in this report with respect to site management decision-making. Therefore, this uncertainty analysis will only address uncertainties unique to this FHHRA, particularly those that may significantly influence the interpretation and use of the results.

6.1 Sample Quantitation Limits for Soil Gas

Screening level cumulative cancer risk estimates for soil gas-to-industrial indoor air based on detected chemicals were presented in Section 5 (Figures 5-1A and 5-1B). It is also important to understand whether any of the historical soil-gas samples had elevated non-detect SQLs that could result in risks or hazards being under-estimated relative to a risk-management target (e.g., NCP target cancer risk range of 1E-06 to 1E-04). Figures 6-1A to 6-1F present the upper-bound hypothetical cancer risks for soil-gas to industrial indoor air based on SQLs. As shown in Figure 6-1A, most of the historical soil-gas sampling locations with non-detect COPC elevated SQLs correspond to industrial-based vapor intrusion ELCRs in the 1E-06 to 1E-05 range. The primary objective in collecting these onsite mobile laboratory historical soil-gas data was for source area delineation, where the SQLs were adequate. Although these non-detect SQLs introduce limited uncertainty, they can still be used in the vapor intrusion assessment process because of the following reasons: (1) a target risk of 1E-05 is used when making risk-management decisions; (2) a default target risk of 1E-05 is recommended in USEPA's (2002b) vapor intrusion guidance: *"For the purposes of making Current Human Exposures Under Control EI determinations with respect to vapor intrusion under RCRA and CERCLA, EPA generally recommends the use of 1E-05 values. This level, in EPA's view, serves as a generally reasonable screening mechanism for the vapor intrusion pathway"*; and (3) a target risk of 1E-05 is used for many chemicals in the ADEQ risk-based corrective action

program (www.azdeq.gov/environ/waste/ust/lust/rbca/section6.pdf). Therefore, the upper-bound hypothetical cancer risks for soil gas to industrial indoor air based on non-detect SQLs (Figure 6-1A through 6-1F) present a limited uncertainty and do not change the overall conclusions for this FHHRA. Risk estimates above 1E-06 that are based on detections and non-detect SQLs (i.e., upper-bound hypothetical estimates) are being considered per USEPA (2010b) during the next phase of the vapor intrusion assessment; this will be documented in the vapor intrusion technical memorandum/work plan.

6.2 Detection Frequencies

As discussed in Section 5.2, the highest calculated ELCR for industrial exposures to COPCs in soil for the North Exposure Area was due to 1,4-dichlorobenzene, an analyte that was detected in only 1 of 222 soil samples (0.5% detection frequency). Because of the low detection frequency, ProUCL did not calculate a UCL95 value and the single detected concentration was applied as the EPC for the exposure area. Similarly, naphthalene was a groundwater risk driver in several exposure area/hydrostratigraphic unit groupings where the maximum concentration was used as the EPC due to low detection frequencies.

In both cases, the maximum concentration likely greatly overestimates risks from potential exposure to 1,4-dichlorobenzene or naphthalene. Per USEPA (1989) RAGS and other risk guidance (e.g., *Evaluating and Identifying Contaminants of Concern for Human Health. Region 8 Superfund Technical Guidance No. RA-03* [USEPA, 1994]), low detection frequencies (e.g., < 5 percent) are considered anomalous. Therefore, the uncertainties associated with the detection frequencies of 1,4-dichlorobenzene or naphthalene result in over- rather than under-estimating potential risks.

6.3 Vapor Intrusion Modeling

The prediction of indoor air concentrations based on subsurface COPC concentrations is inherently uncertain, and predicted levels that exceed screening levels can only provide suggestive evidence that vapor intrusion is occurring and significant. Consistent with USEPA (2002b and 2004b), screening level estimates were based on conservative (i.e., health-protective) subsurface fate-and-transport, building, and exposure assumptions in order to minimize the likelihood of underestimating risks. Therefore, the uncertainties associated with modeling volatilization of COPCs in the subsurface and intrusion into buildings is expected to over- rather than under-estimate risks.

The vapor intrusion modeling used to estimate the risks summarized in Section 5 were calculated with assumption that the buildings are slab-on-grade. This assumption is consistent with the construction of the existing industrial buildings at the Facility. It is conceivable that future industrial buildings could be built with basements. To assess the potential impacts of a basement on the soil-gas risk estimates, a basement scenario (Appendix G-5) was compared to the slab-on-grade results for benzene. The 15-foot sampling depth scenario was selected since it represents the shallowest scenario applicable to a basement scenario (the 5-foot scenario would result in a sampling depth above the depth of the hypothetical basement). The scenarios were identical with the exception of the

slab depth and the ceiling height, both of which were set to the USEPA defaults for the respective scenario.

The basement-scenario attenuation factors predicted by the J&E model (4.3E-04) was approximately 30 percent higher (less attenuation) than the slab-on-grade attenuation factor (3.3E-04) (see the “Infinite source indoor attenuation coefficient - α ” on the “Intercalc” worksheets in Appendix G-5). This suggests that buildings with basements could have predicted risks approximately 30 percent greater than the slab-on-grade scenario. However, this is a minor uncertainty relative the overall uncertainties associated with predicting indoor-air concentrations based on subsurface concentrations and will have limited impact on strategies for further characterizing potential vapor intrusion exposures and risks.

Risk managers may benefit from more definitive lines of evidence like indoor air sampling when assessing the need for remedial or mitigation responses for buildings overlying site-related groundwater or soil VOC contamination. Honeywell is assessing uncertainties associated with modeling volatilization of COPCs in the subsurface and intrusion into buildings during the ongoing next phase of the vapor intrusion assessment.

7.0 Summary and Conclusions

A summary of the FHHRA risk and hazard estimates is presented in this section. Risks and hazards were estimated for current and reasonably anticipated receptors potentially exposed to soil, groundwater, and/or soil-gas COPCs in each of the four exposure areas (North, South, PSHIA, and Offsite Exposure Areas). Results are summarized by receptor and exposure area.

Per the Final FRI Report (CH2M HILL, 2005b), arsenic, iron, hexavalent chromium, and manganese are not Facility-related, but are present as naturally occurring metals, and were therefore eliminated from further consideration during the COPC selection process (see Section 2.5.3). However, risk and hazard estimates associated with these analytes are presented below in Section 7.2 to address ADEQ and USEPA review comments (ADEQ, 2010) on the Draft FHHRA Report (CH2M HILL, 2009a) and provide a perspective that will facilitate risk management decisions.

Section 7.3 presents the overall FHHRA conclusions, considering the results, risk management criteria (e.g., NCP target risk range of 1E-06 to 1E-04), uncertainties, and other factors.

7.1 Risk Summary by Potential Receptor

The following subsections present the risk summaries by potential receptor.

7.1.1 Industrial/Commercial Worker

Maximum ELCRs and HIs for the industrial worker exposure scenario are summarized in Exhibit 7-1. The highest calculated ELCR for the industrial worker receptor was 3E-04 (DSV-2) for the soil gas-to-indoor air scenario in the Honeywell Facility South Exposure Area. Although the maximum groundwater-to-indoor air cumulative ELCR in the South Exposure Area was of the same magnitude, ELCRs from nearby (approximately 40 feet away) soil-gas locations were nearly two orders of magnitude lower than the soil gas-to-indoor air maximum ELCR. Per USEPA (2002b) vapor intrusion guidance and consistent with USEPA's request (USEPA, 2010b), a further vapor intrusion investigation is recommended. As agreed with ADEQ and USEPA (Honeywell, 2010), the next phase of the vapor intrusion investigation will be assessed in a separate vapor intrusion technical memorandum/work plan. The magnitude and spatial distribution of the screening level vapor intrusion estimates presented in this FHHRA will be considered when prioritizing and selecting buildings for additional vapor intrusion investigations (e.g., indoor air sampling).

The maximum ELCR for the soil exposure scenario is 2E-06 (North Exposure Area; Location ID: Sump 2-H), which is at the lower end of the target risk range and does not warrant further action since (1) it was due to an anomalous detection of 1,4-dichlorobenzene; and (2) it only slightly exceeded the lower end of the NCP target risk range (1E-06 to 1E-04).

As shown in Exhibit 7-1, the only HI greater than one for industrial worker scenarios is from the groundwater-to-indoor air scenario in the South Exposure Area (2E+00 at ASE-63A;

Figure 5-3). The groundwater-to-indoor air or cumulative ELCR at ASE-63A was 1E-04 (Figure 5-2), indicating that the cancer-endpoint may be the driver for making risk-management decisions.

EXHIBIT 7-1
Industrial/Commercial Exposure Risk Summary

Exposure Area	Maximum ELCR (Cancer)	Maximum HI (Non-cancer)
Soil		
Honeywell Facility North Exposure Area	2E-06	1E-01
Honeywell Facility South Exposure Area	1E-06	2E-02
Offsite PSHIA Exposure Area	NA	NA
Soil Gas-to-Indoor Air		
Honeywell Facility North Exposure Area	4E-05	1E+00
Honeywell Facility South Exposure Area	3E-04	5E-01
Offsite PSHIA Exposure Area	1E-05	1E-01
Groundwater-to-Indoor Air		
Honeywell Facility North Exposure Area	1E-04	1E+00
Honeywell Facility South Exposure Area	1E-04	2E+00
Offsite PSHIA Exposure Area	2E-05	3E-01

Notes:

Risks and hazards exceeding respective target criteria are in **bold text**.

NCP target criteria for ELCR is 1E-06 to 1E-04.

NCP target criteria for the Hazard Index is 1E+00 or 1.

ELCR = excess lifetime cancer risk; HI = hazard index

As noted in Section 6, soil-gas SQLs over much of the Facility correspond to calculated ELCRs greater than 1E-06 but generally less than 1E-05. Much of this data was collected in (1) 1994, 1997, 1998 and 2002 to identify potential sources during the site characterization phase of the project or (2) between 2005 and 2008 to assist with the design of the ADEQ-approved BSVE system. Based on detected concentrations (Figure 5-1A and Figure 5-1B), the western portion of the Facility (i.e., Area 4) and most of the northern portion of the Facility (i.e., Areas 3 and 5) had detected concentrations with ELCR values below 1E-06. Detected concentrations in the eastern portion of the Facility (specifically, Area 1 and Area 2) had detected concentrations with ELCR values greater than 1E-06. The elevated ELCRs generally are clustered near Buildings 102, 104, and 108 and throughout Area 2. Most of the data collected near Buildings 104 and 108 (unenclosed buildings [i.e., canopies]) was collected in 1994 and 1998. To address these detected concentrations, Honeywell installed a SVE system near Building 140. During operation of this system, it is estimated to have removed about 2,600 pounds of CVOCs and more than 400,000 pounds of TPH contamination (the latter through extraction and biodegradation) (CH2M HILL, 2005b). Elevated ELCRs above 1E-06 for detected concentrations were also clustered near Building 102 and throughout Area 2. These areas are located within the LUST AOI and BSVE TTA. It is important to note that the

soil-gas data presented on the Section 5 and Section 6 figures represents baseline conditions and were collected before the operation of the BSVE system. As Honeywell moves into the next phase of the vapor intrusion assessment, the uncertainty associated with the elevated SQLs will be considered as well as new and current soil-gas data collected as part of the operation of the BSVE system.

7.1.2 Construction Worker

None of the ELCR or HI estimates for the constructor worker scenario exceeded the lower end of the target risk range (1E-06) or target hazard of one, respectively (see Exhibit 7-2). Therefore, no further action is warranted based on the potential risks or hazards for the current or future construction worker scenario.

EXHIBIT 7-2
 Construction Worker Soil Exposure Risk and Hazard Summary

Exposure Area	Maximum ELCR (Cancer)	Maximum HI (Non-cancer)
Soil		
Honeywell Facility North Exposure Area	1E-07	2E-01
Honeywell Facility South Exposure Area	1E-07	2E-02

Notes:
 Risks and hazards exceeding respective target criteria are in **bold** text.
 NCP target criteria for ELCR is 1E-06 to 1E-04.
 NCP target criteria for the Hazard Index is 1E+00 or 1.
 ELCR = excess lifetime cancer risk; HI = hazard index

7.1.3 Hypothetical Residential (Tap Water User)

Although the exposure pathways via tap water use are incomplete, risks and hazards to hypothetical residents were estimated because groundwater beneath the FHHRA study area lies within the Water Service Area of the COP and in theory could be supplied for residential use (A.R.S. 45-492). Maximum ELCRs and HIs for the hypothetical resident groundwater exposure scenario (tap water user) are summarized in Exhibit 7-3. The highest calculated ELCR and HI for the hypothetical residential groundwater exposure scenario were in the Honeywell Facility North Exposure Area at 4E-03 and 4E+01 (or 40), respectively. Both of these maximum values are above their respective target ranges.

EXHIBIT 7-3
 Residential Exposure Risk Summary

Exposure Area	Maximum ELCR (Cancer)	Maximum HI (Non-cancer)
Groundwater ⁽¹⁾		
Honeywell Facility North Exposure Area	4E-03	4E+01
Honeywell Facility South Exposure Area	2E-03	2E+01
Offsite PSHIA Exposure Area	5E-04	5E+00
Offsite Exposure Area	2E-04	2E+00

Notes:

- ⁽¹⁾ All maximum groundwater risks/hazards are in the SRG sub-unit.
Risks and hazards exceeding respective target criteria are in **bold text**.
NCP target criteria for ELCR is 1E-06 to 1E-04.
NCP target criteria for the Hazard Index is 1E+00 or 1.
ELCR = excess lifetime cancer risk; HI = hazard index

7.2 Risk and Hazard Estimates for Select Naturally Occurring Metals

As noted above, per the Final FRI Report, arsenic, iron, hexavalent chromium, and manganese are not Facility-related, but are present as naturally-occurring metals (CH2M HILL, 2005b). Therefore, risk and hazard estimates for these analytes were not presented in Section 5. However, the estimates associated with these analytes are presented here to address the ADEQ and USEPA comments (ADEQ, 2010) and provide a perspective that will facilitate risk management decisions.

The calculated risks and hazards associated with arsenic, iron, hexavalent chromium, and manganese detected in soil (industrial scenario) and groundwater (hypothetical tap water use) are summarized in Exhibit 7-4. Maximum sitewide ELCR and HI estimates were based on the maximum of the UCL95 values calculated for each medium (soil and groundwater) and exposure area (see Tables 3-1 and 3-2).

The maximum industrial worker sitewide cumulative ELCR associated with naturally occurring arsenic in soil (9E-06) exceeds the maximum for potential COPCs (2E-06). While higher risks and hazards were estimated for site-related chemicals in groundwater (hypothetical tap water use), the maximum sitewide cumulative ELCR and/or HI for these naturally-occurring metals exceeded either the target risk range (arsenic) or HI (iron, manganese).

EXHIBIT 7-4
Risk Summary for Naturally-occurring Chemicals

Chemical	Sitewide Maximum ELCR (Cancer)	Sitewide Maximum HI (Non-cancer)
Soil (Industrial Scenario)		
Arsenic	9E-06	5E-02
Hexavalent Chromium	2E-07	4E-04
Groundwater (Hypothetical Tap Water Use)		
Arsenic	3E-04	1E+00
Iron	NA	2E+00
Manganese	NA	3E+00

Notes:

- Risks and hazards exceeding respective target criteria are in **bold text**.
NCP target criteria for ELCR is 1E-06 to 1E-04.
NCP target criteria for the Hazard Index is 1E+00 or 1.

EXHIBIT 7-4
 Risk Summary for Naturally-occurring Chemicals

Chemical	Sitewide Maximum ELCR (Cancer)	Sitewide Maximum HI (Non-cancer)
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ELCR = excess lifetime cancer risk; HI = hazard index

Exhibit 7-5 provides an overall summary of the risks and hazards for the North, South, and PSHIA Exposure Areas. Risk and hazards that exceed their respective target criteria are shown as red dots (●); risks and hazards that are below their respective target criteria are shown as green dots (●); risks that are within the target range are shown as yellow dots (●).

EXHIBIT 7-5
 Risk Summaries by Exposure Area

Potential Receptor	Honeywell Facility North Exposure Area		Honeywell Facility South Exposure Area		Offsite PSHIA Exposure Area	
	ELCR (Cancer)	HI (Non-Cancer)	ELCR (Cancer)	HI (Non-Cancer)	ELCR (Cancer)	HI (Non-Cancer)
Soil						
Industrial/Commercial Worker	●	●	●	●	NA	NA
Construction Worker	●	●	●	●	NA	NA
Groundwater						
Resident	●	●	●	●	●	●
Soil Gas to Indoor Air						
Industrial/Commercial Worker	●	●	●	●	●	●
Groundwater to Indoor Air						
Industrial/Commercial Worker	●	●	●	●	●	●

Notes:

ELCR = excess lifetime cancer risk; HI = hazard index; NA = not applicable

7.3 Conclusions

Risks and hazards were estimated for current and reasonably anticipated future receptors potentially exposed to soil, groundwater, and soil-gas COPCs. This FHHRA focused primarily on potential exposures to current and future industrial receptors within the Facility boundary (i.e., North and South Exposure Areas) and COPC sources originating at the Facility (e.g., fuel releases, chlorinated solvents and breakdown products). Risks and hazards were estimated for potential industrial receptors in the PSHIA Exposure Area because the petroleum hydrocarbon plume in this area was determined to be related to Facility activities and not generally commingled with COPCs from other sources (CH2M HILL, 2005b). Estimates associated with the Offsite Exposure Area are not discussed

herein because of comingling with the Motorola 52nd Superfund Site regional CVOC groundwater plume and the need to assess this exposure area in the overall OU2 RI/FS. However, these Offsite Exposure Area estimates are provided in Appendix H for informational purposes. Although the exposure pathways via tap water use are incomplete, risks and hazards were estimated for these hypothetical exposure pathways because groundwater beneath the FHHRA study area lies within the Water Service Area of the COP and in theory could be supplied for residential use (A.R.S. 45-492).

Conclusions of this FHHRA include the following:

- No further action is warranted for soil within the FHHRA study area boundary based on ELCR and HI estimates for current and reasonably anticipated future industrial workers. The maximum ELCR for the soil exposure scenario was 2E-06 (North Exposure Area; Location ID: Sump 2-H), which is at the lower end of the target risk range and does not warrant further action since (1) it only slightly exceeded the lower end of the NCP target risk range (1E-06 to 1E-04), and (2) the risk driver was an anomalous detection of 1,4-dichlorobenzene.
- Screening level vapor intrusion ELCR estimates using soil-gas and groundwater data exceeded target criteria. Therefore, the significance of the vapor intrusion pathway cannot confidently be determined without further investigation. Honeywell and the Agencies (Honeywell, 2010) have agreed to perform the next phase of a vapor intrusion assessment that will be documented in a separate vapor intrusion technical memorandum/work plan. The magnitude and spatial distribution of the screening level vapor intrusion estimates presented in this FHHRA, including the uncertainties associated with the SQLs, are being considered during the next phase of the vapor intrusion assessment. A more definitive determination of whether this pathway is complete and significant will better inform decisions about the need for remedial or mitigation responses to address vapor intrusion.
- Although the exposure pathways for groundwater used as tap water are incomplete, the appropriateness of considering fuel COPCs (e.g., benzene and naphthalene) and CVOCs in groundwater during the Facility FFS may need to be addressed since (1) estimated risks and hazards exceeded NCP target levels for these hypothetical groundwater (as tap water) exposure pathways, and (2) groundwater beneath the FHHRA study area lies within the Water Service Area of the COP. It is important to note that the petroleum hydrocarbon-related COPCs are currently being addressed through ADEQ's LUST program and in accordance with the ADEQ approved-CAP.
- A key data need for the forthcoming Facility FFS is the identification of COPCs. The analysis presented in Section 2 identified preliminary COPCs, meaning COPCs that required further evaluation in this FHHRA. The COPC list was further refined based on the risk characterization and uncertainty evaluation presented in Sections 5 and 6. COPCs to be carried forward into the Facility FFS include those which resulted in an exceedance of an ELCR of 1E-06 and/or an HI of one for a given matrix and scenario. Naturally-occurring metals and analytes that are otherwise unlikely to be related to site releases (e.g., trihalomethanes) were excluded.

Exhibit 7-6 summarizes COPCs to be considered in the Facility FFS. In addition to the information contained in this FHHRA, the Facility FFS will consider Applicable or Relevant and Appropriate Requirements (ARARs) and other factors to determine if any of these chemicals constitute COCs requiring evaluation of potential remedies in the Facility FFS.

EXHIBIT 7-6
 COPCs by Media and Scenario

Groundwater (Direct Exposure)	Soil Gas-to-Indoor Air	Groundwater-to-Indoor Air
1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1-Dichloroethane
1,1,2-Trichloroethane	1,1,2-Trichloroethane	Benzene
1,1-Dichloroethane	1,1-Dichloroethane	Ethylbenzene
1,2,4-Trimethylbenzene	1,2-Dichloroethane	Naphthalene
1,2-Dichloroethane	Benzene	Tetrachloroethene
1,4-Dioxane	Ethylbenzene	Trichloroethene
Benzene	Naphthalene	Vinyl chloride
Benzo(a)anthracene ⁽¹⁾	Tetrachloroethene	
Benzo(a)pyrene ⁽¹⁾	Trichloroethene	
Bis(2-ethylhexyl)phthalate ⁽¹⁾	Vinyl chloride	
Ethylbenzene		
Methyl tert-butyl ether		
Methylene chloride ⁽¹⁾		
Naphthalene		
Tetrachloroethene		
Trichloroethene		
Vinyl chloride		

Notes:

⁽¹⁾ While 1,4-Dioxane, Benzo(a)anthracene, Benzo(a)pyrene, Bis(2-ethylhexyl)phthalate, and methylene chloride are listed as COPCs for groundwater the detection frequencies for the chemicals are less than 5% (0.6% (Benzo(a)anthracene) to 4.2% (1,4-Dioxane)). As Honeywell moves into the Facility FFS, the COPC list will be further refined based on the most current groundwater data set.

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Tables

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy ¹	Criteria Group	Description
General (Applicable to each Data Type)		
A	Data Quality	<p>The primary Environmental Information Management System (EIMS) database [SkyharborALLData] contains results that were marked for exclusion based on data reduction and data validation criteria specified in the various field sampling plans, work plans, sampling and analysis plans, and quality assurance project plans (QAPPs) in effect at the time the data were collected. The most common reasons for data rejection involve failure to meet one or more of the laboratory quality control criteria; for example, a laboratory control spike (LCS) recovery out of the specified range. These results were marked with the field [USE_FLAG] = "N" in the EIMS [FIELD_SAMPLE_RESULT] Table. These exclusions were accepted at face value. These results were not imported into the main FHHRA dataset and are not present in the Appendix G tables.</p> <p>The imported data contained a limited number of results marked as "rejected" or "excluded" that were not filtered out using the [USE_FLAG] criteria. These data were imported in the FHHRA dataset but were subsequently excluded and marked as "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p>
B	Data Reduction	<p>It is common for multiple analytical results for a given analyte to exist for a specific sample location and data/time. The most common reasons for this are (1) multiple analytical methods with overlapping target analytes, (2) dilutions for analytes out of the method calibration range, and (3) field duplicates (FDs).</p> <p>The "data reduction" process (see Section 2.5) results in selection of one result per analyte and location/data/time. Generally the selected value will be: (1) the highest detection if there is at least one valid detection, (2) the lowest detection limit for cases where there are not detections, and (3) the result for the lowest serial dilution that was within calibration range for a given analyte.</p> <p>The data reduction process is captured in the "Best_Result" field in the table [TbIHHRALocationFieldSampleResults]. Records coded with a "Y" value were retained in the data reduction process and records coded "N" were excluded.</p>
1	Sample Types	<p>Results exist in the EIMS database for samples created for a variety of field and laboratory quality assurance/quality control purposes. Equipment blanks and trip blanks are the most common of these types of samples. Such results are not usable for risk assessment.</p> <p>Only results for regular (i.e., "parent") samples or field duplicates of the regular samples are usable for evaluating the concentrations of analytes in site media. These are marked with a code of "Reg" or "FD" in the [Sample_Purpose] field in the [Field_Sample] table. Results not exhibiting one of these codes were excluded and marked as "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p> <p>A small number of samples were marked with a [Sample_Purpose] = "BH". These denote groundwater grab samples collected from a borehole prior to screen installation and well development. These were retained at this initial stage of the data selection but were subsequently excluded based on other selection criteria.</p>

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy ¹	Criteria Group	Description
General (Applicable to each Data Type)		
3, 3a	Location, Depth and Date	Samples collected from locations that are outside the FHHRA study area (see Figures 1-2 and 1-4) were excluded. Such samples were identified using the project Geographical Information System (GIS). The locations were evaluated using the survey coordinates shown in the table [LOCATIONS]. The locations were coded as "In" or "Out" in the [Study Area] field in the table [tblHHRASStudyAreas]. Samples coded as "Out" and were excluded and marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
6	Tentatively Identified Compounds (TICs)	<p>On occasion, the laboratory was asked to report results for Tentatively Identified Compounds (TICs) based on a comparison of an instrument's spectra with a library of possible matches. Such results are not supported by the analytical method's QA/QC procedures including instrument calibration and QC sampling/analysis (e.g., LCS). Thus, both the analyte identification and its quantification are uncertain and such results are not suitable for risk-assessment purposes.</p> <p>Such results are marked with the value "TIC" in the [RESULT_TYPE_CODE] field in the table [FIELD_SAMPLE_RESULTS]. Results associated with these samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p>
7a	Nutrients	For reasons described in Section 2.5.1, analytical results for the common nutrients calcium, magnesium, potassium, and sodium were excluded from the FHHRA dataset. The analytes are identified by their Chemical Abstracts Service (CAS) number in the [PARAMETER_CODE] field in the table [FIELD_SAMPLE_RESULT]. Results associated with these nutrients were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
Groundwater		
2	Matrices and Sampling Methods	Only results for actual groundwater samples are usable for assessing groundwater-related risks in the FHHRA. Separating groundwater results from results for other liquid matrices (e.g., drum samples) requires looking at the combinations of several fields in the [FIELD_SAMPLE] table. These fields relate to the sample type, purpose, and matrix. A table showing the unique combinations of these fields [TbLocationSampleMatrixSelectionCriteria] was created, evaluated, and coded by the project team. Records coded as "Y" in the [UseGW] field represent groundwater samples. Records coded as "N" were excluded and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
3b	Location, Matrix	<p>There are groundwater results for ten locations (see [tbLocationMatrixExclusionList]) that were only sampled once using wells that were not properly developed prior to sampling. Thus, these are not considered representative groundwater data, nor are these locations part of Honeywell's approved groundwater monitoring network. Results associated with these locations were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p> <p>Note that there are representative groundwater results from acceptable locations nearby and at a similar depth to each of the excluded locations.</p>

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy¹	Criteria Group	Description
General (Applicable to each Data Type)		
4	Location, Depth and Date	The FHHRA is intended to represent baseline (pre-remedy) conditions at the Facility prior to initiation of the biologically-enhanced soil vapor extraction (BSVE) treatment system. Data (January 1, 2005 to September 10, 2008, inclusive) were selected for a period of approximately 3 1/2 years prior to the initial BSVE startup (May 27, 2009) to balance (1) the need for a reasonably current dataset, and (2) the need to include sufficient sampling events to account for expected temporal variability. Data from before or after this period were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
5	Sample Purpose	Honeywell conducted vertical groundwater concentration profiling at selected groundwater monitoring wells in 2005. This was a one-time, grab-sampling event. There is adequate temporal coverage at these locations from samples collected using normal purging and sampling procedures. The vertical profiling samples are marked with the value "Depth Discrete Sampling" in the [SAMPLING_PROGRAM] field in the table [FIELD_SAMPLE]. Results associated with these samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
7b	TCLP Samples	Soil sample analyzed using the Toxicity Characteristic Leachate Procedure (TCLP) have results with liquid units (e.g., micrograms/liter). Such results are not usable in the FHHRA. They were identified by looking in the [FIELD_SAMPLE_RESULT] for samples with liquid units but a solid matrix (e.g., "Soil") in the [SAMPLE_MATRIX] field. Results associated with these samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
7c	Inapplicable Analytes	Following the data selection hierarchy described above, results existed for parameters that are not of interest to the FHHRA. Examples include indicator analytes such as total petroleum hydrocarbons (TPH) and total dissolved solids (TDS). Such analytes also include dissolved gasses such as methane, ethane, and ethene that were analyzed as biodegradation indicator compounds. A specific list of such analytes is presented in the table [tbIHHRAFinalMatrixAnalyteSelection] and are marked "Yes" in the field [Exclude]. Results associated with these analytes were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
7d	Filtered and Unfiltered Metals	Both filtered and unfiltered metals results are commonly reported for the same sample. In such cases, the unfiltered results were selected because it was assumed that the hypothetical groundwater exposure medium would not be filtered to remove particles less than 0.45 microns. Dissolved (filtered) metals samples were identified with a "Y" value in the [FILTERED_FLAG] field in the [FIELD_SAMPLE_RESULT] table. Results associated with these analytes were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy ¹	Criteria Group	Description
General (Applicable to each Data Type)		
Soil		
2a	Location and Sample Matrix	Some soil samples represent volumes of soil that were removed by excavation prior to October 2008. Thus, these samples need to be excluded to properly characterize the 2008 baseline (pre-BSVE remedy) condition. Locations corresponding to excavated samples are identified in the [TbISOILLocationCriteria] table with a "N" value in the [Include_Soil] field along with a brief rationale. Results associated with these samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
2b	Sample Name and Matrix	Some soil samples were collected ex situ during remedial actions for the purpose of characterizing waste. Such samples were not intended for site characterization and are not useful for that purpose. The table [tbISampleMatrixExclusionList] lists these excluded samples. Results associated with waste characterization samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
4	Location, Depth and Date	The FHHRA is intended to represent baseline (pre-remedy) conditions at the Facility prior to initiation of the BSVE treatment system. Soil data collected after October 16, 2008 were excluded because they were collected during remedy startup or implementation and may not represent baseline conditions. No lower limit was placed on the date range for soil because this would substantially reduce spatial coverage over parts of the facility (in contrast to the groundwater data where adequate coverage was available after selecting more recent data).
7b	TCLP Samples	Soil sample analyzed using the TCLP have results with liquid units (e.g., micrograms/liter). Such results are not usable in the FHHRA. They were identified by looking in the [FIELD_SAMPLE_RESULT] for samples with liquid units but a solid matrix (e.g., "Soil") in the [SAMPLE_MATRIX] field. Results associated with these samples were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
7c	Matrix and Final Result Unit	Soil results exist in the project database for analyses unrelated to chemical concentrations. These analyses and their reporting units include: AIR FILLED POROSITY %BVBULK DENSITY g/cm ³ GRAIN DENSITY g/cm ³ PERCENT MOISTURE %pH s.u.PORE FLUID SATURATION NAPL %PVPORE FLUID SATURATION WATER %PVSOLIDS, PERCENT %TEMPERATURE CTOTAL POROSITY %BVThese were excluded from the HHRA dataset by excluding results with non-concentration units (e.g., mg/kg). These were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].
7d	Inapplicable Analytes	Result existed for soil parameters that are not of interest to the FHHRA, such as TPH and TDS. A specific list of such analytes is presented in the table [tbIHHRAFinalMatrixAnalyteSelection] and are marked "Yes" in the field [Exclude] in that table. Results associated with these analytes were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy ¹	Criteria Group	Description
General (Applicable to each Data Type)		
8	Matrix and Depth	As described in Section 2.2.1 and Section 3.2.2, soil between the surface and 15 feet below surface were included for estimating exposures and risks for industrial workers and construction worker. Applicable results were identified by excluding records with the field [FinalEndDepth] > 15 ft below surface in the table [FIELD_SAMPLE]. Results associated with these analytes were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults].
Soil Gas-to-Indoor Air		
4	Location, Depth and Date	Soil gas samples collected during the BSVE system pilot test (February 27, 2006 and April 18, 2006) were excluded. Soil gas results associated within this date range were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults].
4	Location, Depth and Date	The FHHRA is intended to represent baseline (pre-remedy) conditions at the Facility prior to the initial startup (May 27, 2009) of the BSVE treatment system. Data collected prior to October 16, 2008 were selected. Data from after this date were excluded from the FHHRA dataset and were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults]. No lower end was set for the date range when selecting soil gas data. Data collected closer to the 2008 BSVE system installation would provide better characterization of the baseline condition than older data. However, excluding earlier soil gas data based would have substantially reduced spatial coverage.
5a	Location, Depth and Date	Soil gas sampling points that could intersect the water table were excluded. Samples from such points potentially represent a mix of soil gas and volatile organic compounds (VOCs) volatilizing directly from the water table without attenuation in the capillary fringe or vadose zone. One way of identifying such sampling points is by their location prefix. Sample locations with the prefixes AFFC-, BC-, BV-, ASE- and PL- in the [Location_ID] field in the table [Location] were excluded. Results associated with these locations were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults].
5b	Location, Depth and Date	Another way of identifying wells that could screen across the water table (see 5a above) is based on the depth of the sampling point. Soil gas sample locations where the bottom of screen ([FinalEndDepth] in the [FIELD_SAMPLE] table) was greater than 50 ft. were excluded. Results associated with these locations were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults].
8	Analytes and Analytical Methods	Only sufficiently volatile chemicals (Henry's law coefficient > 1E-5 atm-m ³ /mol) are of interest for evaluating vapor intrusion. These analytes are identified with the value "VOC" in the [ANALYTE_GROUP] field in the [tlkpAnalyteGroup] table. Analytes not meeting this criterion were excluded from the vapor intrusion evaluation and were marked "N" in the [Selected] field in the table [TblHHRALocationFieldSampleResults].

TABLE 2-1
 Data Selection Criteria Summary
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Hierarchy ¹	Criteria Group	Description
General (Applicable to each Data Type)		
Groundwater-to-Indoor Air		
<i>The criteria shown for Groundwater are applicable to the Groundwater-to-Indoor-Air dataset. The following additional criteria are also applicable to the Groundwater-to-Indoor-Air dataset.</i>		
4	Location, Depth and Date	<p>Groundwater VOC data characterizing the upper portion of the saturated zone were used to evaluate potential groundwater-to-indoor-air (i.e., vapor intrusion) exposures. Only conditions at the water table are pertinent when evaluating groundwater as a potential subsurface vapor source, but such concentrations are challenging to measure given the variability in water levels over time and the range of well-screen depths and length. The approximate average depth to the water table is 70 feet bgs, but varies by tens of feet over time.</p> <p>As a practical solution, wells with screen intervals as deep as 100 feet bgs were considered to provide reasonable estimates of conditions at or near the water table. Groundwater sample locations where top of screen ([FinalEndDepth] in the [FIELD_SAMPLE] table) was greater than 100 ft. were excluded. Results associated with these locations were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p>
7	Analytes and Analytical Methods	<p>Only sufficiently volatile chemicals (Henry's law coefficient > 1E-5 atm-m³/mol) are of interest for evaluating vapor intrusion. These analytes are identified with the value "VOC" in the [ANALYTE_GROUP] field in the [tlkpAnalyteGroup] table. Analytes not meeting this criterion were excluded from the vapor intrusion evaluation and were marked "N" in the [Selected] field in the table [TbIHHRALocationFieldSampleResults].</p>

Notes:

¹ The listed hierarchy codes correspond to the values presented in the [Hierarchy] field in the [tblHHRFieldSampleResults] table for a given dataset (i.e., soil, groundwater-direct, soil gas to indoor air, groundwater to indoor air).

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-2
 Sitewide Summary Statistics and Initial Screening for Soil
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Number of Samples	Number of Detections	Detection Frequency	Maximum Detection	Concentration Unit	Concentration Type	Conc Exceeds SL	SL Value	SL Unit	SL Source
1,1,1-Trichloroethane	71-55-6	394	11	2.8%	5.6	mg/kg	MAX	No	8700	mg/kg	Residential Soil SL Noncancer
1,1,2-Trichloroethane	79-00-5	394	1	0.3%	0.07	mg/kg	MAX	No	1.1	mg/kg	Residential Soil SL Cancer
1,1,2-Trichlorotrifluoroethane	76-13-1	21	2	9.5%	43.9	mg/kg	MAX	No	43000	mg/kg	Residential Soil SL Noncancer
1,1-Dichloroethane	75-34-3	394	2	0.5%	0.65	mg/kg	MAX	No	3.3	mg/kg	Residential Soil SL Cancer
1,1-Dichloroethene	75-35-4	394	2	0.5%	0.5	mg/kg	MAX	No	240	mg/kg	Residential Soil SL Noncancer
1,2,4-Trimethylbenzene	95-63-6	368	49	13.3%	140	mg/kg	MAX	Yes	62	mg/kg	Residential Soil SL Noncancer
1,3,5-Trimethylbenzene	108-67-8	368	41	11.1%	57	mg/kg	MAX	No	780	mg/kg	Residential Soil SL Noncancer
1,4-Dichlorobenzene	106-46-7	393	3	0.8%	15.9	mg/kg	MAX	Yes	2.4	mg/kg	Residential Soil SL Cancer
1-Methylnaphthalene	90-12-0	24	1	4.2%	0.0816	mg/kg	MAX	No	22	mg/kg	Residential Soil SL Cancer
2-Butanone	78-93-3	374	1	0.3%	0.049	mg/kg	MAX	No	28000	mg/kg	Residential Soil SL Noncancer
Acenaphthene	83-32-9	331	22	6.6%	11	mg/kg	MAX	No	3400	mg/kg	Residential Soil SL Noncancer
Acenaphthylene	208-96-8	331	25	7.6%	3.9	mg/kg	MAX	NA	NA	NA	NA
Acetone	67-64-1	374	6	1.6%	0.69	mg/kg	MAX	No	61000	mg/kg	Residential Soil SL Noncancer
Anthracene	120-12-7	331	3	0.9%	0.063	mg/kg	MAX	No	17000	mg/kg	Residential Soil SL Noncancer
Arsenic	7440-38-2	89	77	86.5%	29	mg/kg	MAX	Yes	0.39	mg/kg	Residential Soil SL Cancer
Barium	7440-39-3	84	84	100.0%	190	mg/kg	MAX	No	15000	mg/kg	Residential Soil SL Noncancer
Benzene	71-43-2	401	5	1.2%	46	mg/kg	MAX	Yes	1.1	mg/kg	Residential Soil SL Cancer
Benzo(A)Anthracene	56-55-3	331	11	3.3%	0.25	mg/kg	MAX	Yes	0.15	mg/kg	Residential Soil SL Cancer
Benzo(A)Pyrene	50-32-8	331	24	7.3%	0.4	mg/kg	MAX	Yes	0.015	mg/kg	Residential Soil SL Cancer
Benzo(B)Fluoranthene	205-99-2	322	18	5.6%	0.64	mg/kg	MAX	Yes	0.15	mg/kg	Residential Soil SL Cancer
Benzo(G,H,I)Perylene	191-24-2	331	11	3.3%	0.55	mg/kg	MAX	NA	NA	NA	NA
Benzo(K)Fluoranthene	207-08-9	322	11	3.4%	0.2	mg/kg	MAX	No	1.5	mg/kg	Residential Soil SL Cancer
Beryllium	7440-41-7	5	4	80.0%	4.2	mg/kg	MAX	No	160	mg/kg	Residential Soil SL Noncancer
Bis(2-Ethylhexyl)Phthalate	117-81-7	21	1	4.8%	10	mg/kg	MAX	No	35	mg/kg	Residential Soil SL Cancer
Bromoform	75-25-2	394	1	0.3%	0.046	mg/kg	MAX	No	61	mg/kg	Residential Soil SL Cancer
Butylbenzene	104-51-8	368	29	7.9%	34	mg/kg	MAX	NA	NA	NA	NA
Cadmium	7440-43-9	89	11	12.4%	21	mg/kg	MAX	No	70	mg/kg	Residential Soil SL Noncancer
Carbon Tetrachloride	56-23-5	394	1	0.3%	0.055	mg/kg	MAX	No	0.61	mg/kg	Residential Soil SL Cancer
Chlorobenzene	108-90-7	394	1	0.3%	0.59	mg/kg	MAX	No	290	mg/kg	Residential Soil SL Noncancer
Chlorodibromomethane	124-48-1	394	1	0.3%	0.0045	mg/kg	MAX	No	0.68	mg/kg	Residential Soil SL Cancer
Chloroform	67-66-3	394	1	0.3%	0.07	mg/kg	MAX	No	0.29	mg/kg	Residential Soil SL Cancer
Chromium	7440-47-3	89	89	100.0%	78	mg/kg	MAX	NA	NA	NA	NA
Chrysene	218-01-9	331	17	5.1%	1.1	mg/kg	MAX	No	15	mg/kg	Residential Soil SL Cancer
Cis-1,2-Dichloroethene	156-59-2	368	3	0.8%	0.45	mg/kg	MAX	No	160	mg/kg	Residential Soil SL Noncancer
Copper	7440-50-8	29	29	100.0%	77	mg/kg	MAX	No	3100	mg/kg	Residential Soil SL Noncancer
Di-N-Butyl Phthalate	84-74-2	21	1	4.8%	1.1	mg/kg	MAX	No	6100	mg/kg	Residential Soil SL Noncancer
Ethylbenzene	100-41-4	401	28	7.0%	177	mg/kg	MAX	Yes	5.4	mg/kg	Residential Soil SL Cancer
Fluoranthene	206-44-0	331	27	8.2%	1.8	mg/kg	MAX	No	2300	mg/kg	Residential Soil SL Noncancer
Fluorene	86-73-7	331	19	5.7%	3.1	mg/kg	MAX	No	2300	mg/kg	Residential Soil SL Noncancer
Hexavalent Chromium	18540-29-9	40	1	2.5%	1.3	mg/kg	MAX	Yes	0.29	mg/kg	Residential Soil SL Cancer
Indeno(1,2,3-Cd)Pyrene	193-39-5	331	16	4.8%	0.41	mg/kg	MAX	Yes	0.15	mg/kg	Residential Soil SL Cancer
Iron	7439-89-6	6	6	100.0%	2200	mg/kg	MAX	No	55000	mg/kg	Residential Soil SL Noncancer
Isopropylbenzene	98-82-8	359	27	7.5%	22	mg/kg	MAX	No	2100	mg/kg	Residential Soil SL Noncancer
Lead	7439-92-1	89	63	70.8%	78	mg/kg	MAX	No	400	mg/kg	Residential Soil SL Noncancer
Mercury	7439-97-6	114	41	36.0%	11	mg/kg	MAX	Yes	5.6	mg/kg	Residential Soil SL Noncancer
Methylene Chloride	75-09-2	394	1	0.3%	0.05	mg/kg	MAX	No	11	mg/kg	Residential Soil SL Cancer
M-Xylene	108-38-3	2	1	50.0%	17.8	mg/kg	MAX	No	3400	mg/kg	Residential Soil SL Noncancer

TABLE 2-2
 Sitewide Summary Statistics and Initial Screening for Soil
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Number of Samples	Number of Detections	Detection Frequency	Maximum Detection	Concentration Unit	Concentration Type	Conc Exceeds SL	SL Value	SL Unit	SL Source
Naphthalene	91-20-3	405	51	12.6%	76	mg/kg	MAX	Yes	3.6	mg/kg	Residential Soil SL Cancer
Nickel	7440-02-0	29	29	100.0%	330	mg/kg	MAX	No	1500	mg/kg	Residential Soil SL Noncancer
N-Nitrosodiphenylamine	86-30-6	21	1	4.8%	4.2	mg/kg	MAX	No	99	mg/kg	Residential Soil SL Cancer
N-Propylbenzene	103-65-1	368	34	9.2%	31	mg/kg	MAX	No	3400	mg/kg	Residential Soil SL Noncancer
Phenanthrene	85-01-8	331	36	10.9%	7.5	mg/kg	MAX	NA	NA	NA	NA
P-Isopropyltoluene	99-87-6	367	36	9.8%	14	mg/kg	MAX	NA	NA	NA	NA
Pyrene	129-00-0	331	19	5.7%	0.75	mg/kg	MAX	No	1700	mg/kg	Residential Soil SL Noncancer
Sec-Butylbenzene	135-98-8	368	24	6.5%	13	mg/kg	MAX	NA	NA	NA	NA
Silver	7440-22-4	89	13	14.6%	61	mg/kg	MAX	No	390	mg/kg	Residential Soil SL Noncancer
Tert-Butylbenzene	98-06-6	368	5	1.4%	0.6	mg/kg	MAX	NA	NA	NA	NA
Tetrachloroethene	127-18-4	394	22	5.6%	55	mg/kg	MAX	Yes	0.55	mg/kg	Residential Soil SL Cancer
Thallium	7440-28-0	5	1	20.0%	34	mg/kg	MAX	NA	NA	NA	NA
Toluene	108-88-3	401	21	5.2%	320	mg/kg	MAX	No	5000	mg/kg	Residential Soil SL Noncancer
Trans-1,2-Dichloroethene	156-60-5	391	1	0.3%	0.014	mg/kg	MAX	No	150	mg/kg	Residential Soil SL Noncancer
Trichloroethene	79-01-6	424	31	7.3%	15	mg/kg	MAX	Yes	2.8	mg/kg	Residential Soil SL Cancer
Vinyl Acetate	108-05-4	371	1	0.3%	2.2	mg/kg	MAX	No	970	mg/kg	Residential Soil SL Noncancer
Xylenes, O & P	XYLENES1214	2	1	50.0%	4.5	mg/kg	MAX	NA	NA	NA	NA
Xylenes, Total	1330-20-7	389	42	10.8%	440	mg/kg	MAX	No	630	mg/kg	Residential Soil SL Noncancer
Zinc	7440-66-6	5	5	100.0%	750	mg/kg	MAX	No	23000	mg/kg	Residential Soil SL Noncancer

Notes:

mg/kg= milligram per kilogram
 CAS = Chemical Abstract Service
 NA = not available
 SL = screening level

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-3

Sitewide Summary Statistics and Initial Screening for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Number of Samples	Number of Detections	Detection Frequency	Maximum Detection	Concentration Unit	Concentration Type	Concentration Exceeds SL	SL Value	SL Unit	SL Source
1,1,1-Trichloroethane	71-55-6	1454	16	1.1%	24	ug/L	MAX	No	200	ug/L	Residential Tap Water MCL
1,1,2,2-Tetrachloroethane	79-34-5	1388	1	0.1%	1.2	ug/L	MAX	Yes	0.067	ug/L	Residential Tap Water SL Cancer
1,1,2-Trichloroethane	79-00-5	1388	1	0.1%	4.1	ug/L	MAX	Yes	0.24	ug/L	Residential Tap Water SL Cancer
1,1,2-Trichlorotrifluoroethane	76-13-1	203	1	0.5%	5.9	ug/L	MAX	No	59000	ug/L	Residential Tap Water SL Noncancer
1,1-Dichloroethane	75-34-3	1461	725	49.6%	160	ug/L	MAX	Yes	2.4	ug/L	Residential Tap Water SL Cancer
1,1-Dichloroethene	75-35-4	1459	347	23.8%	100	ug/L	MAX	Yes	7	ug/L	Residential Tap Water MCL
1,2,4-Trimethylbenzene	95-63-6	1389	269	19.4%	350	ug/L	MAX	Yes	15	ug/L	Residential Tap Water SL Noncancer
1,2-Dichlorobenzene	95-50-1	1387	2	0.1%	0.2	ug/L	MAX	No	370	ug/L	Residential Tap Water SL Noncancer
1,2-Dichloroethane	107-06-2	1455	1	0.1%	0.5	ug/L	MAX	Yes	0.15	ug/L	Residential Tap Water SL Cancer
1,3,5-Trimethylbenzene	108-67-8	1389	155	11.2%	130	ug/L	MAX	No	370	ug/L	Residential Tap Water SL Noncancer
1,4-Dichlorobenzene	106-46-7	1388	13	0.9%	1.5	ug/L	MAX	Yes	0.43	ug/L	Residential Tap Water SL Cancer
1,4-Dioxane	123-91-1	24	1	4.2%	1.2	ug/L	MAX	Yes	0.67	ug/L	Residential Tap Water SL Cancer
2-Butanone	78-93-3	1388	3	0.2%	59	ug/L	MAX	No	7100	ug/L	Residential Tap Water SL Noncancer
2-Methylnaphthalene	91-57-6	26	5	19.2%	65	ug/L	MAX	No	150	ug/L	Residential Tap Water SL Noncancer
Acenaphthene	83-32-9	180	10	5.6%	10	ug/L	MAX	No	2200	ug/L	Residential Tap Water SL Noncancer
Acenaphthylene	208-96-8	180	8	4.4%	8.6	ug/L	MAX	NA	NA	NA	NA
Acetone	67-64-1	1387	17	1.2%	770	ug/L	MAX	No	22000	ug/L	Residential Tap Water SL Noncancer
Arsenic	7440-38-2	28	22	78.6%	19	ug/L	MAX	Yes	0.045	ug/L	Residential Tap Water SL Cancer
Benzene	71-43-2	1463	423	28.9%	6800	ug/L	MAX	Yes	0.41	ug/L	Residential Tap Water SL Cancer
Benzo(A)Anthracene	56-55-3	180	1	0.6%	0.12	ug/L	MAX	Yes	0.029	ug/L	Residential Tap Water SL Cancer
Benzo(A)Pyrene	50-32-8	180	2	1.1%	0.12	ug/L	MAX	Yes	0.0029	ug/L	Residential Tap Water SL Cancer
Benzo(G,H,I)Perylene	191-24-2	180	1	0.6%	0.024	ug/L	MAX	NA	NA	NA	NA
Bis(2-Ethylhexyl)Phthalate	117-81-7	26	1	3.8%	310	ug/L	MAX	Yes	4.8	ug/L	Residential Tap Water SL Cancer
Bromodichloromethane	75-27-4	1445	19	1.3%	7.8	ug/L	MAX	Yes	0.12	ug/L	Residential Tap Water SL Cancer
Bromoform	75-25-2	1388	3	0.2%	1.7	ug/L	MAX	No	8.5	ug/L	Residential Tap Water SL Cancer
Butylbenzene	104-51-8	1389	71	5.1%	170	ug/L	MAX	NA	NA	NA	NA
Carbon Disulfide	75-15-0	1364	1	0.1%	11	ug/L	MAX	No	1000	ug/L	Residential Tap Water SL Noncancer
Chlorobenzene	108-90-7	1388	20	1.4%	2.3	ug/L	MAX	No	91	ug/L	Residential Tap Water SL Noncancer
Chlorodibromomethane	124-48-1	1388	10	0.7%	7	ug/L	MAX	Yes	0.15	ug/L	Residential Tap Water SL Cancer
Chloroethane	75-00-3	1387	64	4.6%	73	ug/L	MAX	No	21000	ug/L	Residential Tap Water SL Noncancer
Chloroform	67-66-3	1445	132	9.1%	15	ug/L	MAX	Yes	0.19	ug/L	Residential Tap Water SL Cancer
Chloromethane	74-87-3	1445	6	0.4%	1	ug/L	MAX	No	190	ug/L	Residential Tap Water SL Noncancer
Chromium	7440-47-3	34	8	23.5%	1500	ug/L	MAX	Yes	100	ug/L	Residential Tap Water MCL
Cis-1,2-Dichloroethene	156-59-2	1460	504	34.5%	280	ug/L	MAX	Yes	70	ug/L	Residential Tap Water MCL
Dichlorodifluoromethane	75-71-8	1388	2	0.1%	2.2	ug/L	MAX	No	390	ug/L	Residential Tap Water SL Noncancer
Dimethyl Phthalate	131-11-3	26	1	3.8%	51	ug/L	MAX	NA	NA	NA	NA
Ethylbenzene	100-41-4	1406	304	21.6%	910	ug/L	MAX	Yes	1.5	ug/L	Residential Tap Water SL Cancer
Fluoranthene	206-44-0	180	1	0.6%	0.34	ug/L	MAX	No	1500	ug/L	Residential Tap Water SL Noncancer
Fluorene	86-73-7	180	24	13.3%	1.8	ug/L	MAX	No	1500	ug/L	Residential Tap Water SL Noncancer
Fluoride	16984-48-8	26	26	100.0%	650	ug/L	MAX	No	1500	ug/L	Residential Tap Water SL Noncancer
Indeno(1,2,3-Cd)Pyrene	193-39-5	180	1	0.6%	0.018	ug/L	MAX	No	0.029	ug/L	Residential Tap Water SL Cancer

TABLE 2-3

Sitewide Summary Statistics and Initial Screening for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Number of Samples	Number of Detections	Detection Frequency	Maximum Detection	Concentration Unit	Concentration Type	Concentration Exceeds SL	SL Value	SL Unit	SL Source
Iron	7439-89-6	107	57	53.3%	32000	ug/L	MAX	Yes	26000	ug/L	Residential Tap Water SL Noncancer
Isopropylbenzene	98-82-8	1364	352	25.8%	210	ug/L	MAX	No	680	ug/L	Residential Tap Water SL Noncancer
Manganese	7439-96-5	28	16	57.1%	3200	ug/L	MAX	Yes	880	ug/L	Residential Tap Water SL Noncancer
Mercury	7439-97-6	25	1	4.0%	0.39	ug/L	MAX	No	0.57	ug/L	Residential Tap Water SL Noncancer
Methyl Tert-Butyl Ether	1634-04-4	1389	421	30.3%	4300	ug/L	MAX	Yes	12	ug/L	Residential Tap Water SL Cancer
Methylene Chloride	75-09-2	1388	4	0.3%	120	ug/L	MAX	Yes	4.8	ug/L	Residential Tap Water SL Cancer
Naphthalene	91-20-3	1366	416	30.5%	580	ug/L	MAX	Yes	0.14	ug/L	Residential Tap Water SL Cancer
Nickel	7440-02-0	34	9	26.5%	140	ug/L	MAX	No	730	ug/L	Residential Tap Water SL Noncancer
Nitrogen, Nitrate (As N)	NO3N	106	92	86.8%	19000	ug/L	MAX	NA	NA	NA	NA
N-Propylbenzene	103-65-1	1389	335	24.1%	170	ug/L	MAX	No	1300	ug/L	Residential Tap Water SL Noncancer
O-Xylene	95-47-6	181	4	2.2%	24	ug/L	MAX	No	1200	ug/L	Residential Tap Water SL Noncancer
Phenanthrene	85-01-8	180	20	11.1%	2.8	ug/L	MAX	NA	NA	NA	NA
Phenol	108-95-2	26	2	7.7%	130	ug/L	MAX	No	11000	ug/L	Residential Tap Water SL Noncancer
P-Isopropyltoluene	99-87-6	1388	92	6.6%	8.6	ug/L	MAX	NA	NA	NA	NA
Pyrene	129-00-0	180	2	1.1%	0.45	ug/L	MAX	No	1100	ug/L	Residential Tap Water SL Noncancer
Sec-Butylbenzene	135-98-8	1389	158	11.4%	22	ug/L	MAX	NA	NA	NA	NA
Styrene	100-42-5	1386	1	0.1%	0.69	ug/L	MAX	No	100	ug/L	Residential Tap Water MCL
Tert-Butylbenzene	98-06-6	1388	40	2.9%	1.9	ug/L	MAX	NA	NA	NA	NA
Tetrachloroethene	127-18-4	1460	279	19.1%	14	ug/L	MAX	Yes	0.11	ug/L	Residential Tap Water SL Cancer
Toluene	108-88-3	1460	68	4.7%	130	ug/L	MAX	No	1000	ug/L	Residential Tap Water MCL
Trans-1,2-Dichloroethene	156-60-5	1454	12	0.8%	3.6	ug/L	MAX	No	100	ug/L	Residential Tap Water MCL
Trichloroethene	79-01-6	1461	817	55.9%	430	ug/L	MAX	Yes	2	ug/L	Residential Tap Water SL Cancer
Vinyl Chloride	75-01-4	1461	249	17.0%	370	ug/L	MAX	Yes	0.016	ug/L	Residential Tap Water SL Cancer
Xylenes, M & P	XYLENES1314	181	11	6.1%	66	ug/L	MAX	NA	NA	NA	NA
Xylenes, Total	1330-20-7	1429	211	14.8%	1600	ug/L	MAX	Yes	200	ug/L	Residential Tap Water SL Noncancer

Notes:

- µg/L = microgram per liter
- CAS = Chemical Abstract Service
- MCL = maximum contaminant level
- NA = not available
- SL = screening level

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non- Detect Result	Minimum SL	Units	Minimum SL Type
Soil						
1,1,1,2-TETRACHLOROETHANE	630-20-6	375	0.002	1.9	mg/kg	Residential Soil RRSL Cancer
1,1,2,2-TETRACHLOROETHANE	79-34-5	394	0.00006	0.56	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
1,2,3-TRICHLOROBENZENE	87-61-6	368	0.0042	49	mg/kg	Noncancer
1,2,3-TRICHLOROPROPANE	96-18-4	368	0.0052	0.005	mg/kg	Residential Soil RSL Cancer
1,2,4-TRICHLOROBENZENE	120-82-1	332	0.0042	22	mg/kg	Residential Soil RSL Cancer
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	359	0.0042	0.0054	mg/kg	Residential Soil RSL Cancer
1,2-DIBROMOETHANE	106-93-4	368	0.0017	0.034	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
1,2-DICHLOROBENZENE	95-50-1	393	0.0003	1900	mg/kg	Noncancer
1,2-DICHLOROETHANE	107-06-2	394	0.00006	0.43	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
1,2-DICHLOROETHENE (TOTAL)	540-59-0	3	0.01	700	mg/kg	Noncancer
1,2-DICHLOROPROPANE	78-87-5	394	0.00008	0.89	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
1,3-DICHLOROPROPANE	142-28-9	368	0.0017	1600	mg/kg	Noncancer
2,2'-OXYBIS(1-CHLOROPROPANE)	108-60-1	36	0.002	4.6	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
2,4,5-TRICHLOROPHENOL	95-95-4	12	0.3	6100	mg/kg	Noncancer
2,4,6-TRICHLOROPHENOL	88-06-2	21	0.17	44	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
2,4-DICHLOROPHENOL	120-83-2	21	0.17	180	mg/kg	Noncancer Residential Soil RSL
2,4-DIMETHYLPHENOL	105-67-9	21	0.17	1200	mg/kg	Noncancer Residential Soil RSL
2,4-DINITROPHENOL	51-28-5	21	0.3	120	mg/kg	Noncancer
2,4-DINITROTOLUENE	121-14-2	21	0.17	1.6	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
2,6-DINITROTOLUENE	606-20-2	21	0.17	61	mg/kg	Noncancer Residential Soil RSL
2-CHLORONAPHTHALENE	91-58-7	21	0.17	6300	mg/kg	Noncancer Residential Soil RSL
2-CHLOROPHENOL	95-57-8	21	0.17	390	mg/kg	Noncancer Residential Soil RSL
2-CHLOROTOLUENE	95-49-8	368	0.0042	1600	mg/kg	Noncancer Residential Soil RSL
2-HEXANONE	591-78-6	374	0.0083	210	mg/kg	Noncancer Residential Soil RSL
2-METHYLNAPHTHALENE	91-57-6	45	0.0313	310	mg/kg	Noncancer

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non- Detect Result	Minimum SL	Units	Minimum SL Type
2-METHYLPHENOL	95-48-7	21	0.17	3100	mg/kg	Residential Soil RSL Noncancer
2-NITROANILINE	88-74-4	12	0.3	610	mg/kg	Residential Soil RSL Noncancer
3,3'-DICHLOROBENZIDINE	91-94-1	21	0.3	1.1	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
4,6-DINITRO-2-METHYLPHENOL	534-52-1	21	0.3	4.9	mg/kg	Noncancer
4-CHLORO-3-METHYLPHENOL	59-50-7	21	0.17	6100	mg/kg	Residential Soil RSL Noncancer
4-CHLOROANILINE	106-47-8	21	0.17	2.4	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
4-CHLOROTOLUENE	106-43-4	368	0.0042	5500	mg/kg	Noncancer
4-METHYL-2-PENTANONE	108-10-1	378	0.0042	5300	mg/kg	Residential Soil RSL Noncancer
4-METHYLPHENOL	106-44-5	21	0.17	310	mg/kg	Residential Soil RSL Noncancer
4-NITROANILINE	100-01-6	12	0.3	24	mg/kg	Residential Soil RSL Cancer
ANILINE	62-53-3	3	0.17	85	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
ANTIMONY	7440-36-0	5	5	31	mg/kg	Noncancer
AROCLOR-1016	12674-11-2	5	0.05	3.9	mg/kg	Residential Soil RSL Noncancer
AROCLOR-1232	11141-16-5	5	0.05	0.14	mg/kg	Residential Soil RSL Cancer
AROCLOR-1242	53469-21-9	5	0.05	0.22	mg/kg	Residential Soil RSL Cancer
AROCLOR-1248	12672-29-6	5	0.05	0.22	mg/kg	Residential Soil RSL Cancer
AROCLOR-1254	11097-69-1	5	0.05	0.22	mg/kg	Residential Soil RSL Cancer
AROCLOR-1260	11096-82-5	5	0.05	0.22	mg/kg	Residential Soil RSL Cancer
AZOBENZENE	103-33-3	13	0.3	5.1	mg/kg	Residential Soil RSL Cancer
BENZENE, (CHLOROMETHYL)-	100-44-7	16	0.002	1	mg/kg	Residential Soil RSL Cancer
BENZIDINE	92-87-5	1	1.7	0.0005	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
BENZOIC ACID	65-85-0	21	0.3	240000	mg/kg	Noncancer
BENZYL ALCOHOL	100-51-6	21	0.17	6100	mg/kg	Residential Soil RSL Noncancer
BIS(2-CHLOROETHOXY)METHANE	111-91-1	36	0.002	180	mg/kg	Residential Soil RSL Noncancer
BIS(2-CHLOROETHYL)ETHER	111-44-4	21	0.17	0.21	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
BROMOBENZENE	108-86-1	384	0.002	300	mg/kg	Noncancer

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non- Detect Result	Minimum SL	Units	Minimum SL Type
BROMODICHLOROMETHANE	75-27-4	394	0.0004	0.27	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
BROMOMETHANE	74-83-9	388	0.002	7.3	mg/kg	Noncancer
BUTYLBENZYL PHTHALATE	85-68-7	21	0.17	260	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
CARBON DISULFIDE	75-15-0	364	0.0042	820	mg/kg	Noncancer
CHLOROACETALDEHYDE	107-20-0	16	0.002	1.8	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
CHLOROETHANE	75-00-3	394	0.00104	15000	mg/kg	Noncancer
CHLOROMETHANE	74-87-3	393	0.00016	120	mg/kg	Residential Soil RSL Noncancer
CHLOROMETHYL METHYL ETHER	107-30-2	16	0.002	0.019	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
CYANIDE	57-12-5	8	0.4	1600	mg/kg	Noncancer
DIBENZO(A,H)ANTHRACENE	53-70-3	331	0.0051	0.015	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
DIBENZOFURAN	132-64-9	21	0.17	78	mg/kg	Noncancer
DIBROMOMETHANE	74-95-3	375	0.0017	25	mg/kg	Residential Soil RSL Noncancer
DICHLORODIFLUOROMETHANE	75-71-8	386	0.002	180	mg/kg	Residential Soil RSL Noncancer
DIETHYL PHTHALATE	84-66-2	21	0.17	49000	mg/kg	Residential Soil RSL Noncancer
HEXACHLOROENZENE	118-74-1	21	0.17	0.3	mg/kg	Residential Soil RSL Cancer
HEXACHLOROBUTADIENE	87-68-3	371	0.0042	6.2	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
HEXACHLOROCYCLOPENTADIENE	77-47-4	21	0.17	370	mg/kg	Noncancer
HEXACHLOROETHANE	67-72-1	21	0.17	35	mg/kg	Residential Soil RSL Cancer
ISOPHORONE	78-59-1	21	0.17	510	mg/kg	Residential Soil RSL Cancer
METHYL TERT-BUTYL ETHER	1634-04-4	368	0.0042	43	mg/kg	Residential Soil RSL Cancer
NITROBENZENE	98-95-3	21	0.17	4.8	mg/kg	Residential Soil RSL Cancer
N-NITROSODIMETHYLAMINE	62-75-9	1	0.17	0.0023	mg/kg	Residential Soil RSL Cancer
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	21	0.17	0.069	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
O-XYLENE	95-47-6	11	0.025	3800	mg/kg	Noncancer
PENTACHLOROPHENOL	87-86-5	21	0.3	0.89	mg/kg	Residential Soil RSL Cancer Residential Soil RSL
PHENOL	108-95-2	21	0.17	18000	mg/kg	Noncancer

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non- Detect Result	Minimum SL	Units	Minimum SL Type
PYRIDINE	110-86-1	4	0.3	78	mg/kg	Residential Soil RSL Noncancer
SELENIUM	7782-49-2	89	0.25	390	mg/kg	Residential Soil RSL Noncancer
STYRENE	100-42-5	374	0.0017	6300	mg/kg	Residential Soil RSL Noncancer
TRICHLOROFLUOROMETHANE	75-69-4	394	0.002	790	mg/kg	Residential Soil RSL Noncancer
VINYL CHLORIDE	75-01-4	393	0.00036	0.06	mg/kg	Residential Soil RRSL Cancer
Groundwater						
1,1,1,2-TETRACHLOROETHANE	630-20-6	1364	0.26	0.52	µg/L	Residential Tap Water RSL Cancer
1,2,3-TRICHLOROBENZENE	87-61-6	1382	0.29	29	µg/L	Residential Tap Water RSL Noncancer
1,2,3-TRICHLOROPROPANE	96-18-4	1382	0.27	0.00072	µg/L	Residential Tap Water RSL Cancer
1,2,4-TRICHLOROBENZENE	120-82-1	1382	0.5	2.3	µg/L	Residential Tap Water RSL Cancer
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	1364	1	0.00032	µg/L	Residential Tap Water RSL Cancer
1,2-DIBROMOETHANE	106-93-4	1383	0.1	0.0065	µg/L	Residential Tap Water RSL Cancer
1,2-DICHLOROPROPANE	78-87-5	1382	0.39	0.39	µg/L	Residential Tap Water RSL Cancer
1,3-DICHLOROPROPANE	142-28-9	1382	0.1	730	µg/L	Residential Tap Water RSL Noncancer
2,2'-OXYBIS(1-CHLOROPROPANE)	108-60-1	26	10	0.32	µg/L	Residential Tap Water RSL Cancer
2,4,5-TRICHLOROPHENOL	95-95-4	1	10	3700	µg/L	Residential Tap Water RSL Noncancer
2,4,6-TRICHLOROPHENOL	88-06-2	26	10	6.1	µg/L	Residential Tap Water RSL Cancer
2,4-DICHLOROPHENOL	120-83-2	26	10	110	µg/L	Residential Tap Water RSL Noncancer
2,4-DIMETHYLPHENOL	105-67-9	26	10	730	µg/L	Residential Tap Water RSL Noncancer
2,4-DINITROPHENOL	51-28-5	21	20	73	µg/L	Residential Tap Water RSL Noncancer
2,4-DINITROTOLUENE	121-14-2	26	10	0.22	µg/L	Residential Tap Water RSL Cancer
2,6-DINITROTOLUENE	606-20-2	26	10	37	µg/L	Residential Tap Water RSL Noncancer
2-CHLORONAPHTHALENE	91-58-7	26	10	2900	µg/L	Residential Tap Water RSL Noncancer
2-CHLOROPHENOL	95-57-8	26	10	180	µg/L	Residential Tap Water RSL Noncancer
2-CHLOROTOLUENE	95-49-8	1382	0.33	730	µg/L	Residential Tap Water RSL Noncancer
2-HEXANONE	591-78-6	1382	1.1	47	µg/L	Residential Tap Water RSL Noncancer
2-METHYLPHENOL	95-48-7	26	10	1800	µg/L	Residential Tap Water RSL Noncancer

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non- Detect Result	Minimum SL	Units	Minimum SL Type
2-NITROANILINE	88-74-4	1	20	370	µg/L	Residential Tap Water RSL Noncancer
3,3'-DICHLOROBENZIDINE	91-94-1	26	20	0.15	µg/L	Residential Tap Water RSL Cancer
4,6-DINITRO-2-METHYLPHENOL	534-52-1	26	10	2.9	µg/L	Residential Tap Water RSL Noncancer
4-CHLORO-3-METHYLPHENOL	59-50-7	26	10	3700	µg/L	Residential Tap Water RSL Noncancer
4-CHLOROANILINE	106-47-8	26	10	0.34	µg/L	Residential Tap Water RSL Cancer
4-CHLOROTOLUENE	106-43-4	1383	0.35	2600	µg/L	Residential Tap Water RSL Noncancer
4-METHYL-2-PENTANONE	108-10-1	1383	1.6	2000	µg/L	Residential Tap Water RSL Noncancer
4-METHYLPHENOL	106-44-5	26	10	180	µg/L	Residential Tap Water RSL Noncancer
4-NITROANILINE	100-01-6	1	20	3.4	µg/L	Residential Tap Water RSL Cancer
ANTHRACENE	120-12-7	180	0.1	11000	µg/L	Residential Tap Water RSL Noncancer
AZOBENZENE	103-33-3	26	10	0.12	µg/L	Residential Tap Water RSL Cancer
BENZO(B)FLUORANTHENE	205-99-2	180	0.1	0.029	µg/L	Residential Tap Water RSL Cancer
BENZO(K)FLUORANTHENE	207-08-9	180	0.1	0.29	µg/L	Residential Tap Water RSL Cancer
BENZOIC ACID	65-85-0	21	50	150000	µg/L	Residential Tap Water RSL Noncancer
BENZYL ALCOHOL	100-51-6	26	10	3700	µg/L	Residential Tap Water RSL Noncancer
BERYLLIUM	7440-41-7	27	1	4	µg/L	Residential Tap Water MCL Residential Tap Water RSL
BIS(2-CHLOROETHOXY)METHANE	111-91-1	26	10	110	µg/L	Residential Tap Water RSL Noncancer
BIS(2-CHLOROETHYL)ETHER	111-44-4	26	10	0.012	µg/L	Residential Tap Water RSL Cancer
BROMOBENZENE	108-86-1	1382	0.12	88	µg/L	Residential Tap Water RSL Noncancer
BROMOMETHANE	74-83-9	1439	0.35	8.7	µg/L	Residential Tap Water RSL Noncancer
BUTYLBENZYL PHTHALATE	85-68-7	26	10	35	µg/L	Residential Tap Water RSL Cancer
CARBON TETRACHLORIDE	56-23-5	1382	0.36	0.44	µg/L	Residential Tap Water RSL Cancer
CHRYSENE	218-01-9	180	0.1	2.9	µg/L	Residential Tap Water RSL Cancer
DIBENZO(A,H)ANTHRACENE	53-70-3	180	0.1	0.0029	µg/L	Residential Tap Water RSL Cancer
DIBENZOFURAN	132-64-9	26	10	37	µg/L	Residential Tap Water RSL Noncancer
DIBROMOMETHANE	74-95-3	1364	0.29	8.2	µg/L	Residential Tap Water RSL Noncancer
DIETHYL PHTHALATE	84-66-2	26	10	29000	µg/L	Residential Tap Water RSL Noncancer

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non-Detect Result	Minimum SL	Units	Minimum SL Type
DI-N-BUTYL PHTHALATE	84-74-2	26	10	3700	µg/L	Residential Tap Water RSL Noncancer
HEXACHLOROENZENE	118-74-1	26	10	0.042	µg/L	Residential Tap Water RSL Cancer
HEXACHLOROBUTADIENE	87-68-3	1364	0.28	0.86	µg/L	Residential Tap Water RSL Cancer
HEXACHLOROCYCLOPENTADIENE	77-47-4	26	20	50	µg/L	Residential Tap Water MCL
HEXACHLOROETHANE	67-72-1	26	10	4.8	µg/L	Residential Tap Water RSL Cancer
ISOPHORONE	78-59-1	26	10	71	µg/L	Residential Tap Water RSL Cancer
LEAD	7439-92-1	1	2	15	µg/L	Residential Tap Water MCL
NITROBENZENE	98-95-3	26	10	0.12	µg/L	Residential Tap Water RSL Cancer
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	26	10	0.0096	µg/L	Residential Tap Water RSL Cancer
N-NITROSODIPHENYLAMINE	86-30-6	26	10	14	µg/L	Residential Tap Water RSL Cancer
PENTACHLOROPHENOL	87-86-5	26	20	0.17	µg/L	Residential Tap Water RSL Cancer
PYRIDINE	110-86-1	1	10	37	µg/L	Residential Tap Water RSL Noncancer
TRICHLOROFLUOROMETHANE	75-69-4	1439	0.47	1300	µg/L	Residential Tap Water RSL Noncancer
VINYL ACETATE	108-05-4	1382	0.5	410	µg/L	Residential Tap Water RSL Noncancer
Soil Gas-to-Indoor Air						
1,1,1,2-TETRACHLOROETHANE	630-20-6	436	5	0.1	µg/L	FHHRA Residential Soil Gas RBSL Cancer (5 ft bgs)
1,3-BUTADIENE	106-99-0	141	0.0011	0.025	µg/L	FHHRA Residential Soil Gas RBSL Cancer (5 ft bgs)
BENZENE, (CHLOROMETHYL)-	100-44-7	141	0.01	0.32	µg/L	FHHRA Residential Soil Gas RBSL Noncancer (5 ft bgs)
BROMOETHENE	593-60-2	141	0.0011	1.6	µg/L	FHHRA Residential Soil Gas RBSL Noncancer (5 ft bgs)
BROMOMETHANE	74-83-9	298	0.00063	1.6	µg/L	FHHRA Residential Soil Gas RBSL Noncancer (5 ft bgs)
Groundwater-to-Indoor Air						
1,1,1,2-TETRACHLOROETHANE	630-20-6	1098	0.26	7.5	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
1,2-DIBROMOETHANE	106-93-4	1098	0.1	0.8	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
1,2-DICHLOROPROPANE	78-87-5	1098	0.39	4.2	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
4-METHYL-2-PENTANONE	108-10-1	1098	1.6	1100000	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)

TABLE 2-4

Sample Quantitation Limit Assessment Results
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Sitewide Sample Count	Minimum Non-Detect Result	Minimum SL	Units	Minimum SL Type
BROMOMETHANE	74-83-9	1113	0.35	41	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
CARBON TETRACHLORIDE	56-23-5	1098	0.36	0.26	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
DICHLORODIFLUOROMETHANE	75-71-8	1098	0.43	33	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
HEXACHLOROBUTADIENE	87-68-3	1098	0.28	0.93	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
HEXACHLOROETHANE	67-72-1	34	9.4	190	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)
NITROBENZENE	98-95-3	34	9.4	3900	µg/L	Vapor Intrusion RBSL (35 ft bgs)
TRICHLOROFLUOROMETHANE	75-69-4	1113	0.47	320	µg/L	Vapor Intrusion RBSL (35 ft bgs)
VINYL ACETATE	108-05-4	1097	2.2	18000	µg/L	FHHRA Residential GW Vapor Intrusion RBSL (35 ft bgs)

Notes:

- µg/L = microgram per liter
- bgs = below ground surface
- CAS = Chemical Abstract Service
- ft = feet
- FHHRA = focused human health risk assessment
- GW = groundwater
- mg/kg = milligram per kilogram
- RBSL = risk-based screening level
- RSL = regional screening level
- SL = screening level

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-5
 Exposure Area Summary Statistics and Initial Screening for Soil
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Area	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (mg/kg)	Lowest RSL (mg/kg)	Max. Conc. > RSL	SL Type
Honeywell Facility North Exposure Area	1,2,4-TRIMETHYLBENZENE	95-63-6	25	203	12%	140	62	Yes	Residential Soil RRSL Noncancer
	1,4-DICHLOROBENZENE	106-46-7	1	221	0%	16	2.4	Yes	Residential Soil RSL Cancer
	ARSENIC	7440-38-2	2	2	100%	9	0.39	Yes	Residential Soil RSL Cancer
	BENZENE	71-43-2	4	233	2%	46	1.1	Yes	Residential Soil RSL Cancer
	BENZO(A)ANTHRACENE	56-55-3	5	176	3%	0.25	0.15	Yes	Residential Soil RSL Cancer
	BENZO(A)PYRENE	50-32-8	8	176	5%	0.4	0.015	Yes	Residential Soil RSL Cancer
	BENZO(B)FLUORANTHENE	205-99-2	7	176	4%	0.64	0.15	Yes	Residential Soil RSL Cancer
	ETHYLBENZENE	100-41-4	19	233	8%	180	5.4	Yes	Residential Soil RSL Cancer
	INDENO(1,2,3-CD)PYRENE	193-39-5	5	176	3%	0.41	0.15	Yes	Residential Soil RSL Cancer
	MERCURY	7439-97-6	8	18	44%	11	5.6	Yes	Residential Soil RSL Noncancer
	NAPHTHALENE	91-20-3	27	204	13%	76	3.6	Yes	Residential Soil RSL Cancer
	TETRACHLOROETHENE	127-18-4	9	221	4%	0.63	0.55	Yes	Residential Soil RSL Cancer
	TRICHLOROETHENE	79-01-6	20	251	8%	0.14	2.8		Residential Soil RSL Cancer
Honeywell Facility South Exposure Area	1,2,4-TRIMETHYLBENZENE	95-63-6	24	158	15%	82	62	Yes	Residential Soil RSL Noncancer
	1,4-DICHLOROBENZENE	106-46-7	2	165	1%	0.18	2.4		Residential Soil RSL Cancer
	ARSENIC	7440-38-2	44	56	79%	29	0.39	Yes	Residential Soil RSL Cancer
	BENZENE	71-43-2	1	161	1%	0.0034	1.1		Residential Soil RSL Cancer
	BENZO(A)ANTHRACENE	56-55-3	6	121	5%	0.041	0.15		Residential Soil RSL Cancer
	BENZO(A)PYRENE	50-32-8	16	121	13%	0.19	0.015	Yes	Residential Soil RSL Cancer
	BENZO(B)FLUORANTHENE	205-99-2	11	112	10%	0.12	0.15		Residential Soil RSL Cancer
	ETHYLBENZENE	100-41-4	9	161	6%	3.3	5.4		Residential Soil RSL Cancer
	HEXAVALENT CHROMIUM	18540-29-9	1	36	3%	1.3	0.29	Yes	Residential Soil RSL Cancer
	INDENO(1,2,3-CD)PYRENE	193-39-5	11	121	9%	0.069	0.15		Residential Soil RSL Cancer
	MERCURY	7439-97-6	18	65	28%	2.4	5.6		Residential Soil RSL Noncancer
	NAPHTHALENE	91-20-3	24	167	14%	21	3.6	Yes	Residential Soil RSL Cancer
	TETRACHLOROETHENE	127-18-4	13	166	8%	55	0.55	Yes	Residential Soil RSL Cancer
TRICHLOROETHENE	79-01-6	11	166	7%	15	2.8	Yes	Residential Soil RSL Cancer	
Offsite PSHIA Exposure Area	1,2,4-TRIMETHYLBENZENE	95-63-6	0	5	0%	--	62		Residential Soil RSL Noncancer
	1,4-DICHLOROBENZENE	106-46-7	0	5	0%	--	2.4		Residential Soil RSL Cancer
	ARSENIC	7440-38-2	31	31	100%	21	0.39	Yes	Residential Soil RSL Cancer
	BENZENE	71-43-2	0	5	0%	--	1.1		Residential Soil RSL Cancer
	BENZO(A)ANTHRACENE	56-55-3	0	32	0%	--	0.15		Residential Soil RSL Cancer
	BENZO(A)PYRENE	50-32-8	0	32	0%	--	0.015		Residential Soil RSL Cancer
	BENZO(B)FLUORANTHENE	205-99-2	0	32	0%	--	0.15		Residential Soil RSL Cancer
	ETHYLBENZENE	100-41-4	0	5	0%	--	5.4		Residential Soil RSL Cancer
	HEXAVALENT CHROMIUM	18540-29-9	0	4	0%	--	0.29		Residential Soil RSL Cancer
	INDENO(1,2,3-CD)PYRENE	193-39-5	0	32	0%	--	0.15		Residential Soil RSL Cancer
	MERCURY	7439-97-6	15	31	48%	0.078	5.6		Residential Soil RSL Noncancer
	NAPHTHALENE	91-20-3	0	32	0%	--	3.6		Residential Soil RSL Cancer
	TETRACHLOROETHENE	127-18-4	0	5	0%	--	0.55		Residential Soil RSL Cancer
TRICHLOROETHENE	79-01-6	0	5	0%	--	2.8		Residential Soil RSL Cancer	

Notes:
 CAS = Chemical Abstract Service
 mg/L = milligram per kilogram
 Max. Conc. = maximum concentration
 MCL = maximum contaminant level
 RSL = regional screening level
 SL = screening level
 -- = Chemical not detected

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility North Exposure Area								
SRG sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	218	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	0	218	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHANE	75-34-3	121	218	56%	100	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHENE	75-35-4	16	218	7%	10	Yes	Residential Tap Water MCL
SRG sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	105	219	48%	350	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	1,2-DICHLOROETHANE	107-06-2	0	218	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DICHLOROBENZENE	106-46-7	6	218	3%	1.5	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DIOXANE	123-91-1	0	3	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	ARSENIC	7440-38-2	2	3	67%	13	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZENE	71-43-2	131	219	60%	5600	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)ANTHRACENE	56-55-3	0	21	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)PYRENE	50-32-8	0	21	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	0	3	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BROMODICHLOROMETHANE	75-27-4	2	218	1%	0.28	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHLORODIBROMOMETHANE	124-48-1	0	218	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	CHLOROFORM	67-66-3	17	218	8%	6	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHROMIUM	7440-47-3	2	5	40%	97		Residential Tap Water MCL
SRG sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	44	218	20%	53		Residential Tap Water MCL
SRG sub-unit	ETHYLBENZENE	100-41-4	121	219	55%	810	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	IRON	7439-89-6	17	24	71%	12000		Residential Tap Water RSL Noncancer
SRG sub-unit	MANGANESE	7439-96-5	3	3	100%	3000	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	106	219	48%	4300	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	METHYLENE CHLORIDE	75-09-2	1	218	0%	0.33		Residential Tap Water RSL Cancer
SRG sub-unit	NAPHTHALENE	91-20-3	124	218	57%	580	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TETRACHLOROETHENE	127-18-4	37	218	17%	6.9	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TRICHLOROETHENE	79-01-6	128	219	58%	120	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	VINYL CHLORIDE	75-01-4	69	218	32%	370	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	XYLENES, TOTAL	1330-20-7	79	218	36%	570	Yes	Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility North Exposure Area (Continued)								
Basin Fill sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHANE	75-34-3	30	74	41%	29	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHENE	75-35-4	3	74	4%	1.2		Residential Tap Water MCL
Basin Fill sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	0	74	0%	--		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	1,2-DICHLOROETHANE	107-06-2	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,4-DICHLOROBENZENE	106-46-7	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	BENZENE	71-43-2	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	BROMODICHLOROMETHANE	75-27-4	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLORODIBROMOMETHANE	124-48-1	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLOROFORM	67-66-3	2	74	3%	1	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	4	74	5%	3.5		Residential Tap Water MCL
Basin Fill sub-unit	ETHYLBENZENE	100-41-4	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	IRON	7439-89-6	0	2	0%	--		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	12	74	16%	1100	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	METHYLENE CHLORIDE	75-09-2	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	NAPHTHALENE	91-20-3	1	74	1%	2.9	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	TETRACHLOROETHENE	127-18-4	3	74	4%	1.4	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	TRICHLOROETHENE	79-01-6	51	74	69%	30	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	VINYL CHLORIDE	75-01-4	0	74	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	XYLENES, TOTAL	1330-20-7	0	74	0%	--		Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility North Exposure Area (Continued)								
Bedrock	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1,2-TRICHLOROETHANE	79-00-5	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHANE	75-34-3	1	39	3%	0.8		Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHENE	75-35-4	4	39	10%	5.3		Residential Tap Water MCL
Bedrock	1,2,4-TRIMETHYLBENZENE	95-63-6	0	39	0%	--		Residential Tap Water RSL Noncancer
Bedrock	1,2-DICHLOROETHANE	107-06-2	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,4-DICHLOROBENZENE	106-46-7	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	BENZENE	71-43-2	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	BROMODICHLOROMETHANE	75-27-4	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	CHLORODIBROMOMETHANE	124-48-1	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	CHLOROFORM	67-66-3	7	39	18%	4.3	Yes	Residential Tap Water RSL Cancer
Bedrock	CIS-1,2-DICHLOROETHENE	156-59-2	7	39	18%	36		Residential Tap Water MCL
Bedrock	ETHYLBENZENE	100-41-4	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	IRON	7439-89-6	5	6	83%	32000	Yes	Residential Tap Water RSL Noncancer
Bedrock	METHYL TERT-BUTYL ETHER	1634-04-4	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	METHYLENE CHLORIDE	75-09-2	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	NAPHTHALENE	91-20-3	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	TETRACHLOROETHENE	127-18-4	5	39	13%	4.2	Yes	Residential Tap Water RSL Cancer
Bedrock	TRICHLOROETHENE	79-01-6	22	39	56%	190	Yes	Residential Tap Water RSL Cancer
Bedrock	VINYL CHLORIDE	75-01-4	0	39	0%	--		Residential Tap Water RSL Cancer
Bedrock	XYLENES, TOTAL	1330-20-7	0	39	0%	--		Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility South Exposure Area								
SRG sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	1	277	0%	1.2	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	0	277	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHANE	75-34-3	178	278	64%	160	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHENE	75-35-4	41	277	15%	38	Yes	Residential Tap Water MCL
SRG sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	99	277	36%	310	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	1,2-DICHLOROETHANE	107-06-2	0	278	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DICHLOROBENZENE	106-46-7	4	278	1%	0.46	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DIOXANE	123-91-1	1	2	50%	1.2	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	ARSENIC	7440-38-2	4	4	100%	12	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZENE	71-43-2	180	278	65%	6800	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)ANTHRACENE	56-55-3	0	15	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)PYRENE	50-32-8	0	15	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	0	2	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	BROMODICHLOROMETHANE	75-27-4	1	277	0%	3.8	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHLORODIBROMOMETHANE	124-48-1	2	277	1%	3.5	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHLOROFORM	67-66-3	13	277	5%	7	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHROMIUM	7440-47-3	1	3	33%	15		Residential Tap Water MCL
SRG sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	118	277	43%	43		Residential Tap Water MCL
SRG sub-unit	ETHYLBENZENE	100-41-4	118	278	42%	910	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	IRON	7439-89-6	19	24	79%	12000		Residential Tap Water RSL Noncancer
SRG sub-unit	MANGANESE	7439-96-5	3	3	100%	2300	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	135	277	49%	1300	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	METHYLENE CHLORIDE	75-09-2	0	277	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	NAPHTHALENE	91-20-3	167	278	60%	430	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TETRACHLOROETHENE	127-18-4	30	277	11%	5.3	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TRICHLOROETHENE	79-01-6	138	278	50%	76	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	VINYL CHLORIDE	75-01-4	115	278	41%	31	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	XYLENES, TOTAL	1330-20-7	83	276	30%	1600	Yes	Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility South Exposure Area (Continued)								
Basin Fill sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	73	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	0	73	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHANE	75-34-3	48	73	66%	38	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHENE	75-35-4	26	73	36%	100	Yes	Residential Tap Water MCL
Basin Fill sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	2	73	3%	3.7		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	1,2-DICHLOROETHANE	107-06-2	0	73	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,4-DICHLOROBENZENE	106-46-7	1	73	1%	0.14		Residential Tap Water RSL Cancer
Basin Fill sub-unit	BENZENE	71-43-2	4	73	5%	1.6	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	BROMODICHLOROMETHANE	75-27-4	1	73	1%	0.21	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLORODIBROMOMETHANE	124-48-1	0	73	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLOROFORM	67-66-3	1	73	1%	0.5	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHROMIUM	7440-47-3	1	1	100%	66		Residential Tap Water MCL
Basin Fill sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	41	73	56%	57		Residential Tap Water MCL
Basin Fill sub-unit	ETHYLBENZENE	100-41-4	4	73	5%	7.2	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	IRON	7439-89-6	1	4	25%	120		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	9	73	12%	78	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	METHYLENE CHLORIDE	75-09-2	0	73	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	NAPHTHALENE	91-20-3	8	73	11%	9.8	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	TETRACHLOROETHENE	127-18-4	16	73	22%	4.1	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	TRICHLOROETHENE	79-01-6	59	73	81%	260	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	VINYL CHLORIDE	75-01-4	10	73	14%	7.2	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	XYLENES, TOTAL	1330-20-7	4	73	5%	17		Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Honeywell Facility South Exposure Area (Continued)								
Bedrock	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1,2-TRICHLOROETHANE	79-00-5	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHANE	75-34-3	20	40	50%	24	Yes	Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHENE	75-35-4	25	40	63%	25	Yes	Residential Tap Water MCL
Bedrock	1,2,4-TRIMETHYLBENZENE	95-63-6	1	40	3%	2.1		Residential Tap Water RSL Noncancer
Bedrock	1,2-DICHLOROETHANE	107-06-2	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,4-DICHLOROBENZENE	106-46-7	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	BENZENE	71-43-2	1	40	3%	1.5	Yes	Residential Tap Water RSL Cancer
Bedrock	BROMODICHLOROMETHANE	75-27-4	10	40	25%	6.7	Yes	Residential Tap Water RSL Cancer
Bedrock	CHLORODIBROMOMETHANE	124-48-1	6	40	15%	7	Yes	Residential Tap Water RSL Cancer
Bedrock	CHLOROFORM	67-66-3	16	40	40%	15	Yes	Residential Tap Water RSL Cancer
Bedrock	CIS-1,2-DICHLOROETHENE	156-59-2	28	40	70%	9.9		Residential Tap Water MCL
Bedrock	ETHYLBENZENE	100-41-4	1	40	3%	2.4	Yes	Residential Tap Water RSL Cancer
Bedrock	IRON	7439-89-6	0	1	0%	--		Residential Tap Water RSL Noncancer
Bedrock	METHYL TERT-BUTYL ETHER	1634-04-4	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	METHYLENE CHLORIDE	75-09-2	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	NAPHTHALENE	91-20-3	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	TETRACHLOROETHENE	127-18-4	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	TRICHLOROETHENE	79-01-6	40	40	100%	63	Yes	Residential Tap Water RSL Cancer
Bedrock	VINYL CHLORIDE	75-01-4	0	40	0%	--		Residential Tap Water RSL Cancer
Bedrock	XYLENES, TOTAL	1330-20-7	1	40	3%	3.7		Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Offsite PSHIA Exposure Area								
SRG sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	404	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	1	404	0%	4.1	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHANE	75-34-3	140	404	35%	29	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	1,1-DICHLOROETHENE	75-35-4	36	404	9%	10	Yes	Residential Tap Water MCL
SRG sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	61	404	15%	100	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	1,2-DICHLOROETHANE	107-06-2	0	404	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DICHLOROBENZENE	106-46-7	2	404	0%	0.18		Residential Tap Water RSL Cancer
SRG sub-unit	1,4-DIOXANE	123-91-1	0	19	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	ARSENIC	7440-38-2	16	21	76%	19	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZENE	71-43-2	99	420	24%	720	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)ANTHRACENE	56-55-3	1	144	1%	0.12	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BENZO(A)PYRENE	50-32-8	2	144	1%	0.12	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	1	21	5%	310	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	BROMODICHLOROMETHANE	75-27-4	0	404	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	CHLORODIBROMOMETHANE	124-48-1	0	404	0%	--		Residential Tap Water RSL Cancer
SRG sub-unit	CHLOROFORM	67-66-3	17	404	4%	0.67	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	CHROMIUM	7440-47-3	4	24	17%	1500	Yes	Residential Tap Water MCL
SRG sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	34	404	8%	18		Residential Tap Water MCL
SRG sub-unit	ETHYLBENZENE	100-41-4	54	420	13%	360	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	IRON	7439-89-6	12	37	32%	15000		Residential Tap Water RSL Noncancer
SRG sub-unit	MANGANESE	7439-96-5	10	22	45%	3200	Yes	Residential Tap Water RSL Noncancer
SRG sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	159	404	39%	1700	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	METHYLENE CHLORIDE	75-09-2	3	404	1%	120	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	NAPHTHALENE	91-20-3	112	406	28%	320	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TETRACHLOROETHENE	127-18-4	45	404	11%	3.7	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	TRICHLOROETHENE	79-01-6	68	404	17%	36	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	VINYL CHLORIDE	75-01-4	50	404	12%	11	Yes	Residential Tap Water RSL Cancer
SRG sub-unit	XYLENES, TOTAL	1330-20-7	39	413	9%	1100	Yes	Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Offsite PSHIA Exposure Area (Continued)								
Basin Fill sub-unit	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1,2-TRICHLOROETHANE	79-00-5	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHANE	75-34-3	10	18	56%	4	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,1-DICHLOROETHENE	75-35-4	9	18	50%	16	Yes	Residential Tap Water MCL
Basin Fill sub-unit	1,2,4-TRIMETHYLBENZENE	95-63-6	0	18	0%	--		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	1,2-DICHLOROETHANE	107-06-2	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	1,4-DICHLOROBENZENE	106-46-7	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	BENZENE	71-43-2	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	BROMODICHLOROMETHANE	75-27-4	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLORODIBROMOMETHANE	124-48-1	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CHLOROFORM	67-66-3	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	CIS-1,2-DICHLOROETHENE	156-59-2	11	18	61%	9		Residential Tap Water MCL
Basin Fill sub-unit	ETHYLBENZENE	100-41-4	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	IRON	7439-89-6	2	3	67%	1300		Residential Tap Water RSL Noncancer
Basin Fill sub-unit	METHYL TERT-BUTYL ETHER	1634-04-4	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	METHYLENE CHLORIDE	75-09-2	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	NAPHTHALENE	91-20-3	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	TETRACHLOROETHENE	127-18-4	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	TRICHLOROETHENE	79-01-6	18	18	100%	25	Yes	Residential Tap Water RSL Cancer
Basin Fill sub-unit	VINYL CHLORIDE	75-01-4	0	18	0%	--		Residential Tap Water RSL Cancer
Basin Fill sub-unit	XYLENES, TOTAL	1330-20-7	0	18	0%	--		Residential Tap Water RSL Noncancer

TABLE 2-6

Exposure Area Summary Statistics and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	SL Type
Offsite PSHIA Exposure Area (Continued)								
Bedrock	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1,2-TRICHLOROETHANE	79-00-5	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHANE	75-34-3	5	24	21%	7.7	Yes	Residential Tap Water RSL Cancer
Bedrock	1,1-DICHLOROETHENE	75-35-4	3	24	13%	13	Yes	Residential Tap Water MCL
Bedrock	1,2,4-TRIMETHYLBENZENE	95-63-6	0	24	0%	--		Residential Tap Water RSL Noncancer
Bedrock	1,2-DICHLOROETHANE	107-06-2	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	1,4-DICHLOROBENZENE	106-46-7	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	BENZENE	71-43-2	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	BROMODICHLOROMETHANE	75-27-4	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	CHLORODIBROMOMETHANE	124-48-1	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	CHLOROFORM	67-66-3	1	24	4%	2.7	Yes	Residential Tap Water RSL Cancer
Bedrock	CIS-1,2-DICHLOROETHENE	156-59-2	6	24	25%	20		Residential Tap Water MCL
Bedrock	ETHYLBENZENE	100-41-4	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	IRON	7439-89-6	1	4	25%	23000		Residential Tap Water RSL Noncancer
Bedrock	METHYL TERT-BUTYL ETHER	1634-04-4	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	METHYLENE CHLORIDE	75-09-2	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	NAPHTHALENE	91-20-3	1	24	4%	4.9	Yes	Residential Tap Water RSL Cancer
Bedrock	TETRACHLOROETHENE	127-18-4	2	24	8%	4.3	Yes	Residential Tap Water RSL Cancer
Bedrock	TRICHLOROETHENE	79-01-6	24	24	100%	41	Yes	Residential Tap Water RSL Cancer
Bedrock	VINYL CHLORIDE	75-01-4	0	24	0%	--		Residential Tap Water RSL Cancer
Bedrock	XYLENES, TOTAL	1330-20-7	0	24	0%	--		Residential Tap Water RSL Noncancer

Notes:

CAS = Chemical Abstract Service

Max. Conc. = maximum concentration

MCL = maximum contaminant level

mg/L = milligram per liter

RSL = regional screening level

SL = screening level

SRG = salt river gravels

-- = chemical not detected

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 2-7
Preliminary Chemicals of Potential Concern
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Soil	Groundwater	Soil Gas-to-Indoor Air	Groundwater-to-Indoor Air
1,2,4-TRIMETHYLBENZENE	1,1,2,2-TETRACHLOROETHANE	1,1,1-TRICHLOROETHANE	1,1,1-TRICHLOROETHANE
1,4-DICHLOROBENZENE	1,1-DICHLOROETHANE	1,1,2,2-TETRACHLOROETHANE	1,1,2,2-TETRACHLOROETHANE
ARSENIC	1,1-DICHLOROETHENE	1,1,2-TRICHLOROETHANE	1,1,2-TRICHLOROETHANE
BENZENE	1,2-DICHLOROETHANE	1,1,2-TRICHLOROTRIFLUOROETHANE	1,1,2-TRICHLOROTRIFLUOROETHANE
BENZO(A)ANTHRACENE	1,1-DICHLOROETHENE	1,1-DICHLOROETHANE	1,1-DICHLOROETHANE
BENZO(A)PYRENE	1,1,2-TRICHLOROETHANE	1,1-DICHLOROETHENE	1,1-DICHLOROETHENE
BENZO(B)FLUORANTHENE	1,2,4-TRIMETHYLBENZENE	1,2,4-TRICHLOROBENZENE	1,2,4-TRIMETHYLBENZENE
ETHYLBENZENE	1,4-DICHLOROBENZENE	1,2,4-TRIMETHYLBENZENE	1,2-DICHLOROBENZENE
HEXAVALENT CHROMIUM	1,4-DIOXANE	1,2-DIBROMOETHANE	1,2-DICHLOROETHANE
INDENO(1,2,3-CD)PYRENE	ARSENIC	1,2-DICHLOROBENZENE	1,3,5-TRIMETHYLBENZENE
MERCURY	BENZENE	1,2-DICHLOROETHANE	1,4-DICHLOROBENZENE
NAPHTHALENE	BENZO(A)ANTHRACENE	1,2-DICHLOROETHENE (TOTAL)	1,4-DIOXANE
TETRACHLOROETHENE	BENZO(A)PYRENE	1,2-DICHLOROPROPANE	2-BUTANONE
TRICHLOROETHENE	BIS(2-ETHYLHEXYL)PHTHALATE	1,3,5-TRIMETHYLBENZENE	2-METHYLNAPHTHALENE
	BROMODICHLOROMETHANE	1,3-DICHLOROBENZENE	ACENAPHTHENE
	CHLORODIBROMOMETHANE	1,4-DICHLOROBENZENE	ACETONE
	CHLOROFORM	2,2,4-TRIMETHYLPENTANE	BENZENE
	CHROMIUM	2-BUTANONE	BROMODICHLOROMETHANE
	CIS-1,2-DICHLOROETHENE	2-HEXANONE	BROMOFORM
	ETHYLBENZENE	4-ETHYLTOLUENE	BUTYLBENZENE
	IRON	4-METHYL-2-PENTANONE	CARBON DISULFIDE
	MANGANESE	ACETONE	CHLOROBENZENE
	METHYL TERT-BUTYL ETHER	ACROLEIN	CHLORODIBROMOMETHANE
	METHYLENE CHLORIDE	ACRYLONITRILE	CHLOROETHANE
	NAPHTHALENE	BENZENE	CHLOROFORM
	TETRACHLOROETHENE	BROMODICHLOROMETHANE	CHLOROMETHANE
	TRICHLOROETHENE	BROMOFORM	CIS-1,2-DICHLOROETHENE
	VINYL CHLORIDE	CARBON DISULFIDE	ETHANE
	XYLENES, TOTAL	CARBON TETRACHLORIDE	ETHENE
		CHLORODIBROMOMETHANE	ETHYLBENZENE
		CHLOROETHANE	FLUORENE
		CHLOROFORM	IODOMETHANE
		CHLOROMETHANE	ISOPROPYLBENZENE
		CIS-1,2-DICHLOROETHENE	METHYL TERT-BUTYL ETHER
		CIS-1,3-DICHLOROPROPENE	METHYLENE CHLORIDE
		CYCLOHEXANE	NAPHTHALENE
		DICHLORODIFLUOROMETHANE	N-PROPYLBENZENE
		DICHLOROFLUOROMETHANE	O-XYLENE
		ETHYL ACETATE	P-ISOPROPYLTOLUENE
		ETHYLBENZENE	PYRENE
		HEXACHLOROBUTADIENE	SEC-BUTYLBENZENE
		ISOPROPANOL	STYRENE
		ISOPROPYLBENZENE	TERT-BUTYLBENZENE
		METHYL TERT-BUTYL ETHER	TETRACHLOROETHENE
		METHYLENE CHLORIDE	TOLUENE
		NAPHTHALENE	TRANS-1,2-DICHLOROETHENE
		N-HEPTANE	TRICHLOROETHENE
		N-HEXANE	VINYL CHLORIDE
		N-PROPYLBENZENE	XYLENES, M & P
		O-XYLENE	XYLENES, TOTAL

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-1
 Exposure Point Concentrations for Soil
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Area	COPC	CAS Number	Detection Count	Sample Count	Detection Frequency	Maximum Detection (mg/kg)	UCL Value	UCL Type	EPC (mg/kg)	EPC Type
Honeywell Facility North Exposure Area	1,2,4-TRIMETHYLBENZENE	95-63-6	25	203	12%	140	8.41	95% KM (t) UCL	8.4	UCL
	1,4-DICHLOROBENZENE	106-46-7	1	221	0%	15.9	--	Not Processed—Too Few Unique Detected Values	16	Maximum Detection
	ARSENIC	7440-38-2	2	2	100%	9	--	Not Processed—Too Few Unique Detected Values	9.0	Maximum Detection
	BENZENE	71-43-2	4	233	2%	46	0.731	95% KM (t) UCL	0.73	UCL
	BENZO(A)ANTHRACENE	56-55-3	5	176	3%	0.25	0.0166	95% KM (t) UCL	0.017	UCL
	BEZNO(A)PYRENE	50-32-8	8	176	5%	0.4	0.0178	95% KM (t) UCL	0.018	UCL
	BENZO(B)FLUORANTHENE	205-99-2	7	176	4%	0.64	0.0282	95% KM (t) UCL	0.028	UCL
	ETHYLBENZENE	100-41-4	19	233	8%	177	4.368	95% KM (t) UCL	4.4	UCL
	INDENO(1,2,3-CD)PYRENE	193-39-5	5	176	3%	0.41	0.0161	95% KM (t) UCL	0.016	UCL
	MERCURY	7439-97-6	8	18	44%	11	2.363	95% KM (t) UCL	2.4	UCL
	NAPHTHALENE	91-20-3	27	204	13%	76	6.599	97.5% KM (Chebyshev) UCL	6.6	UCL
TETRACHLOROETHENE	127-18-4	9	221	4%	0.63	0.0292	95% KM (Chebyshev) UCL	0.029	UCL	
Honeywell Facility South Exposure Area	1,2,4-TRIMETHYLBENZENE	95-63-6	24	158	15%	82	3.919	95% KM (t) UCL	3.9	UCL
	ARSENIC	7440-38-2	44	56	79%	29	9.142	95% KM (BCA) UCL	9.1	UCL
	BENZO(A)PYRENE	50-32-8	16	121	13%	0.19	0.0159	95% KM (t) UCL	0.016	UCL
	HEXAVALENT CHROMIUM	18540-29-9	1	36	3%	1.3	--	Not Processed—Too Few Unique Detected Values	1.3	Maximum Detection
	NAPHTHALENE	91-20-3	24	167	14%	21	0.793	95% KM (t) UCL	0.79	UCL
	TETRACHLOROETHENE	127-18-4	13	166	8%	55	2.632	95% KM (t) UCL	2.6	UCL
Offsite PSHIA Exposure Area	TRICHLOROETHENE	79-01-6	11	166	7%	15	0.567	95% KM (t) UCL	0.57	UCL
	ARSENIC	7440-38-2	31	31	100%	20.8	13.77	Use 95% Student's—t UCL	14	UCL

Notes:
 CAS = Chemical Abstract Service
 COPC = chemical of potential concern
 EPC = exposure point concentration
 mg/kg = milligram per kilogram
 UCL = upper confidence limit
 -- = not applicable

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-2
 Exposure Point Concentrations for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Area	COPC	CAS Number	Maximum Detection (µg/L)	UCL Value	UCL Type	EPC	EPC Type
Salt River Gravels sub-unit							
Honeywell Facility North Exposure Area	1,1-DICHLOROETHANE	75-34-3	100	16.36	95% KM (t) UCL	16	UCL
	1,1-DICHLOROETHENE	75-35-4	10	0.947	95% KM (t) UCL	0.95	UCL
	1,2,4-TRIMETHYLBENZENE	95-63-6	350	25.88	95% KM (t) UCL	26	UCL
	1,4-DICHLOROBENZENE	106-46-7	1.5	0.172	95% KM (BCA) UCL	0.17	UCL
	ARSENIC	7440-38-2	13	--	Not Processed—Too Few Unique Detected Values	13	Maximum Detection
	BENZENE	71-43-2	5600	734	97.5% KM (Chebyshev) UCL	730	UCL
	BROMODICHLOROMETHANE	75-27-4	0.28	0.287	95% KM (t) UCL	0.29	UCL
	CHLOROFORM	67-66-3	6	0.768	95% KM (t) UCL	0.77	UCL
	ETHYLBENZENE	100-41-4	810	133.7	97.5% KM (Chebyshev) UCL	130	UCL
	MANGANESE	7439-96-5	3000	--	Not Processed—Too Few Unique Detected Values	3000	Maximum Detection
	METHYL TERT-BUTYL ETHER	1634-04-4	4300	217.5	95% KM (Chebyshev) UCL	220	UCL
	NAPHTHALENE	91-20-3	580	131.5	97.5% KM (Chebyshev) UCL	130	UCL
	TETRACHLOROETHENE	127-18-4	6.9	0.855	95% KM (t) UCL	0.86	UCL
	TRICHLOROETHENE	79-01-6	120	11.18	95% KM (Chebyshev) UCL	11	UCL
	VINYL CHLORIDE	75-01-4	370	12.86	95% KM (BCA) UCL	13	UCL
XYLENES, TOTAL	1330-20-7	570	37.56	95% KM (t) UCL	38	UCL	
Honeywell Facility South Exposure Area	1,1,2,2-TETRACHLOROETHANE	79-34-5	1.2	--	Not Processed - Too Few Unique Detected Values	1.2	Maximum Detection
	1,1-DICHLOROETHANE	75-34-3	160	29.19	95% KM (Chebyshev) UCL	29.19	UCL
	1,1-DICHLOROETHENE	75-35-4	38	2.875	95% KM (Chebyshev) UCL	2.875	UCL
	1,2,4-TRIMETHYLBENZENE	95-63-6	310	16.01	95% KM (BCA) UCL	16.01	UCL
	1,4-DICHLOROBENZENE	106-46-7	0.46	0.351	95% KM (t) UCL	0.351	UCL
	1,4-DIOXANE	123-91-1	1.2	--	Not Processed—Too Few Unique Detected Values	1.2	Maximum Detection
	ARSENIC	7440-38-2	12	--	Not Processed—Too Few Unique Detected Values	12	Maximum Detection
	BENZENE	71-43-2	6800	563.5	97.5% KM (Chebyshev) UCL	560	UCL
	BROMODICHLOROMETHANE	75-27-4	3.8	--	Not Processed—Too Few Unique Detected Values	3.8	Maximum Detection
	CHLORODIBROMOMETHANE	124-48-1	3.5	0.307	97.5% KM (Chebyshev) UCL	0.307	UCL
	CHLOROFORM	67-66-3	7	0.497	95% KM (t) UCL	0.497	UCL
	ETHYLBENZENE	100-41-4	910	74.19	95% KM (t) UCL	74.19	UCL
	MANGANESE	7439-96-5	2300	--	Not Processed—Too Few Unique Detected Values	2300	Maximum Detection
	METHYL TERT-BUTYL ETHER	1634-04-4	1300	129.9	95% KM (Chebyshev) UCL	130	UCL
	NAPHTHALENE	91-20-3	430	45.28	95% KM (BCA) UCL	45.28	UCL
	TETRACHLOROETHENE	127-18-4	5.3	0.592	95% KM (t) UCL	0.592	UCL
	TRICHLOROETHENE	79-01-6	76	6.114	95% KM (BCA) UCL	6.114	UCL
VINYL CHLORIDE	75-01-4	31	4.218	95% KM (t) UCL	4.218	UCL	
XYLENES, TOTAL	1330-20-7	1600	113	97.5% KM (Chebyshev) UCL	110	UCL	

TABLE 3-2
 Exposure Point Concentrations for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Area	COPC	CAS Number	Maximum Detection (µg/L)	UCL Value	UCL Type	EPC	EPC Type
Offsite PSHIA Exposure Area	1,1,2-TRICHLOROETHANE	79-00-5	4.1	--	Not Processed—Too Few Unique Detected Values	4.1	Maximum Detection
	1,1-DICHLOROETHANE	75-34-3	29	4.302	95% KM (BCA) UCL	4.3	UCL
	1,1-DICHLOROETHENE	75-35-4	10	0.805	95% KM (t) UCL	0.81	UCL
	1,2,4-TRIMETHYLBENZENE	95-63-6	100	4.624	95% KM (BCA) UCL	4.6	UCL
	ARSENIC	7440-38-2	19	8.332	95% KM (BCA) UCL		UCL
	BENZENE	71-43-2	720	53.26	97.5% KM (Chebyshev) UCL	53	UCL
	BENZO(A)ANTHRACENE	56-55-3	0.12	--	Not Processed—Too Few Unique Detected Values	0.12	Maximum Detection
	BENZO(A)PYRENE	50-32-8	0.12	0.12	95% KM (BCA) UCL	0.12	UCL
	BIS(2-ETHYLHEXYL)PHTHALATE	117-81-7	310	--	Not Processed—Too Few Unique Detected Values	0	Maximum Detection
	CHLOROFORM	67-66-3	0.67	0.314	95% KM (t) UCL	0.31	UCL
	CHROMIUM	7440-47-3	1500	254.1	95% KM (t) UCL	250	UCL
	ETHYLBENZENE	100-41-4	360	11.84	95% KM (Chebyshev) UCL	12	UCL
	MANGANESE	7439-96-5	3200	836.4	95% KM (t) UCL	840	UCL
	METHYL TERT-BUTYL ETHER	1634-04-4	1700	115.2	95% KM (Chebyshev) UCL	250	UCL
	METHYLENE CHLORIDE	75-09-2	120	8.495	95% KM (t) UCL	8.5	UCL
	NAPHTHALENE	91-20-3	320	18.26	95% KM (Chebyshev) UCL	18	UCL
	TETRACHLOROETHENE	127-18-4	3.7	0.585	95% KM (t) UCL	0.59	UCL
TRICHLOROETHENE	79-01-6	36	1.043	95% KM (BCA) UCL	1.0	UCL	
VINYL CHLORIDE	75-01-4	11	0.907	95% KM (t) UCL	0.91	UCL	
XYLENES, TOTAL	1330-20-7	1100	27.65	95% KM (Chebyshev) UCL	28	UCL	
BASIN FILL SUB-UNIT							
Honeywell Facility North Exposure Area	1,1-DICHLOROETHANE	75-34-3	29	6.044	95% KM (t) UCL	6.0	UCL
	CHLOROFORM	67-66-3	1	0.936	95% KM (t) UCL	0.94	UCL
	METHYL TERT-BUTYL ETHER	1634-04-4	1100	66.95	95% KM (t) UCL	67	UCL
	NAPHTHALENE	91-20-3	2.9	--	Not Processed—Too Few Unique Detected Values	2.9	Maximum Detection
	TETRACHLOROETHENE	127-18-4	1.4	0.793	95% KM (t) UCL	0.79	UCL
	TRICHLOROETHENE	79-01-6	30	7.838	95% KM (BCA) UCL	7.8	UCL
Honeywell Facility South Exposure Area	1,1-DICHLOROETHANE	75-34-3	38	8.112	95% KM (BCA) UCL	8.1	UCL
	1,1-DICHLOROETHENE	75-35-4	100	16.44	95% KM (t) UCL	16	UCL
	BENZENE	71-43-2	1.6	0.702	95% KM (t) UCL	0.70	UCL
	BROMODICHLOROMETHANE	75-27-4	0.21	--	Not Processed—Too Few Unique Detected Values	0.21	Maximum Detection
	CHLOROFORM	67-66-3	0.5	--	Not Processed—Too Few Unique Detected Values	0.50	Maximum Detection
	ETHYLBENZENE	100-41-4	7.2	2.704	95% KM (t) UCL	2.7	UCL
	METHYL TERT-BUTYL ETHER	1634-04-4	78	7.644	95% KM (t) UCL	7.6	UCL
	NAPHTHALENE	91-20-3	9.8	2.961	95% KM (t) UCL	3.0	UCL
	TETRACHLOROETHENE	127-18-4	4.1	1.28	95% KM (t) UCL	1.3	UCL
TRICHLOROETHENE	79-01-6	260	119	97.5% KM (Chebyshev) UCL	120	UCL	
VINYL CHLORIDE	75-01-4	7.2	2.16	95% KM (BCA) UCL	2.2	UCL	

TABLE 3-2
 Exposure Point Concentrations for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Area	COPC	CAS Number	Maximum Detection (µg/L)	UCL Value	UCL Type	EPC	EPC Type
Offsite PSHIA Exposure Area	1,1-DICHLOROETHANE	75-34-3	4	2.784	95% KM (t) UCL	2.8	UCL
	1,1-DICHLOROETHENE	75-35-4	16	9.097	95% KM (t) UCL	9.1	UCL
	TRICHLOROETHENE	79-01-6	25	22.42	Use 95% Chebyshev (Mean, Sd) UCL	22	UCL
Bedrock							
Honeywell Facility North Exposure Area	CHLOROFORM	67-66-3	4.3	1.128	95% KM (t) UCL	1.1	UCL
	IRON	7439-89-6	32000	59159	99% KM (Chebyshev) UCL	59000	UCL
	TETRACHLOROETHENE	127-18-4	4.2	3.312	95% KM (t) UCL	3.3	UCL
	TRICHLOROETHENE	79-01-6	190	125.4	99% KM (Chebyshev) UCL	0	UCL
Honeywell Facility South Exposure Area	1,1-DICHLOROETHANE	75-34-3	24	5.723	95% KM (t) UCL	5.7	UCL
	1,1-DICHLOROETHENE	75-35-4	25	10.81	95% KM (t) UCL	11	UCL
	BENZENE	71-43-2	1.5	--	Not Processed—Too Few Unique Detected Values	1.5	Maximum Detection
	BROMODICHLOROMETHANE	75-27-4	6.7	2.133	95% KM (t) UCL	2.1	UCL
	CHLORODIBROMOMETHANE	124-48-1	7	2.822	95% KM (t) UCL	2.8	UCL
	CHLOROFORM	67-66-3	15	3.73	95% KM (t) UCL	3.7	UCL
	ETHYLBENZENE	100-41-4	2.4	--	Not Processed—Too Few Unique Detected Values	2.4	Maximum Detection
	TRICHLOROETHENE	79-01-6	63	31.29	Use 95% Student's-t UCL	31	UCL
Offsite PSHIA Exposure Area	1,1-DICHLOROETHANE	75-34-3	7.7	5.352	95% KM (t) UCL	5.4	UCL
	1,1-DICHLOROETHENE	75-35-4	13	6.997	95% KM (t) UCL	7.0	UCL
	CHLOROFORM	67-66-3	2.7	--	Not Processed—Too Few Unique Detected Values	2.7	Maximum Detection
	NAPHTHALENE	91-20-3	4.9	--	Not Processed—Too Few Unique Detected Values	4.9	Maximum Detection
	TETRACHLOROETHENE	127-18-4	4.3	2.667	95% KM (t) UCL	2.7	UCL
	TRICHLOROETHENE	79-01-6	41	14.31	Use 95% Chebyshev (Mean, Sd) UCL	14	UCL

Notes:
 µg/L = micrograms per liter
 CAS = Chemical Abstract Service
 COPC = chemical of potential concern
 EPC = exposure point concentration
 UCL = upper confidence limit

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-3
 Soil Gas Location Clusters
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Soil Gas Location Cluster	Individual Soil Gas Sampling Locations
P-1	P-1-M
	P-1-U
P-2	P-2-M
	P-2-U
P-3	P-3-M
	P-3-U
P-4	P-4-M
	P-4-U
P-05	P-05-M
	P-05-U
P-06	P-06-M
	P-06-U
P-07	P-07-M
	P-07-U
P-08	P-08-M
	P-08-U
P-09	P-09-M
	P-09-U
P-10	P-10-M
	P-10-U
P-11	P-11-M
	P-11-U
P-12	P-12-M
	P-12-U
P-13	P-13-M
	P-13-U
P-14	P-14-M
	P-14-U
P-15	P-15-M
	P-15-U
P-16	P-16-M
	P-16-U
P-17	P-17-M
	P-17-U
P-18	P-18-L
	P-18-U
P-19	P-19-M
	P-19-U
P-20	P-20-M
	P-20-U
P-21	P-21-M
	P-21-U
P-22	P-22-L
	P-22-U
P-23	P-23-M
	P-23-U
P-24	P-24-U
P-25	P-25-U
P-26	P-26-U
P-28	P-28-M
	P-28-U
P-29	P-29-U

TABLE 3-3
 Soil Gas Location Clusters
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Soil Gas Location Cluster	Individual Soil Gas Sampling Locations
P-30	P-30-U
P-34	P-34-M
P-40	P-40
P-46	P-46-M
	P-46-U
PMW-11	PMW-11-M
	PMW-11-U
PMW-12	PMW-12-M
	PMW-12-U
PMW-13	PMW-13-M
	PMW-13-U
SMW-1	SMW-1-M
	SMW-1-U
SMW-2	P-47
	SMW-2-M
SMW-3	SMW-3-M
	SMW-3-U
SMW-4	SMW-4-M
	SMW-4-U
SMW-5	SMW-5-M
	SMW-5-U
SMW-6	SMW-6-M
	SMW-6-U
SMW-7	SMW-7-M
	SMW-7-U
SMW-8	SMW-8-M
	SMW-8-U
SMW-9	SMW-9-M
	SMW-9-U
SMW-10	SMW-10-M
	SMW-10-U
SMW-11	SMW-11-M
	SMW-11-U
SMW-12	SMW-12-M
	SMW-12-U
SMW-13	SMW-13-M
	SMW-13-U
SMW-14	SMW-14-M
	SMW-14-U

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/L)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte Name	Location Cluster ID:	DSV-04	DSV-05	DSV-07	DSV-1	DSV-2	DSV-3	P-05		P-06		P-07		P-08		P-09		P-1		P-10		P-11		P-12		P-13		
	Soil Gas Probe ID:	DSV-04	DSV-05	DSV-07	DSV-1	DSV-2	DSV-3	P-05-M	P-05-U	P-06-M	P-06-U	P-07-M	P-07-U	P-08-M	P-08-U	P-09-M	P-09-U	P-1-M	P-1-U	P-10-M	P-10-U	P-11-M	P-11-U	P-12-M	P-12-U	P-13-M	P-13-U	
1,1,1-TRICHLOROETHANE			1.7		230	955	330	0.27	0.06	0.72	0.94	0.72	0.54	5.5	9.4	1.3	3.3	20	2.73	0.01	0.01		0.01	0.03	0.07	0.14	0.12	
1,1,2,2-TETRACHLOROETHANE																												
1,1,2-TRICHLOROETHANE														0.24	0.34	0.09												
1,1,2-TRICHLOROTRIFLUOROETHANE			46		290	100	350	1.9	1.6	1.1	0.59	0.68	0.07	1.1	1.7			4	1.7			0.16	0.19	0.12	0.07		0.01	
1,1-DICHLOROETHANE	1		87		360	1500	360	0.18	0.05	0.91	1.3	0.99	0.99	7	6.6	2.4	0.95	2.25	8.2	0.06	0.03	0.22	0.12	0.33	0.26		0.02	
1,1-DICHLOROETHENE			2.3		500	460	420	1.1	0.97	4.4	11	3.9	2.5	44	40	12	7.3	4.42	2.7	0.4	0.44	0.52	0.64	0.64	0.4	0.64	0.1	
1,2,4-TRICHLOROBENZENE																												
1,2,4-TRIMETHYLBENZENE			110	0.12					0.0034										0.13		0.0033		0.01	0.29	0.1	0.1	0.01	
1,2-DIBROMOETHANE																												
1,2-DICHLOROBENZENE																												
1,2-DICHLOROETHANE						100						0.11	0.08			3	0.7			0.0026	0.0035							
1,2-DICHLOROETHENE (TOTAL)																												
1,2-DICHLOROPROPANE																												
1,3,5-TRIMETHYLBENZENE			38	0.04															0.056				0.0026	0.06				
1,3-DICHLOROBENZENE																												
1,4-DICHLOROBENZENE																												
2,2,4-TRIMETHYLPENTANE			33	0.047					0.0013																		0.02	
2-BUTANONE				2.7				0.09								0.07	0.12			0.0093	0.0066	0.06	0.0066		0.0039	0.12	0.0075	
2-HEXANONE				0.67																								
4-ETHYLTOLUENE			22	0.057																			0.0023	0.02				
4-METHYL-2-PENTANONE				0.083																								
ACETONE				4.1				7.7	0.21	1.1	0.27	2.7	0.11			2.9	3.6			1.4	0.16	9.9	2.1	12	1.3	20	0.7	
ACROLEIN																												
ACRYLONITRILE																												
BENZENE			32	0.52		4.9	1.7		0.0098				0.02						11	0.0042	0.0023		0.0065		0.0039	0.06	0.0024	
BROMODICHLOROMETHANE																												
BROMOFORM																												
CARBON DISULFIDE				44				1.2	0.0088	0.88	0.05	0.35	0.0088							0.11	0.01	0.23	0.03	0.54	0.04	0.92	0.0095	
CARBON TETRACHLORIDE																												
CHLORODIBROMOMETHANE																												
CHLOROETHANE			5.9	0.032														0.203	0.66							0.03	0.0048	
CHLOROFORM					1.3	2.4	1	0.02	0.01	0.07	0.07	0.07	0.07	0.28	0.64	0.08	0.08	0.141	0.0312	0.0074	0.01	0.03	0.01	0.03	0.03	0.08	0.0084	
CHLOROMETHANE				0.018				0.07		0.02												0.03		0.03				
CIS-1,2-DICHLOROETHENE			20		6	11	2.3			0.04				0.24	0.4	0.31	0.11		0.18	0.01		0.08	0.0092	0.06	0.03			
CIS-1,3-DICHLOROPROPENE																												
CYCLOHEXANE			420					0.03	0.04																			
DICHLORODIFLUOROMETHANE			51	0.007																0.14	0.006	0.0065		0.0055		0.0047	0.007	
DICHLOROFLUOROMETHANE																												
ETHYL ACETATE				0.04																								
ETHYLBENZENE			59	0.092		25	9.4		0.0062											0.074						0.0055		
HEXACHLOROBUTADIENE																												
ISOPROPANOL			2.7	0.25				0.06					0.12														0.02	
ISOPROPYLBENZENE																												
METHYL TERT-BUTYL ETHER				0.27					0.0095																			
METHYLENE CHLORIDE			1.8	0.12		69				0.03									0.173	0.021	0.0046	0.0024	0.0095	0.002	0.01	0.0033		
NAPHTHALENE																												
N-HEPTANE			280						0.01																			
N-HEXANE			360	0.57				0.03	0.0068											0.0046	0.0023		0.0027			0.0025	0.05	
N-PROPYLBENZENE																											0.03	
O-XYLENE			20	0.084		6.2	3.3													0.14	0.0034				0.01			
P-ISOPROPYLTOLUENE																												
PROPYLENE				6.6				0.09																			0.28	
SEC-BUTYLBENZENE																												
STYRENE				0.069																								
TETRACHLOROETHENE				0.19	1.6	6.7	1.4	0.31	0.23	0.23	0.14	0.23	0.1	0.46	0.97	0.12	0.13	0.334	0.22	0.0076	0.03	0.63	0.61	0.41	0.24	0.11	0.06	
TETRAHYDROFURAN				0.0084																								
TOLUENE			37	0.42		5.6	1.3		0.0024																	0.0022	0.14	0.0057
TRANS-1,2-DICHLOROETHENE																												
TRICHLOROETHENE	1.8	4.4	0.019	84	67	64	72	0.48	0.03	5.1	5.3	0.88	0.38	10	8.3	1.3	1.1	1.01	2	0.07	0.01	1	1.2	0.83	0.66	0.34	0.18	
TRICHLOROFLUOROMETHANE		290	0.049	36.9	297										0.14			0.394	0.614	0.0036	0.0038	0.05	0.08	0.05	0.03		0.01	
VINYL ACETATE																												
VINYL CHLORIDE		390			22.1													0.37	4.6							0.01		0.0042
XYLENES, M & P		53	0.2		9.6	4.9																				0.03		

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	P-14		P-15		P-16		P-17		P-18		P-19		P-2		P-20		P-21		P-22		P-23		P-24	P-25	P-26
	P-14-M	P-14-U	P-15-M	P-15-U	P-16-M	P-16-U	P-17-M	P-17-U	P-18-L	P-18-U	P-19-M	P-19-U	P-2-M	P-2-U	P-20-M	P-20-U	P-21-M	P-21-U	P-22-L	P-22-U	P-23-M	P-23-U	P-24-U	P-25-U	P-26-U
1,1,1-TRICHLOROETHANE	0.0033	0.004	0.27	0.12	0.24	0.19						3.5	3	1.92	530	210		0.45		2.5	0.29	0.15			
1,1,2,2-TETRACHLOROETHANE																									
1,1,2-TRICHLOROETHANE		0.00083																							
1,1,2-TRICHLOROTRIFLUOROETHANE		0.0018	0.61	0.45		0.21			4.4	93	69	9.9	4.36	4	4.9	20	1.2	5.7	5.3	6.3	6			0.85	
1,1-DICHLOROETHANE		0.00088	5.8	0.28	16	9.1	23	8.7	12	14	58	58	3.5	21	130	76	24	0.28	58	25	0.66	0.45	11	0.78	
1,1-DICHLOROETHENE	0.0031	0.0031		0.0097	0.1	0.11			1.3	0.077	12	10	4.88	1.1	81	29		0.00041	2.1		0.013				
1,2,4-TRICHLOROBENZENE		0.0013																							
1,2,4-TRIMETHYLBENZENE	0.0044	0.01		0.01		0.8	17	1.4	2.8	6.5	140			0.17	13	3.8		3.8	4	6		0.21			
1,2-DIBROMOETHANE		0.00054																							
1,2-DICHLOROBENZENE		0.0011				0.1																			
1,2-DICHLOROETHANE	0.0021	0.0034																							
1,2-DICHLOROETHENE (TOTAL)																									
1,2-DICHLOROPROPANE		0.00049																							
1,3,5-TRIMETHYLBENZENE		0.0028		0.00081		0.2	3.7		0.051	14			0.056				1		1.5						
1,3-DICHLOROBENZENE		0.001				0.084																			
1,4-DICHLOROBENZENE		0.0012		0.01		0.12																			
2,2,4-TRIMETHYLPENTANE		0.0012	0.69	0.43	23	66	31	28	40	47	9.3	26			36	28	36	0.06	19	12		0.36	320	27	150
2-BUTANONE	0.01	0.018		0.014	0.084													0.0089							
2-HEXANONE		0.0065		0.0034														0.0016							
4-ETHYLTOLUENE							1.9					11						0.44							
4-METHYL-2-PENTANONE		0.0025		0.00086														0.00043							
ACETONE	0.7	0.08	0.77	0.3														1.8		0.39	1				
ACROLEIN		0.0066		0.012														0.0031							
ACRYLONITRILE		0.00035																							
BENZENE	0.0027	0.0028	0.04	0.014		0.62	3.2	1.6	1.8	4.6	36	6.8		0.64	9.1	3.6	39	0.0016	2.1	4.6	0.2	0.91	4.6	0.19	
BROMODICHLOROMETHANE																									
BROMOFORM																									
CARBON DISULFIDE	0.16	0.03	0.38	0.01	1.3											2.4		0.012		1.3	0.09	0.09			
CARBON TETRACHLORIDE		0.0032		0.00036																					
CHLORODIBROMOMETHANE																									
CHLOROETHANE	0.0099		0.32	0.01	2.9	4.8	8.3	3.8	5.6	7	40	26	1.92	3.9	1.9	4.9	2.9		11	4	0.014		12	0.27	
CHLOROFORM		0.0025	0.02	0.0079												0.2		0.09			0.06	0.06			
CHLOROMETHANE	0.029	0.0016	0.02	0.00068	0.052								0.102					0.00098			0.027				
CIS-1,2-DICHLOROETHENE		0.0013				2.2	2.4	4.8	1.5	2.2	4.4	23		0.099	44	6.6	150	0.22	3.8	10	0.03				
CIS-1,3-DICHLOROPROPENE																									
CYCLOHEXANE	0.0091	0.0035	0.59	0.3	12	80	340	160	150	200	290	250			310	270	520	0.91	140	52	0.18	1.5	220	35	120
DICHLORODIFLUOROMETHANE	0.005	0.0055		0.0051		0.088												0.0026							
DICHLOROFLUOROMETHANE																									
ETHYL ACETATE																									
ETHYLBENZENE		0.0048		0.0062	1.2	0.22	6.2	1.3			31				3.7			0.22		3.5	0.092	0.31			
HEXACHLOROBUTADIENE																									
ISOPROPANOL	0.0052	0.0072		0.0057	3		7.5	2																	
ISOPROPYLBENZENE		0.0058		0.17		0.62					0.55			0.54		3.1		0.026							
METHYL TERT-BUTYL ETHER																					0.1	0.73			
METHYLENE CHLORIDE		0.0053		0.00042		0.14	1.8					6						0.0011		1.3					
NAPHTHALENE		0.017		0.15		0.027												0.25							
N-HEPTANE	0.0092			0.01		1.9	20	1.2	5.4	13	240	75			150	16	270	0.83	39	11	0.1	1.9			
N-HEXANE	0.0093	0.0043	0.16	0.01	0.93	3.9	120	39	50	110	360	210			290	150	790	0.57	190	46	0.14	1.8	8.2	0.43	
N-PROPYLBENZENE		0.0022		0.27		0.36												0.041							
O-XYLENE		0.0032		0.00041		0.18												0.2		1.7					
P-ISOPROPYLTOLUENE		0.0024		0.00026		0.14					0.044			0.029				0.011							
PROPYLENE					0.21	0.26	1.8	0.74																0.066	
SEC-BUTYLBENZENE		0.027		0.59		0.78															0.015	0.049			
STYRENE		0.0012																							
TETRACHLOROETHENE	0.0058	0.0051	1.9	0.67	0.54	0.58	12	9.7					7.6	0.421	0.73			0.08			0.14	0.09		1.7	
TETRAHYDROFURAN		0.0036																							
TOLUENE	0.0038	0.0069		0.0036		0.14							0.037					0.00051	2	1.7			0.0076		0.054
TRANS-1,2-DICHLOROETHENE		0.00084																0.00086			0.024	0.052			
TRICHLOROETHENE	0.0055	0.011	0.26	0.13	0.16	0.55		2.2	5.2	7.7			6.6	0.144	0.19	27	17	100	3.9	3.6	9.4	6.1			
TRICHLOROFLUOROMETHANE		0.0033		0.0048		0.22								0.112	0.0856	3	0.41	30	1.6		0.51	0.34			
VINYL ACETATE				0.02																					
VINYL CHLORIDE		0.00049	0.05	0.0017	1.2	2.2	6.5	2.9	3.1	5.7	4.7	5.2	2.65	5.8	8.8	21	78	0.17	2	1.1	0.019		2.6	0.06	
XYLENES, M & P		0.01		0.0017		0.35	8.8			0.14	11							0.48		6.2	0.027	0.15			

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	P-28		P-29	P-3		P-30	P-31	P-32	P-33	P-34		P-35	P-36	P-37	P-38	P-39	P-4		P-40	P-41	P-46		PMW-11	
	P-28-M	P-28-U	P-29-U	P-3-M	P-3-U	P-30-U	P-31	P-32	P-33	P-34	P-34-M	P-35	P-36	P-37	P-38	P-39	P-4-M	P-4-U	P-40	P-41	P-46-M	P-46-U	PMW-11-M	PMW-11-U
1,1,1-TRICHLOROETHANE	0.0038	0.0032	0.0032	0.503	1.3	0.0081	0.069	0.23	0.026	0.024	0.08	1.1	2.6	0.18	0.4	3.4	13.5	43.6	0.033	0.28	0.0013	0.0026		
1,1,2,2-TETRACHLOROETHANE																								
1,1,2-TRICHLOROETHANE															0.0016									
1,1,2-TRICHLOROTRIFLUOROETHANE	0.033	0.015	0.072	2.3	0.75	0.056	0.3	1.2		0.0068	0.031		2.5		0.0069	1.3	0.787	1.05		3.7	0.33	0.11		
1,1-DICHLOROETHANE	0.0014	0.0021	0.0088	0.813	11	0.019	0.0024	0.08	0.089	0.014	0.11	0.87	0.5	6.8	4.9	0.36	0.513	0.861	0.058	0.37	1	0.006		
1,1-DICHLOROETHENE	0.085			0.985	2.5	0.00069							0.081	0.085	0.11	0.035	0.956	3.89		0.023	0.00088			
1,2,4-TRICHLOROBENZENE																	0.466	0.0025			0.00098			
1,2,4-TRIMETHYLBENZENE	0.078	1.1	0.0016		0.0213	0.0023	0.018	0.021	0.054		0.024	0.045	0.06	0.4	0.35	0.0072	0.0653	3.6	15			0.21		
1,2-DIBROMOETHANE																								
1,2-DICHLOROBENZENE																	0.104							
1,2-DICHLOROETHANE																								
1,2-DICHLOROETHENE (TOTAL)																								
1,2-DICHLOROPROPANE																								
1,3,5-TRIMETHYLBENZENE	0.014	0.19			0.12	0.00081	0.018		0.01		0.0046		0.065	0.021	0.12	0.0064		0.69	3.6	0.0042		0.079		
1,3-DICHLOROBENZENE																	0.0967							
1,4-DICHLOROBENZENE	0.001																0.103							
2,2,4-TRIMETHYLPENTANE																								
2-BUTANONE	0.004	0.0011	0.023			0.01															0.0011	0.009		
2-HEXANONE						0.0039															0.0008			
4-ETHYLTOLUENE																								
4-METHYL-2-PENTANONE						0.00057																		
ACETONE	0.092	0.17				0.057									0.0081						0.0086	0.1		
ACROLEIN	0.0021					0.0039												0.0061	0.0053		0.00089	0.00096		
ACRYLONITRILE																								
BENZENE	0.0091	0.0055	0.0027		7.8	0.00086	0.011		0.013	0.0064			0.035	0.89	0.62	0.012		0.067	0.28	0.015	0.001	0.028	0.2	
BROMODICHLOROMETHANE	0.015	0.0032																						
BROMOFORM	0.0023																							
CARBON DISULFIDE	0.014	0.03	0.0069			0.018					0.0097	0.13							0.0052	0.13	0.018	0.0028		
CARBON TETRACHLORIDE																								
CHLORODIBROMOMETHANE	0.01																							
CHLOROETHANE				0.0123	1.2									0.87	1.8						0.21			
CHLOROFORM	0.012		0.0023	0.0377	0.011	0.012		0.062		0.0034	0.015	0.066	0.016		0.034	0.021			0.012	0.046	0.0083	0.0055		
CHLOROMETHANE	0.00092			0.0333	0.0029	0.0011											0.0279				0.0009			
CIS-1,2-DICHLOROETHENE				0.117	0.44		0.0072	0.02						0.34	0.065	0.22	0.0078			0.0018	0.076	0.0049		
CIS-1,3-DICHLOROPROPENE																								
CYCLOHEXANE																								
DICHLORODIFLUOROMETHANE	0.006	0.0038		0.0146		0.0034	0.0027		0.0034	0.0034					0.0026	0.003		0.0036	0.0025		0.2	0.004		
DICHLOROFLUOROMETHANE																								
ETHYL ACETATE																								
ETHYLBENZENE	0.011	0.033	0.0053			0.0016			0.0065		0.0029		0.0038					1	5.5	0.0029		0.042		
HEXACHLOROBUTADIENE																	0.818							
ISOPROPANOL																								
ISOPROPYLBENZENE	0.005	0.057	0.021		1.1	0.0023	0.0019		0.04	0.029	0.019	0.093	0.0085	1.6	2.6			0.58	2.8		0.0014	0.071		
METHYL TERT-BUTYL ETHER	0.00022												0.01											
METHYLENE CHLORIDE	0.00048							0.044										0.266			0.04	0.0015		
NAPHTHALENE	0.53	2.2	0.055			0.0011			0.023		0.0089							0.47	3.2		0.0086	0.4		
N-HEPTANE																								
N-HEXANE	0.00083																							
N-PROPYLBENZENE	0.011	0.18	0.029		0.074	0.0026	0.0055		0.004		0.0024		0.021			0.0023		0.85	5.6	0.0056	0.0027	0.11		
O-XYLENE	0.0052	0.0031			0.13	0.00035			0.024		0.0049		0.0056	0.072	0.079			0.16	0.22			0.0057		
P-ISOPROPYLTOLUENE	0.029	0.31			0.061	0.00062	0.024	0.066	0.0047		0.004		0.064			0.011		0.52	2.3	0.0038		0.075		
PROPYLENE																								
SEC-BUTYLBENZENE	0.022	0.27	0.065		0.44	0.002	0.03	0.017	0.064	0.061	0.032	0.098	0.097	1	1.7	0.014		0.71	2.5	0.0074	0.0051	0.088	0.15	
STYRENE	0.0016														0.00071								0.0033	
TETRACHLOROETHENE	0.11	0.076	0.01	0.166	0.99	0.024	0.023	0.22	0.83	0.35	4	38	0.15	0.6	2.7	0.042	1.52	0.362	0.0047	0.039	0.019	0.0089		
TETRAHYDROFURAN																								
TOLUENE	0.013			0.0712		0.00027	0.0038	0.021	0.043				0.0037		0.0021	0.0038		0.021			44	0.017	0.18	
TRANS-1,2-DICHLOROETHENE							0.0054								0.033						0.0095			
TRICHLOROETHENE	0.0049	0.0011	0.066	1.31	7.7	0.0091	0.0091	15	0.19	0.063	0.79	15	0.22	0.76	0.91	0.0055	2.06	3.48	0.003	1.8	0.12	0.11		
TRICHLOROFLUOROMETHANE	0.045	0.015	0.0019	1.03	0.458	0.0075	0.04	1.2	0.002	0.0048	0.0071	0.038	4.8		0.016	0.011	0.155	0.0025	0.0036	0.16	0.022	0.018		
VINYL ACETATE																								
VINYL CHLORIDE				0.128	7.2								0.13	2.9	3.2	0.0074	0.0587	0.045		0.014	0.24			
XYLENES, M & P	0.015	0.035			0.22	0.0017			0.075		0.015			0.074	0.15			1.6	4.9			0.016		

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	PMW-12		PMW-13		PSI-002	PSI-008	PSI-014	PSI-027	PSI-032	PSI-059	PSI-074	PSI-076	PSI-079	PSI-083	PSI-089	PSI-090	PSI-092	PSI-094	PSI-097	PSI-098	PSI-099	PSI-104	PSI-105	PSI-106	PSI-107
	PMW-12-M	PMW-12-U	PMW-13-M	PMW-13-U	PSI-002	PSI-008	PSI-014	PSI-027	PSI-032	PSI-059	PSI-074	PSI-076	PSI-079	PSI-083	PSI-089	PSI-090	PSI-092	PSI-094	PSI-097	PSI-098	PSI-099	PSI-104	PSI-105	PSI-106	PSI-107
Analyte Name																									
1,1,1-TRICHLOROETHANE						1.6	0.34									1.6	0.05	9.7				0.38	1.3		
1,1,2,2-TETRACHLOROETHANE																									
1,1,2-TRICHLOROETHANE																									
1,1,2-TRICHLOROTRIFLUOROETHANE		0.0045	0.023	0.022			0.07									0.19		1	1.8			4.7	1.3	1.4	
1,1-DICHLOROETHANE							0.04				3.4	2.7	1.2	8.7		0.0078						0.11	10		
1,1-DICHLOROETHENE							0.29	1																	
1,2,4-TRICHLOROBENZENE																									
1,2,4-TRIMETHYLBENZENE		0.00088	0.0086	0.0093			0.04									0.09						0.11			
1,2-DIBROMOETHANE																									
1,2-DICHLOROBENZENE																									
1,2-DICHLOROETHANE																									
1,2-DICHLOROETHENE (TOTAL)																									
1,2-DICHLOROPROPANE																									
1,3,5-TRIMETHYLBENZENE			0.0019	0.0016												0.02									
1,3-DICHLOROBENZENE																									
1,4-DICHLOROBENZENE																									
2,2,4-TRIMETHYLPENTANE																0.0047									
2-BUTANONE		0.0041	0.005	0.0049												0.0093									
2-HEXANONE		0.001																							
4-ETHYLTOLUENE																0.01									
4-METHYL-2-PENTANONE																									
ACETONE		0.012	0.065	0.0097												0.11									
ACROLEIN		0.015	0.00078																						
ACRYLONITRILE																									
BENZENE	0.043	0.029														0.04							2.9		
BROMODICHLOROMETHANE		0.0015																							
BROMOFORM		0.0011																							
CARBON DISULFIDE		0.0081	0.0019	0.011																					
CARBON TETRACHLORIDE																									
CHLORODIBROMOMETHANE																									
CHLOROETHANE																0.0029									
CHLOROFORM		0.0079	0.0079	0.015			0.03																0.05		
CHLOROMETHANE		0.0016																					0.05		
CIS-1,2-DICHLOROETHENE																									
CIS-1,3-DICHLOROPROPENE																									
CYCLOHEXANE																0.01									
DICHLORODIFLUOROMETHANE		0.002	0.015	0.012								2.2				0.006									
DICHLOROFLUOROMETHANE																									
ETHYL ACETATE																									
ETHYLBENZENE			0.0026	0.0018	3.4					28	7.8	5.6				0.02									
HEXACHLOROBUTADIENE																									
ISOPROPANOL																0.01									
ISOPROPYLBENZENE		0.001	0.0015	0.0033																					
METHYL TERT-BUTYL ETHER																									
METHYLENE CHLORIDE	0.036																								
NAPHTHALENE		0.0072	0.0052	0.01																					
N-HEPTANE																									
N-HEXANE				0.0042												0.02									
N-PROPYLBENZENE		0.0023	0.0028	0.0047												0.01									
O-XYLENE			0.0028							120	6	1.1				0.03									
P-ISOPROPYLTOLUENE		0.0012	0.0011	0.017																					
PROPYLENE																									
SEC-BUTYLBENZENE		0.002	0.003	0.0068																					
STYRENE																									
TETRACHLOROETHENE	0.074	0.16	0.019	0.018			0.04		1.4							19			16	6.3	20	7.4			
TETRAHYDROFURAN																									
TOLUENE		0.0013	0.0035							1.3	5.1	5.5				0.11									
TRANS-1,2-DICHLOROETHENE																									
TRICHLOROETHENE							31								1.9	0.04						11	4.8		
TRICHLOROFLUOROMETHANE		0.0022	0.0054	0.0044									3.6			0.33		1.1	4.9	1.6	8.2	4.8	2.5	2.2	
VINYL ACETATE		0.031																							
VINYL CHLORIDE																							3.2		
XYLENES, M & P			0.0078							43	17	13				0.09									

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	PSI-108 PSI-108	PSI-110 PSI-110	PSI-114 PSI-114	PSI-115 PSI-115	PSI-116 PSI-116	PSI-117 PSI-117	PSI-118 PSI-118	PSI-119 PSI-119	PSI-125 PSI-125	PSI-126 PSI-126	PSI-128 PSI-128	PSI-129 PSI-129	PSI-130 PSI-130	PSI-131 PSI-131	PSI-132 PSI-132	PSI-135 PSI-135	PSI-136 PSI-136	PSI-137 PSI-137	PSI-139 PSI-139	PSI-140 PSI-140	PSI-141 PSI-141	PSI-142 PSI-142	PSI-144 PSI-144	PSI-145 PSI-145	PSI-147 PSI-147	PSI-148 PSI-148
Analyte Name																										
1,1,1-TRICHLOROETHANE	6.8	1.2		10	2.6		9.3	2.1		1.3		1	1.3		1.1					1.7						
1,1,2,2-TETRACHLOROETHANE																										
1,1,2-TRICHLOROETHANE																										
1,1,2-TRICHLOROTRIFLUOROETHANE	1.8	1.9		0.12			6.8	1.1	4.8	1.9	2.8	1.8	1.5							1.4						
1,1-DICHLOROETHANE			1.7	3.3	4	1.1	2.8		39	32	26	34	28	14	4.4	3.4	9.1	11	9	34	1.2	9.2	2.4	10	5.4	6
1,1-DICHLOROETHENE				0.15			0.08		1.6											1.1						
1,2,4-TRICHLOROBENZENE																										
1,2,4-TRIMETHYLBENZENE							3.6					1.7														
1,2-DIBROMOETHANE																										
1,2-DICHLOROBENZENE																										
1,2-DICHLOROETHANE																										
1,2-DICHLOROETHENE (TOTAL)																										
1,2-DICHLOROPROPANE																										
1,3,5-TRIMETHYLBENZENE							0.9																			
1,3-DICHLOROBENZENE																										
1,4-DICHLOROBENZENE																										
2,2,4-TRIMETHYLPENTANE				8.1								47					57									
2-BUTANONE																										
2-HEXANONE																										
4-ETHYLTOLUENE							0.37																			
4-METHYL-2-PENTANONE																										
ACETONE																										
ACROLEIN																										
ACRYLONITRILE																										
BENZENE				0.55						13		13	9.5	4.3			2.6			5.9		10			1.9	
BROMODICHLOROMETHANE																										
BROMOFORM																										
CARBON DISULFIDE				0.035																						
CARBON TETRACHLORIDE																										
CHLORODIBROMOMETHANE																										
CHLOROETHANE				0.08						4.3		6.2	2.1	3.9	1.8		5.4			2.7			1.2		3	1.9
CHLOROFORM																										
CHLOROMETHANE																										
CIS-1,2-DICHLOROETHENE				0.17					2.1			0.48					0.6									
CIS-1,3-DICHLOROPROPENE																										
CYCLOHEXANE				33			0.12					520					210									
DICHLORODIFLUOROMETHANE																										
DICHLOROFLUOROMETHANE																										
ETHYL ACETATE																										
ETHYLBENZENE										1								20	17			8.6		23		
HEXACHLOROBUTADIENE																										
ISOPROPANOL																										
ISOPROPYLBENZENE																										
METHYL TERT-BUTYL ETHER																										
METHYLENE CHLORIDE																										
NAPHTHALENE																										
N-HEPTANE				2.1			0.15					50					2.7									
N-HEXANE				10			0.07					430					75									
N-PROPYLBENZENE																										
O-XYLENE																		9.5	6.9			1.1		3		
P-ISOPROPYLTOLUENE																										
PROPYLENE				2.3																						
SEC-BUTYLBENZENE																										
STYRENE																										
TETRACHLOROETHENE			3.3	61	8.5		0.14			1.8		2		4.1	5.4		8.3			1.2					1	
TETRAHYDROFURAN																										
TOLUENE				0.057							12		7.6						9	11			21		16	
TRANS-1,2-DICHLOROETHENE																										
TRICHLOROETHENE	7.9	4.9		32	3.3		1.6			1.1		2.6	2	1.1	1.1		2			1.4						
TRICHLOROFLUOROMETHANE	9.9	4.6		0.18			16				12		8.5					1.2	1.5			2		2.1		
VINYL ACETATE																										
VINYL CHLORIDE			1.3	0.13					5.4	11	2	21	11	6.2	1.5		11	2	2	15		7.4		2		
XYLENES, M & P										2.7								2.7				19				

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	PSI-150 PSI-150	PSI-152 PSI-152	PSI-153 PSI-153	PSI-155 PSI-155	PSI-157 PSI-157	PSI-172 PSI-172	PSI-179 PSI-179	PSI-184 PSI-184	PSI-189 PSI-189	PSI-194 PSI-194	PSI-195 PSI-195	PSI-197 PSI-197	S1-01 S1-01	S1-13 S1-13	S1-15 S1-15	S1-25 S1-25	S1-30 S1-30	S1-39 S1-39	S1-44 S1-44	S1-45 S1-45	S1-59 S1-59	S2-01 S2-01	S2-04 S2-04	S2-05 S2-05	S2-06 S2-06	S2-07 S2-07
1,1,1-TRICHLOROETHANE				2.1			1.9									0.0619	0.604		1.12	0.0487			0.118			36
1,1,2,2-TETRACHLOROETHANE																										
1,1,2-TRICHLOROETHANE																				0.0072			2.5			
1,1,2-TRICHLOROTRIFLUOROETHANE						5.4				1.8		2.3					0.037		0.0521				0.164	4		
1,1-DICHLOROETHANE	4	2.6	1.1			1.3					19					0.0103	0.087		0.399				0.435			9.6
1,1-DICHLOROETHENE													0.052			0.0072	0.024		0.0734							
1,2,4-TRICHLOROBENZENE																										
1,2,4-TRIMETHYLBENZENE													0.09			0.0074	0.028			0.0069	0.0173	0.0129	0.0127			
1,2-DIBROMOETHANE																							0.0156			
1,2-DICHLOROBENZENE																										
1,2-DICHLOROETHANE																										
1,2-DICHLOROETHENE (TOTAL)																										
1,2-DICHLOROPROPANE																										
1,3,5-TRIMETHYLBENZENE																	0.009						0.0068			
1,3-DICHLOROBENZENE																										
1,4-DICHLOROBENZENE																										
2,2,4-TRIMETHYLPENTANE																										
2-BUTANONE																										
2-HEXANONE																										
4-ETHYLTOLUENE																										
4-METHYL-2-PENTANONE																										
ACETONE																										
ACROLEIN																										
ACRYLONITRILE																										
BENZENE		1.2					8		11		9.6		0.188			0.0894	0.01		0.0167	0.0177	0.0985	1.2	0.0302			
BROMODICHLOROMETHANE																										
BROMOFORM																										
CARBON DISULFIDE																										
CARBON TETRACHLORIDE																										
CHLORODIBROMOMETHANE																										
CHLOROETHANE		1.1										4.5													3.4	9.4
CHLOROFORM																0.0056	0.11		0.0252				0.0191			
CHLOROMETHANE																0.0029										
CIS-1,2-DICHLOROETHENE																0.0062	0.035		0.0301			2.5				
CIS-1,3-DICHLOROPROPENE																0.0094					0.0092					
CYCLOHEXANE							0.91																			
DICHLORODIFLUOROMETHANE						5.5						9.9				0.0072										
DICHLOROFLUOROMETHANE																										
ETHYL ACETATE																										
ETHYLBENZENE	13		6.1		2		16		19				1.1			0.0155	0.016		1.2	0.0104	0.0396	2.1	0.007			
HEXACHLOROBUTADIENE													0.212													
ISOPROPANOL																										
ISOPROPYLBENZENE																										
METHYL TERT-BUTYL ETHER																										
METHYLENE CHLORIDE																							1.9			
NAPHTHALENE																										
N-HEPTANE																										
N-HEXANE																										
N-PROPYLBENZENE																										
O-XYLENE	1.4						15		13				0.406			0.0167	0.023		1	0.0111	0.0294	2.5	0.0156		1.5	1.4
P-ISOPROPYLTOLUENE																										
PROPYLENE																										
SEC-BUTYLBENZENE																										
STYRENE																						0.012				
TETRACHLOROETHENE																0.0821	1.45		0.0238		0.0213	4.2	0.0075		1.1	1.5
TETRAHYDROFURAN																										
TOLUENE	13		6.2				35	1.2	56			1.7	7.04	1.7	1.3	1.5	0.047	13	11	0.0432	0.168	1.9	0.0378			
TRANS-1,2-DICHLOROETHENE																						5				
TRICHLOROETHENE						110			6.5			150				0.0789	1.052		0.263	0.0056		2	0.153			
TRICHLOROFLUOROMETHANE										1.2							0.019		0.0873			0.0096	0.0523			
VINYL ACETATE																										
VINYL CHLORIDE	1.2	1.9									7.3										0.0068					
XYLENES, M & P	2						45		46			3.2	1.31			0.0358	0.06	7.5	4.3	0.0284	0.0709	5.6	0.0267			1.8

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	S2-09 S2-09	S2-10 S2-10	S2-11 S2-11	S2-12 S2-12	S2-13 S2-13	S2-14 S2-14	S2-15 S2-15	S2-21 S2-21	S2-25 S2-25	S3-04 S3-04	S3-05 S3-05	S3-06 S3-06	S3-07 S3-07	S3-08 S3-08	S3-09 S3-09	S3-11 S3-11	S4-04 S4-04	S4-07 S4-07	S4-11 S4-11	S4-17 S4-17	S4-46 S4-46	S4-47 S4-47	S4-49 S4-49	S4-50 S4-50	S4-51 S4-51	S4-53 S4-53
Analyte Name																										
1,1,1-TRICHLOROETHANE							0.033			1.6				0.147		1.3		0.148		0.0183	20.3		95	15		
1,1,2,2-TETRACHLOROETHANE				1.4																						
1,1,2-TRICHLOROETHANE				2.8																						
1,1,2-TRICHLOROTRIFLUOROETHANE	2.3	1.4	390	390	1.45		0.0454	28	0.014		85			0.243	1.5			0.579		0.178	0.203					
1,1-DICHLOROETHANE			20	22	4.68	3.9	0.212				7.1			0.163				1		0.0396	0.697			6.1		
1,1-DICHLOROETHENE			1.4	2.8	0.279		0.0079				1.5							4.48		0.449	57.3	6.2	28	5.6		3.2
1,2,4-TRICHLOROBENZENE																										
1,2,4-TRIMETHYLBENZENE							0.0606		0.0151					0.0261			0.0156			0.01						
1,2-DIBROMOETHANE																										
1,2-DICHLOROBENZENE																										
1,2-DICHLOROETHANE																										
1,2-DICHLOROETHENE (TOTAL)																										
1,2-DICHLOROPROPANE																										
1,3,5-TRIMETHYLBENZENE							0.0153							0.0077			0.0051									
1,3-DICHLOROBENZENE																										
1,4-DICHLOROBENZENE																										
2,2,4-TRIMETHYLPENTANE																										
2-BUTANONE																										
2-HEXANONE																										
4-ETHYLTOLUENE																										
4-METHYL-2-PENTANONE																										
ACETONE																										
ACROLEIN																										
ACRYLONITRILE																										
BENZENE			11	28	12		0.0596		0.0369		2	3.8	1.1	0.0171			0.113			0.116						
BROMODICHLOROMETHANE																										
BROMOFORM																										
CARBON DISULFIDE																										
CARBON TETRACHLORIDE																										
CHLORODIBROMOMETHANE																										
CHLOROETHANE				32.3	12		0.0709				2.3															
CHLOROFORM														0.0097			0.013			0.0169						
CHLOROMETHANE														0.0033												
CIS-1,2-DICHLOROETHENE			1.9			5.3	0.0463											0.186		0.0103	0.237					
CIS-1,3-DICHLOROPROPENE																										
CYCLOHEXANE																										
DICHLORODIFLUOROMETHANE																										
DICHLOROFLUOROMETHANE											2															
ETHYL ACETATE																										
ETHYLBENZENE			9.6	26	10	25	0.0136		0.0114		7.5			0.0223			0.0409			0.0178						
HEXACHLOROBUTADIENE																										
ISOPROPANOL																										
ISOPROPYLBENZENE																										
METHYL TERT-BUTYL ETHER																										
METHYLENE CHLORIDE																					0.0046					
NAPHTHALENE																										
N-HEPTANE																										
N-HEXANE																										
N-PROPYLBENZENE																										
O-XYLENE			12	48	16	24	0.0186		0.0122		12			0.0271			0.0345			0.0146						
P-ISOPROPYLTOLUENE																										
PROPYLENE																										
SEC-BUTYLBENZENE																										
STYRENE							0.0099		0.0064									0.014			0.0062					
TETRACHLOROETHENE				1.7		6.6								0.0142			0.032	0.135		0.631	0.501					
TETRAHYDROFURAN																										
TOLUENE			4.5	11	5.3	13	0.055		0.0549		25	2.3		0.0847			0.202		0.0235	0.116						
TRANS-1,2-DICHLOROETHENE																										
TRICHLOROETHENE							0.0679		0.0065					0.0288			0.0085	2.52		0.856	3.02		1.9		2.4	
TRICHLOROFLUOROMETHANE				6.9	1.2	1.7	0.106							0.0083				0.261		0.0641						
VINYL ACETATE																										
VINYL CHLORIDE				4.58	1.6		0.054																			
XYLENES, M & P			17	61	23	62	0.0401		0.0245		16			0.0841			0.0771			0.0335						

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	S4-55 S4-55	S5-01 S5-01	S5-02 S5-02	SG-01 SG-01	SG-02 SG-02	SG-03 SG-03	SG-04 SG-04	SG-05 SG-05	SG-06 SG-06	SG-07 SG-07	SG-08 SG-08	SG-09 SG-09	SG-10 SG-10	SG-11 SG-11	SG-12 SG-12	SG-12A SG-12A	SG-12B SG-12B	SG-12C SG-12C	SG-12D SG-12D	SG-13 SG-13	SG-13A SG-13A	SG-13B SG-13B	SG-13C SG-13C	SG-13D SG-13D	SG-13E SG-13E	SG-13F SG-13F
1,1,1-TRICHLOROETHANE				0.006	0.01	0.02	0.4	0.2	0.2	0.2	2	0.02	0.01	51	180	100	58	150	220	300	210	220	86	57	71	42
1,1,2,2-TETRACHLOROETHANE																										
1,1,2-TRICHLOROETHANE																										
1,1,2-TRICHLOROTRIFLUOROETHANE																										
1,1-DICHLOROETHANE							0.6				0.5		15	6						36						
1,1-DICHLOROETHENE	2.1						0.03		0.03		0.4		75	230	60	140			430			660	580	530	240	
1,2,4-TRICHLOROBENZENE																										
1,2,4-TRIMETHYLBENZENE																										
1,2-DIBROMOETHANE																										
1,2-DICHLOROBENZENE																										
1,2-DICHLOROETHANE																										
1,2-DICHLOROETHENE (TOTAL)																										
1,2-DICHLOROPROPANE																										
1,3,5-TRIMETHYLBENZENE																										
1,3-DICHLOROBENZENE																										
1,4-DICHLOROBENZENE																										
2,2,4-TRIMETHYLPENTANE																										
2-BUTANONE																										
2-HEXANONE																										
4-ETHYLTOLUENE																										
4-METHYL-2-PENTANONE																										
ACETONE																										
ACROLEIN																										
ACRYLONITRILE																										
BENZENE																										
BROMODICHLOROMETHANE																										
BROMOFORM																										
CARBON DISULFIDE																										
CARBON TETRACHLORIDE																										
CHLORODIBROMOMETHANE																										
CHLOROETHANE																										
CHLOROFORM				0.02		0.02	0.2	0.01	0.01	0.02	0.04		0.03	0.06						0.1						
CHLOROMETHANE																										
CIS-1,2-DICHLOROETHENE																										
CIS-1,3-DICHLOROPROPENE																										
CYCLOHEXANE																										
DICHLORODIFLUOROMETHANE																										
DICHLOROFLUOROMETHANE																										
ETHYL ACETATE																										
ETHYLBENZENE																										
HEXACHLOROBUTADIENE																										
ISOPROPANOL																										
ISOPROPYLBENZENE																										
METHYL TERT-BUTYL ETHER																										
METHYLENE CHLORIDE																										
NAPHTHALENE																										
N-HEPTANE																										
N-HEXANE																										
N-PROPYLBENZENE																										
O-XYLENE																										
P-ISOPROPYLTOLUENE																										
PROPYLENE																										
SEC-BUTYLBENZENE																										
STYRENE																										
TETRACHLOROETHENE				0.006	0.01	0.009	0.2	0.2	0.07	0.2	0.2	0.01	0.02	3	5	0.3	6	1	3	5	6	5	4	3	3	2
TETRAHYDROFURAN																										
TOLUENE		2.4	4.2																							
TRANS-1,2-DICHLOROETHENE																										
TRICHLOROETHENE							0.1	0.1	0.1	0.3	0.8		4	24	1	14	55	70	44	43	100	28	25	20	11	
TRICHLOROFLUOROMETHANE																										
VINYL ACETATE																										
VINYL CHLORIDE																										
XYLENES, M & P		1.6	1.1																							

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SG-13G SG-13G	SG-13H SG-13H	SG-13I SG-13I	SG-13J SG-13J	SG-13K SG-13K	SG-14 SG-14	SG-14A SG-14A	SG-14B SG-14B	SG-15 SG-15	SG-16 SG-16	SG-17 SG-17	SG-18 SG-18	SG-19 SG-19	SG-20 SG-20	SG-21 SG-21	SG-21A SG-21A	SG-21B SG-21B	SG-22 SG-22	SG-23 SG-23	SG-24 SG-24	SG-25 SG-25	SG-25A SG-25A	SG-26 SG-26	SG-27 SG-27	SG-27A SG-27A	SG-28 SG-28
Analyte Name																										
1,1,1-TRICHLOROETHANE	36	0.3	0.8	0.3	2	24	38	6	13	0.09	0.7	1	0.2	0.6	37	45	8	38	14	3	73	280	1	4	0.6	0.8
1,1,2,2-TETRACHLOROETHANE																										
1,1,2-TRICHLOROETHANE																										
1,1,2-TRICHLOROTRIFLUOROETHANE																										
1,1-DICHLOROETHANE						7			6		0.2				0.7			8			6					
1,1-DICHLOROETHENE	180		5	4	7	48	48	23	63		0.3	0.04		0.06	23	73	23	30	16	0.6	15	240	0.1	0.5	0.3	0.08
1,2,4-TRICHLOROBENZENE																										
1,2,4-TRIMETHYLBENZENE																										
1,2-DIBROMOETHANE																										
1,2-DICHLOROBENZENE																										
1,2-DICHLOROETHANE																										
1,2-DICHLOROETHENE (TOTAL)						0.5																				
1,2-DICHLOROPROPANE																										
1,3,5-TRIMETHYLBENZENE																										
1,3-DICHLOROBENZENE																										
1,4-DICHLOROBENZENE																										
2,2,4-TRIMETHYLPENTANE																										
2-BUTANONE																										
2-HEXANONE																										
4-ETHYLTOLUENE																										
4-METHYL-2-PENTANONE																										
ACETONE																										
ACROLEIN																										
ACRYLONITRILE																										
BENZENE																										
BROMODICHLOROMETHANE																										
BROMOFORM																										
CARBON DISULFIDE																										
CARBON TETRACHLORIDE																										
CHLORODIBROMOMETHANE																										
CHLOROETHANE																										
CHLOROFORM						0.08			0.08		0.001	0.005		0.03	0.6			0.1			0.2		0.01	0.02		0.005
CHLOROMETHANE																										
CIS-1,2-DICHLOROETHENE																										
CIS-1,3-DICHLOROPROPENE																										
CYCLOHEXANE																										
DICHLORODIFLUOROMETHANE																										
DICHLOROFLUOROMETHANE																										
ETHYL ACETATE																										
ETHYLBENZENE																										
HEXACHLOROBUTADIENE																										
ISOPROPANOL																										
ISOPROPYLBENZENE																										
METHYL TERT-BUTYL ETHER																										
METHYLENE CHLORIDE																										
NAPHTHALENE																										
N-HEPTANE																										
N-HEXANE																										
N-PROPYLBENZENE																										
O-XYLENE																										
P-ISOPROPYLTOLUENE																										
PROPYLENE																										
SEC-BUTYLBENZENE																										
STYRENE																										
TETRACHLOROETHENE	1	0.05	0.1	0.05	0.3	5	2	2	4	0.02	0.8	0.02	0.005	0.1	1	5	1	2	0.4	0.04	2	38	0.2	0.2	0.3	0.05
TETRAHYDROFURAN																										
TOLUENE																										
TRANS-1,2-DICHLOROETHENE																										
TRICHLOROETHENE	10	0.06	1	2	4	2	0.8	2	3	0.01	0.2	0.02	0.003	0.01	0.8	2	3	2	1	0.03	1	22	0.1	0.06	0.08	0.02
TRICHLOROFLUOROMETHANE																										
VINYL ACETATE																										
VINYL CHLORIDE																										
XYLENES, M & P																										

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SG-29 SG-29	SG-30 SG-30	SG-31 SG-31	SG-32 SG-32	SG-33 SG-33	SG-34 SG-34	SG-35 SG-35	SG-36 SG-36	SG-37 SG-37	SG-38 SG-38	SG-39 SG-39	SG-39A SG-39A	SG-39B SG-39B	SG-40 SG-40	SG-40A SG-40A	SG-40B SG-40B	SG-40C SG-40C	SG-40D SG-40D	SG-40E SG-40E	SG-40F SG-40F	SG-40G SG-40G	SG-40H SG-40H	
Analyte Name																							
1,1,1-TRICHLOROETHANE	1	0.2	0.1	0.01	1	0.6	0.005	0.006	0.08	0.01	0.4	0.3	0.06	0.9	16	7	5	5	88	8	25	10	
1,1,2,2-TETRACHLOROETHANE																							
1,1,2-TRICHLOROETHANE																							
1,1,2-TRICHLOROTRIFLUOROETHANE																							
1,1-DICHLOROETHANE					2										0.6	40							
1,1-DICHLOROETHENE	0.2				0.1										0.6				28		15	2	
1,2,4-TRICHLOROBENZENE																							
1,2,4-TRIMETHYLBENZENE																							
1,2-DIBROMOETHANE																							
1,2-DICHLOROBENZENE																							
1,2-DICHLOROETHANE																							
1,2-DICHLOROETHENE (TOTAL)																							
1,2-DICHLOROPROPANE																							
1,3,5-TRIMETHYLBENZENE																							
1,3-DICHLOROBENZENE																							
1,4-DICHLOROBENZENE																							
2,2,4-TRIMETHYLPENTANE																							
2-BUTANONE																							
2-HEXANONE																							
4-ETHYLTOLUENE																							
4-METHYL-2-PENTANONE																							
ACETONE																							
ACROLEIN																							
ACRYLONITRILE																							
BENZENE																							
BROMODICHLOROMETHANE																							
BROMOFORM																							
CARBON DISULFIDE																							
CARBON TETRACHLORIDE																							
CHLORODIBROMOMETHANE																							
CHLOROETHANE																							
CHLOROFORM	0.01				0.04				0.007	0.004	0.02			0.02									
CHLOROMETHANE																							
CIS-1,2-DICHLOROETHENE																							
CIS-1,3-DICHLOROPROPENE																							
CYCLOHEXANE																							
DICHLORODIFLUOROMETHANE																							
DICHLOROFLUOROMETHANE																							
ETHYL ACETATE																							
ETHYLBENZENE																							
HEXACHLOROBUTADIENE																							
ISOPROPANOL																							
ISOPROPYLBENZENE																							
METHYL TERT-BUTYL ETHER																							
METHYLENE CHLORIDE																							
NAPHTHALENE																							
N-HEPTANE																							
N-HEXANE																							
N-PROPYLBENZENE																							
O-XYLENE																							
P-ISOPROPYLTOLUENE																							
PROPYLENE																							
SEC-BUTYLBENZENE																							
STYRENE																							
TETRACHLOROETHENE	0.2	0.02	0.07	0.02	0.2	0.05		0.01	0.02	0.01	0.04	0.02	0.005	0.1	0.4	1	0.4			1	0.6	0.4	
TETRAHYDROFURAN																							
TOLUENE																							
TRANS-1,2-DICHLOROETHENE																							
TRICHLOROETHENE	0.1	0.02	0.01	0.02	0.4	0.07		0.004	2	0.5	4	1	0.02	4	3	32	1	5		2	1	0.2	
TRICHLOROFLUOROMETHANE																							
VINYL ACETATE																							
VINYL CHLORIDE																							
XYLENES, M & P																							

Notes:
 ID = identification
 µg/L = micrograms per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/L)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SG-40I SG-40I	SG-40J SG-40J	SG-40K SG-40K	SG-40L SG-40L	SG-40M SG-40M	SG-41 SG-41	SG-42 SG-42	SG-43 SG-43	SG-44 SG-44	SG-45 SG-45	SG-45A SG-45A	SG-45B SG-45B	SG-45C SG-45C	SG-45D SG-45D	SG-45E SG-45E	SG-45F SG-45F	SG-45G SG-45G	SG-45H SG-45H	SG-45I SG-45I	SG-45J SG-45J	SG-45K SG-45K	SG-45L SG-45L	SG-45M SG-45M	SG-46 SG-46	
Analyte Name																									
1,1,1-TRICHLOROETHANE	0.02	74	9	4	0.2	0.003	0.06	0.08	0.009	1	2	14	38	50	39	27	24	14	5	1	0.3	0.01	0.1	0.01	
1,1,2-TRICHLOROTRIFLUOROETHANE																									
1,1-DICHLOROETHANE																									
1,1-DICHLOROETHENE		24		2																					
1,2,4-TRIMETHYLBENZENE																									
1,3,5-TRIMETHYLBENZENE																									
1,4-DICHLOROBENZENE																									
2-BUTANONE																									
2-HEXANONE																									
4-METHYL-2-PENTANONE																									
ACETONE																									
ACROLEIN																									
BENZENE																									
BROMODICHLOROMETHANE																									
CARBON DISULFIDE																									
CARBON TETRACHLORIDE																									
CHLOROBENZENE																									
CHLORODIBROMOMETHANE																									
CHLOROETHANE																									
CHLOROFORM							0.006			0.2														0.005	
CIS-1,2-DICHLOROETHENE																									
DICHLORODIFLUOROMETHANE																									
ETHYLBENZENE																									
ISOPROPYLBENZENE																									
METHYLENE CHLORIDE																									
NAPHTHALENE																									
N-HEXANE																									
N-PROPYLBENZENE																									
O-XYLENE																									
P-ISOPROPYLTOLUENE																									
SEC-BUTYLBENZENE																									
STYRENE																									
TETRACHLOROETHENE	0.0009	0.2	0.7	0.2	0.02	0.02	0.04			0.2	0.5		1	0.7	0.8			1	0.6	0.4	0.06		0.02	0.009	
TOLUENE																									
TRANS-1,2-DICHLOROETHENE																									
TRICHLOROETHENE		0.2	0.5	0.5	0.04	0.2	2	0.3	0.2	20	6	8	20	33	29	25	34	50	17	5	10	1	0.4	0.5	
TRICHLOROFLUOROMETHANE																									
VINYL ACETATE																									
VINYL CHLORIDE																									
XYLENES, M & P																									

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SG-47	SG-47A	SG-47B	SG-47C	SG-47D	SG-47E	SG-47F	SG-47G	SG-47H	SG-47I	SG-47J	SG-47K	SG-47L	SG-47M	SG-47N	SG-47O	SG-48	SG-49	SG-50	SG-51	SG-52	SG-53	SG-54	SG-55	
Analyte Name																									
1,1,1-TRICHLOROETHANE	3	2	3	0.2	0.6	0.9	3	4	5	8	9	6	12	13	9	6	2	4	2	2	0.2	0.4	0.03	3	
1,1,2-TRICHLOROTRIFLUOROETHANE																									
1,1-DICHLOROETHANE		2																							1
1,1-DICHLOROETHENE	2	4	3	0.2	5	4	10	23	39	39	24	39	75	59	43	32	4	4	3	4	0.6	0.7	0.04	3	
1,2,4-TRIMETHYLBENZENE																									
1,3,5-TRIMETHYLBENZENE																									
1,4-DICHLOROBENZENE																									
2-BUTANONE																									
2-HEXANONE																									
4-METHYL-2-PENTANONE																									
ACETONE																									
ACROLEIN																									
BENZENE																									
BROMODICHLOROMETHANE																									
CARBON DISULFIDE																									
CARBON TETRACHLORIDE																									
CHLOROBENZENE																									
CHLORODIBROMOMETHANE																									
CHLOROETHANE																									
CHLOROFORM	0.03																0.06	0.07	0.02	0.03	0.02			0.03	
CIS-1,2-DICHLOROETHENE																									
DICHLORODIFLUOROMETHANE																									
ETHYLBENZENE																									
ISOPROPYLBENZENE																									
METHYLENE CHLORIDE																									
NAPHTHALENE																									
N-HEXANE																									
N-PROPYLBENZENE																									
O-XYLENE																									
P-ISOPROPYLTOLUENE																									
SEC-BUTYLBENZENE																									
STYRENE																									
TETRACHLOROETHENE	0.3	0.2	0.1	2	5	4	4	10	3	1	1	0.6	0.5	0.3	0.3	0.2	0.9	0.5	0.1	0.3	0.02	0.05		0.6	
TOLUENE																									
TRANS-1,2-DICHLOROETHENE																									
TRICHLOROETHENE	2	2	1	1	3	3	6	10	20	17	15	32	53	56	26	17	5	3	2	3	0.08	0.2	0.02	1	
TRICHLOROFLUOROMETHANE																									
VINYL ACETATE																									
VINYL CHLORIDE																									
XYLENES, M & P																									

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SG-55A SG-55A	SG-55B SG-55B	SG-55C SG-55C	SG-55D SG-55D	SG-56 SG-56	SG-57 SG-57	SG-58 SG-58	SG-59 SG-59	SG-60 SG-60	SG-61 SG-61	SG-62 SG-62	SG-63 SG-63	SG-64 SG-64	SG-65 SG-65	SG-66 SG-66	SG-67 SG-67	SG-68 SG-68	SG-69 SG-69	SG-70 SG-70	SG-71 SG-71	SG-72 SG-72	SG-73 SG-73	SG-74 SG-74	SG-75 SG-75
Analyte Name																								
1,1,1-TRICHLOROETHANE	2	15	10	5	1	33	25	10	0.8	0.9	1	0.7	0.08	20	7	5	2	1	3	2	0.6	0.08	5	0.2
1,1,2-TRICHLOROTRIFLUOROETHANE																								
1,1-DICHLOROETHANE						2		130											5				110	
1,1-DICHLOROETHENE	2	5	8	9	0.5	75	100	150	120	41	23	3	0.2	40	30	18	9	0.8	10	19	20	18	86	5
1,2,4-TRIMETHYLBENZENE																								
1,3,5-TRIMETHYLBENZENE																								
1,4-DICHLOROBENZENE																								
2-BUTANONE																								
2-HEXANONE																								
4-METHYL-2-PENTANONE																								
ACETONE																								
ACROLEIN																								
BENZENE																								
BROMODICHLOROMETHANE																								
CARBON DISULFIDE																								
CARBON TETRACHLORIDE																								
CHLOROBENZENE																								
CHLORODIBROMOMETHANE																								
CHLOROETHANE																								
CHLOROFORM					0.006																			
CIS-1,2-DICHLOROETHENE																								
DICHLORODIFLUOROMETHANE																								
ETHYLBENZENE																								
ISOPROPYLBENZENE																								
METHYLENE CHLORIDE																								
NAPHTHALENE																								
N-HEXANE																								
N-PROPYLBENZENE																								
O-XYLENE																								
P-ISOPROPYLTOLUENE																								
SEC-BUTYLBENZENE																								
STYRENE																								
TETRACHLOROETHENE	0.4	1	0.5	0.3	0.2	6	7	6	1	0.5	0.4	0.09	0.09	2	2	2	1	1	0.4	0.9	2	3	1	5
TOLUENE																								
TRANS-1,2-DICHLOROETHENE																								
TRICHLOROETHENE	0.6	2	2	3	0.3	0.7	1	2	2	0.3	0.1		0.007	0.6	0.4			0.3	6	9	13	10	2	5
TRICHLOROFLUOROMETHANE																								
VINYL ACETATE																								
VINYL CHLORIDE																								
XYLENES, M & P																								

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte Name	Location Cluster ID:	SG-76	SG-77	SG-78	SG-79	SG-80	SG-81	SG-82	SG-83	SG-84	SG-85	SG-86	SG-87	SG-88	SG-89	SG-90	SG-91	SG-92	SG-93	SMW-1		SMW-10	
	Soil Gas Probe ID:	SG-76	SG-77	SG-78	SG-79	SG-80	SG-81	SG-82	SG-83	SG-84	SG-85	SG-86	SG-87	SG-88	SG-89	SG-90	SG-91	SG-92	SG-93	SMW-1-M	SMW-1-U	SMW-10-M	SMW-10-U
1,1,1-TRICHLOROETHANE		0.3	0.5	0.7	0.7	4	5	4	0.1	4	3	1	3	3	3	12	8	12	4				
1,1,2-TRICHLOROTRIFLUOROETHANE																				0.043	0.016	0.0029	0.003
1,1-DICHLOROETHANE																				0.58	0.14		
1,1-DICHLOROETHENE		14	42	91	55	90	71	48	2	78	77	40	110	140	110	51	36	40	57				
1,2,4-TRIMETHYLBENZENE																				0.00097	0.0013	0.031	0.0036
1,3,5-TRIMETHYLBENZENE																						0.01	0.001
1,4-DICHLOROBENZENE																							
2-BUTANONE																				0.0023	0.0023	0.005	0.0023
2-HEXANONE																						0.0024	
4-METHYL-2-PENTANONE																						0.00081	
ACETONE																				0.018	0.016	0.03	0.04
ACROLEIN																				0.002	0.0016	0.003	0.0012
BENZENE																				0.0011	0.0013	0.0027	0.0032
BROMODICHLOROMETHANE																				0.0014			0.0029
CARBON DISULFIDE																				0.016	0.0031	0.11	0.0026
CARBON TETRACHLORIDE																							
CHLOROBENZENE																							
CHLORODIBROMOMETHANE																							
CHLOROETHANE																							
CHLOROFORM																				0.03	0.013	0.0036	0.027
CIS-1,2-DICHLOROETHENE																				0.0016			
DICHLORODIFLUOROMETHANE																				0.0026	0.0024	0.01	0.012
ETHYLBENZENE																						0.0063	0.0065
ISOPROPYLBENZENE																					0.00081	0.0019	0.0022
METHYLENE CHLORIDE																							
NAPHTHALENE																						0.0027	0.0041
N-HEXANE																				0.0015		0.0032	0.0025
N-PROPYLBENZENE																					0.0012	0.0031	0.0031
O-XYLENE																				0.00093	0.001	0.018	0.00084
P-ISOPROPYLTOLUENE																						0.00098	0.0039
SEC-BUTYLBENZENE																					0.0018	0.0024	0.0029
STYRENE																							
TETRACHLOROETHENE		9	6	5	1	1	0.6	0.3	0.02	0.3	0.3	0.2	0.5	0.7	0.8	1	0.4	0.8	2	0.021	0.012	0.023	0.021
TOLUENE																				0.00087		0.017	
TRANS-1,2-DICHLOROETHENE																							
TRICHLOROETHENE		8	9	20	14	38	40	25	0.8	30	20	5	9	10	10	2	0.7	0.8	1	0.0084	0.0042		
TRICHLOROFLUOROMETHANE																				0.0014	0.0015	0.0043	0.0042
VINYL ACETATE																						0.0082	
VINYL CHLORIDE																						0.0012	
XYLENES, M & P																				0.0019	0.0017	0.045	0.0021

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SMW-11		SMW-12		SMW-13		SMW-14		SMW-2		SMW-3		SMW-4		SMW-5	
	SMW-11-M	SMW-11-U	SMW-12-M	SMW-12-U	SMW-13-M	SMW-13-U	SMW-14-M	SMW-14-U	P-47	SMW-2-M	SMW-3-M	SMW-3-U	SMW-4-M	SMW-4-U	SMW-5-M	SMW-5-U
1,1,1-TRICHLOROETHANE			0.0013								0.02	0.02				
1,1,2-TRICHLOROTRIFLUOROETHANE	0.035	0.035	0.013	0.0074	0.011	0.012	0.022	0.02	2.2	3	0.0026	0.0021	3.1	2.6		
1,1-DICHLOROETHANE									2.1	6.3			0.12	0.047		
1,1-DICHLOROETHENE			0.00074						0.0053		0.0012	0.0014				
1,2,4-TRIMETHYLBENZENE	0.0018	0.003	0.012	0.015	0.0023	0.0026	0.0055	0.0076	0.032		0.0022					
1,3,5-TRIMETHYLBENZENE		0.001	0.0019	0.0025			0.00097	0.0013	0.011							
1,4-DICHLOROBENZENE	0.00085							0.00083	0.0027							
2-BUTANONE	0.014	0.0028	0.0028	0.0017	0.0016	0.0029	0.019	0.013	0.013		0.0062	0.00083				
2-HEXANONE	0.0013						0.0014	0.00078			0.00077					
4-METHYL-2-PENTANONE							0.0015									
ACETONE	0.032	0.041	0.019	0.025	0.013	0.023	0.082	0.043	0.038		0.059					
ACROLEIN	0.0021	0.0012	0.0018	0.00081	0.00094	0.0012	0.0058	0.0046	0.0014		0.0015					
BENZENE	0.0013	0.0024	0.0014		0.0018	0.0019	0.053	0.0021	0.0027		0.021					
BROMODICHLOROMETHANE	0.0064	0.0077	0.00081		0.0024	0.0037		0.0066			0.006	0.00096		0.03		
CARBON DISULFIDE	0.0066	0.017	0.0045	0.0083	0.044	0.0044	0.063	0.072	0.026		0.0023	0.0013	0.033		0.015	
CARBON TETRACHLORIDE																
CHLOROBENZENE	0.0014															
CHLORODIBROMOMETHANE		0.002						0.0012								
CHLOROETHANE	0.0076	0.0027			0.0045		0.011		0.0088							
CHLOROFORM	0.042	0.061	0.004	0.0043	0.011	0.025	0.0032	0.03	0.02	0.032	0.099	0.0037	0.026	0.022	0.017	
CIS-1,2-DICHLOROETHENE									0.0049			0.0014				
DICHLORODIFLUOROMETHANE	0.041	0.036	0.0029	0.0026	0.059	0.08	0.092	0.09	0.042		0.0028	0.0025	2.3	1.6		
ETHYLBENZENE	0.0038	0.0059	0.0027	0.0036	0.0062	0.0042	0.0034	0.0018	0.021		0.00088					
ISOPROPYLBENZENE	0.033	0.12	0.0043		0.0057	0.092	0.0022	0.0028	0.1		0.0046	0.0014				
METHYLENE CHLORIDE					0.003				0.0014							0.042
NAPHTHALENE	0.0013	0.0016	0.011	0.016	0.00082	0.0024	0.011	0.037	0.0034	0.044	0.0024	0.0039				
N-HEXANE	0.001	0.0026	0.0013		0.0054	0.002	0.017	0.0012	0.0013							
N-PROPYLBENZENE	0.0015	0.0024	0.007	0.0091	0.0014	0.0021	0.0035	0.0044	0.039		0.0051	0.0039				
O-XYLENE	0.00077				0.0029		0.0036	0.0017	0.021		0.0015					
P-ISOPROPYLTOLUENE	0.0013	0.0016	0.0029	0.0038			0.0048	0.02	0.021							
SEC-BUTYLBENZENE	0.0012	0.0032	0.0084	0.011	0.0015	0.002	0.0044	0.0055	0.052		0.011	0.0069				
STYRENE								0.0012	0.0022							
TETRACHLOROETHENE	0.012	0.0079	0.062	0.057	0.088	0.089	0.059	0.051	0.02	0.093	0.019	0.019	0.064	0.085	7.9	6.1
TOLUENE	0.0023	0.0018	0.034		0.0038		0.011	0.0023	0.029	0.034						
TRANS-1,2-DICHLOROETHENE																
TRICHLOROETHENE	0.0012		0.00086						0.076	0.24	0.0075	0.014	5	3.3	0.45	0.046
TRICHLOROFLUOROMETHANE	0.035	0.031	0.013	0.008	0.017	0.02	0.044	0.041	0.0083		0.04	0.01				
VINYL ACETATE								0.0083								
VINYL CHLORIDE							0.0033		0.068	0.2						
XYLENES, M & P	0.0045	0.007			0.011	0.0021	0.0027	0.0049	0.052		0.0025					

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SMW-6		SMW-7		SMW-8		SMW-9		SSG-01	SSG-02	SSG-03	SSG-04	SSG-05	SSG-06	SSG-07	SSG-08	SSG-09	SSG-10	SSG-11	SSG-12
	SMW-6-M	SMW-6-U	SMW-7-M	SMW-7-U	SMW-8-M	SMW-8-U	SMW-9-M	SMW-9-U	SSG-01	SSG-02	SSG-03	SSG-04	SSG-05	SSG-06	SSG-07	SSG-08	SSG-09	SSG-10	SSG-11	SSG-12
1,1,1-TRICHLOROETHANE	0.0093	0.01	0.072	0.0064	0.007	0.0056			24	1.3	13	20	9.9	51	32	4.9	6.8	59	590	790
1,1,2-TRICHLOROTRIFLUOROETHANE	0.25	0.12	0.078	0.0089	0.18	0.2	0.0039	0.0077	5.7			3.5	3.7	5.7		19		1.1	4.2	6.3
1,1-DICHLOROETHANE	0.026	0.0047	0.11	0.0035	0.2	0.027	0.064	0.022					21							
1,1-DICHLOROETHENE	0.11	0.035	0.4	0.0038	0.69	0.18	0.061	0.043		2.4	170	100	57	180	17	28	28	54	140	220
1,2,4-TRIMETHYLBENZENE		0.0021	0.0014	0.0018	0.004	0.0038	0.0008	1.1												
1,3,5-TRIMETHYLBENZENE								0.46												
1,4-DICHLOROBENZENE							0.00079													
2-BUTANONE	0.0026	0.029	0.0042	0.003	0.0033	0.0047	0.0031	0.0027												
2-HEXANONE					0.0015	0.0031	0.0012													
4-METHYL-2-PENTANONE		0.054			0.0014	0.0015														
ACETONE		0.086	0.019	0.03	0.014	0.044	0.02	0.01												
ACROLEIN		0.11	0.0022	0.0021	0.001	0.0015	0.015	0.011												
BENZENE	0.0042	0.005	0.0014	0.0011	0.0069	0.0038	0.0035	0.03	5.3		5.4		1.2	4.9				1.2		
BROMODICHLOROMETHANE	0.0028		0.0054	0.00094			0.0015													
CARBON DISULFIDE	0.0025	0.021	0.0065		0.025	0.005	0.011	0.02												
CARBON TETRACHLORIDE					0.0011	0.0013														
CHLOROBENZENE						0.00089														
CHLORODIBROMOMETHANE			0.0011																	
CHLOROETHANE								0.001												
CHLOROFORM	0.099	0.037	0.015	0.0035	0.015	0.019	0.011	0.006												
CIS-1,2-DICHLOROETHENE	0.0078	0.0014	0.0033		0.0076				15		19	90	4.6	14		1.5		1.7		
DICHLORODIFLUOROMETHANE	0.004	0.0029	0.0053	0.0028	0.0073	0.0075	0.003	0.0035												
ETHYLBENZENE		0.0008			0.0013	0.00081	0.0013	0.49	3.5		4.6	1.9		5.2				1.1	1.3	
ISOPROPYLBENZENE		0.00081			0.0015	0.0017		0.13												
METHYLENE CHLORIDE						0.0063														
NAPHTHALENE			0.00083		0.0046		0.003	0.061												
N-HEXANE					0.0038		0.0063	3.1												
N-PROPYLBENZENE		0.0012			0.0022	0.0023	0.00073	0.23												
O-XYLENE		0.0016		0.00084	0.0012		0.0012	0.42	1.9		3	1.2								
P-ISOPROPYLTOLUENE		0.0042			0.0034	0.02	0.0029	0.1												
SEC-BUTYLBENZENE		0.0021			0.0036	0.0039		0.084												
STYRENE																				
TETRACHLOROETHENE	0.24	0.22	0.13	0.014	0.19	0.13	0.066	0.083				0.15								0.2
TOLUENE		0.016			0.0063	0.00088	0.0081	0.17	13		17		3.7	14		1.1		1.7	2.7	1.2
TRANS-1,2-DICHLOROETHENE									140	1.1	97									
TRICHLOROETHENE	0.74	0.58	0.42	0.035	0.49	0.17	0.041	0.093	7.6		13	11	3.3	15	9.4	1.2	3.3	17	170	390
TRICHLOROFLUOROMETHANE	0.12	0.066	0.026	0.0082	0.06	0.071	0.0053	0.0087												
VINYL ACETATE		0.11																		
VINYL CHLORIDE					0.0025				2.7	2.4	55	2.6	19	50	1.4	16	5.5	8.7	6.6	4.8
XYLENES, M & P		0.0071			0.0024		0.002	2.2												

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SSG-13 SSG-13	SSG-14 SSG-14	SSG-15 SSG-15	SSG-16 SSG-16	SSG-17 SSG-17	SSG-18 SSG-18	SSG-19 SSG-19	SSG-20 SSG-20	SSG-21 SSG-21	SSG-22 SSG-22	SSG-23 SSG-23	SSG-24 SSG-24	SSG-25 SSG-25	SSG-26 SSG-26	SSG-27 SSG-27	SSG-28 SSG-28	SSG-29 SSG-29	SSG-30 SSG-30	SSG-31 SSG-31	SSG-32 SSG-32	SSG-33 SSG-33	SSG-34 SSG-34	SSG-35 SSG-35	SSG-36 SSG-36
Analyte Name																								
1,1,1-TRICHLOROETHANE	510	8.2	11	49	89	2.8	21	3.7	49	480	32	5.1	1.4	1	3.6	12	2.5	2.2	0.52	4.1	0.19	2		4
1,1,2-TRICHLOROTRIFLUOROETHANE	72			1.2	3.4				3.8	6		6.1				0.96	0.21	0.36		0.22		0.45	0.21	0.31
1,1-DICHLOROETHANE																42	10		16	15			51	25
1,1-DICHLOROETHENE	100	8.9	25	43	76	2	2.6	3.2	49	180	28	1.7	1.7		10	21	9.5	13	1.7	9.7		10	12	11
1,2,4-TRIMETHYLBENZENE																								
1,3,5-TRIMETHYLBENZENE																								
1,4-DICHLOROBENZENE																								
2-BUTANONE																								
2-HEXANONE																								
4-METHYL-2-PENTANONE																								
ACETONE																								
ACROLEIN																								
BENZENE																								
BROMODICHLOROMETHANE																								
CARBON DISULFIDE																								
CARBON TETRACHLORIDE																								
CHLOROBENZENE																								
CHLORODIBROMOMETHANE																								
CHLOROETHANE																								
CHLOROFORM																0.36	0.44	0.09			0.1		0.13	0.11
CIS-1,2-DICHLOROETHENE	120																							
DICHLORODIFLUOROMETHANE																								
ETHYLBENZENE	2.9																							
ISOPROPYLBENZENE																								
METHYLENE CHLORIDE																								
NAPHTHALENE																								
N-HEXANE																								
N-PROPYLBENZENE																								
O-XYLENE																								
P-ISOPROPYLTOLUENE																								
SEC-BUTYLBENZENE																								
STYRENE																								
TETRACHLOROETHENE	1.3								0.01		0.14				0.26	0.81		0.13						0.25
TOLUENE					3.4																			
TRANS-1,2-DICHLOROETHENE																								
TRICHLOROETHENE	65		9.6	8.1	26	0.57	1.8		1.4	6.2	2.5	0.43		0.35	1.5	4.3	0.54	0.86	0.22	0.48	0.13	0.44	0.16	0.95
TRICHLOROFLUOROMETHANE																								
VINYL ACETATE																								
VINYL CHLORIDE	5.1		1.2	3	7.3	2.6	2.9	2.6	14	5.2	1.9	3.2	4.2	6.8		3.7	2.7	3.2	11	80	1.2	3.1	17	110
XYLENES, M & P					2.2																			

Notes:
 ID = identification
 µg/L = microgram per liter

TABLE 3-4
 Exposure Point Concentrations for Soil Gas (in µg/l)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster ID: Soil Gas Probe ID:	SSG-37	SSG-38	SSG-39	SSG-40	SSG-41	SSG-42	SSG-43	SSG-44
Analyte Name	SSG-37	SSG-38	SSG-39	SSG-40	SSG-41	SSG-42	SSG-43	SSG-44
1,1,1-TRICHLOROETHANE	0.68	0.03	0.67	2.7	0.35	0.28	1.3	20
1,1,2-TRICHLOROTRIFLUOROETHANE	0.21			0.94			0.78	
1,1-DICHLOROETHANE				4.9				
1,1-DICHLOROETHENE	3.2		5.3	21	3.1	1.5	10	12
1,2,4-TRIMETHYLBENZENE								
1,3,5-TRIMETHYLBENZENE								
1,4-DICHLOROBENZENE								
2-BUTANONE								
2-HEXANONE								
4-METHYL-2-PENTANONE								
ACETONE								
ACROLEIN								
BENZENE								
BROMODICHLOROMETHANE								
CARBON DISULFIDE								
CARBON TETRACHLORIDE								
CHLOROBENZENE								
CHLORODIBROMOMETHANE								
CHLOROETHANE								
CHLOROFORM				0.03				
CIS-1,2-DICHLOROETHENE								
DICHLORODIFLUOROMETHANE								
ETHYLBENZENE								
ISOPROPYLBENZENE								
METHYLENE CHLORIDE								
NAPHTHALENE								
N-HEXANE								
N-PROPYLBENZENE								
O-XYLENE								
P-ISOPROPYLTOLUENE								
SEC-BUTYLBENZENE								
STYRENE								
TETRACHLOROETHENE				0.05				
TOLUENE								
TRANS-1,2-DICHLOROETHENE								
TRICHLOROETHENE	0.18		0.13	0.31		0.11	0.18	5.8
TRICHLOROFLUOROMETHANE								
VINYL ACETATE								
VINYL CHLORIDE	4.9	3.5	3.8	13		1.8	2.6	1.3
XYLENES, M & P								

Notes:
 ID = identification
 µg/L = microgram per liter

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location ID:	ASE-100A	ASE-101A	ASE-102A	ASE-103A	ASE-105A	ASE-106A	ASE-107A	ASE-108A	ASE-109A	ASE-110A	ASE-111A	ASE-112A	ASE-113A	ASE-114A	ASE-115A
Analyte Name															
1,1,1-TRICHLOROETHANE		4.1						3.4							
1,1,2,2-TETRACHLOROETHANE															
1,1,2-TRICHLOROETHANE						4.1									
1,1,2-TRICHLOROTRIFLUOROETHANE															
1,1-DICHLOROETHANE	8	14	12	5.5	0.53	27	2	47			0.8	0.48	0.2	0.54	0.66
1,1-DICHLOROETHENE	0.2	0.37	0.27	0.26		0.29	0.56	4.4	0.3		0.75	0.26	0.81	1.4	0.57
1,2,4-TRIMETHYLBENZENE			61		52	7.6	23	2.7			54	97		6.7	210
1,2-DICHLOROBENZENE															
1,3,5-TRIMETHYLBENZENE			11		15		7.8	0.25			19	32		2.2	71
1,4-DICHLOROBENZENE					0.12							0.18			
1,4-DIOXANE															
2-BUTANONE															
2-METHYLNAPHTHALENE					11						11	32			65
ACENAPHTHENE		3.7	10		3.7		6.8					7.1			
ACETONE								2.1							
BENZENE	5.8	8.2	28		430	13	70	20			630	720		3.4	5600
BROMODICHLOROMETHANE															
BROMOFORM															
BUTYLBENZENE		0.46	11				1.6	3.2				5.7		5	7.2
CARBON DISULFIDE															
CHLOROBENZENE				0.31	0.21							0.37			
CHLORODIBROMOMETHANE															
CHLOROETHANE						2.2		7.1							
CHLOROFORM	0.27	0.15	0.22	0.29			0.22		0.18	0.42			0.27	0.33	
CHLOROMETHANE															0.47
CIS-1,2-DICHLOROETHENE	7				4.2	0.42		3.4			3.1				1.5
ETHENE															
ETHYLBENZENE	2		29		190		48	2.5			63	360	3	3	720
FLUORENE		0.45	1.8		0.62		1.2					1.1			0.84
IODOMETHANE															
ISOPROPYLBENZENE	6.5		38		40		17	7.4		0.23	11	56		2.3	79
METHYL TERT-BUTYL ETHER	12	150	130		1700	710	140	49			190	880		26	1100
METHYLENE CHLORIDE					120				7.2			110			
NAPHTHALENE	4.5	16	170	0.5	65	3.2	90	88	4.2	0.54	37	170	4	13	310
N-PROPYLBENZENE	0.16	0.17	32	0.15	24		16	5.3		0.33	10	30		2.2	72
O-XYLENE							0.78	0.92			24				
P-ISOPROPYLTOLUENE			4.5		2		2.1	0.31			0.72	2.8			5.7
PYRENE										0.45					
SEC-BUTYLBENZENE	5.7	0.27	12		8.8		6.8	3.5		0.23	1.6	8.1		7.8	11
STYRENE															0.69
TERT-BUTYLBENZENE		0.2			0.66		0.36	0.5			0.24	0.54			1.4
TETRACHLOROETHENE	0.41	0.91	0.67	2.1	0.28	2	1	0.29	3.1	0.23	2.2	0.82	2.7	2.1	0.86
TOLUENE	0.31	0.3	0.2		25		2.6	0.92		0.18	130	12			28
TRANS-1,2-DICHLOROETHENE															
TRICHLOROETHENE	2.3	2.4	2.8	2.6		2.8	3.4	4.1	0.22		32	0.38	3	2.3	23
VINYL CHLORIDE			2			6.6		11							
XYLENES, M & P							2.2	2.5			65				
XYLENES, TOTAL			12		430		39	6.2			310	1100	9.6	8.5	390

Notes:

ID = identification

µg/L = microgram per liter

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location ID:	ASE-116A	ASE-122A	ASE-123A	ASE-124A	ASE-125A	ASE-126A	ASE-127A	ASE-128A	ASE-129A	ASE-130A	ASE-20A	ASE-22A	ASE-25C	ASE-26A	ASE-27A
Analyte Name															
1,1,1-TRICHLOROETHANE						0.44									
1,1,2,2-TETRACHLOROETHANE															
1,1,2-TRICHLOROETHANE															
1,1,2-TRICHLOROTRIFLUOROETHANE															
1,1-DICHLOROETHANE	0.74	0.15		5.1	0.36	20	0.66			26	36	16	2.6	6.7	6.8
1,1-DICHLOROETHENE	0.62	0.63	0.23	0.44	0.22	4.2	0.39					12	22	15	
1,2,4-TRIMETHYLBENZENE	66	3.6		8.6		3	5.6		2.2	96	92				
1,2-DICHLOROBENZENE															
1,3,5-TRIMETHYLBENZENE	24									20	5.6				
1,4-DICHLOROBENZENE															
1,4-DIOXANE							1.2								
2-BUTANONE													10		
2-METHYLNAPHTHALENE	32														
ACENAPHTHENE										0.5					
ACETONE											2		40		
BENZENE	2500					0.15	1.1			130	54			2.6	
BROMODICHLOROMETHANE													5.1		3.8
BROMOFORM															
BUTYLBENZENE										17	2.2				
CARBON DISULFIDE															
CHLOROBENZENE							0.23								
CHLORODIBROMOMETHANE													2.1		3.5
CHLOROETHANE										19	5.8				
CHLOROFORM		0.25	0.15		0.25		0.15	0.24					15		5.2
CHLOROMETHANE															
CIS-1,2-DICHLOROETHENE	5.2			0.24		1.5	0.25			2.7	29	24	5.5		7.6
ETHENE											16				
ETHYLBENZENE	810						12		1.2	120	31	2.4		5.2	
FLUORENE	0.36						0.02			0.8					
IODOMETHANE															
ISOPROPYLBENZENE	210					2.1	6.6		0.6	32	16				
METHYL TERT-BUTYL ETHER	530			66	0.19	18	4			100	23				
METHYLENE CHLORIDE															
NAPHTHALENE	500			3.4		4.2	2.1	0.069	2.2	230	77			5.3	
N-PROPYLBENZENE	170					0.6	2.1		1.1	43	12				
O-XYLENE															
P-ISOPROPYLTOLUENE	0.54									8.1	1.5				
PYRENE		0.11													
SEC-BUTYLBENZENE	4.2					0.9	1.6			9.6	7.1				
STYRENE															
TERT-BUTYLBENZENE	0.68						0.19			1	1				
TETRACHLOROETHENE	0.85	2.4				0.29	1.4				0.26	2.1			
TOLUENE	2.4										0.8				
TRANS-1,2-DICHLOROETHENE															
TRICHLOROETHENE	11	0.44		0.56	0.23	2.1	0.94			1.4	4.7	76	32	4.8	12
VINYL CHLORIDE						2.3				4.1	370				
XYLENES, M & P	2.5								0.7	66					
XYLENES, TOTAL	570						4.9		0.7	66	14	4		9.7	

Notes:

ID = identification

µg/L = microgram per liter

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location ID:	ASE-37A	ASE-38A	ASE-39A	ASE-40B	ASE-41A	ASE-42C	ASE-44B	ASE-45B	ASE-46A	ASE-46B	ASE-48B	ASE-49B	ASE-51A	ASE-52A	ASE-53A
Analyte Name															
1,1,1-TRICHLOROETHANE					1										
1,1,2,2-TETRACHLOROETHANE															
1,1,2-TRICHLOROETHANE															
1,1,2-TRICHLOROTRIFLUOROETHANE														5.9	
1,1-DICHLOROETHANE	0.78	0.81	0.6	5.5	37	24	6.2	23	160	7.5	13	29	27	25	0.78
1,1-DICHLOROETHENE	0.67	0.74	0.35		0.74	18			0.29		0.6	1.2	1	2.6	1.4
1,2,4-TRIMETHYLBENZENE	56	76	26		26	2.1			0.17				350	68	7.1
1,2-DICHLOROBENZENE									0.2						
1,3,5-TRIMETHYLBENZENE	21	17	7.8		4.9				0.2				130	12	1.2
1,4-DICHLOROBENZENE									0.46						
1,4-DIOXANE															
2-BUTANONE					59										
2-METHYLNAPHTHALENE															
ACENAPHTHENE															
ACETONE					6.7								2.9	2.2	1.8
BENZENE	570	1400	1100		88				13				200	700	120
BROMODICHLOROMETHANE						6.7									
BROMOFORM									1.7						
BUTYLBENZENE	1.7				6								170	3.2	
CARBON DISULFIDE															
CHLOROBENZENE									2.2						
CHLORODIBROMOMETHANE						7			0.17						
CHLOROETHANE					3.4				73				3.7	6.7	
CHLOROFORM						6.5						1	0.29	1	1.1
CHLOROMETHANE															
CIS-1,2-DICHLOROETHENE	12	4.5	11		11	9.9		3.5	8	4.5	0.6	1.1	2.4	2.2	1.1
ETHENE															
ETHYLBENZENE	120	290	330		65				0.23				180	82	18
FLUORENE															
IODOMETHANE													0.22		
ISOPROPYLBENZENE	23	32	46		16				5.9				76	9.4	3.1
METHYL TERT-BUTYL ETHER	320	310	770	8.4	260		1.1	230	53	4.5	8.5	1100	66	190	140
METHYLENE CHLORIDE													0.33		
NAPHTHALENE	34	110	110	4.5	230				3.5				580	71	15
N-PROPYLBENZENE	17	23	26		19				2.2				130	11	3.9
O-XYLENE					0.5										
P-ISOPROPYLTOLUENE	2.2	1.2	0.71		4.3				0.13				6.9	4	0.61
PYRENE															
SEC-BUTYLBENZENE	3.6	2.7	5.3		6.8				1.3				22	4.4	1.5
STYRENE															
TERT-BUTYLBENZENE	0.61	0.44	1		0.82				0.32				1.2	0.42	0.19
TETRACHLOROETHENE	0.6	1.4			3.2				0.85		0.7	1.4	0.42	1.3	1.8
TOLUENE	29	40	31		4.3				0.84				0.43	100	2.7
TRANS-1,2-DICHLOROETHENE															
TRICHLOROETHENE	23	32	30	1.6	2.2	29	5.5	16	2.4	3.5	9.8	30	15	54	46
VINYL CHLORIDE					31				26	1.5			2	1.9	
XYLENES, M & P		4.8	3.2											32	
XYLENES, TOTAL	410	550	200		27				0.44				180	170	22

Notes:

ID = identification

µg/L = microgram per liter

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location ID:	ASE-54A	ASE-55A	ASE-56A	ASE-57A	ASE-58A	ASE-59A	ASE-62A	ASE-63A	ASE-64A	ASE-65A	ASE-66A	ASE-67A	ASE-68A	ASE-75A	ASE-83A
Analyte Name															
1,1,1-TRICHLOROETHANE															
1,1,2,2-TETRACHLOROETHANE		1.2													
1,1,2-TRICHLOROETHANE															
1,1,2-TRICHLOROTRIFLUOROETHANE															
1,1-DICHLOROETHANE	1.5	150	100	76	24	79	12	0.47	0.83	1.3	34		57	7.9	6.1
1,1-DICHLOROETHENE		1.2				1.7		0.24		9.8	0.5		0.88	10	6
1,2,4-TRIMETHYLBENZENE		2.7	140	72			7.4	160	65	6.3	8.2	87	18		
1,2-DICHLOROBENZENE				0.16											
1,3,5-TRIMETHYLBENZENE		0.45	33	26			2	41	23	0.29	2.1	18	3		
1,4-DICHLOROBENZENE	0.15	0.12	0.12	0.12		1.1		0.12							
1,4-DIOXANE															
2-BUTANONE															
2-METHYLNAPHTHALENE															
ACENAPHTHENE															
ACETONE		3.1	770				2			1.3	1.2		2.4		
BENZENE		19	600	970	2.1		3	6800	1600	2.3	7.3	1400	32		
BROMODICHLOROMETHANE	0.26					0.28									
BROMOFORM															
BUTYLBENZENE		20	15	24					4.6				7.3		
CARBON DISULFIDE													11		
CHLOROBENZENE	0.46				0.28	1.8									
CHLORODIBROMOMETHANE															
CHLOROETHANE		12	11	27		8									
CHLOROFORM	0.49			4.8	7	1.8	2.3			2.8	0.29				
CHLOROMETHANE		0.46		1									0.81		
CIS-1,2-DICHLOROETHENE		2.1	0.98	0.86	0.9	0.6	0.47	13	9.2	43	0.34		32		18
ETHENE			53	33											
ETHYLBENZENE		9.2	320	400	0.24		9.2	910	400	8	9.9	56	17		
FLUORENE															
IODOMETHANE															
ISOPROPYLBENZENE	0.2	29	65	66	2.4		2.4	78	62	2	2.3	6.7	16		
METHYL TERT-BUTYL ETHER		22	36	180	8.6		6.9	1300	1300	0.22	8.7	4300	450		
METHYLENE CHLORIDE															
NAPHTHALENE		110	450	500			6	200	87	7.4	15	45	22		
N-PROPYLBENZENE	0.29	30	68	78	0.32	0.16	2.8	57	32	2	3.4	12	12		
O-XYLENE															
P-ISOPROPYLTOLUENE		2.9	8.6	5.6			0.27	2.9	2.4	0.21	0.21	2.1	3.4		
PYRENE															
SEC-BUTYLBENZENE	0.21	16	9.8	19	0.96		0.99	5.1	8	0.74	1		7		
STYRENE															
TERT-BUTYLBENZENE		1.1	1.9	1.7	0.24			0.75	1.2				1.3		
TETRACHLOROETHENE	0.33	0.31		0.38	0.27	1.2	0.27	0.36	0.23	5.3	0.6		0.6		3
TOLUENE		0.29	2.4	3.7				8	27			81	0.31		
TRANS-1,2-DICHLOROETHENE															
TRICHLOROETHENE	2.8	2.4		0.2	1.6	12	4.6	30	2	74	6.3	36	8.2	4	33
VINYL CHLORIDE		21	38	84	11		4.3				46		96		
XYLENES, M & P									36						
XYLENES, TOTAL		7.2	180	11			13	1600	850	12	10	300	6.6		

Notes:

ID = identification

µg/L = microgram per liter

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location ID:	ASE-84A	ASE-87A	ASE-89A	ASE-90A	ASE-91A	ASE-92A	ASE-95A	ASE-96A	ASE-97A	ASE-98A	ASE-99A	BC-10A	BC-2	BC-6	BC-7A
Analyte Name															
1,1,1-TRICHLOROETHANE					2.8		2.6	24	0.33						
1,1,2,2-TETRACHLOROETHANE															
1,1,2-TRICHLOROETHANE															
1,1,2-TRICHLOROTRIFLUOROETHANE															
1,1-DICHLOROETHANE	3.2	6.5	15	28	160	22	11	18	29			3.2	0.7	5.6	0.49
1,1-DICHLOROETHENE		5.8				0.23	0.29	8.4	4.1				0.8		1.2
1,2,4-TRIMETHYLBENZENE	3		100	7.2	15	7.6			4.3		6	8.2			3
1,2-DICHLOROBENZENE															
1,3,5-TRIMETHYLBENZENE			20	2.4	3.3	0.99									
1,4-DICHLOROBENZENE															0.14
1,4-DIOXANE															
2-BUTANONE															
2-METHYLNAPHTHALENE															
ACENAPHTHENE															
ACETONE					1.9	1.8									
BENZENE			560	120	100	270	0.2		32			1			1.5
BROMODICHLOROMETHANE															0.21
BROMOFORM															1.7
BUTYLBENZENE			18	11	6.4	2.8									
CARBON DISULFIDE															
CHLOROBENZENE			0.26	0.21					0.16						1.3
CHLORODIBROMOMETHANE															
CHLOROETHANE			6.5	7.8	46										
CHLOROFORM										0.29	0.34				0.5
CHLOROMETHANE					0.49										
CIS-1,2-DICHLOROETHENE	18	15	3	1.3	3.2	4.9	0.52	2.1	2.7				0.6	2.6	
ETHENE			10												
ETHYLBENZENE			84	2.3	3.8	7.7			2.5		2	2			5.3
FLUORENE															
IODOMETHANE															
ISOPROPYLBENZENE			44	32	28	4.9			8.6						1.2
METHYL TERT-BUTYL ETHER			1200	400	85	600	160	510	71				0.6	2.3	
METHYLENE CHLORIDE															
NAPHTHALENE	2.5		320	160	140	41			8.9		2.3	4.2			4.5
N-PROPYLBENZENE			53	35	23	5			7.1						2
O-XYLENE															
P-ISOPROPYLTOLUENE			6.6	0.51	2	0.83									
PYRENE															
SEC-BUTYLBENZENE			20	12	9.4	2.1	2.7		0.88						0.83
STYRENE															
TERT-BUTYLBENZENE			1.5	0.57	0.68	0.41									
TETRACHLOROETHENE	3.7	3.1		0.24					0.33				1.3	0.6	2.5
TOLUENE			2.9	0.45	0.25	0.25						2			0.27
TRANS-1,2-DICHLOROETHENE															
TRICHLOROETHENE	36	27		0.24	0.77	2.1	2	2.3	7			2.5	33	8.4	4.8
VINYL CHLORIDE			2.2	11	19	8.4	1.8	4.5	6.4					0.6	
XYLENES, M & P															
XYLENES, TOTAL			29	0.73	6.3	5.5			5.6			3			13

Notes:

ID = identification

µg/L = microgram per liter

TABLE 3-5

Exposure Point Concentrations for Groundwater-To-Indoor Air (in µg/L)

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Analyte Name	Location ID:	BC-8B	PHXA-04	PL-101A	PL-102A	PL-103A	PL-105A	PL-201A	PL-2101	PL-2102
1,1,1-TRICHLOROETHANE		2.4								
1,1,2,2-TETRACHLOROETHANE										
1,1,2-TRICHLOROETHANE										
1,1,2-TRICHLOROTRIFLUOROETHANE										
1,1-DICHLOROETHANE		25	4.3	0.78			88	70	16	
1,1-DICHLOROETHENE		3.5	4.6	0.56		10	0.48	0.2		
1,2,4-TRIMETHYLBENZENE				310			5.4			
1,2-DICHLOROBENZENE										
1,3,5-TRIMETHYLBENZENE				79			0.28			
1,4-DICHLOROBENZENE					1.5			0.16		0.12
1,4-DIOXANE										
2-BUTANONE										
2-METHYLNAPHTHALENE										
ACENAPHTHENE										
ACETONE							94			
BENZENE		3		380			41	1.6	0.33	
BROMODICHLOROMETHANE										
BROMOFORM				1.7						
BUTYLBENZENE				11			3.2			
CARBON DISULFIDE										
CHLOROBENZENE					2.3			0.42	0.21	0.27
CHLORODIBROMOMETHANE										
CHLOROETHANE							10	6.8	1	
CHLOROFORM			0.67			6		2.2	0.16	0.37
CHLOROMETHANE							0.44			
CIS-1,2-DICHLOROETHENE		3	0.54	22		53	1.1	0.9		
ETHENE										
ETHYLBENZENE				530			7			
FLUORENE										
IODOMETHANE							0.22			
ISOPROPYLBENZENE		1.8		66			13	0.7	0.19	
METHYL TERT-BUTYL ETHER		40		65			110	23	2.2	
METHYLENE CHLORIDE										
NAPHTHALENE		4.3		430			94	0.35		
N-PROPYLBENZENE		2.5		58			8.8	0.39	0.26	0.22
O-XYLENE										
P-ISOPROPYLTOLUENE				7.8			0.63			
PYRENE										
SEC-BUTYLBENZENE		1.1		13			5.5	1.6	0.36	0.18
STYRENE										
TERT-BUTYLBENZENE				1.8			0.68			
TETRACHLOROETHENE		0.26	0.84	0.28		6.9		0.41	0.27	0.36
TOLUENE			0.52	7.6			0.21	0.18		
TRANS-1,2-DICHLOROETHENE						3.6				
TRICHLOROETHENE		3.5	2.3	3.2		120	0.32	3.4	2.7	2.6
VINYL CHLORIDE		4.1					16	4.7	12	
XYLENES, M & P										
XYLENES, TOTAL				880			10			

Notes:

ID = identification

µg/L = microgram per liter

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 3-6
Reasonable Maximum Exposure Assumptions
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Parameter	Abbreviation	Units	Industrial Worker	Source	Resident	Source	Construction Worker	Source
Exposure Frequency (Adult)	EF	day/yr	250	ADEQ, 2006	350	USEPA, 1991a	250	Site-Specific
Exposure Frequency (Child)	EF	day/yr	250	ADEQ, 2006	350	USEPA, 1991a	250	Site-Specific
Exposure Time (Adult)	ET	hr/day	8	USEPA, 2009	24	USEPA, 2009	8	Site-Specific
Exposure Time (Child)	ET	hr/day	-	-	24	USEPA, 2009	-	-
Exposure Duration (Adult)	ED	yr	25	ADEQ, 2006	30	USEPA, 1991a	1	Site-Specific
Exposure Duration (Adult / age-weighted cancer)	ED	yr	-	-	24	calculated	-	-
Exposure Duration (Child)	ED	yr	-	-	6	USEPA, 1989	-	-
Drinking Water Ingestion Rate (Adult)	IRW	L/day	-	-	2	USEPA, 1989	-	-
Drinking Water Ingestion Rate (child)	IRW	L/day	-	-	1	USEPA, 1989	-	-
Soil Ingestion Rate (Adult)	IRs	mg/day	100	ADEQ, 2006	200	-	330	USEPA, 2002
Soil Ingestion Rate (Child)	IRs	mg/day	100	ADEQ, 2006	100	-	-	USEPA, 2002
Volatilization Factor (Indoor Water Use)	VF	L/m ³	na	-	0.5	USEPA, 1991b	na	-
Volatilization Factor (Soil)	VF	L/m ³	Chemical Specific	-	Chemical Specific	-	Chemical Specific	-
Particulate Emission Factor (Soil)	PEF	m ³ /kg	1.316E+09	ADEQ, 2006	1.316E+09	-	2.80E+06	USEPA, 2002
Soil Adherence Factor	AF-Soil	mg/cm ²	0.2	ADEQ, 2006	0.2	-	0.3	USEPA, 2002
Skin absorption factor	ABS	unitless	Chemical Specific	ADEQ, 2006	Chemical Specific	-	Chemical Specific	USEPA, 2004
Gastrointestinal Absorption Factor	GIABS	unitless	Chemical Specific	USEPA, 2001	Chemical Specific	USEPA, 2001	Chemical Specific	USEPA, 2001
Body Weight (Adult)	BW	kg	70	ADEQ, 2006	70	USEPA, 1989	70	ADEQ, 2006
Body Weight (Child)	BW	kg	-	-	15	USEPA, 1989	-	-
Averaging Time for carcinogens	ATc	yr	70	ADEQ, 2006	70	USEPA, 1989	70	ADEQ, 2006
Averaging Time for noncarcinogens	ATnc	yr	25	ADEQ, 2006	24	USEPA, 1991a	1	Site-Specific

Notes:

cm = centimeter

cm² = square centimeter

cm³ = cubic centimeter

hr = hour

kg = kilogram

L = liter

m³ = cubic meter

mg = milligram

µg = microgram

na = Exposure assumption is not applicable for the exposure pathway or medium of concern.

VOC = volatile organic compound

yr = year

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Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 5-1A
 Summary of Industrial Risk and Hazard Estimates for Soil
 Focused Human Health and Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

				Current and Future Industrial Soil Exposure Scenario									
				Cancer—ELCR					Noncancer—HQ				
Exposure Area ⁽¹⁾	COPC	Selected EPC Type	Selected EPC (mg/kg)	Ingestion	Inhalation	Dermal	Total	Percent Contribution	Ingestion	Inhalation	Dermal	Total	Percent Contribution
Honeywell Facility North Exposure Area	1,2,4-TRIMETHYLBENZENE	UCL	8.4						3.2E-02			3.2E-02	28%
	1,4-DICHLOROBENZENE	Max. Det.	16	3.0E-08	1.2E-06		1.3E-06	63%	2.2E-04	4.1E-04		6.4E-04	1%
	BENZENE	UCL	0.73	1.4E-08	1.2E-07		1.4E-07	6%	1.8E-04	1.5E-03		1.6E-03	1%
	BENZO(A)ANTHRACENE	UCL	0.017	4.3E-09	1.1E-13	3.6E-09	7.9E-09	<1%					
	BENZO(A)PYRENE	UCL	0.018	4.6E-08	1.2E-12	3.9E-08	8.5E-08	4%					
	BENZO(B)FLUORANTHENE	UCL	0.028	7.2E-09	1.9E-13	6.1E-09	1.3E-08	1%					
	ETHYLBENZENE	UCL	4.4	1.7E-08	1.5E-07		1.6E-07	8%	4.4E-05	1.6E-04		2.1E-04	<1%
	INDENO(1,2,3-CD)PYRENE	UCL	0.016	4.1E-09	1.1E-13	3.5E-09	7.7E-09	<1%					
	MERCURY	UCL	2.4						1.5E-02	5.5E-02		7.0E-02	60%
	NAPHTHALENE	UCL	6.6		3.7E-07		3.7E-07	17%	3.3E-04	1.0E-02	2.7E-04	1.1E-02	9%
TETRACHLOROETHENE	UCL	0.029		5.5E-09	5.5E-09		1.1E-08	1%	2.9E-06	9.7E-06		1.3E-05	<1%
TOTALS				1E-07	2E-06	5E-08	2E-06		2E-02	1E-01	3E-04	1E-01	
Honeywell Facility South Exposure Area	1,2,4-TRIMETHYLBENZENE	UCL	3.9						1.5E-02			1.5E-02	86%
	BENZO(A)PYRENE	UCL	0.016	4.1E-08	1.1E-12	3.5E-08	7.6E-08	6%					
	NAPHTHALENE	UCL	0.79		4.4E-08		4.4E-08	4%	4.0E-05	1.2E-03	3.3E-05	1.3E-03	7%
	TETRACHLOROETHENE	UCL	2.6	5.0E-07	5.0E-07		1.0E-06	86%	2.6E-04	8.8E-04		1.1E-03	7%
TRICHLOROETHENE	UCL	0.57	1.2E-09	3.8E-08		4.1E-08	3%						
TOTALS				5E-07	6E-07	3E-08	1E-06		3E-04	2E-02	3E-05	2E-02	

Notes:

- COPC = chemical of potential concern
- ELCR = excess lifetime cancer risk
- EPC = exposure point concentration
- HQ = hazard quotient
- Max. Det. = maximum detection
- mg/kg = milligrams per kilogram
- UCL = upper confidence limit

(1) Risks and hazards are not presented on this table for the Offsite PSHIA Exposure Area because there were no COPCs identified in that exposure area. As shown in Table 2-5, arsenic was the only target analyte detected in soil for the Offsite PSHIA Exposure Area that exceeded the RSL. However, arsenic was eliminated as a contaminant of potential concern because the maximum concentration detected at the site is within the published range of naturally occurring background concentrations. The risks and hazards associated with naturally occurring metals are presented in Exhibit 7-4.

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 5-1B
 Summary of Construction Worker Risk and Hazard Estimates for Soil
 Focused Human Health and Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

				Current and Future Construction Worker Soil Exposure Scenario									
				Cancer—ELCR					Noncancer—HQ				
Exposure Area ⁽¹⁾	COPC	Selected EPC Type	Selected EPC (mg/kg)	Ingestion	Inhalation	Dermal	Total	Percent Contribution	Ingestion	Inhalation	Dermal	Total	Percent Contribution
Honeywell Facility North Exposure Area	1,2,4-TRIMETHYLBENZENE	UCL	8.4							3.2E-02		3.2E-02	21%
	1,4-DICHLOROBENZENE	Max. Det.	16	4.0E-09	5.1E-08		5.5E-08	57%	7.3E-04	4.1E-04		1.1E-03	1%
	BENZENE	UCL	0.73	1.9E-09	4.9E-09		6.7E-09	7%	5.9E-04	1.5E-03		2.1E-03	1%
	BENZO(A)ANTHRACENE	UCL	0.017	5.6E-10	2.2E-12	2.2E-10	7.8E-10	1%					
	BENZO(A)PYRENE	UCL	0.018	6.0E-09	2.3E-11	2.3E-09	8.4E-09	9%					
	BENZO(B)FLUORANTHENE	UCL	0.028	9.5E-10	3.7E-12	3.7E-10	1.3E-09	1%					
	ETHYLBENZENE	UCL	4.4	2.2E-09	5.9E-09		8.1E-09	8%	1.4E-04	1.6E-04		3.0E-04	0%
	INDENO(1,2,3-CD)PYRENE	UCL	0.016	5.4E-10	2.1E-12	2.1E-10	7.6E-10	1%					
	MERCURY	UCL	2.4					0%	4.8E-02	5.6E-02		1.0E-01	69%
	NAPHTHALENE	UCL	6.6		1.5E-08		1.5E-08	15%	1.1E-03	1.0E-02	4.2E-04	1.2E-02	8%
TETRACHLOROETHENE	UCL	0.029	7.3E-10	2.2E-10		9.5E-10	1%	9.4E-06	9.8E-06		1.9E-05	0%	
TOTALS				2E-08	8E-08	3E-09	1E-07		5E-02	1E-01	4E-04	2E-01	
Honeywell Facility South Exposure Area	1,2,4-TRIMETHYLBENZENE	UCL	3.9							1.5E-02		1.5E-02	83%
	BENZO(A)PYRENE	UCL	0.016	5.4E-09	2.1E-11	2.1E-09	7.5E-09	8%					
	NAPHTHALENE	UCL	0.79		1.8E-09		1.8E-09	2%	1.3E-04	1.2E-03	5.0E-05	1.4E-03	8%
	TETRACHLOROETHENE	UCL	2.6	6.6E-08	2.0E-08		8.6E-08	89%	8.5E-04	8.8E-04		1.7E-03	10%
	TRICHLOROETHENE	UCL	0.57	1.5E-10	1.6E-09		1.7E-09	2%					
TOTALS				7E-08	2E-08	2E-09	1E-07		1E-03	2E-02	5E-05	2E-02	

Notes:
 COPC = chemical of potential concern
 ELCR = excess lifetime cancer risk
 EPC = exposure point concentration
 HQ = hazard quotient
 Max. Det. = maximum detection
 mg/kg = milligrams per kilogram
 UCL = upper confidence limit

⁽¹⁾Risks and hazards are not presented on this table for the Offsite PSHIA Exposure Area because there were no COPCs identified in that exposure area. As shown in Table 2-5, arsenic was the only target analyte detected in soil for the Offsite PSHIA Exposure Area that exceeded the RSL. However, arsenic was eliminated as a contaminant of potential concern because the maximum concentration detected at the site is within the published range of naturally occurring background concentrations. The risks and hazards associated with naturally occurring metals are presented in Exhibit 7-4.

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 5-2
 Summary of Hypothetical Risk and Hazard Estimates for Groundwater Used as Tap Water
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

				Hypothetical Residential Exposure Scenario for Groundwater Used as Tap Water								
				Cancer— ELCR				Noncancer—HQ				
Exposure Area	COPC	Selected EPC Type	Selected EPC (µg/L)	Ingestion	Inhalation	Total	Percent Contribution	Ingestion	Inhalation	Total	Percent Contribution	
Salt River Gravels sub-unit												
	1,1-DICHLOROETHANE	UCL	16	1.4E-06	5.5E-06	6.8E-06	<1%	2.2E-03		2.2E-03	<1%	
	1,1-DICHLOROETHENE	UCL	0.95					5.3E-04	2.3E-03	2.8E-03	<1%	
	1,2,4-TRIMETHYLBENZENE	UCL	26						1.7E+00	1.7E+00	4%	
	1,4-DICHLOROBENZENE	UCL	0.17	1.4E-08	3.9E-07	4.0E-07	<1%	6.6E-05	1.0E-04	1.7E-04	<1%	
	BENZENE	UCL	730	6.1E-04	1.2E-03	1.8E-03	49%	4.9E+00	1.2E+01	1.7E+01	42%	
	BROMODICHLOROMETHANE	UCL	0.29	2.6E-07	2.2E-06	2.4E-06	<1%	3.9E-04		3.9E-04	<1%	
Honeywell Facility North Exposure Area	CHLOROFORM	UCL	0.77	3.5E-07	3.7E-06	4.0E-06	<1%	2.1E-03	3.8E-03	5.9E-03	<1%	
	ETHYLBENZENE	UCL	130	2.2E-05	7.0E-05	8.9E-05	2%	3.6E-02	6.4E-02	1.0E-01	<1%	
	METHYL TERT-BUTYL ETHER	UCL	220	5.9E-06	1.1E-05	1.8E-05	<1%		3.5E-02	3.5E-02	<1%	
	NAPHTHALENE	UCL	130		9.4E-04	9.4E-04	26%	1.8E-01	2.1E+01	2.1E+01	53%	
	TETRACHLOROETHENE	UCL	0.86	7.1E-06	1.0E-06	7.8E-06	<1%	2.3E-03	1.5E-03	3.9E-03	<1%	
	TRICHLOROETHENE	UCL	11	1.0E-06	4.7E-06	5.6E-06	<1%					
	VINYL CHLORIDE	UCL	13	7.6E-04	4.0E-05	8.0E-04	22%	1.2E-01	6.1E-02	1.8E-01	<1%	
	XYLENES, TOTAL	UCL	38					5.1E-03	1.8E-01	1.9E-01	<1%	
				TOT	TOTALS	1E-03	2E-03	4E-03	5E+00	3E+01	4E+01	
	Honeywell Facility South Exposure Area	1,1,2,2-TETRACHLOROETHANE	Max. Det.	1.2	3.5E-06	1.4E-05	1.8E-05	1%	1.6E-03		1.6E-03	<1%
1,1-DICHLOROETHANE		UCL	29	2.4E-06	9.7E-06	1.2E-05	1%	4.0E-03		4.0E-03	<1%	
1,1-DICHLOROETHENE		UCL	2.9					1.6E-03	6.8E-03	8.5E-03	<1%	
1,2,4-TRIMETHYLBENZENE		UCL	16						1.1E+00	1.1E+00	5%	
1,4-DICHLOROBENZENE		UCL	0.35	2.9E-08	8.0E-07	8.2E-07	<1%	1.4E-04	2.1E-04	3.5E-04	<1%	
1,4-DIOXANE		Max. Det.	1.2	1.8E-06		1.8E-06	<1%	1.1E-03		1.1E-03	<1%	
BENZENE		UCL	560	4.7E-04	9.1E-04	1.4E-03	65%	3.8E+00	8.9E+00	1.3E+01	58%	
BROMODICHLOROMETHANE		Max. Det.	3.8	3.5E-06	2.9E-05	3.2E-05	2%	5.2E-03		5.2E-03	<1%	
CHLORODIBROMOMETHANE		UCL	0.31	3.8E-07	1.7E-06	2.0E-06	<1%	4.2E-04		4.2E-04	<1%	
CHLOROFORM		UCL	0.50	2.3E-07	2.4E-06	2.6E-06	<1%	1.3E-03	2.5E-03	3.8E-03	<1%	
ETHYLBENZENE		UCL	74	1.2E-05	3.9E-05	4.9E-05	2%	2.0E-02	3.5E-02	5.7E-02	<1%	
METHYL TERT-BUTYL ETHER		UCL	130	3.5E-06	6.8E-06	1.1E-05	1%		2.1E-02	2.1E-02	<1%	
NAPHTHALENE		UCL	45		3.2E-04	3.2E-04	15%	6.2E-02	7.2E+00	7.3E+00	33%	
TETRACHLOROETHENE		UCL	0.59	4.9E-06	7.2E-07	5.4E-06	<1%	1.6E-03	1.0E-03	2.7E-03	<1%	
TRICHLOROETHENE		UCL	6.1	5.6E-07	2.5E-06	3.1E-06	<1%					
VINYL CHLORIDE	UCL	4.2	2.5E-04	1.3E-05	2.6E-04	13%	3.8E-02	2.0E-02	5.9E-02	<1%		
XYLENES, TOTAL	UCL	110					1.5E-02	5.4E-01	5.7E-01	3%		
			TOT	TOTALS	8E-04	1E-03	2E-03	4E+00	2E+01	2E+01		
Offsite PSHIA Exposure Area	1,1,2-TRICHLOROETHANE	Max. Det.	4.1	3.4E-06	1.4E-05	1.7E-05	4%	2.7E-02		2.7E-02	1%	
	1,1-DICHLOROETHANE	UCL	4.3	3.6E-07	1.4E-06	1.8E-06	<1%	5.9E-04		5.9E-04	<1%	
	1,1-DICHLOROETHENE	UCL	0.81					4.5E-04	1.9E-03	2.4E-03	<1%	
	1,2,4-TRIMETHYLBENZENE	UCL	4.6						3.1E-01	3.1E-01	6%	
	BENZENE	UCL	53	4.4E-05	8.6E-05	1.3E-04	27%	3.6E-01	8.5E-01	1.2E+00	24%	
	BENZO(A)ANTHRACENE	Max. Det.	0.12	4.1E-06		4.1E-06	1%					
	BENZO(A)PYRENE	UCL	0.12	4.1E-05		4.1E-05	9%					
	BIS(2-ETHYLHEXYL)PHTHALATE	Max. Det.	310	6.5E-05		6.5E-05	14%	4.2E-01		4.2E-01	8%	
	CHLOROFORM	UCL	0.31	1.4E-07	1.5E-06	1.7E-06	<1%	8.5E-04	1.6E-03	2.4E-03	<1%	
	ETHYLBENZENE	UCL	12	1.9E-06	6.2E-06	7.9E-06	2%	3.2E-03	5.6E-03	9.1E-03	<1%	
	METHYL TERT-BUTYL ETHER	UCL	120	3.1E-06	6.1E-06	9.6E-06	2%		1.8E-02	1.8E-02	<1%	
	METHYLENE CHLORIDE	UCL	8.5	9.4E-07	8.5E-07	1.8E-06	<1%	3.9E-03	3.9E-03	7.7E-03	<1%	
	NAPHTHALENE	UCL	18		1.3E-04	1.3E-04	28%	2.5E-02	2.9E+00	2.9E+00	58%	
	TETRACHLOROETHENE	UCL	0.59	4.9E-06	7.1E-07	5.3E-06	1%	1.6E-03	1.0E-03	2.7E-03	<1%	
	TRICHLOROETHENE	UCL	1.0	9.5E-08	4.3E-07	5.2E-07	<1%					
	VINYL CHLORIDE	UCL	0.91	5.3E-05	2.8E-06	5.7E-05	12%	8.2E-03	4.3E-03	1.3E-02	<1%	
	XYLENES, TOTAL	UCL	28					3.8E-03	1.3E-01	1.4E-01	3%	
			TOT	TOTALS	2E-04	3E-04	5E-04	9E-01	4E+00	5E+00		

TABLE 5-2
 Summary of Hypothetical Risk and Hazard Estimates for Groundwater Used as Tap Water
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

				Hypothetical Residential Exposure Scenario for Groundwater Used as Tap Water							
				Cancer— ELCR				Noncancer—HQ			
Exposure Area	COPC	Selected EPC Type	Selected EPC (µg/L)	Ingestion	Inhalation	Total	Percent Contribution	Ingestion	Inhalation	Total	Percent Contribution
Basin Fill sub-unit											
Honeywell Facility North Exposure Area	1,1-DICHLOROETHANE	UCL	6.0	5.0E-07	2.0E-06	2.5E-06	6%	8.3E-04		8.3E-04	<1%
	CHLOROFORM	UCL	0.94	4.3E-07	4.5E-06	4.9E-06	11%	2.5E-03	4.7E-03	7.2E-03	1%
	METHYL TERT-BUTYL ETHER	UCL	67	1.8E-06	3.5E-06	5.6E-06	12%		1.1E-02	1.1E-02	2%
	NAPHTHALENE	Max. Det.	2.9		2.1E-05	2.1E-05	46%	4.0E-03	4.6E-01	4.7E-01	95%
	TETRACHLOROETHENE	UCL	0.79	6.6E-06	9.7E-07	7.2E-06	16%	2.1E-03	1.4E-03	3.6E-03	1%
	TRICHLOROETHENE	UCL	7.8	7.1E-07	3.3E-06	3.9E-06	9%				
		TOT	TOTALS	1E-05	3E-05	4E-05		9E-03	5E-01	5E-01	
Honeywell Facility South Exposure Area	1,1-DICHLOROETHANE	UCL	8.1	6.8E-07	2.7E-06	3.4E-06	1%	1.1E-03		1.1E-03	<1%
	1,1-DICHLOROETHENE	UCL	16					9.1E-03	3.9E-02	4.8E-02	8%
	BENZENE	UCL	0.70	5.9E-07	1.1E-06	1.7E-06	1%	4.7E-03	1.1E-02	1.6E-02	3%
	BROMODICHLOROMETHANE	Max. Det.	0.21	1.9E-07	1.6E-06	1.8E-06	1%	2.9E-04		2.9E-04	<1%
	CHLOROFORM	Max. Det.	0.50	2.3E-07	2.4E-06	2.6E-06	1%	1.4E-03	2.5E-03	3.8E-03	1%
	ETHYLBENZENE	UCL	2.7	4.4E-07	1.4E-06	1.8E-06	1%	7.3E-04	1.3E-03	2.1E-03	<1%
	METHYL TERT-BUTYL ETHER	UCL	7.6	2.1E-07	4.0E-07	6.4E-07	<1%		1.2E-03	1.2E-03	<1%
	NAPHTHALENE	UCL	3.0		2.1E-05	2.1E-05	9%	4.1E-03	4.7E-01	4.8E-01	81%
	TETRACHLOROETHENE	UCL	1.3	1.1E-05	1.6E-06	1.2E-05	5%	3.5E-03	2.2E-03	5.8E-03	1%
	TRICHLOROETHENE	UCL	120	1.1E-05	5.0E-05	6.0E-05	25%				
VINYL CHLORIDE	UCL	2.2	1.3E-04	6.8E-06	1.4E-04	56%	2.0E-02	1.0E-02	3.0E-02	5%	
		TOT	TOTALS	2E-04	9E-05	2E-04		4E-02	5E-01	6E-01	
Offsite PSHIA Exposure Area	1,1-DICHLOROETHANE	UCL	2.8	2.3E-07	9.3E-07	1.2E-06	9%	3.8E-04		3.8E-04	1%
	1,1-DICHLOROETHENE	UCL	9.1					5.1E-03	2.2E-02	2.7E-02	99%
	TRICHLOROETHENE	UCL	22	2.0E-06	9.3E-06	1.1E-05	91%				
		TOT	TOTALS	2E-06	1E-05	1E-05		5E-03	2E-02	3E-02	
Bedrock											
Honeywell Facility North Exposure Area	CHLOROFORM	UCL	1.1	5.1E-07	5.4E-06	5.9E-06	6%	3.0E-03	5.6E-03	8.7E-03	37%
	TETRACHLOROETHENE	UCL	3.3	2.8E-05	4.0E-06	3.0E-05	30%	9.0E-03	5.8E-03	1.5E-02	63%
	TRICHLOROETHENE	UCL	130	1.1E-05	5.2E-05	6.3E-05	63%				
		TOT	TOTALS	4E-05	6E-05	1E-04		1E-02	1E-02	2E-02	
Honeywell Facility South Exposure Area	1,1-DICHLOROETHANE	UCL	5.7	4.8E-07	1.9E-06	2.4E-06	3%	7.8E-04		7.8E-04	1%
	1,1-DICHLOROETHENE	UCL	11					6.0E-03	2.6E-02	3.2E-02	31%
	BENZENE	Max. Det.	1.5	1.3E-06	2.4E-06	3.7E-06	5%	1.0E-02	2.4E-02	3.4E-02	33%
	BROMODICHLOROMETHANE	UCL	2.1	1.9E-06	1.6E-05	1.8E-05	22%	2.9E-03		2.9E-03	3%
	CHLORODIBROMOMETHANE	UCL	2.8	3.5E-06	1.6E-05	1.9E-05	24%	3.9E-03		3.9E-03	4%
	CHLOROFORM	UCL	3.7	1.7E-06	1.8E-05	2.0E-05	25%	1.0E-02	1.9E-02	2.9E-02	28%
	ETHYLBENZENE	Max. Det.	2.4	3.9E-07	1.3E-06	1.6E-06	2%	6.5E-04	1.1E-03	1.8E-03	2%
TRICHLOROETHENE	UCL	31	2.8E-06	1.3E-05	1.6E-05	20%					
		TOT	TOTALS	1E-05	7E-05	8E-05		3E-02	7E-02	1E-01	
Offsite PSHIA Exposure Area	1,1-DICHLOROETHANE	UCL	5.4	4.5E-07	1.8E-06	2.2E-06	3%	7.3E-04		7.3E-04	<1%
	1,1-DICHLOROETHENE	UCL	7.0					3.9E-03	1.7E-02	2.1E-02	2%
	CHLOROFORM	Max. Det.	2.7	1.2E-06	1.3E-05	1.4E-05	17%	7.3E-03	1.4E-02	2.1E-02	2%
	NAPHTHALENE	Max. Det.	4.9		3.5E-05	3.5E-05	42%	6.7E-03	7.8E-01	7.9E-01	94%
	TETRACHLOROETHENE	UCL	2.7	2.2E-05	3.3E-06	2.4E-05	29%	7.2E-03	4.7E-03	1.2E-02	1%
TRICHLOROETHENE	UCL	14	1.3E-06	6.0E-06	7.2E-06	9%					
		TOT	TOTALS	3E-05	6E-05	8E-05		3E-02	8E-01	8E-01	

Notes:
 COPC = chemical of potential concern
 ELCR = excess lifetime cancer risk
 EPC = exposure point concentration
 HQ = hazard quotient
 Max. Det. = maximum detection
 µg/L = microgram per liter
 UCL = upper confidence limit

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
Honeywell Facility North Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
DSV-05	4E-05	--	VC (80%)
DSV-07	3E-07	--	
P-18	5E-06	--	BNZ (36%) VC (28%) 1,1-DCA (21%) TCE (15%)
P-19	7E-06	--	BNZ (62%) 1,1-DCA (18%) ETHBNZ (15%)
P-21	1E-05	--	VC (43%) BNZ (33%) TCE (20%)
P-22	2E-06	--	BNZ (39%) 1,1-DCA (38%)
P-23	6E-07	--	
P-29	1E-07	--	
P-30	3E-08	--	
P-31	1E-08	--	
P-32	2E-06	--	TCE (91%)
P-36	2E-07	--	
P-39	8E-08	--	
P-41	3E-07	--	
P-46	6E-07	--	
PSI-079	9E-08	--	
PSI-083	7E-07	--	
PSI-092	5E-06	--	PCE (100%)
PSI-098	5E-06	--	PCE (100%)
PSI-099	2E-06	--	PCE (100%)
PSI-104	7E-06	--	PCE (83%) TCE (16%)
PSI-108	8E-07	--	
PSI-110	5E-07	--	
PSI-118	4E-07	--	
PSI-125	4E-06	--	1,1-DCA (69%) VC (31%)
PSI-128	3E-06	--	1,1-DCA (80%) VC (20%)
PSI-172	1E-05	--	TCE (99%)
PSI-179	5E-06	--	BNZ (63%) ETHBNZ (37%)
PSI-189	8E-06	--	BNZ (60%) ETHBNZ (31%)
PSI-197	2E-05	--	TCE (100%)
S2-01	4E-06	--	1,1,2-TCA (48%) PCE (28%) BNZ (12%)
S2-04	3E-07	--	
S2-06	3E-07	--	
S2-07	1E-06	--	
S2-11	7E-06	--	BNZ (62%) 1,1-DCA (21%) ETHBNZ (16%)
S2-12	2E-05	--	BNZ (48%) 1,1,2,2-PCA (16%) ETHBNZ (13%)
S2-13	7E-06	--	BNZ (71%) ETHBNZ (18%)
S2-14	5E-06	--	ETHBNZ (59%) PCE (36%)
S2-15	6E-08	--	
S2-25	2E-08	--	
S3-05	2E-06	--	ETHBNZ (40%) BNZ (36%) 1,1-DCA (24%)
S3-06	2E-06	--	BNZ (100%)
S3-07	5E-07	--	
S3-08	4E-08	--	
SG-01	3E-08	--	
SG-02	3E-09	--	
SG-03	3E-08	--	
SG-04	4E-07	--	
SG-05	8E-08	--	
SG-06	4E-08	--	
SG-07	1E-07	--	
SG-08	2E-07	--	
SG-09	3E-09	--	
SG-10	6E-09	--	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SG-31	2E-08	--	
SG-32	8E-09	--	
SG-33	3E-07	--	
SG-34	2E-08	--	
SG-36	3E-09	--	
SG-37	2E-07	--	
SG-38	6E-08	--	
SG-39	4E-07	--	
SG-39A	1E-07	--	
SG-39B	3E-09	--	
SG-40	5E-07	--	
SG-40A	5E-07	--	
SG-40B	7E-06	--	TCE (49%) 1,1-DCA (47%)
SG-40C	2E-07	--	
SG-40D	5E-07	--	
SG-40F	5E-07	--	
SG-40G	3E-07	--	
SG-40H	1E-07	--	
SG-40I	3E-10	--	
SG-40J	8E-08	--	
SG-40K	3E-07	--	
SG-40L	1E-07	--	
SG-40M	1E-08	--	
SG-41	3E-08	--	
SG-42	2E-07	--	
SG-43	3E-08	--	
SG-44	2E-08	--	
SG-45	2E-06	--	TCE (86%) CLFM (11%)
SG-45A	7E-07	--	
SG-45B	8E-07	--	
SG-45C	2E-06	--	TCE (88%) PCE (12%)
SG-45D	4E-06	--	TCE (94%)
SG-45E	3E-06	--	TCE (93%)
SG-45F	3E-06	--	TCE (100%)
SG-45G	3E-06	--	TCE (100%)
SG-45H	5E-06	--	TCE (95%)
SG-45I	2E-06	--	TCE (91%)
SG-45J	6E-07	--	
SG-45K	1E-06	--	
SG-45L	1E-07	--	
SG-45M	5E-08	--	
SG-46	6E-08	--	
SMW-2	3E-07	--	
SMW-3	8E-08	--	
SMW-4	4E-07	--	
SMW-6	2E-07	--	
Honeywell Facility North Exposure Area – Industrial Exposure Scenario – Non-cancer (HI)			
DSV-05	--	1E+00	
DSV-07	--	2E-02	
P-18	--	2E-01	
P-19	--	8E-01	
P-21	--	2E-01	
P-22	--	9E-02	
P-23	--	5E-03	
P-29	--	2E-03	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
P-30	--	3E-02	
P-31	--	8E-04	
P-32	--	9E-04	
P-36	--	4E-03	
P-39	--	5E-04	
P-41	--	4E-04	
P-46	--	3E-02	
PSI-079	--	2E-03	
PSI-090	--	5E-05	
PSI-092	--	1E-02	
PSI-094	--	3E-04	
PSI-097	--	2E-04	
PSI-098	--	9E-03	
PSI-099	--	3E-03	
PSI-104	--	1E-02	
PSI-106	--	5E-04	
PSI-108	--	2E-03	
PSI-110	--	1E-03	
PSI-118	--	9E-02	
PSI-119	--	6E-05	
PSI-125	--	1E-02	
PSI-128	--	5E-03	
PSI-155	--	6E-05	
PSI-172	--	4E-03	
PSI-179	--	6E-02	
PSI-184	--	4E-05	
PSI-189	--	7E-02	
PSI-194	--	3E-04	
PSI-197	--	7E-03	
S2-01	--	2E-02	
S2-04	--	7E-04	
S2-05	--	2E-05	
S2-06	--	9E-04	
S2-07	--	3E-03	
S2-09	--	1E-05	
S2-10	--	7E-06	
S2-11	--	6E-02	
S2-12	--	2E-01	
S2-13	--	7E-02	
S2-14	--	2E-02	
S2-15	--	2E-03	
S2-21	--	1E-04	
S2-25	--	5E-04	
S3-04	--	5E-05	
S3-05	--	2E-02	
S3-06	--	2E-02	
S3-07	--	5E-03	
S3-08	--	8E-04	
S3-09	--	7E-06	
S3-11	--	4E-05	
S5-01	--	4E-04	
S5-02	--	3E-04	
SG-01	--	4E-05	
SG-02	--	5E-06	
SG-03	--	4E-05	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SG-04	--	5E-04	
SG-05	--	1E-04	
SG-06	--	8E-05	
SG-07	--	1E-04	
SG-08	--	5E-04	
SG-09	--	6E-06	
SG-10	--	1E-05	
SG-31	--	4E-05	
SG-32	--	1E-05	
SG-33	--	3E-04	
SG-34	--	4E-05	
SG-35	--	1E-07	
SG-36	--	5E-06	
SG-37	--	2E-05	
SG-38	--	1E-05	
SG-39	--	6E-05	
SG-39A	--	2E-05	
SG-39B	--	4E-06	
SG-40	--	1E-04	
SG-40A	--	1E-03	
SG-40B	--	7E-04	
SG-40C	--	3E-04	
SG-40D	--	1E-04	
SG-40E	--	2E-02	
SG-40F	--	7E-04	
SG-40G	--	1E-02	
SG-40H	--	2E-03	
SG-40I	--	1E-06	
SG-40J	--	2E-02	
SG-40K	--	6E-04	
SG-40L	--	2E-03	
SG-40M	--	2E-05	
SG-41	--	1E-05	
SG-42	--	3E-05	
SG-43	--	2E-06	
SG-44	--	3E-07	
SG-45	--	5E-04	
SG-45A	--	3E-04	
SG-45B	--	4E-04	
SG-45C	--	2E-03	
SG-45D	--	2E-03	
SG-45E	--	2E-03	
SG-45F	--	8E-04	
SG-45G	--	7E-04	
SG-45H	--	9E-04	
SG-45I	--	4E-04	
SG-45J	--	2E-04	
SG-45K	--	4E-05	
SG-45L	--	3E-07	
SG-45M	--	1E-05	
SG-46	--	1E-05	
SMW-2	--	1E-02	
SMW-3	--	7E-03	
SMW-4	--	1E-03	
SMW-6	--	9E-01	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
Honeywell Facility South Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
DSV-04	8E-08	--	
DSV-1	4E-05	--	1,1-DCA (73%) TCE (22%)
DSV-2	3E-04	--	1,2-DCA (52%) 1,1-DCA (41%)
DSV-3	4E-05	--	1,1-DCA (74%) TCE (17%)
P-05	7E-08	--	
P-07	2E-07	--	
P-08	1E-06	--	
P-09	2E-06	--	1,2-DCA (90%)
P-1	7E-06	--	BNZ (68%) VC (17%)
P-10	2E-08	--	
P-11	2E-07	--	
P-12	1E-07	--	
P-13	3E-08	--	
P-14	5E-08	--	
P-15	3E-07	--	
P-16	2E-06	--	1,1-DCA (38%) VC (30%) BNZ (14%)
P-17	3E-06	--	PCE (36%) VC (20%) 1,1-DCA (19%) BNZ (15%)
P-2	4E-06	--	1,1-DCA (46%) VC (41%)
P-20	8E-06	--	1,1-DCA (35%) VC (35%) TCE (10%)
P-28	3E-06	--	NAPH (99%)
P-3	7E-06	--	BNZ (46%) VC (26%) 1,1-DCA (12%) TCE (11%)
P-33	3E-07	--	
P-34	6E-07	--	
P-35	1E-05	--	PCE (87%) TCE (12%)
P-37	2E-06	--	VC (39%) 1,1-DCA (28%) BNZ (20%)
P-38	2E-06	--	VC (34%) PCE (33%) 1,1-DCA (16%) BNZ (11%)
P-4	1E-06	--	
P-40	6E-06	--	NAPH (85%) ETHBNZ (12%)
PSI-002	4E-07	--	
PSI-014	3E-06	--	TCE (98%)
PSI-032	4E-07	--	
PSI-059	3E-06	--	ETHBNZ (100%)
PSI-074	1E-06	--	
PSI-076	9E-07	--	
PSI-089	2E-07	--	
PSI-105	5E-06	--	PCE (39%) BNZ (22%) VC (15%) 1,1-DCA (15%)
PSI-114	1E-06	--	
PSI-115	2E-05	--	PCE (82%) TCE (15%)
PSI-116	3E-06	--	PCE (79%) TCE (11%) 1,1-DCA (10%)
PSI-117	9E-08	--	
PSI-126	1E-05	--	BNZ (47%) VC (24%) 1,1-DCA (22%)
PSI-129	1E-05	--	BNZ (38%) VC (38%) 1,1-DCA (19%)
PSI-130	9E-06	--	BNZ (43%) VC (31%) 1,1-DCA (24%)
PSI-131	6E-06	--	BNZ (31%) VC (28%) PCE (20%) 1,1-DCA (19%)
PSI-132	2E-06	--	PCE (65%) VC (16%) 1,1-DCA (15%)
PSI-135	3E-07	--	
PSI-136	7E-06	--	VC (39%) PCE (33%) BNZ (15%)
PSI-137	4E-06	--	ETHBNZ (64%) 1,1-DCA (22%) VC (13%)
PSI-139	3E-06	--	ETHBNZ (63%) 1,1-DCA (21%) VC (15%)
PSI-140	9E-06	--	VC (42%) 1,1-DCA (29%) BNZ (27%)
PSI-141	4E-07	--	
PSI-142	4E-06	--	BNZ (53%) VC (25%) ETHBNZ (13%)
PSI-144	2E-07	--	
PSI-145	4E-06	--	ETHBNZ (69%) 1,1-DCA (19%) VC (12%)

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
PSI-147	2E-06	--	
PSI-148	5E-07	--	
PSI-150	2E-06	--	ETHBNZ (72%) 1,1-DCA (14%) VC (14%)
PSI-152	1E-06	--	
PSI-153	8E-07	--	
PSI-157	2E-07	--	
PSI-195	7E-06	--	BNZ (54%) VC (25%) 1,1-DCA (20%)
S1-01	4E-07	--	
S1-25	8E-08	--	
S1-30	7E-07	--	
S1-44	3E-07	--	
S1-45	9E-09	--	
S1-59	5E-08	--	
S4-04	8E-08	--	
S4-07	4E-07	--	
S4-17	3E-07	--	
S4-46	5E-07	--	
S4-49	2E-07	--	
S4-50	5E-07	--	
S4-51	2E-07	--	
SG-11	2E-06	--	1,1-DCA (48%) PCE (35%) TCE (16%)
SG-12	4E-06	--	TCE (55%) PCE (32%) 1,1-DCA (11%)
SG-12A	2E-07	--	
SG-12B	3E-06	--	PCE (55%) TCE (45%)
SG-12C	6E-06	--	TCE (95%)
SG-12D	8E-06	--	TCE (89%) PCE (11%)
SG-13	9E-06	--	TCE (50%) 1,1-DCA (32%) PCE (16%)
SG-13A	6E-06	--	TCE (72%) PCE (28%)
SG-13B	1E-05	--	TCE (88%) PCE (12%)
SG-13C	4E-06	--	TCE (71%) PCE (29%)
SG-13D	3E-06	--	TCE (75%) PCE (25%)
SG-13E	3E-06	--	TCE (70%) PCE (30%)
SG-13F	2E-06	--	TCE (66%) PCE (34%)
SG-13G	1E-06	--	
SG-13H	2E-08	--	
SG-13I	1E-07	--	
SG-13J	2E-07	--	
SG-13K	5E-07	--	
SG-14	2E-06	--	PCE (62%) 1,1-DCA (24%)
SG-14A	7E-07	--	
SG-14B	8E-07	--	
SG-15	2E-06	--	PCE (56%) 1,1-DCA (23%) TCE (15%)
SG-16	7E-09	--	
SG-17	3E-07	--	
SG-18	1E-08	--	
SG-19	2E-09	--	
SG-20	7E-08	--	
SG-21	1E-06	--	
SG-21A	2E-06	--	PCE (88%) TCE (12%)
SG-21B	6E-07	--	
SG-22	2E-06	--	1,1-DCA (41%) PCE (37%) TCE (13%)
SG-23	2E-07	--	
SG-24	1E-08	--	
SG-25	1E-06	--	
SG-25A	1E-05	--	PCE (83%) TCE (17%)

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SG-26	8E-08	--	
SG-27	9E-08	--	
SG-27A	9E-08	--	
SG-28	2E-08	--	
SG-29	8E-08	--	
SG-30	8E-09	--	
SG-47	3E-07	--	
SG-47A	4E-07	--	
SG-47B	1E-07	--	
SG-47C	7E-07	--	
SG-47D	2E-06	--	PCE (82%) TCE (18%)
SG-47E	1E-06	--	
SG-47F	2E-06	--	PCE (65%) TCE (35%)
SG-47G	4E-06	--	PCE (74%) TCE (26%)
SG-47H	3E-06	--	TCE (70%) PCE (30%)
SG-47I	2E-06	--	TCE (86%) PCE (14%)
SG-47J	2E-06	--	TCE (84%) PCE (16%)
SG-47K	3E-06	--	TCE (95%)
SG-47L	6E-06	--	TCE (97%)
SG-47M	6E-06	--	TCE (99%)
SG-47N	3E-06	--	TCE (97%)
SG-47O	2E-06	--	TCE (97%)
SG-48	8E-07	--	
SG-49	5E-07	--	
SG-50	3E-07	--	
SG-51	4E-07	--	
SG-52	4E-08	--	
SG-53	3E-08	--	
SG-54	2E-09	--	
SG-55	4E-07	--	
SG-55A	2E-07	--	
SG-55B	5E-07	--	
SG-55C	3E-07	--	
SG-55D	4E-07	--	
SG-56	1E-07	--	
SMW-7	5E-08	--	
SSG-01	4E-06	--	BNZ (54%) TCE (19%) VC (17%) ETHBNZ (11%)
SSG-02	6E-07	--	
SSG-03	2E-05	--	VC (77%) BNZ (12%)
SSG-04	2E-06	--	TCE (54%) VC (32%) ETHBNZ (11%)
SSG-05	7E-06	--	VC (66%) 1,1-DCA (22%)
SSG-06	2E-05	--	VC (75%) BNZ (12%)
SSG-07	1E-06	--	
SSG-08	4E-06	--	VC (97%)
SSG-09	2E-06	--	VC (81%) TCE (19%)
SSG-10	5E-06	--	VC (48%) TCE (38%) BNZ (11%)
SSG-11	2E-05	--	TCE (90%)
SSG-12	4E-05	--	TCE (97%)
SSG-13	9E-06	--	TCE (76%) VC (15%)
SSG-15	1E-06	--	
SSG-16	2E-06	--	TCE (52%) VC (48%)
SSG-17	4E-06	--	TCE (59%) VC (41%)
SSG-18	7E-07	--	
SSG-19	9E-07	--	
SSG-20	7E-07	--	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SSG-21	4E-06	--	VC (96%)
SSG-22	2E-06	--	VC (68%) TCE (32%)
SSG-23	8E-07	--	
SSG-24	9E-07	--	
SSG-25	1E-06	--	
SSG-26	2E-06	--	VC (98%)
SSG-27	7E-07	--	
SSG-28	5E-06	--	1,1-DCA (60%) VC (17%) CLFM (11%)
SSG-29	2E-06	--	1,1-DCA (48%) VC (42%)
SSG-30	9E-07	--	
SSG-31	4E-06	--	VC (69%) 1,1-DCA (31%)
SSG-32	2E-05	--	VC (94%)
SSG-33	3E-07	--	
SSG-34	1E-06	--	
SSG-35	8E-06	--	VC (52%) 1,1-DCA (48%)
SSG-36	3E-05	--	VC (92%)
SSG-37	1E-06	--	
SSG-38	9E-07	--	
SSG-39	1E-06	--	
SSG-40	4E-06	--	VC (88%) 1,1-DCA (10%)
SSG-42	5E-07	--	
SSG-43	7E-07	--	
SSG-44	9E-07	--	
Honeywell Facility South Exposure Area – Industrial Exposure Scenario – Non-cancer (HI)			
DSV-1	--	4E-01	
DSV-2	--	4E-01	
DSV-3	--	3E-01	
P-05	--	5E-04	
P-07	--	1E-03	
P-08	--	2E-02	
P-09	--	3E-03	
P-1	--	7E-02	
P-10	--	2E-04	
P-11	--	5E-04	
P-12	--	2E-03	
P-13	--	9E-04	
P-14	--	5E-02	
P-15	--	5E-02	
P-16	--	3E-02	
P-17	--	1E-01	
P-2	--	2E-02	
P-20	--	1E-01	
P-28	--	1E-01	
P-3	--	6E-02	
P-33	--	3E-03	
P-34	--	1E-03	
P-35	--	2E-02	
P-37	--	2E-02	
P-38	--	2E-02	
P-4	--	2E-01	
P-40	--	5E-01	
PSI-002	--	5E-04	
PSI-008	--	5E-05	
PSI-014	--	1E-03	
PSI-027	--	8E-04	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
PSI-032	--	7E-04	
PSI-059	--	4E-02	
PSI-074	--	6E-03	
PSI-076	--	4E-03	
PSI-105	--	2E-02	
PSI-107	--	5E-04	
PSI-114	--	4E-03	
PSI-115	--	4E-02	
PSI-116	--	4E-03	
PSI-126	--	8E-02	
PSI-129	--	3E-01	
PSI-130	--	7E-02	
PSI-131	--	3E-02	
PSI-132	--	5E-03	
PSI-136	--	6E-02	
PSI-137	--	9E-03	
PSI-139	--	8E-03	
PSI-140	--	5E-02	
PSI-141	--	6E-04	
PSI-142	--	3E-02	
PSI-144	--	3E-05	
PSI-145	--	8E-03	
PSI-147	--	1E-02	
PSI-148	--	4E-05	
PSI-150	--	5E-03	
PSI-152	--	9E-03	
PSI-153	--	1E-03	
PSI-157	--	3E-04	
PSI-195	--	6E-02	
S1-01	--	3E-03	
S1-13	--	5E-05	
S1-15	--	4E-05	
S1-25	--	7E-04	
S1-30	--	2E-03	
S1-39	--	2E-03	
S1-44	--	2E-03	
S1-45	--	2E-04	
S1-59	--	8E-04	
S4-04	--	1E-03	
S4-07	--	4E-03	
S4-11	--	7E-07	
S4-17	--	1E-03	
S4-46	--	4E-02	
S4-47	--	5E-03	
S4-49	--	2E-02	
S4-50	--	5E-03	
S4-53	--	2E-03	
S4-55	--	2E-03	
SG-11	--	6E-02	
SG-12	--	2E-01	
SG-12A	--	5E-02	
SG-12B	--	1E-01	
SG-12C	--	5E-03	
SG-12D	--	8E-03	
SG-13	--	3E-01	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SG-13A	--	9E-03	
SG-13B	--	9E-03	
SG-13C	--	5E-01	
SG-13D	--	4E-01	
SG-13E	--	4E-01	
SG-13F	--	2E-01	
SG-13G	--	1E-01	
SG-13H	--	3E-05	
SG-13I	--	4E-03	
SG-13J	--	3E-03	
SG-13K	--	5E-03	
SG-14	--	4E-02	
SG-14A	--	4E-02	
SG-14B	--	2E-02	
SG-15	--	5E-02	
SG-16	--	1E-05	
SG-17	--	6E-04	
SG-18	--	8E-05	
SG-19	--	8E-06	
SG-20	--	2E-04	
SG-21	--	2E-02	
SG-21A	--	6E-02	
SG-21B	--	2E-02	
SG-22	--	2E-02	
SG-23	--	1E-02	
SG-24	--	6E-04	
SG-25	--	1E-02	
SG-25A	--	2E-01	
SG-26	--	2E-04	
SG-27	--	6E-04	
SG-27A	--	4E-04	
SG-28	--	1E-04	
SG-29	--	3E-04	
SG-30	--	2E-05	
SG-47	--	2E-03	
SG-47A	--	3E-03	
SG-47B	--	2E-03	
SG-47C	--	1E-03	
SG-47D	--	6E-03	
SG-47E	--	5E-03	
SG-47F	--	1E-02	
SG-47G	--	2E-02	
SG-47H	--	3E-02	
SG-47I	--	3E-02	
SG-47J	--	2E-02	
SG-47K	--	3E-02	
SG-47L	--	6E-02	
SG-47M	--	4E-02	
SG-47N	--	3E-02	
SG-47O	--	2E-02	
SG-48	--	4E-03	
SG-49	--	3E-03	
SG-50	--	2E-03	
SG-51	--	3E-03	
SG-52	--	5E-04	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
SG-53	--	6E-04	
SG-54	--	3E-05	
SG-55	--	3E-03	
SG-55A	--	2E-03	
SG-55B	--	5E-03	
SG-55C	--	7E-03	
SG-55D	--	7E-03	
SG-56	--	5E-04	
SMW-7	--	2E-02	
SSG-01	--	3E-01	
SSG-02	--	8E-03	
SSG-03	--	5E-01	
SSG-04	--	8E-02	
SSG-05	--	8E-02	
SSG-06	--	2E-01	
SSG-07	--	2E-02	
SSG-08	--	5E-02	
SSG-09	--	3E-02	
SSG-10	--	6E-02	
SSG-11	--	1E-01	
SSG-12	--	2E-01	
SSG-13	--	1E-01	
SSG-14	--	7E-03	
SSG-15	--	2E-02	
SSG-16	--	4E-02	
SSG-17	--	7E-02	
SSG-18	--	6E-03	
SSG-19	--	7E-03	
SSG-20	--	7E-03	
SSG-21	--	6E-02	
SSG-22	--	2E-01	
SSG-23	--	3E-02	
SSG-24	--	7E-03	
SSG-25	--	8E-03	
SSG-26	--	1E-02	
SSG-27	--	8E-03	
SSG-28	--	2E-02	
SSG-29	--	1E-02	
SSG-30	--	2E-02	
SSG-31	--	2E-02	
SSG-32	--	1E-01	
SSG-33	--	2E-03	
SSG-34	--	1E-02	
SSG-35	--	4E-02	
SSG-36	--	2E-01	
SSG-37	--	1E-02	
SSG-38	--	6E-03	
SSG-39	--	1E-02	
SSG-40	--	4E-02	
SSG-41	--	2E-03	
SSG-42	--	4E-03	
SSG-43	--	1E-02	
SSG-44	--	1E-02	
Offsite PSHIA Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
P-06	4E-07	--	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
P-24	3E-06	--	BNZ (56%) 1,1-DCA (25%) VC (19%)
P-25	6E-07	--	
PMW-11	4E-08	--	
PMW-12	8E-08	--	
PMW-13	4E-08	--	
SG-57	2E-06	--	PCE (88%)
SG-58	2E-06	--	PCE (95%)
SG-59	1E-05	--	1,1-DCA (84%) PCE (14%)
SG-60	5E-07	--	
SG-61	2E-07	--	
SG-62	1E-07	--	
SG-63	3E-08	--	
SG-64	3E-08	--	
SG-65	6E-07	--	
SG-66	6E-07	--	
SG-67	6E-07	--	
SG-68	3E-07	--	
SG-69	3E-07	--	
SG-70	1E-06	--	
SG-71	1E-06	--	
SG-72	2E-06	--	TCE (70%) PCE (30%)
SG-73	2E-06	--	TCE (54%) PCE (46%)
SG-74	9E-06	--	1,1-DCA (95%)
SG-75	2E-06	--	PCE (74%) TCE (26%)
SG-76	3E-06	--	PCE (76%) TCE (24%)
SG-77	3E-06	--	PCE (65%) TCE (35%)
SG-78	3E-06	--	TCE (59%) PCE (41%)
SG-79	2E-06	--	TCE (83%) PCE (17%)
SG-80	4E-06	--	TCE (93%)
SG-81	4E-06	--	TCE (96%)
SG-82	3E-06	--	TCE (97%)
SG-83	9E-08	--	
SG-84	3E-06	--	TCE (97%)
SG-85	2E-06	--	TCE (96%)
SG-86	6E-07	--	
SG-87	1E-06	--	
SG-88	1E-06	--	
SG-89	1E-06	--	
SG-90	6E-06	--	1,1-DCA (91%)
SG-91	2E-06	--	1,1-DCA (92%)
SG-92	3E-07	--	
SG-93	7E-07	--	
SMW-10	5E-08	--	
SMW-11	9E-08	--	
SMW-12	5E-08	--	
SMW-13	6E-08	--	
SMW-14	1E-07	--	
SMW-8	8E-08	--	
SMW-9	2E-07	--	
Offsite PSHIA Exposure Area – Industrial Exposure – Non-cancer (HI)			
P-06	--	4E-03	
P-24	--	3E-02	
P-25	--	3E-03	
P-26	--	3E-03	
PMW-11	--	5E-04	

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
PMW-12	--	1E-01	
PMW-13	--	4E-03	
SG-57	--	6E-02	
SG-58	--	8E-02	
SG-59	--	1E-01	
SG-60	--	9E-02	
SG-61	--	3E-02	
SG-62	--	2E-02	
SG-63	--	2E-03	
SG-64	--	2E-04	
SG-65	--	3E-02	
SG-66	--	2E-02	
SG-67	--	1E-02	
SG-68	--	7E-03	
SG-69	--	1E-03	
SG-70	--	8E-03	
SG-71	--	1E-02	
SG-72	--	2E-02	
SG-73	--	2E-02	
SG-74	--	7E-02	
SG-75	--	6E-03	
SG-76	--	2E-02	
SG-77	--	3E-02	
SG-78	--	7E-02	
SG-79	--	4E-02	
SG-80	--	7E-02	
SG-81	--	5E-02	
SG-82	--	4E-02	
SG-83	--	2E-03	
SG-84	--	6E-02	
SG-85	--	6E-02	
SG-86	--	3E-02	
SG-87	--	8E-02	
SG-88	--	1E-01	
SG-89	--	8E-02	
SG-90	--	4E-02	
SG-91	--	3E-02	
SG-92	--	3E-02	
SG-93	--	4E-02	
SMW-10	--	1E-02	
SMW-11	--	1E-02	
SMW-12	--	8E-03	
SMW-13	--	1E-02	
SMW-14	--	4E-02	
SMW-8	--	5E-03	
SMW-9	--	1E-01	

NOTES:

ELCR = excess lifetime cancer risk

HI = hazard index

PSHIA = Phoenix Sky Harbor International Airport

-- = not applicable

1,1,2,2-PCA = 1,1,2,2-Tetrachloroethane

1,1,2-TCA = 1,1,2-Trichloroethane

1,1-DCA = 1,1-Dichloroethane

TABLE 5-3

Summary of Risk Estimates for Soil Gas-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location Cluster	ELCR	HI	Risk Drivers ⁽¹⁾
1,2-DCA = 1,2-Dichloroethane			
BNZ = Benzene			
CLFM = Chloroform			
ETHBZN = Ethylbenzene			
NAPH = Naphthalene			
PCE = Tetrachloroethene			
TCE = Trichloroethene			
VC = Vinyl Chloride			

⁽¹⁾ Risk drivers are provided for ELCRs greater than 1E-06 and HIs greater than 1E+00.

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

TABLE 5-4

Summary of Risk Estimates for Groundwater-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	ELCR	HI	Risk Drivers ⁽¹⁾
Honeywell Facility North Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
ASE-111A	1E-05	--	BNZ (92%)
ASE-115A	1E-04	--	BNZ (94%)
ASE-116A	5E-05	--	BNZ (85%) ETHBNZ (10%)
ASE-20A	2E-05	--	VC (93%)
ASE-44B	6E-08	--	
ASE-45B	2E-07	--	
ASE-48B	1E-07	--	
ASE-49B	5E-07	--	
ASE-51A	7E-06	--	BNZ (46%) NAPH (33%) ETHBNZ (16%)
ASE-52A	1E-05	--	BNZ (89%)
ASE-53A	3E-06	--	BNZ (76%) TCE (13%)
ASE-54A	6E-08	--	
ASE-56A	2E-05	--	BNZ (61%) VC (13%) ETHBNZ (12%) NAPH (11%)
ASE-57A	3E-05	--	BNZ (62%) VC (18%)
ASE-59A	4E-07	--	
ASE-66A	3E-06	--	VC (86%)
ASE-67A	2E-05	--	BNZ (95%)
ASE-68A	7E-06	--	VC (84%)
PL-102A	1E-08	--	
PL-103A	1E-06	--	
PL-2101	8E-07	--	
PL-2102	5E-08	--	
Honeywell Facility North Exposure Area – Industrial Exposure Scenario – Non-cancer (HI)			
ASE-111A	--	2E-01	
ASE-115A	--	1E+00	
ASE-116A	--	6E-01	
ASE-20A	--	2E-01	
ASE-44B	--	3E-07	
ASE-45B	--	6E-05	
ASE-48B	--	1E-04	
ASE-49B	--	6E-04	
ASE-51A	--	4E-01	
ASE-52A	--	2E-01	
ASE-53A	--	3E-02	
ASE-54A	--	8E-05	
ASE-56A	--	3E-01	
ASE-57A	--	4E-01	
ASE-59A	--	6E-04	
ASE-66A	--	3E-02	
ASE-67A	--	4E-01	
ASE-68A	--	6E-02	
PL-102A	--	2E-04	
PL-103A	--	3E-03	
PL-2101	--	5E-03	
PL-2102	--	6E-05	
Honeywell Facility South Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
ASE-108A	2E-06	--	VC (41%) NAPH (24%) BNZ (22%)
ASE-127A	2E-07	--	
ASE-130A	4E-06	--	BNZ (51%) NAPH (23%) ETHBNZ (18%)
ASE-22A	7E-07	--	
ASE-25C	8E-07	--	
ASE-26A	2E-07	--	
ASE-27A	3E-07	--	

TABLE 5-4

Summary of Risk Estimates for Groundwater-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	ELCR	HI	Risk Drivers ⁽¹⁾
ASE-37A	1E-05	--	BNZ (90%)
ASE-38A	3E-05	--	BNZ (90%)
ASE-39A	2E-05	--	BNZ (87%)
ASE-40B	5E-08	--	
ASE-41A	5E-06	--	VC (36%) BNZ (30%) NAPH (20%)
ASE-42C	5E-07	--	
ASE-46A	2E-06	--	VC (66%) 1,1-DCA (21%)
ASE-46B	1E-07	--	
ASE-55A	3E-06	--	VC (47%) NAPH (18%) 1,1-DCA (18%) BNZ (13%)
ASE-58A	1E-06	--	
ASE-62A	5E-07	--	
ASE-63A	1E-04	--	BNZ (94%)
ASE-64A	3E-05	--	BNZ (90%)
ASE-65A	9E-07	--	
ASE-83A	4E-07	--	
ASE-87A	3E-07	--	
ASE-91A	4E-06	--	BNZ (43%) VC (28%) NAPH (15%) 1,1-DCA (13%)
ASE-92A	5E-06	--	BNZ (85%)
BC-2	3E-07	--	
BC-6	1E-07	--	
BC-7A	2E-07	--	
PL-101A	1E-05	--	BNZ (55%) ETHBNZ (29%) NAPH (15%)
PL-105A	2E-06	--	VC (39%) BNZ (30%) NAPH (17%) 1,1-DCA (11%)
PL-201A	6E-07	--	
Honeywell Facility South Exposure Area – Industrial Exposure Scenario – Non-cancer (HI)			
ASE-108A	--	2E-02	
ASE-127A	--	5E-03	
ASE-130A	--	1E-01	
ASE-22A	--	2E-03	
ASE-25C	--	4E-03	
ASE-26A	--	3E-03	
ASE-27A	--	2E-04	
ASE-37A	--	2E-01	
ASE-38A	--	4E-01	
ASE-39A	--	3E-01	
ASE-40B	--	5E-04	
ASE-41A	--	8E-02	
ASE-42C	--	4E-03	
ASE-46A	--	1E-02	
ASE-46B	--	6E-04	
ASE-55A	--	3E-02	
ASE-58A	--	5E-03	
ASE-62A	--	9E-03	
ASE-63A	--	2E+00	BNZ (89%)
ASE-64A	--	4E-01	
ASE-65A	--	8E-03	
ASE-83A	--	1E-03	
ASE-87A	--	1E-03	
ASE-91A	--	6E-02	
ASE-92A	--	7E-02	

TABLE 5-4

Summary of Risk Estimates for Groundwater-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	ELCR	HI	Risk Drivers ⁽¹⁾
BC-2	--	2E-04	
BC-6	--	3E-04	
BC-7A	--	3E-03	
PL-101A	--	4E-01	
PL-105A	--	3E-02	
PL-201A	--	2E-03	
Offsite PSHIA Exposure Area – Industrial Exposure Scenario – Cancer (ELCR)			
ASE-100A	2E-07	--	
ASE-101A	3E-07	--	
ASE-102A	2E-06	--	NAPH (45%) BNZ (30%) ETHBNZ (12%)
ASE-103A	1E-07	--	
ASE-105A	9E-06	--	BNZ (81%) ETHBNZ (14%)
ASE-106A	9E-07	--	
ASE-107A	2E-06	--	BNZ (61%) NAPH (19%) ETHBNZ (16%)
ASE-109A	1E-07	--	
ASE-110A	3E-08	--	
ASE-112A	2E-05	--	BNZ (79%) ETHBNZ (15%)
ASE-113A	2E-07	--	
ASE-114A	2E-07	--	
ASE-122A	1E-07	--	
ASE-123A	6E-09	--	
ASE-124A	4E-08	--	
ASE-125A	1E-08	--	
ASE-126A	2E-07	--	
ASE-128A	9E-09	--	
ASE-129A	2E-08	--	
ASE-75A	5E-08	--	
ASE-84A	4E-07	--	
ASE-89A	1E-05	--	BNZ (82%) NAPH (12%)
ASE-90A	3E-06	--	BNZ (58%) NAPH (19%) VC (18%)
ASE-95A	2E-07	--	
ASE-96A	4E-07	--	
ASE-97A	1E-06	--	
ASE-98A	1E-08	--	
ASE-99A	4E-08	--	
BC-10A	8E-08	--	
BC-8B	4E-07	--	
PHXA-04	8E-08	--	
Offsite PSHIA Exposure Area – Industrial Exposure – Non-cancer (HI)			
ASE-100A	--	2E-03	
ASE-101A	--	4E-03	
ASE-102A	--	7E-02	
ASE-103A	--	3E-04	
ASE-105A	--	1E-01	
ASE-106A	--	1E-02	
ASE-107A	--	5E-02	
ASE-109A	--	7E-04	
ASE-110A	--	1E-04	
ASE-112A	--	3E-01	
ASE-113A	--	8E-04	
ASE-114A	--	9E-03	
ASE-122A	--	3E-03	
ASE-123A	--	4E-05	
ASE-124A	--	6E-03	

TABLE 5-4

Summary of Risk Estimates for Groundwater-to-Indoor Air
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Location ID	ELCR	HI	Risk Drivers ⁽¹⁾
ASE-125A	--	4E-05	
ASE-126A	--	4E-03	
ASE-128A	--	2E-05	
ASE-129A	--	2E-03	
ASE-75A	--	2E-03	
ASE-84A	--	2E-03	
ASE-89A	--	2E-01	
ASE-90A	--	5E-02	
ASE-95A	--	8E-04	
ASE-96A	--	3E-03	
ASE-97A	--	1E-02	
ASE-98A	--	1E-05	
ASE-99A	--	4E-03	
BC-10A	--	6E-03	
BC-8B	--	3E-03	
PHXA-04	--	8E-04	

Notes:

ELCR = excess lifetime cancer risk

HI = hazard index

PSHIA = Phoenix Sky Harbor International Airport

1,1-DCA = 1,1-Dichloroethane

BNZ = Benzene

CLFM = Chloroform

ETHBZN = Ethylbenzene

NAPH = Naphthalene

VC = Vinyl Chloride

⁽¹⁾ Risk drivers are provided for ELCRs greater than 1E-06 and HIs greater than 1.

Originator:	Benny Pataray	<i>Benny Pataray</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Michael Novak	<i>Michael Novak</i> (Signature)

Figures

Figure Index
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

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1-5	Conceptual Site Model
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6-1A	Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results
6-1B	(Figure 6-1A Inset) Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results

Figure Index
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Figure Number	Title
6-1C	(Figure 6-1A Inset) Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results
6-1D	(Figure 6-1A Inset) Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results
6-1E	(Figure 6-1A Inset) Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results
6-1F	(Figure 6-1A Inset) Sensitivity Analysis: Cancer Risk Calculations For Soil Gas to Industrial Indoor Air Based on the Reporting Limits of Non-Detect Results

Acronym List

General Acronyms

AOI	Administrative Order on Consent
BSVE	biologically enhanced soil vapor extraction
COP	City of Phoenix
CVOC	chlorinated volatile organic compound
ELCR	excess lifetime cancer risk
FHHRA	Focused Human Health Risk Assessment
FRI	Focused Remedial Investigation
EW	extraction well
LACC	large altitude cold chambers
LNAPL	light non-aqueous phase liquid
LUST	leaking underground storage tank
OU	Operable Unit
PM	project manager
PSHIA	Phoenix Sky Harbor International Airport
RSL	Regional Screening Level
SRG	Salt River Gravels
STC	senior technical consultant
TTA	target treatment area
UST	underground storage tank
VOC	volatile organic compound

Unified Soil Classification System Acronyms

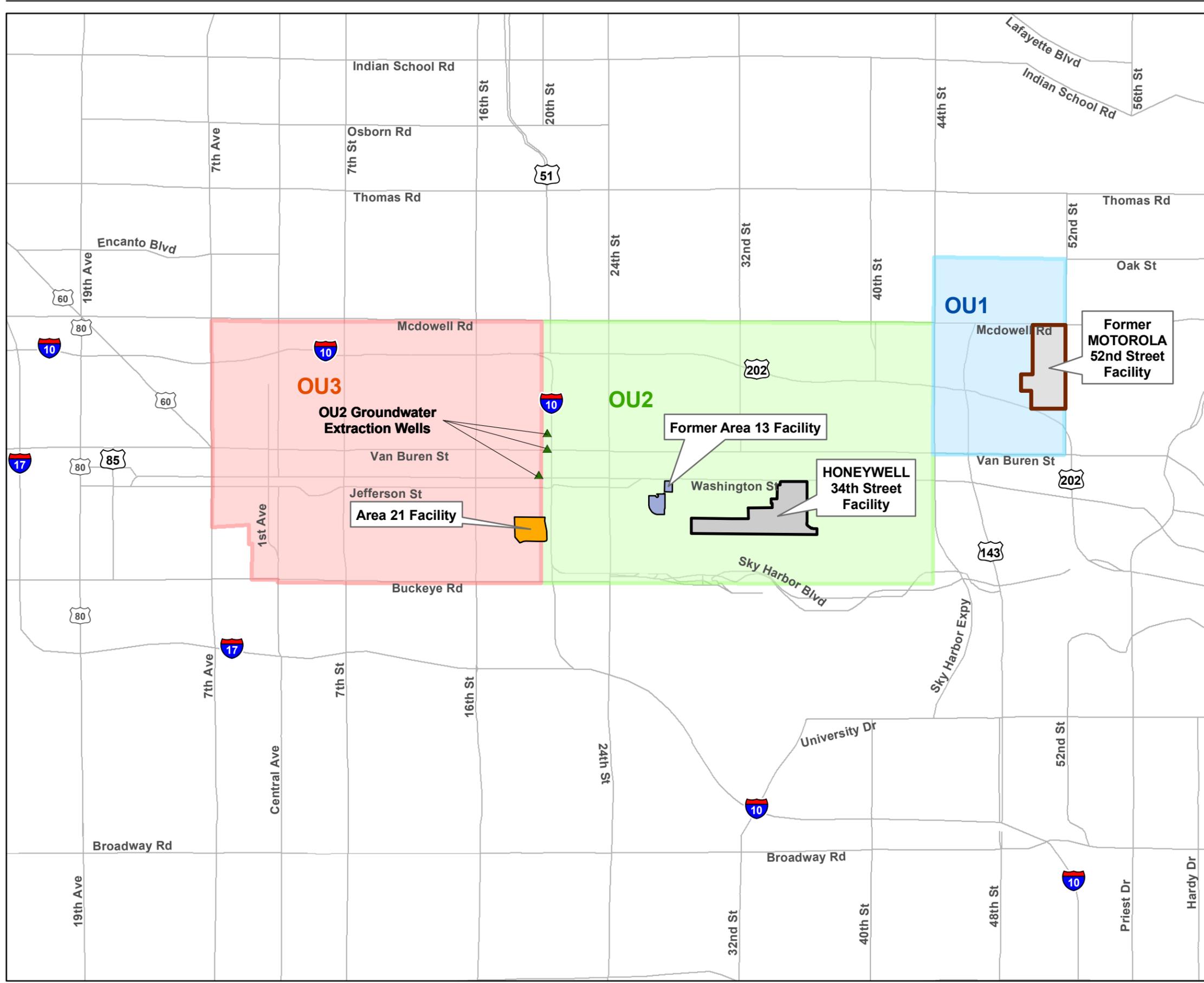
CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, lean clays
GW	Well-graded gravels or gravel-sand mixtures, little or no fines
GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
GM	Silty gravels, gravel-sand-silt mixtures
GC	Clayey gravels, gravel-sand-clay mixtures
ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity
SW	Well-graded sands or gravelly sands, little or no fines
SP	Poorly-graded sands or gravelly sands, little or no fines
SM	Silty sands, sand-silt mixtures

Acronym List

SC Clayey sands, sand-silt mixtures

Chemical Acronyms

1,1,2,2-PCA	1,1,2,2-Tetrachloroethane
1,1,2-TCA	1,1,2-Trichloroethane
1,2,4-TMB	1,2,4-Trimethylbenzene
1,1-DCA	1,1-Dichloroethane
1,2-DCA	1,2-Dichloroethane
1,3,5-TMB	1,3,5-Trimethylbenzene
BNZ	Benzene
CLFM	Chloroform
ETHBZN	Ethylbenzene
HxCBU	Hexachlorobutadiene
NAPH	Naphthalene
N-HEXANE	N-Hexane
PCE	Tetrachloroethene
TCE	Trichloroethene
VC	Vinyl Chloride



- LEGEND
- ▲ OU2 Groundwater Extraction Wells
 - Former Area 13 Facility
 - Area 21 Facility
 - Honeywell 34th Street Facility
 - Former Motorola 52nd Street Facility

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

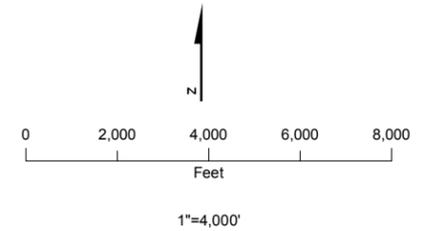
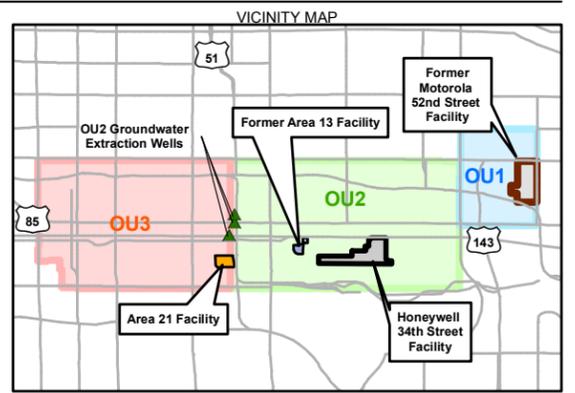
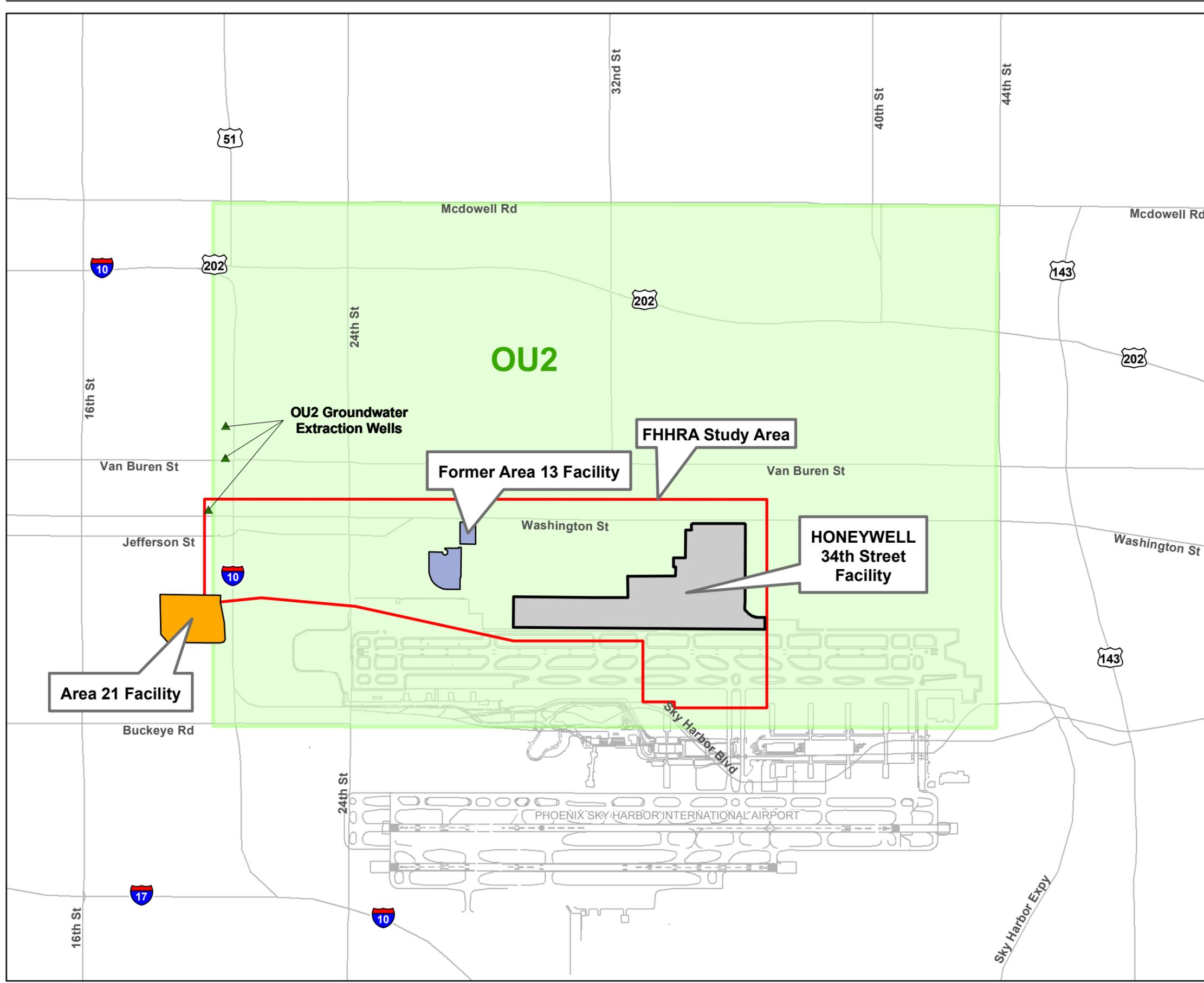


FIGURE 1-1
MOTOROLA 52ND STREET
SUPERFUND SITE
Honeywell 34th Street Facility
Phoenix, Arizona



LEGEND

- ▲ OU2 Groundwater Extraction Wells
- Former Area 13 Facility
- Area 21 Facility
- Honeywell 34th Street Facility
- FHHRA Study Area
- OU2

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

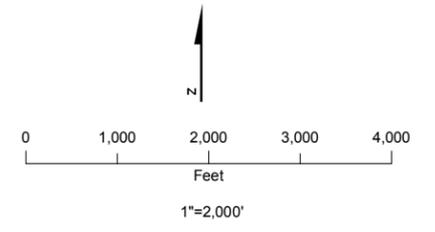
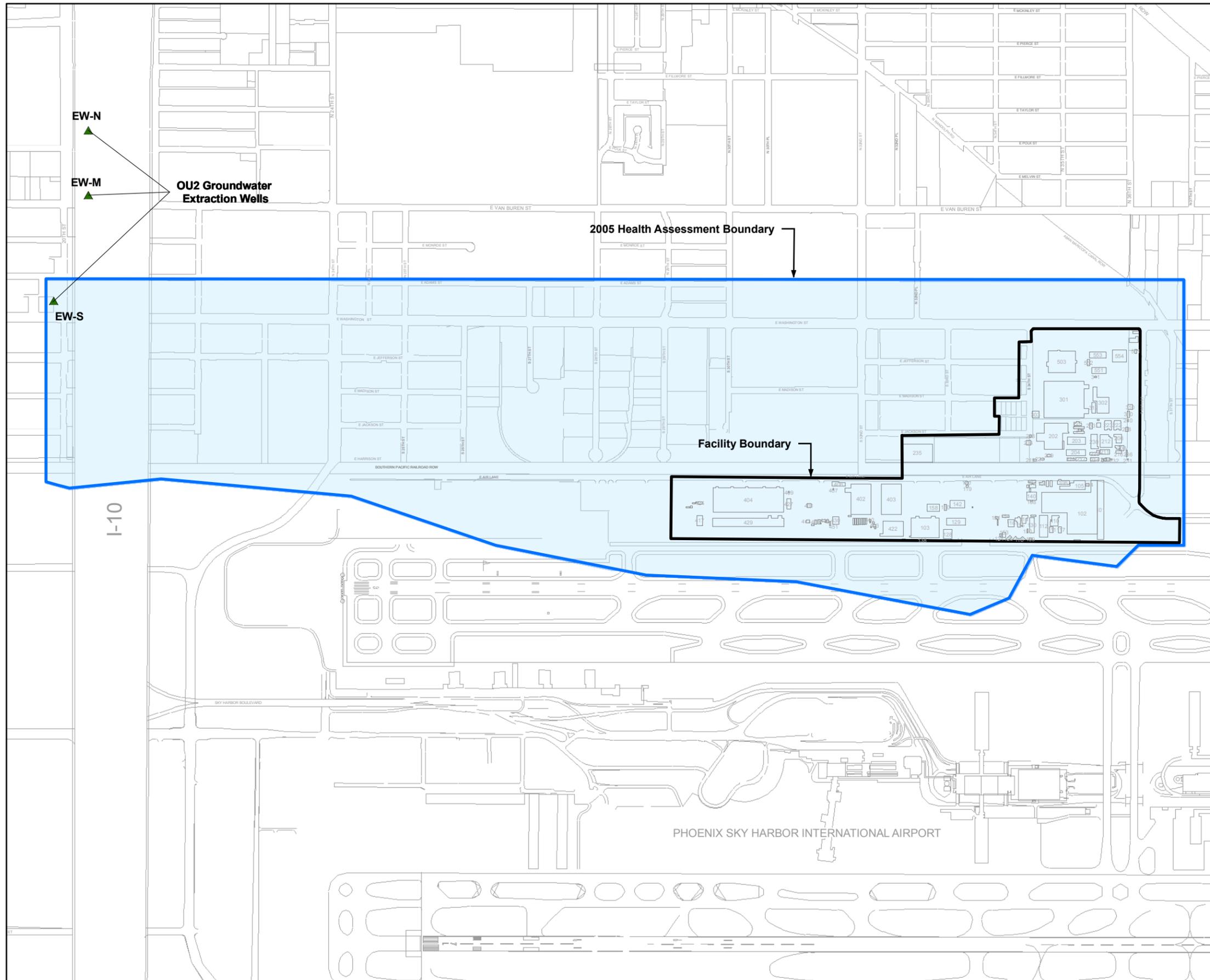


FIGURE 1-2
HONEYWELL 34TH STREET
FACILITY FHHRA STUDY AREA
WITHIN OU2
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

- ▲ OU2 Groundwater Extraction Wells
- 2005 Health Assessment Study Area
- ▭ Honeywell 34th Street Facility
- 404 Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. Source: Appendix L of the Final FRI Report (CH2M HILL, 2005b).

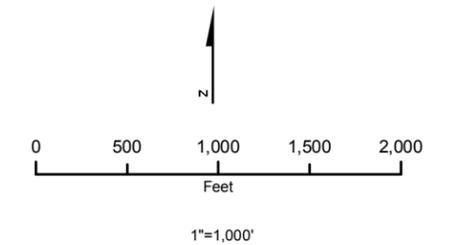
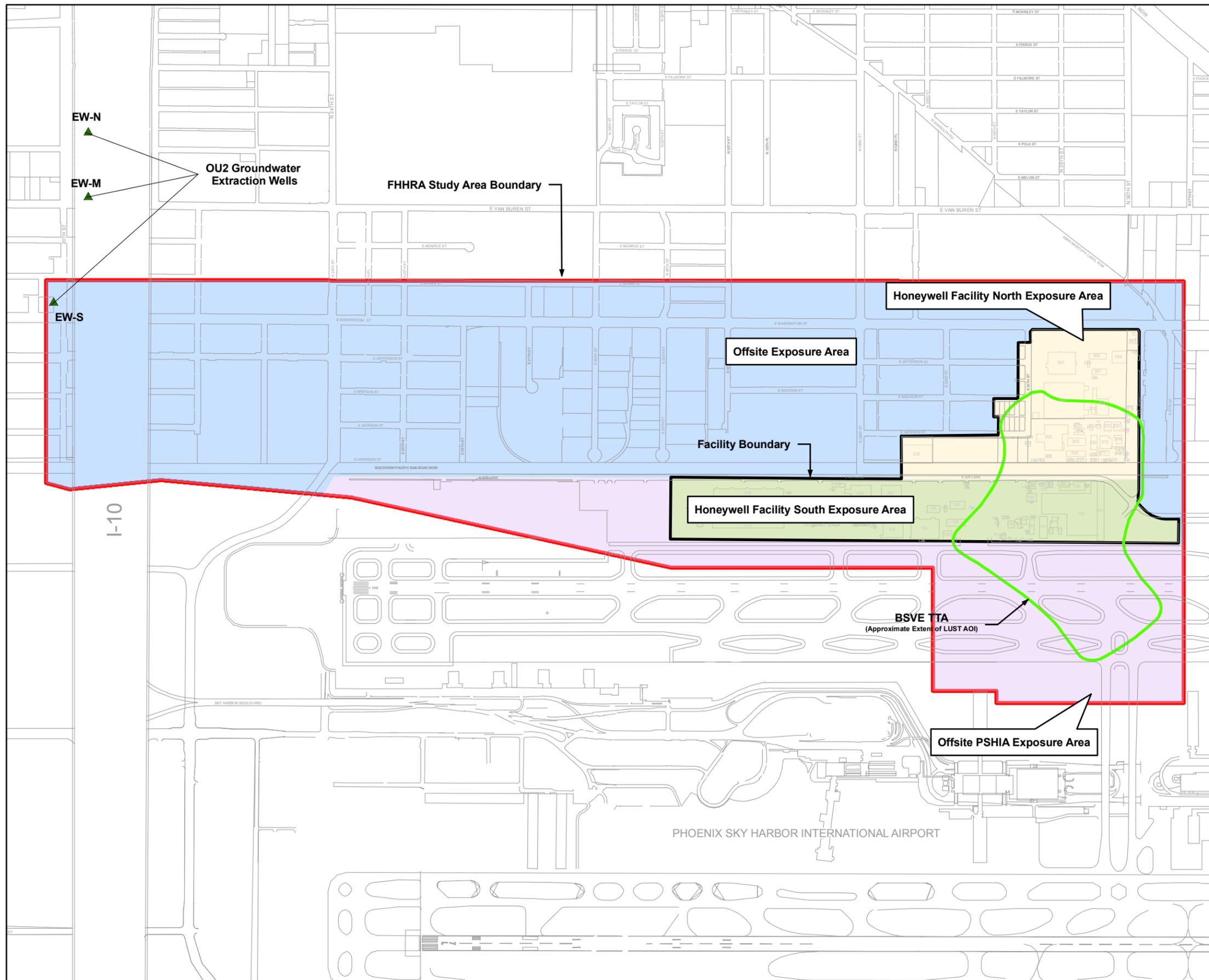


FIGURE 1-3
2005 HEALTH ASSESSMENT
STUDY AREA
 Honeywell 34th Street Facility
 Phoenix, Arizona



- LEGEND**
- ▲ OU2 Groundwater Extraction Wells
 - BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Facility North Exposure Area
 - Facility South Exposure Area
 - Offsite PSHIA Exposure Area
 - Offsite Exposure Area
 - FHHRA Study Area

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

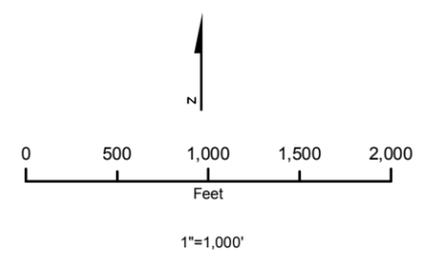
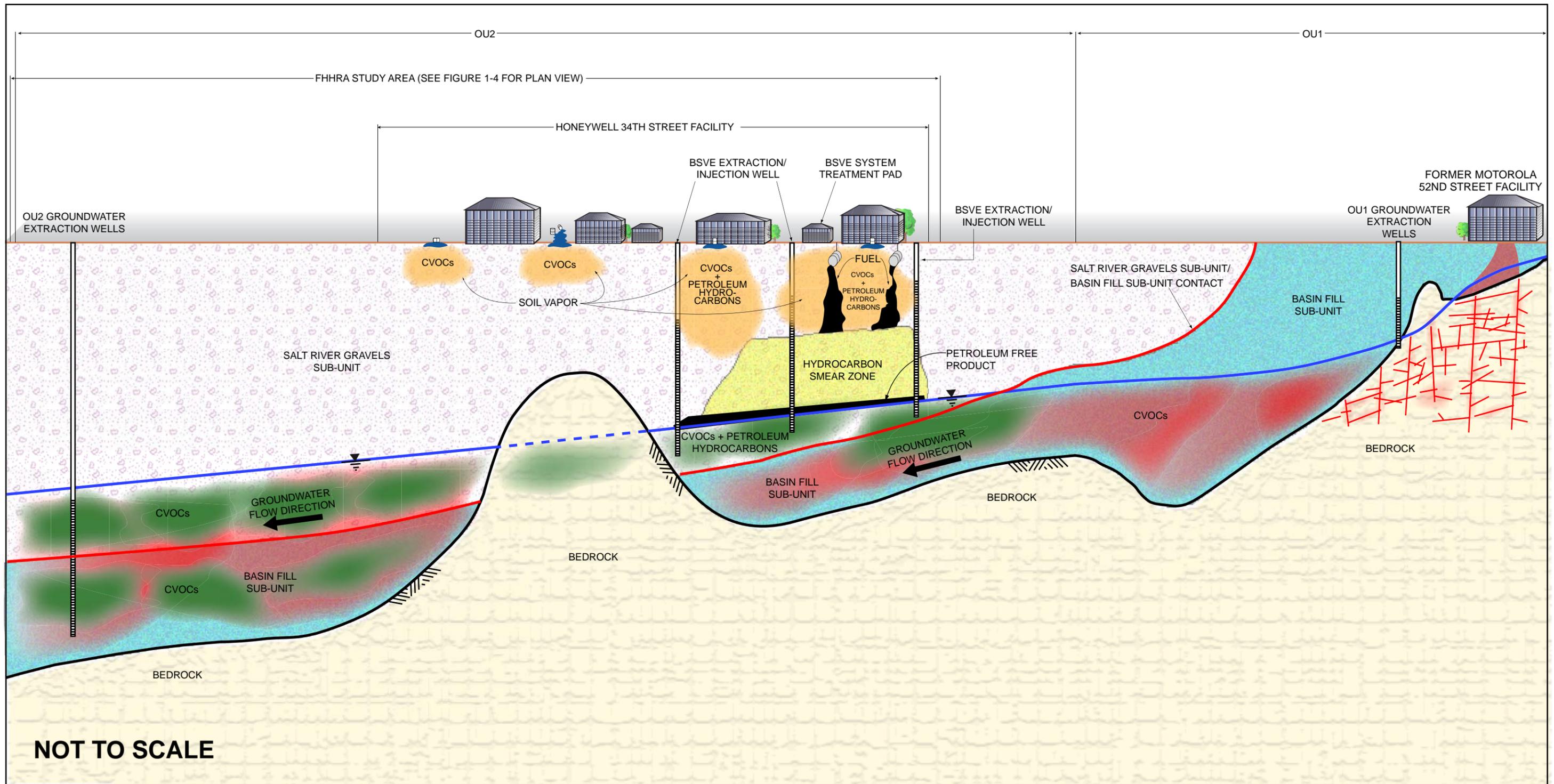


FIGURE 1-4
EXPOSURE AREAS WITHIN
HONEYWELL 34TH STREET
FHHRA STUDY AREA
Honeywell 34th Street Facility
Phoenix, Arizona



NOT TO SCALE

- NOTES:**
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. Original Conceptual Site Model was presented in Figure 6-1 of the approved Final FRI Report (CH2M HILL, 2005b) and has been modified to include the Former Motorola 52nd Street Facility, OU2 Groundwater Extraction Wells, and the BSVE system.

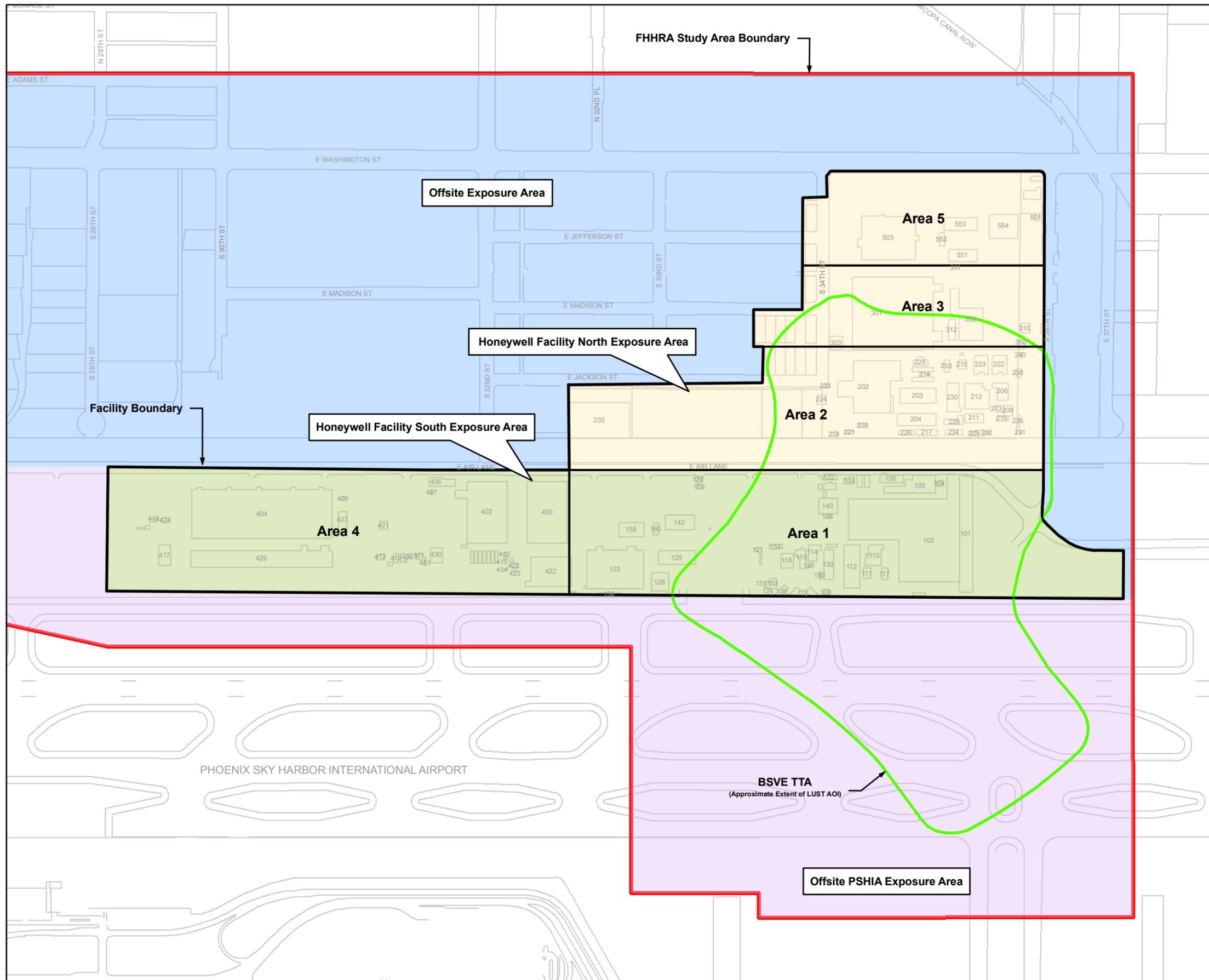
LEGEND

	SALT RIVER GRAVELS SUB-UNIT
	BASIN FILL SUB-UNIT
	BEDROCK
	PETROLEUM HYDROCARBON SMEAR ZONE
	CVOCs AND PETROLEUM HYDROCARBONS IN SOIL VAPOR
	CVOCs AND PETROLEUM HYDROCARBONS IN GROUNDWATER
	MOTOROLA PLUME

	SALT RIVER GRAVELS/BASIN FILL CONTACT
	SOLVENT (CVOCs) RELEASES
	PETROLEUM FREE PRODUCT
	GROUNDWATER TABLE

Originator: Final FRI Report (CH2M HILL, 2005b)	
Modification: Anja Schoenberger	<i>Anja Schoenberger</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Robert Frank	<i>Robert Frank</i> (Signature)

**FIGURE 1-5
CONCEPTUAL SITE MODEL**
Honeywell 34th Street Facility
Phoenix Arizona



LEGEND

- BSVE Target Treatment Area (TTA)
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- Honeywell 34th Street Facility
- Operational Area
- FHHRA Study Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Robert Frank	<i>Robert Frank</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

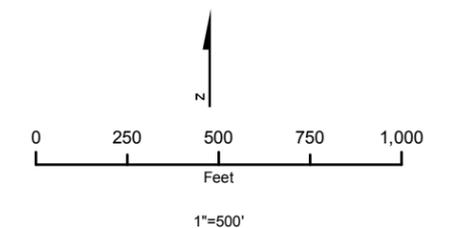
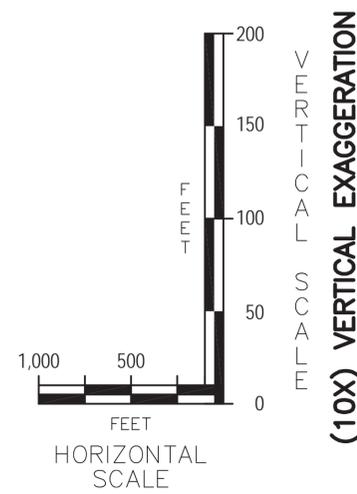
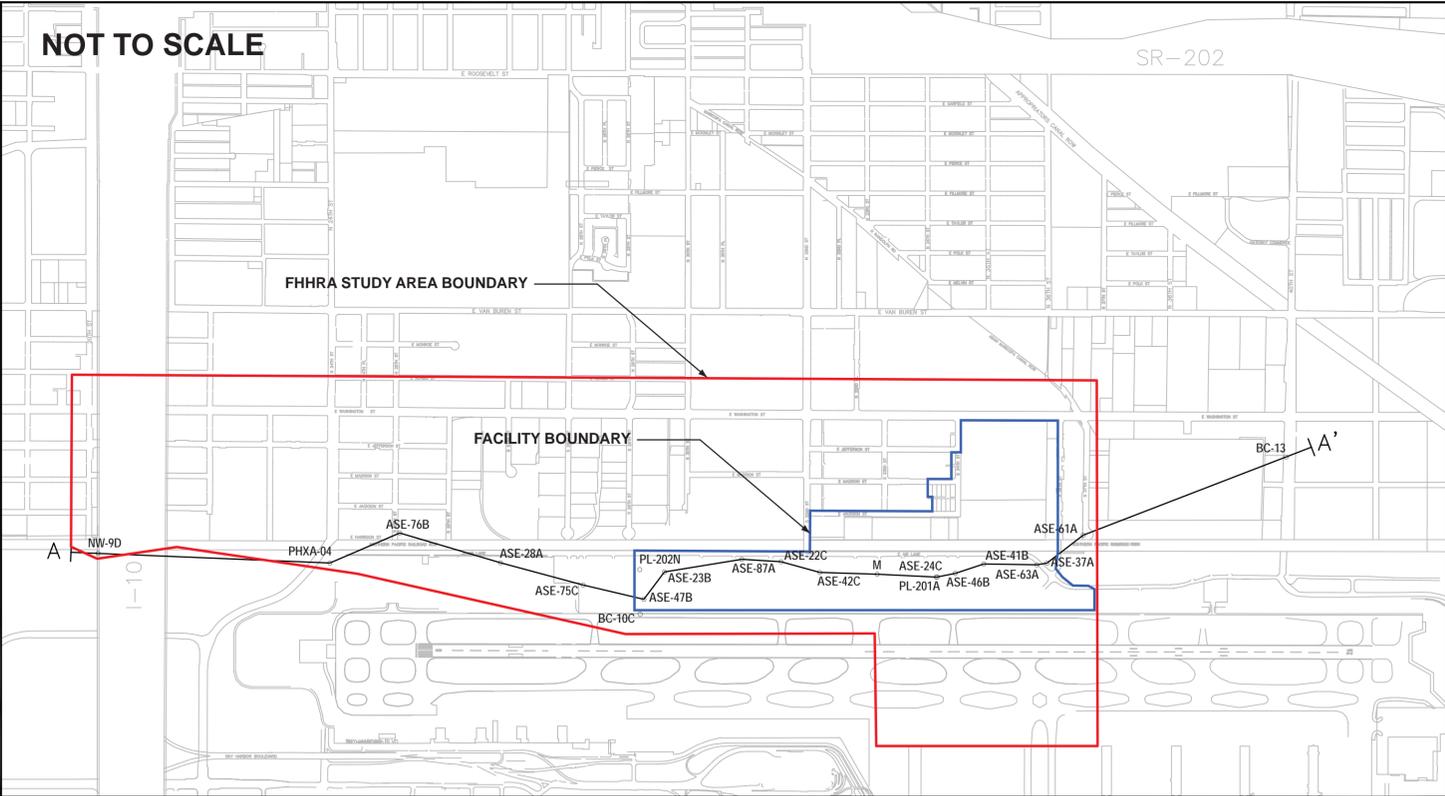
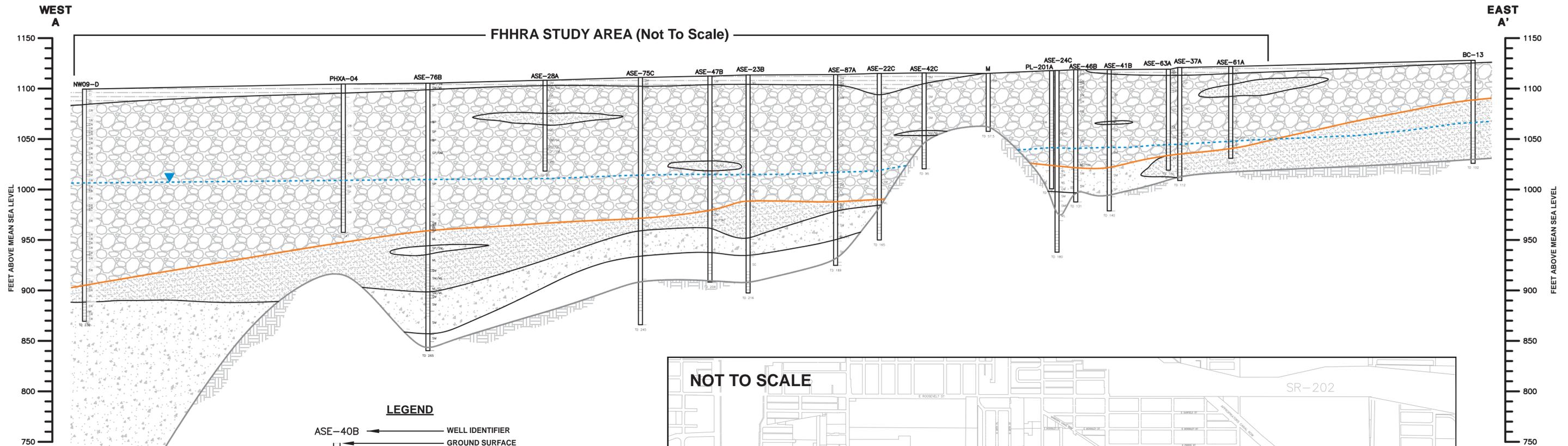


FIGURE 1-6
FACILITY LAYOUT AND
OPERATIONAL AREAS
Honeywell 34th Street Facility
Phoenix, Arizona



LEGEND

ASE-40B ← WELL IDENTIFIER
 ← GROUND SURFACE

SM ← UNIFIED SOIL CLASSIFICATION SYSTEM

← GROUNDWATER ELEVATION

← SCREENED INTERVAL
 BEDROCK GROUNDWATER CONCENTRATIONS:

SP
 BR

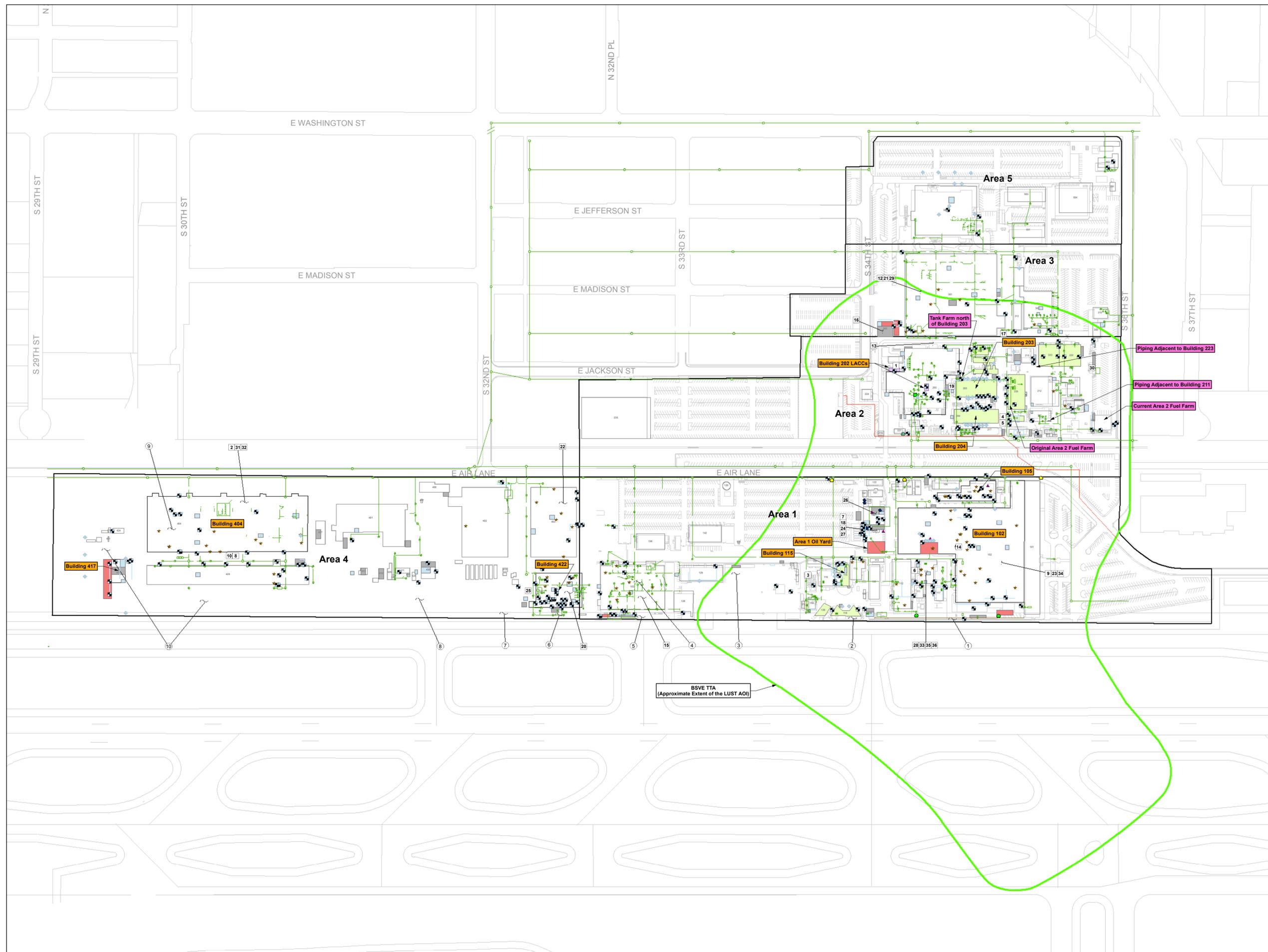
TD 140 ← TOTAL DEPTH, 140 FEET
 BELOW LAND SURFACE

- SURFACE SAND-SILT
- SALT RIVER GRAVELS SUB-UNIT
- APPROXIMATE CONTACT BETWEEN SALT RIVER GRAVELS SUB-UNIT AND BASIN FILL SUB-UNIT
- BASIN FILL SUB-UNIT (FINE GRAINED)
- BASIN FILL SUB-UNIT (COARSE GRAINED)
- BEDROCK CONTACT
- WEATHERED BEDROCK/COLLUVIUM
- BEDROCK

Notes:
 1. Refer to Figure Index for abbreviation/acronym definitions.

Originator: Final FRI Report (CH2M HILL, 2005b)	
Modification: Anja Schoenberger	<i>Anja Schoenberger</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Robert Frank	<i>Robert Frank</i> (Signature)

FIGURE 1-7
LITHOLOGIC CROSS SECTION
 Honeywell 34th Street Facility
 Phoenix Arizona



- LEGEND**
- ☒ Sumps, Interceptors, Pits, Tanks, Pump Stations, Utility Vaults, & Stormwater Drains
 - ⊕ Issue Drywells
 - Trenches
 - ☐ Potential and Known Ground Disposal Areas
 - ⊙ Accidental Releases
 - Dirty Solvent Waste Oil Tank
 - Pre-Cooling System-Extraction Wells
 - Pre-Cooling System-Injection Wells
 - ▲ Recycling Stills
 - Return Well
 - Aboveground Storage Tanks
 - TCE Supply Tank
 - ★ Vapor Degreasers
 - Oleander Ditch
 - Sewer Lines
 - Dutch Ditch
 - Chemical Storage Areas
 - Chip Storage Areas
 - Large Altitude Cold Chambers (LACC)
 - Satellite Accumulation Areas
 - Test Cells
 - ☐ Operational Area
 - ☐ Honeywell Buildings
 - 🟩 BSVE Target Treatment Area (TTA)

- Key Potential Source Areas for CVOCs as Identified in the Final FRI Report (CH2M HILL, 2005b)**
- | | |
|-----------------|--------------------------------------|
| 1. Building 102 | 7. Building 417 |
| 2. Building 105 | 8. Building 422 |
| 3. Building 115 | 9. Area 1 Oil Yard |
| 4. Building 203 | 10. Building 202 LACCs |
| 5. Building 204 | 11. Ground Disposals in Area 1 and 4 |
| 6. Building 404 | |
- Primary Source Areas for Petroleum Hydrocarbon-Related VOCs as Identified in the UST Site Characterization Report, Honeywell 34th Street Facility, Phoenix, Arizona Facility ID#0-00227 LUST File Nos. 0393.02-10 and CAP (Honeywell, 2002b; CH2M HILL, 2004a-b).**
- | |
|---|
| 1. Original Area 2 Fuel Farm (southwest corner of Building 230) |
| 2. Tank Farm north of Building 203 |
| 3. Piping Adjacent to Building 211 |
| 4. Piping Adjacent to Building 223 |
| 2. Current Area 2 Fuel Farm |

- Notes:**
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. For details pertaining to accidental releases and potential and known ground disposal areas refer to the Final FRI Report.
 3. **Orange** Call-out boxes represent the Key Potential Source Areas for CVOCs.
 4. **Pink** Call-out boxes represent the Primary Source Areas for Petroleum Hydrocarbon-Related VOCs.

Originator: Chris von Freeden	<i>Chris von Freeden</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Robert Frank	<i>Robert Frank</i> (Signature)

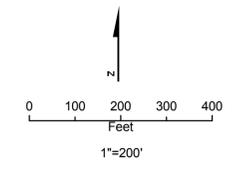
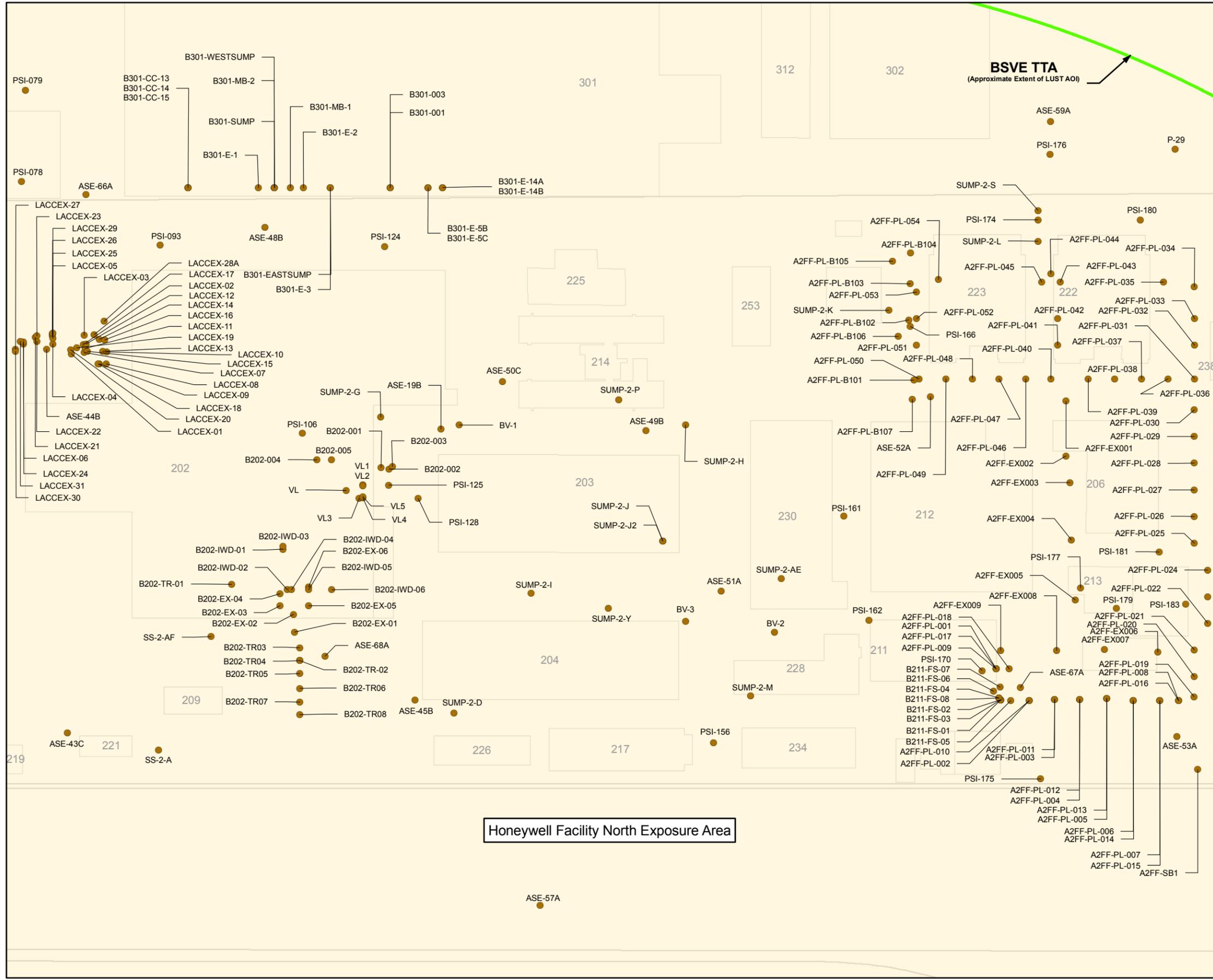


FIGURE 1-8
SUMMARY OF POTENTIAL SOURCES
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

- Soil Sample Location
- ▭ BSVE Target Treatment Area (TTA)
- ▭ Honeywell Facility North Exposure Area
- ▭ Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

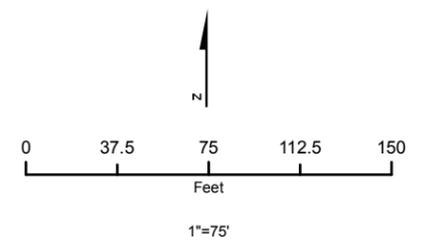
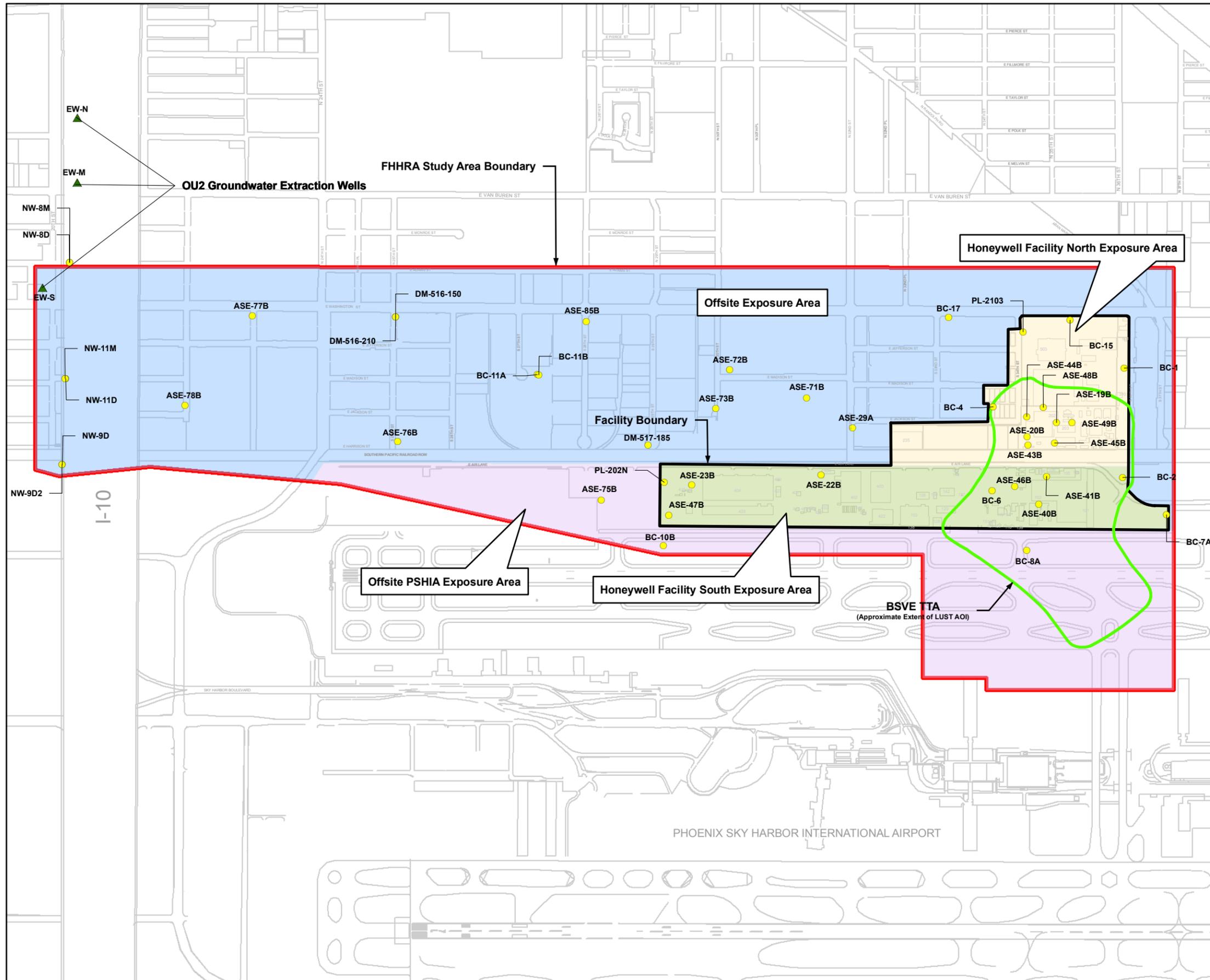


FIGURE 2-1B
(FIGURE 2-1A INSET)
SOIL SAMPLING LOCATIONS
Honeywell 34th Street Facility
Phoenix, Arizona



LEGEND

- ▲ OU2 Groundwater Extraction Wells
- Basin Fill Sub-Unit Groundwater Sampling Location
- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- FHHRA Study Area
- 404 Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. EW-S is screened across the SRG Sub-Unit, Basin Fill Sub-Unit, and Bedrock.

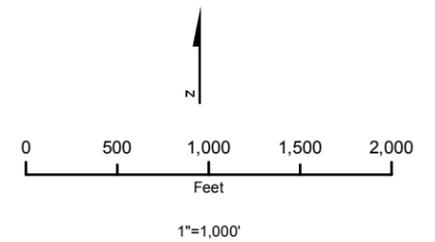
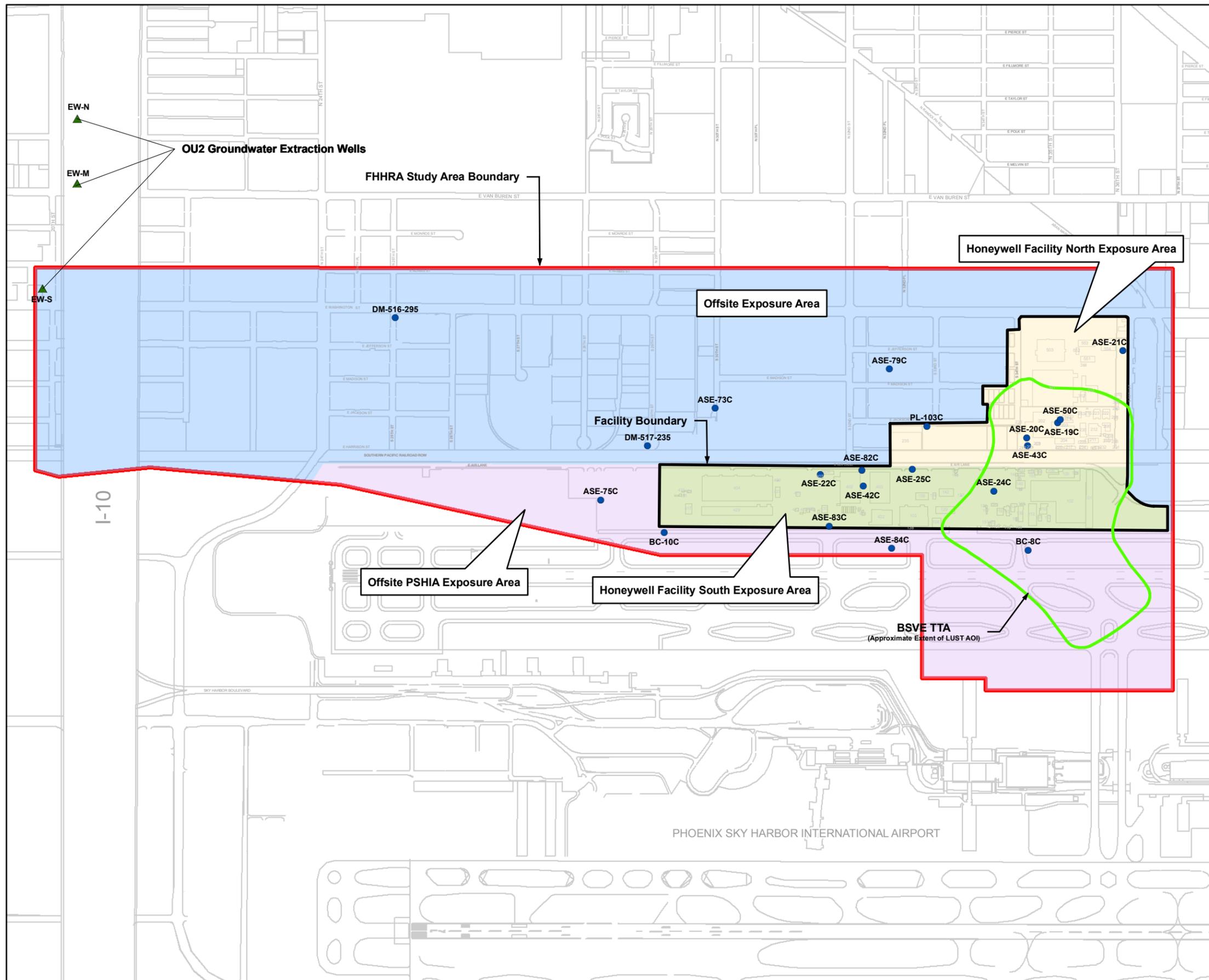


FIGURE 2-2B
BASIN FILL SUB-UNIT
GROUNDWATER SAMPLING LOCATIONS
 Honeywell 34th Street Facility
 Phoenix, Arizona

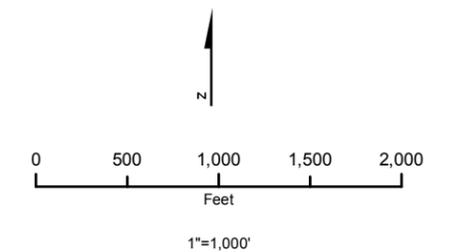


LEGEND

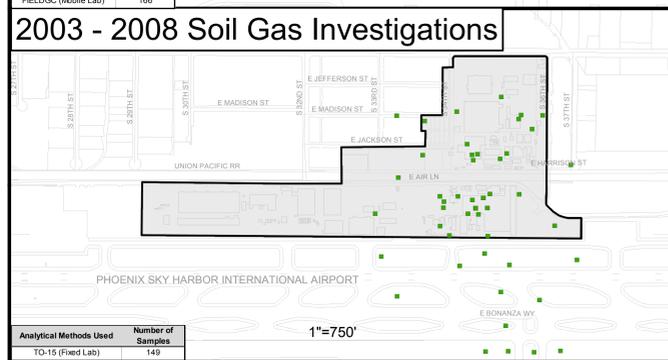
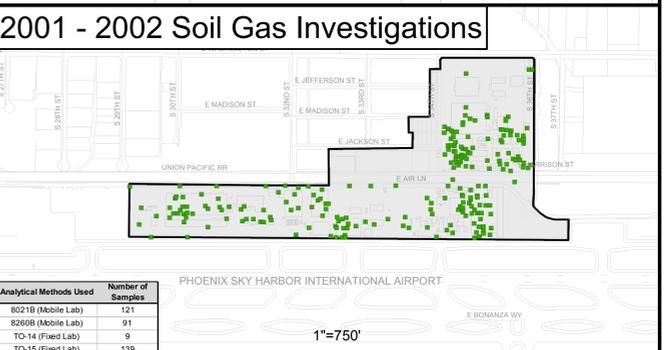
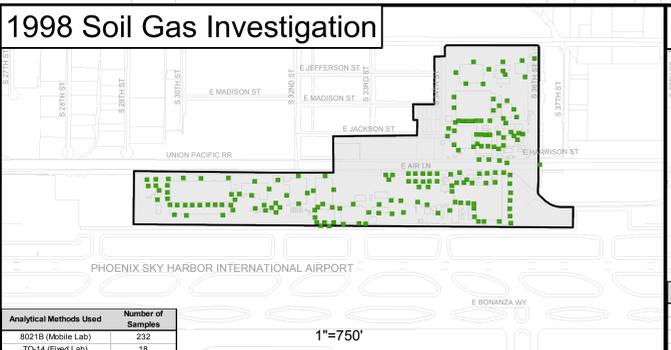
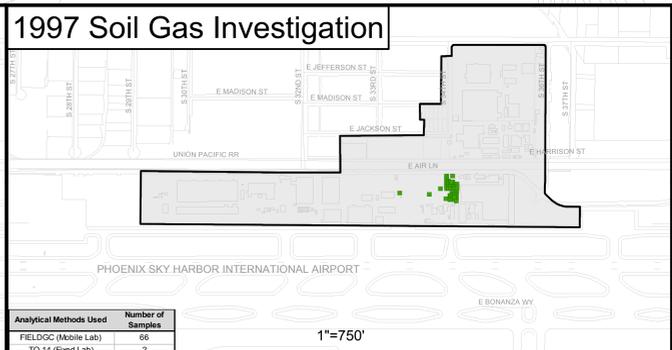
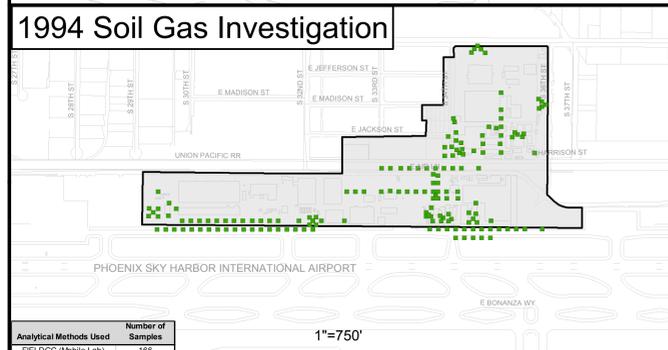
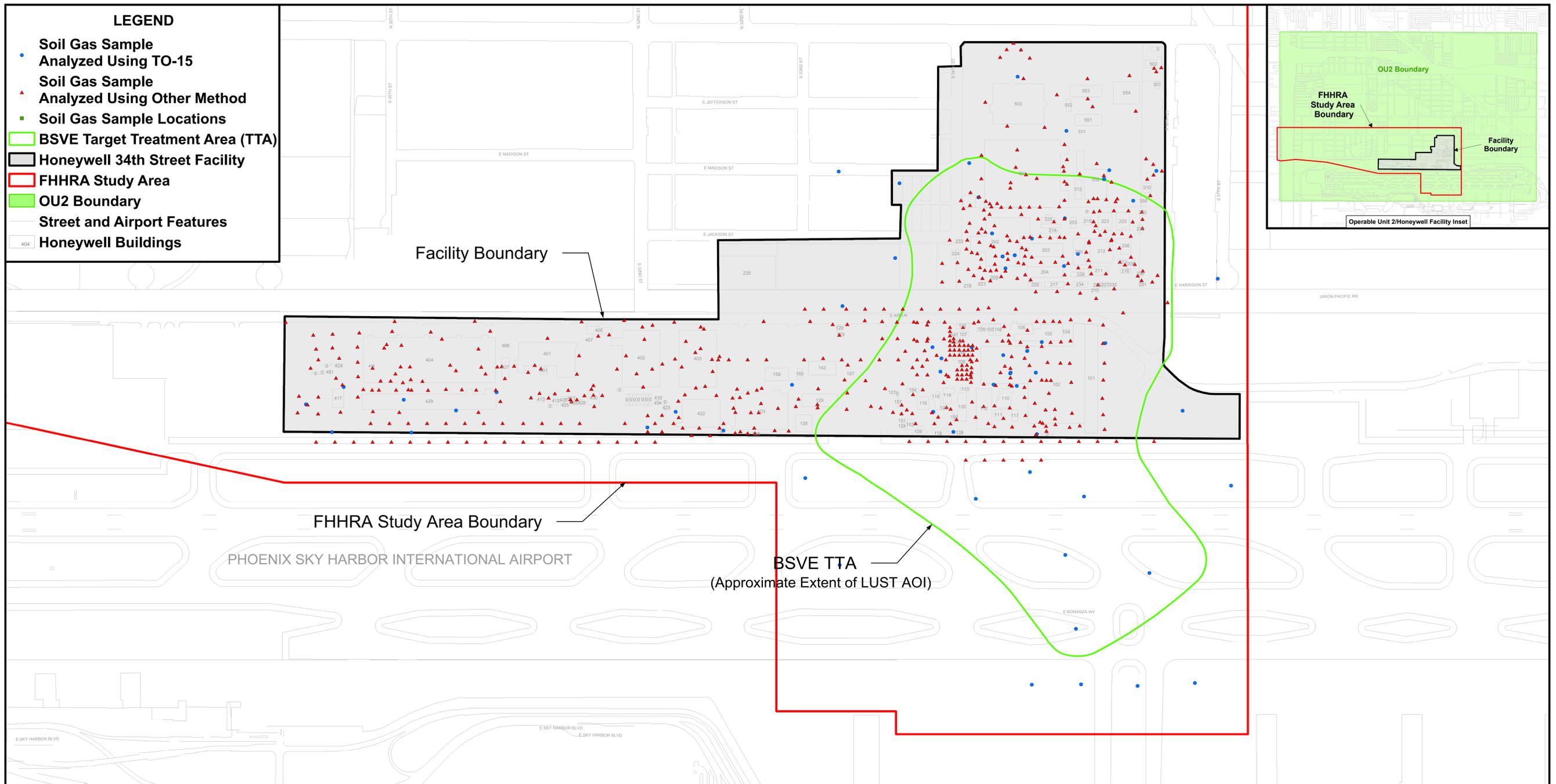
- ▲ OU2 Groundwater Extraction Wells
- Bedrock Groundwater Sampling Location
- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- FHHRA Study Area
- 404 Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. EW-S is screened across the SRG Sub-Unit, Basin Fill Sub-Unit, and Bedrock.



**FIGURE 2-2C
BEDROCK GROUNDWATER
SAMPLING LOCATIONS**
Honeywell 34th Street Facility
Phoenix, Arizona



Notes:

1. Refer to Figure Index for abbreviation/acronym definitions.
2. See the text for the data selection process used to identify the locations and samples used in the FHHRA.
3. The number of samples and number of locations presented in the inset maps do not necessarily correlate because multiple samples may have been collected at a single location (e.g., on separate dates or from multiple depths).

Originator:	Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by:	Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM:	Loren Lund	<i>Loren Lund</i> (Signature)

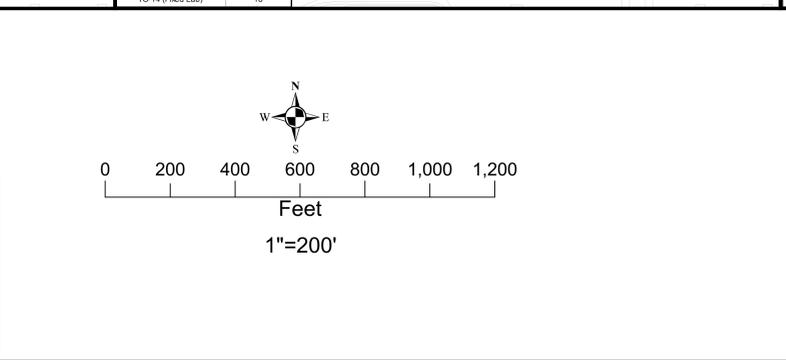
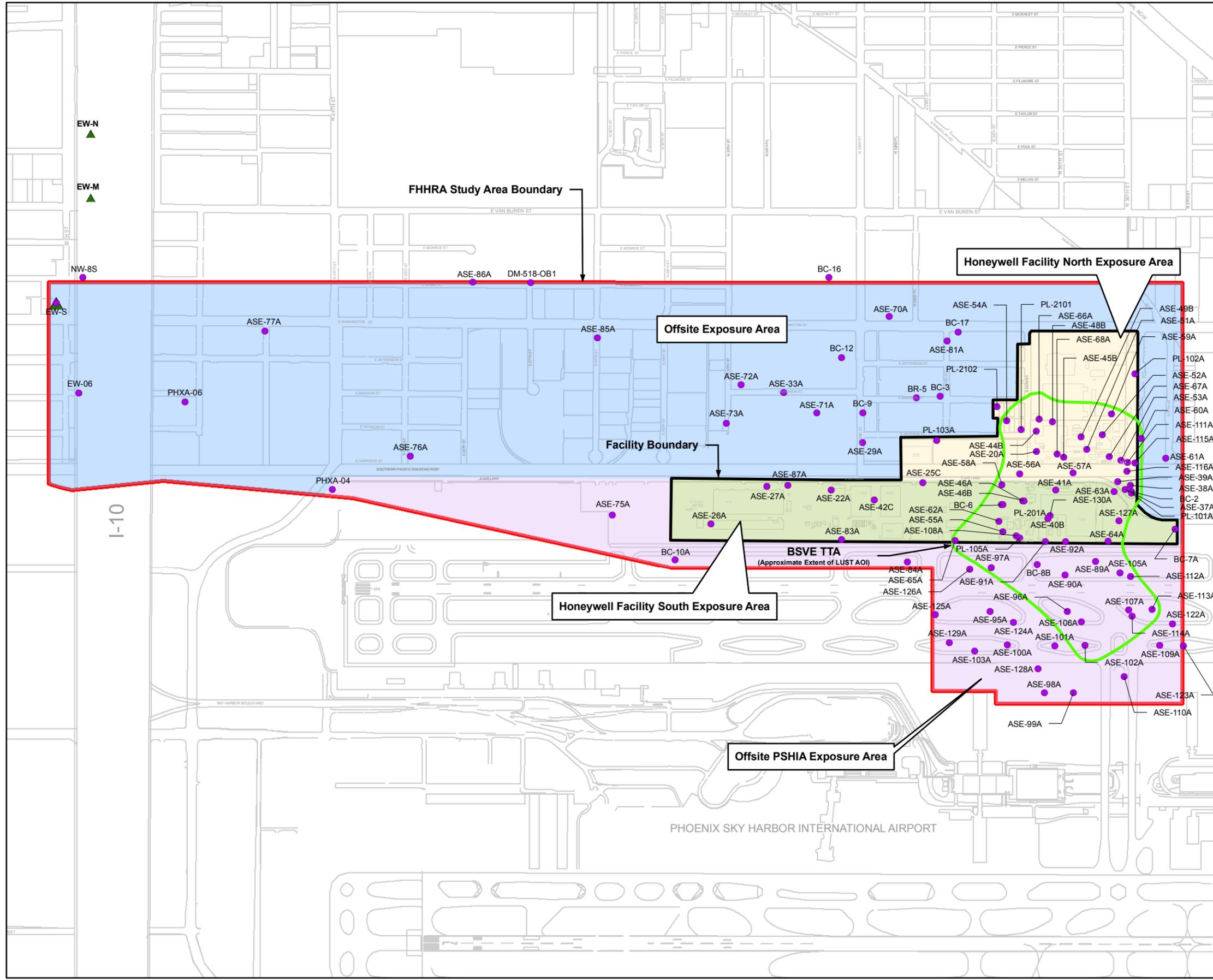


FIGURE 2-3
SOIL GAS SAMPLING LOCATIONS
Honeywell 34th Street Facility
Phoenix, Arizona



- LEGEND**
- ▲ OU2 Groundwater Extraction Wells
 - Groundwater Sampling Location
 - BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Honeywell Facility North Exposure Area
 - Honeywell Facility South Exposure Area
 - Offsite PSHIA Exposure Area
 - Offsite Exposure Area
 - FHHRA Study Area
 - 404 Honeywell Buildings
 - Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.

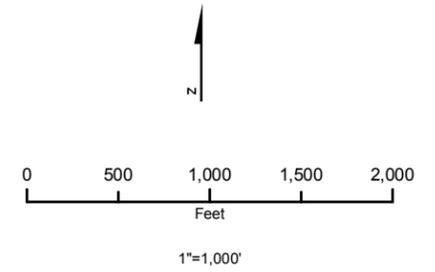
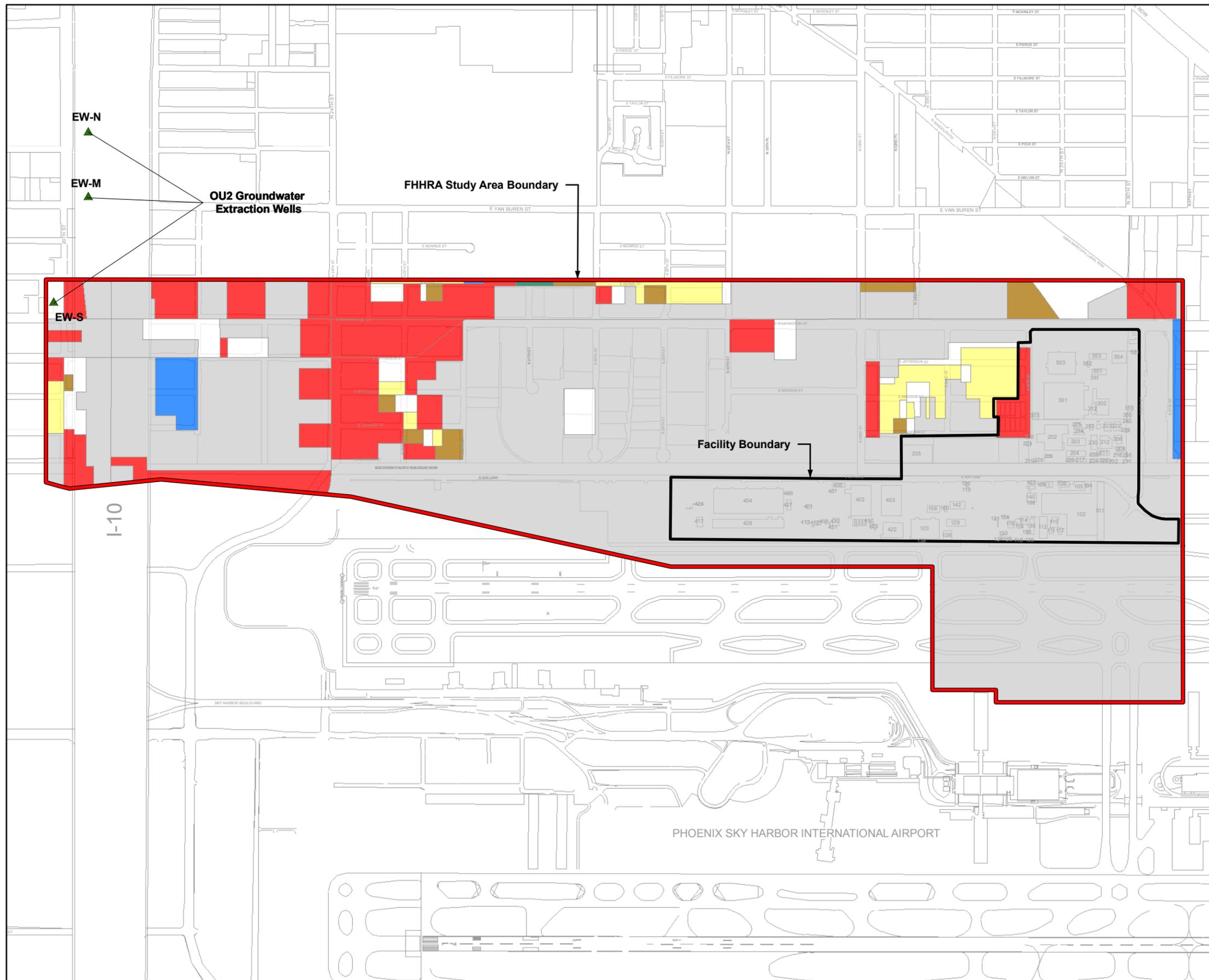


FIGURE 2-4
GROUNDWATER SAMPLING LOCATIONS
USED IN VAPOR INTRUSION EVALUATION
Honeywell 34th Street Facility
Phoenix, Arizona



- LEGEND**
- ▲ OU2 Groundwater Extraction Wells
 - Street and Airport Features
 - ▭ FHHRA Study Area
 - ▭ Honeywell 34th Street Facility
 - 404 Honeywell Buildings
 - Existing Land Use**
 - Single Family
 - Multi-Family Residential
 - Commercial
 - Public Facility
 - Industrial
 - Open Space
 - Vacant

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. Land use information presented on this figure was obtained from the City of Phoenix General Plan adopted by the City Council Resolution on December 5, 2001 in accordance with action taken at its final public hearing on November 7, 2001 (COP, 2002).

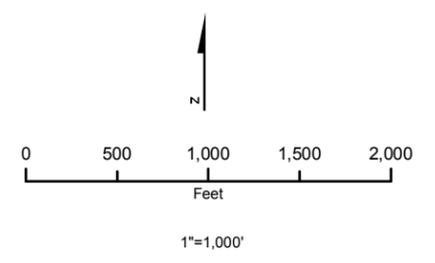
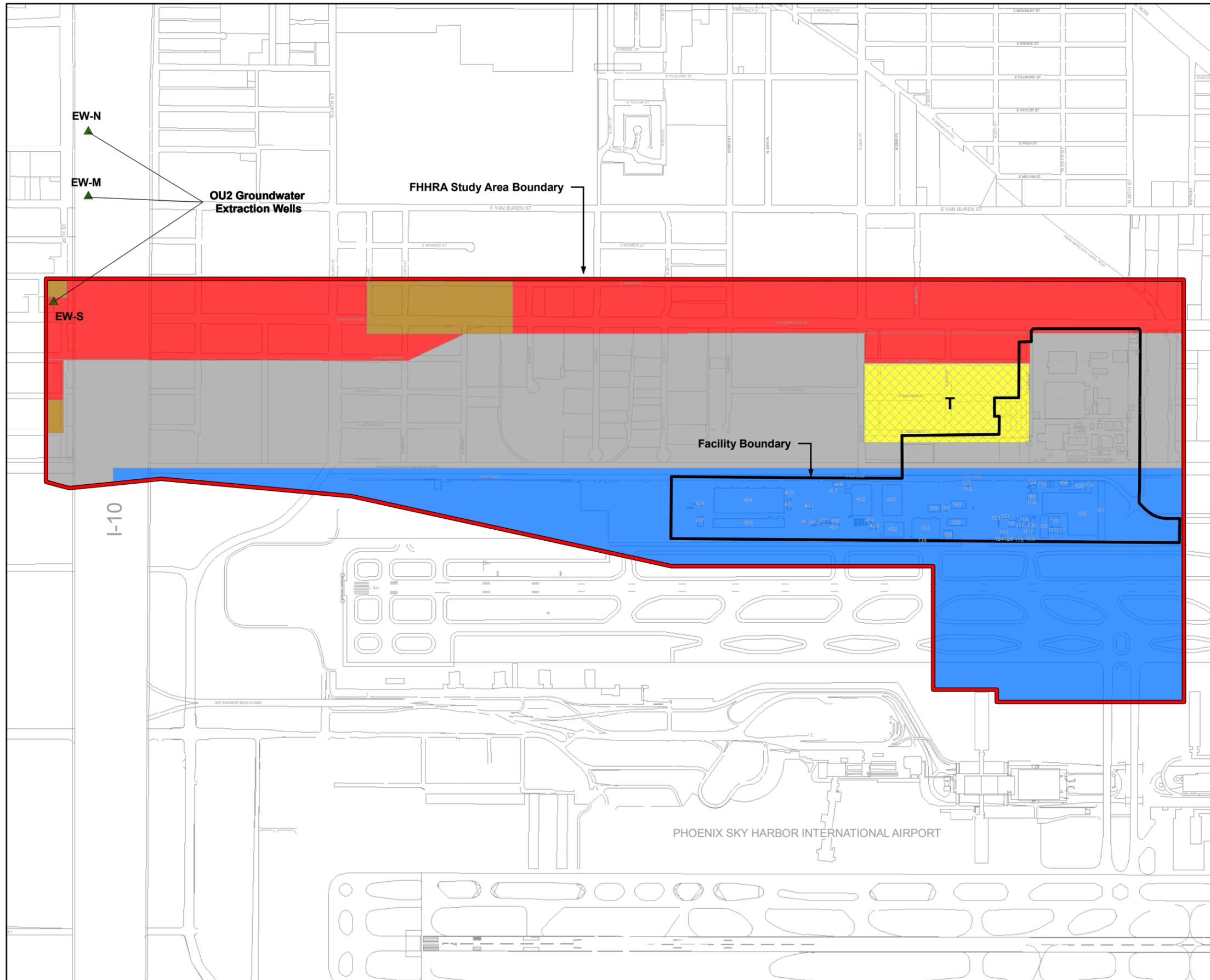


FIGURE 3-1
EXISTING LAND USE
 Honeywell 34th Street Facility
 Phoenix, Arizona



- LEGEND**
- ▲ OU2 Groundwater Extraction Wells
 - Street and Airport Features
 - ▭ FHHRA Study Area
 - ▭ Honeywell 34th Street Facility
 - 404 Honeywell Buildings
- Future Land Use**
- 10 to 15 dwelling units/acre - Higher density attached townhouses, condos or apartments
 - Mixed Use Transition - Color in crosshatch is the color to, color between the crosshatch is the color from.
 - Commercial
 - Industrial
 - Public/Quasi Public
 - 3.5 to 5 dwelling units/acre - Traditional Lot

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Tasha Lewis	<i>Tasha Lewis</i> (Signature)
Approved by STC or PM: Tasha Lewis	<i>Tasha Lewis</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. Land use information presented on this figure was obtained from the City of Phoenix General Plan adopted by the City Council Resolution on December 5, 2001 in accordance with action taken at its final public hearing on November 7, 2001 (COP, 2002) and the Phoenix Sky Harbor International Airport Master Plan Update Technical Report dated September 1989 (Howard Needles Tammen & Bergendoff, 1989).

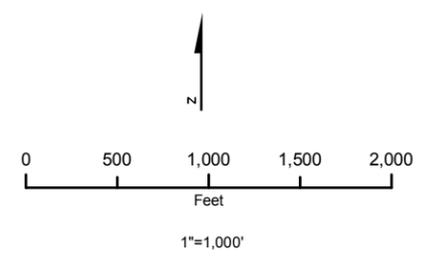
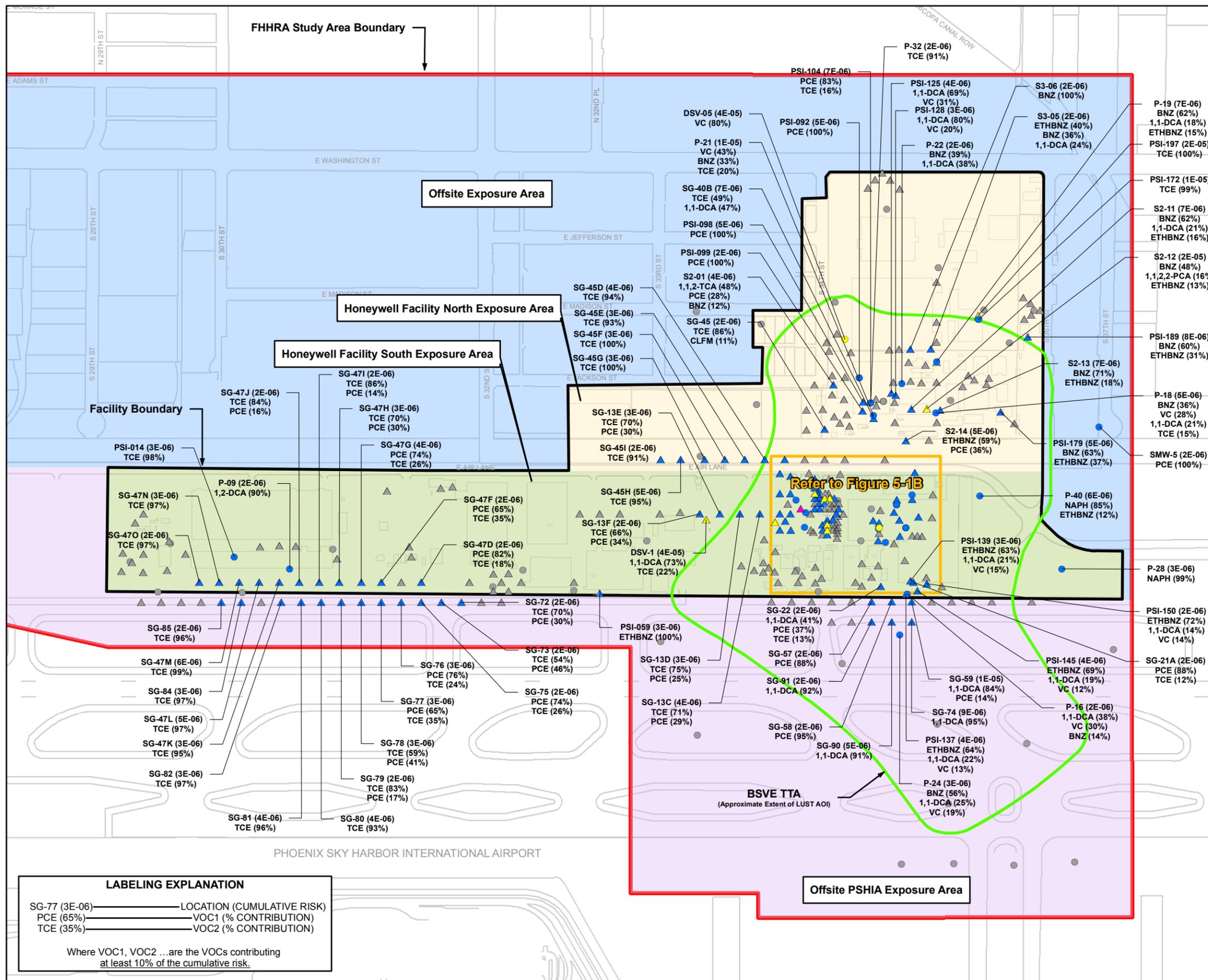


FIGURE 3-2
FUTURE LAND USE
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- FHHRA Study Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
- Refer to Figure Index for abbreviation/acronym definitions.
 - The screening level results presented on this figure were based on:
 - Chemicals detected in soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, excluding samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.
 - No location had a non-cancer hazard index greater than one.

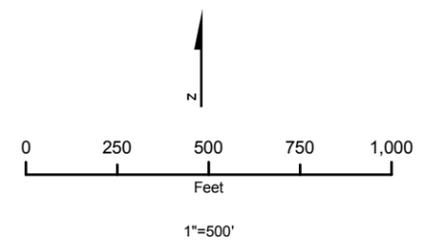
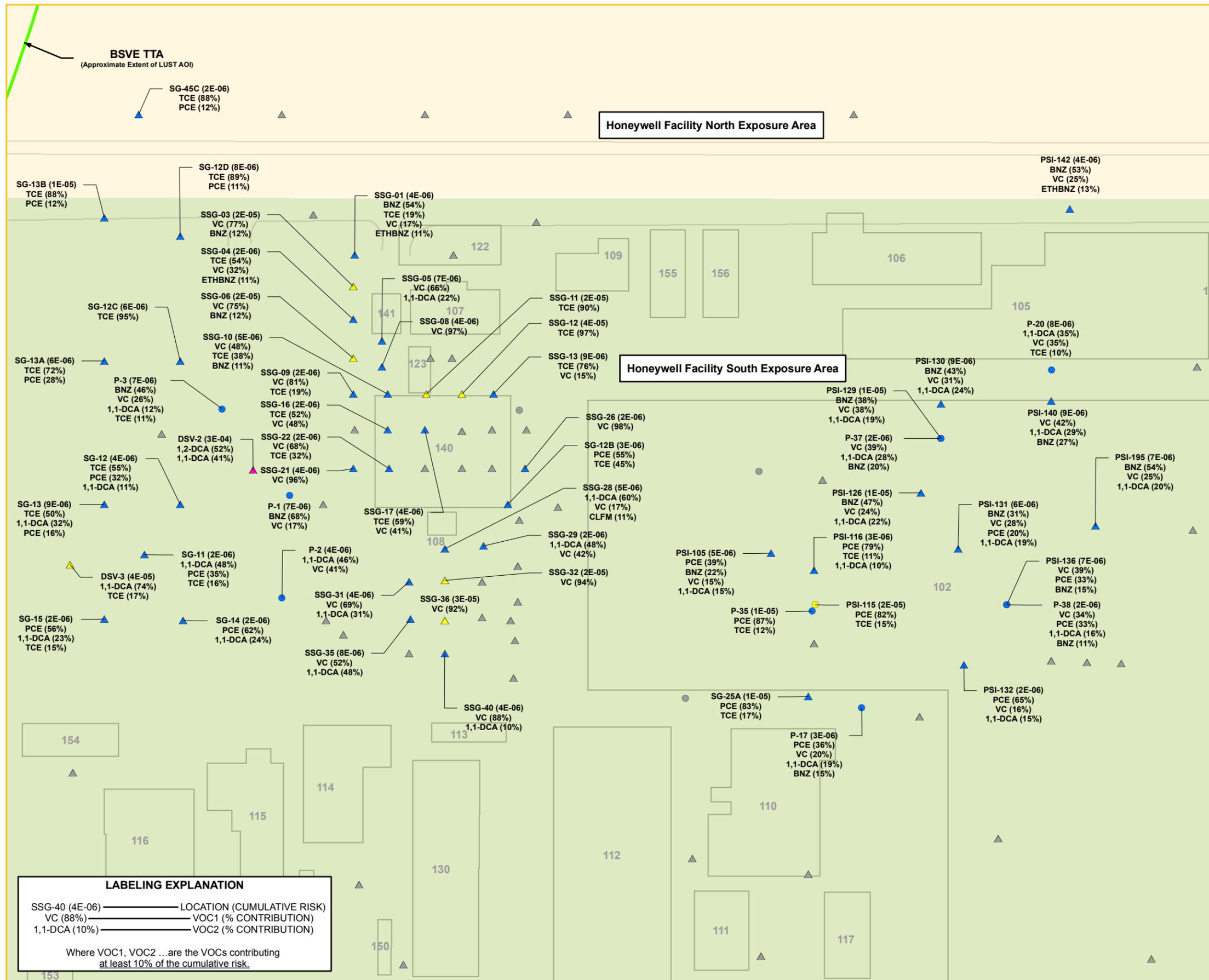


FIGURE 5-1A
SCREENING LEVEL CUMULATIVE
CANCER RISKS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR
BASED ON DETECTED CHEMICALS
(ALL SAMPLING DEPTHS)
 Honeywell 34th Street Facility
 Phoenix, Arizona

LABELING EXPLANATION

SG-77 (3E-06) LOCATION (CUMULATIVE RISK)
 PCE (65%) VOC1 (% CONTRIBUTION)
 TCE (35%) VOC2 (% CONTRIBUTION)

Where VOC1, VOC2 ... are the VOCs contributing at least 10% of the cumulative risk.



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

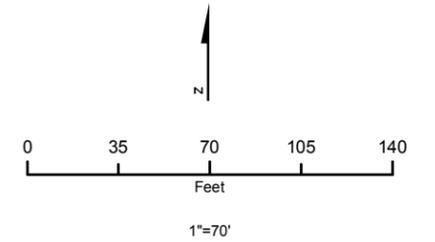
Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

BSVE Target Treatment Area (TTA)
 Honeywell Facility North Exposure Area
 Honeywell Facility South Exposure Area
 FHHRA Study Area
 Honeywell Buildings
 — Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
- Refer to Figure Index for abbreviation/acronym definitions.
 - The screening level results presented on this figure were based on:
 - Chemicals detected in soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.
 - No location had a non-cancer hazard index greater than one.

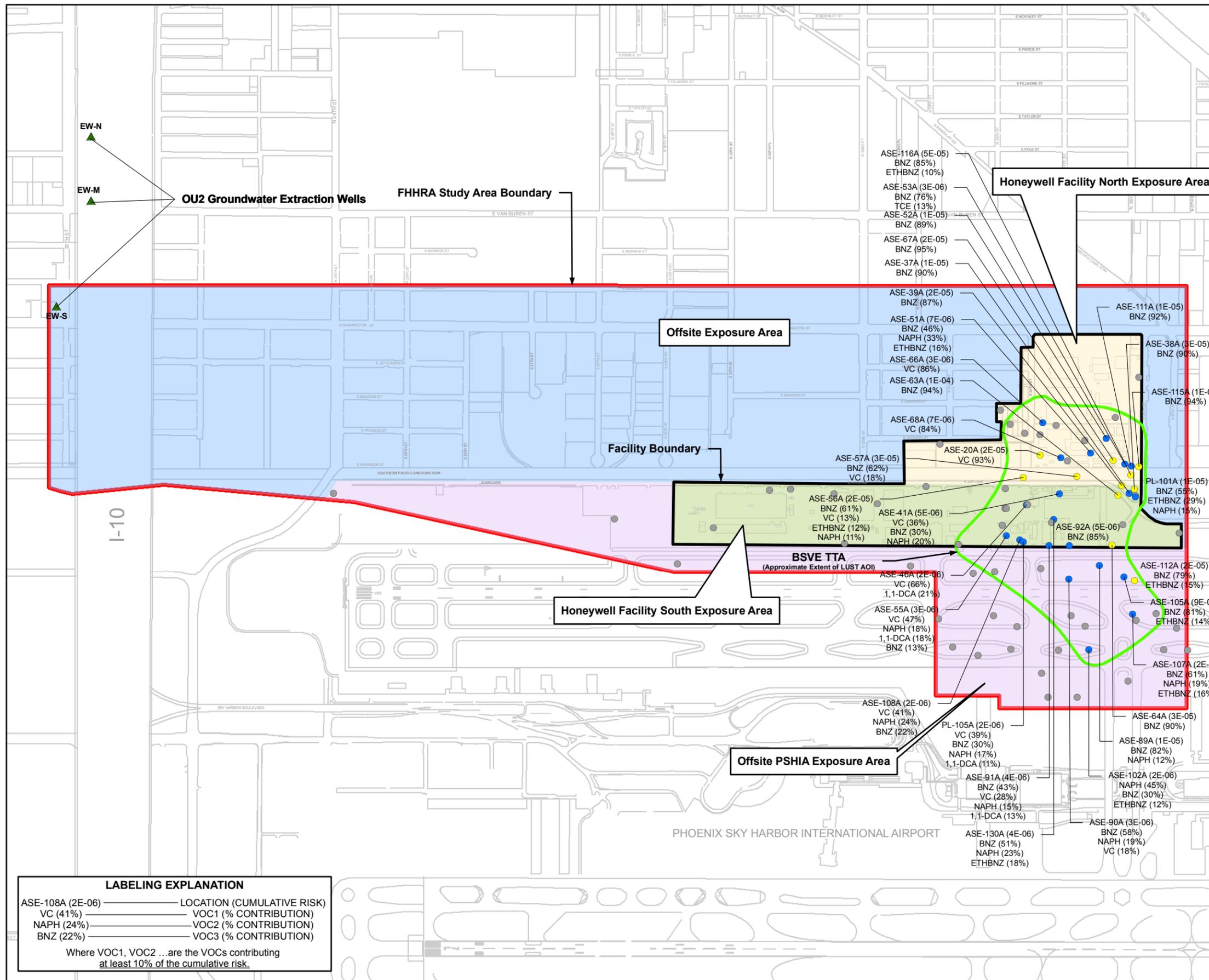


**FIGURE 5-1B (FIGURE 5-1A INSET)
SCREENING LEVEL CUMULATIVE
CANCER RISKS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR
BASED ON DETECTED CHEMICALS
(ALL SAMPLING DEPTHS)**
Honeywell 34th Street Facility
Phoenix, Arizona

LABELING EXPLANATION

SSG-40 (4E-06) — LOCATION (CUMULATIVE RISK)
 VC (88%) — VOC1 (% CONTRIBUTION)
 1,1-DCA (10%) — VOC2 (% CONTRIBUTION)

Where VOC1, VOC2 ... are the VOCs contributing at least 10% of the cumulative risk.



LEGEND

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04
- ▲ OU2 Groundwater Extraction Wells
- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- FHHRA Study Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:

- Refer to Figure Index for abbreviation/acronym definitions.
- The screening level results presented on this figure were based on:
 - The maximum concentrations from groundwater samples collected near the water table between 1/01/05 and 9/10/08; and
 - The groundwater to indoor air risk-based screening levels for an industrial worker exposure scenario are presented in Appendix G-5.

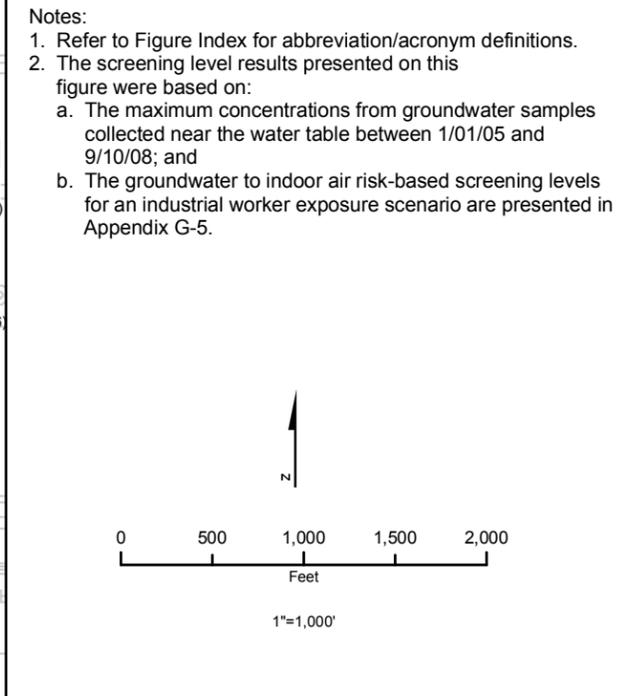
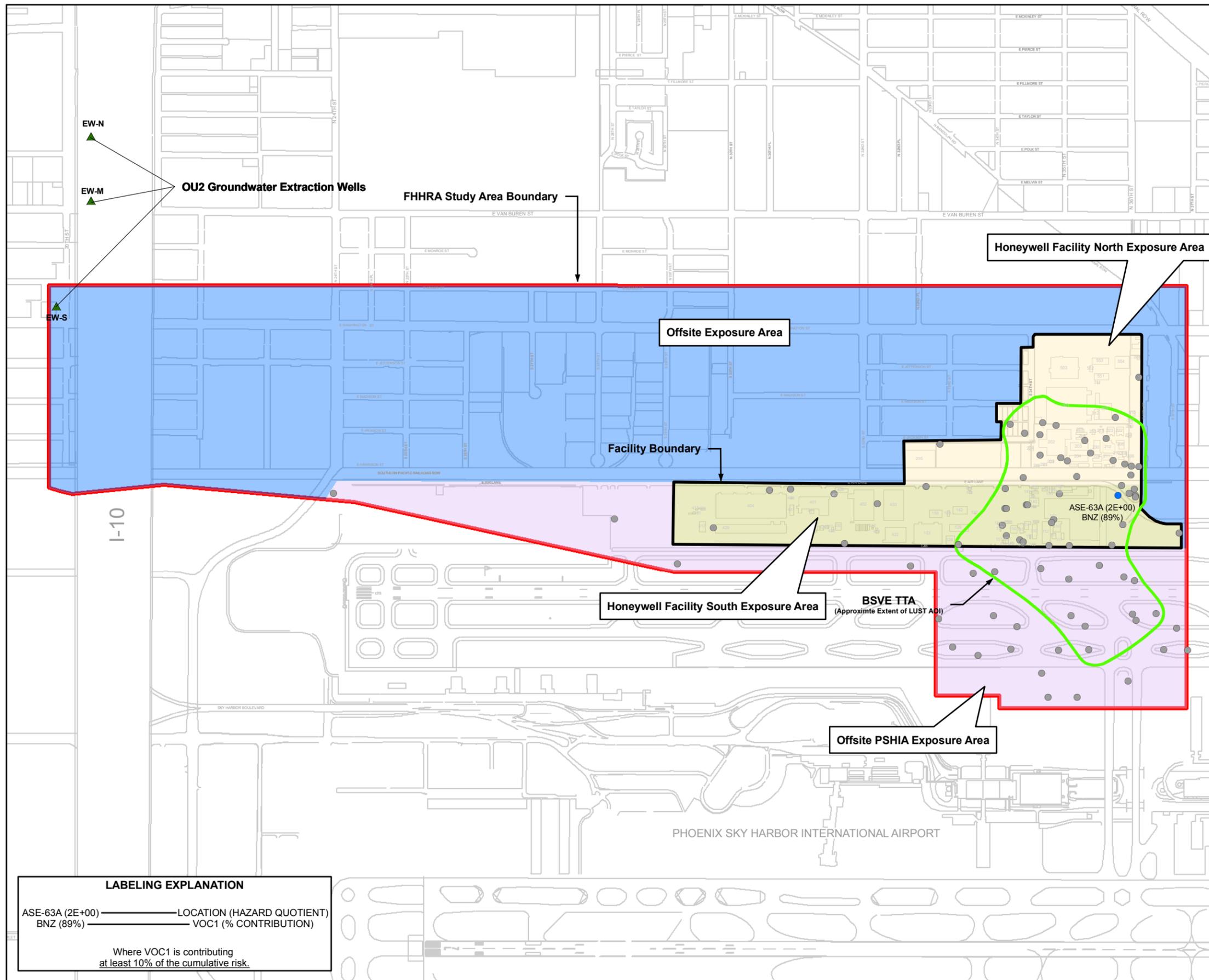


FIGURE 5-2
SCREENING LEVEL CUMULATIVE
CANCER RISKS FOR GROUNDWATER
TO INDUSTRIAL INDOOR AIR
 Honeywell 34th Street Facility
 Phoenix, Arizona



- LEGEND**
- Hazard Quotient ≤ 1
 - Hazard Quotient > 1 to ≤ 10
 - ▲ OU2 Groundwater Extraction Wells
 - BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Honeywell Facility North Exposure Area
 - Honeywell Facility South Exposure Area
 - Offsite PSHIA Exposure Area
 - Offsite Exposure Area
 - FHHRA Study Area
 - 404 Honeywell Buildings
 - Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. The maximum concentrations from groundwater samples collected near the water table between 1/01/05 and 9/10/08; and
 - b. The groundwater to indoor air risk-based screening levels for an industrial worker exposure scenario are presented in Appendix G-5.

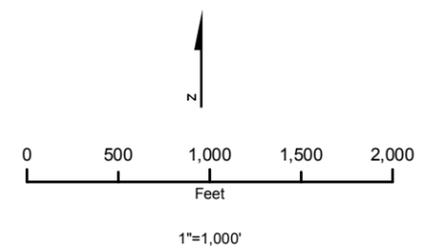
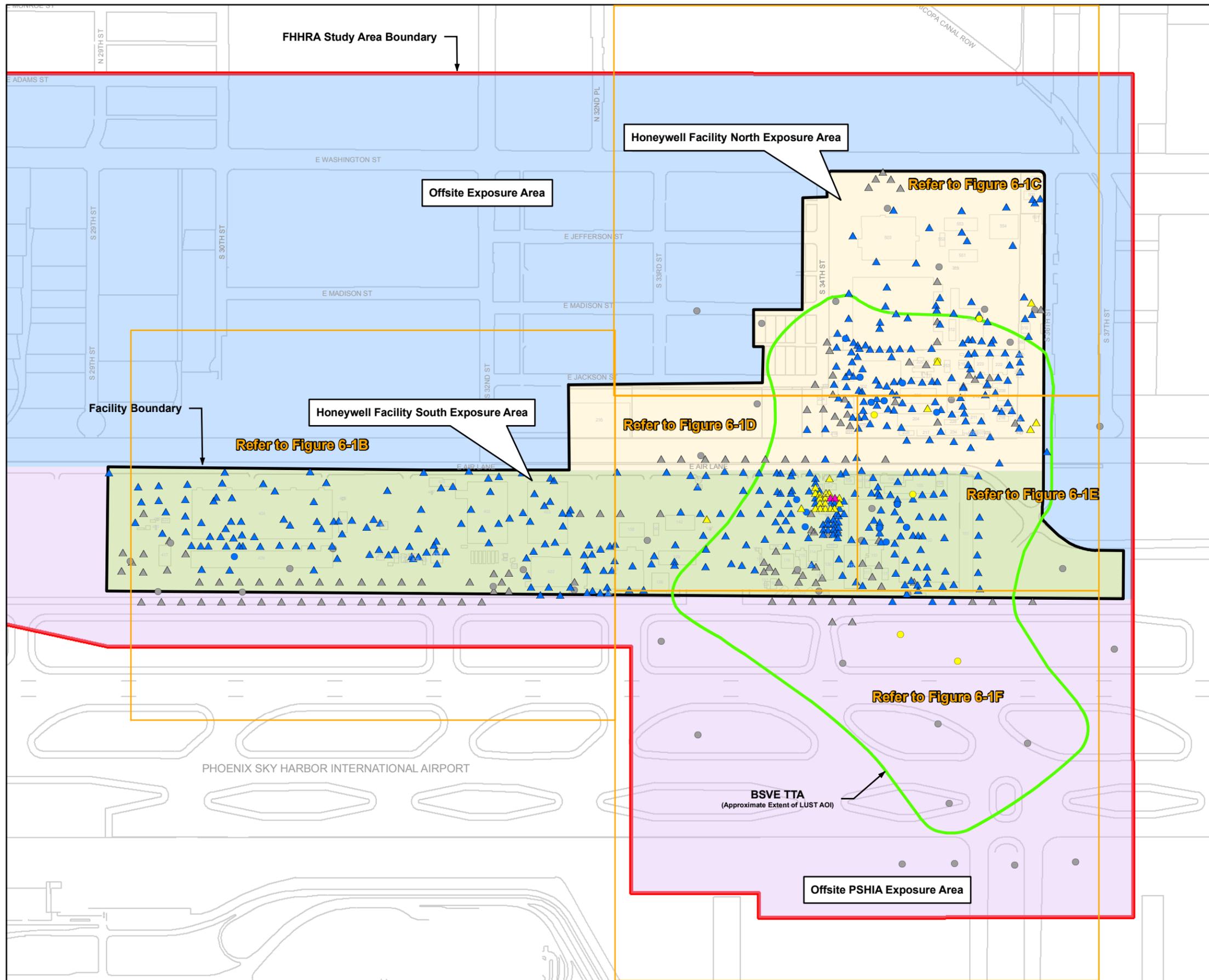


FIGURE 5-3
SCREENING LEVEL NON-CANCER
HAZARD INDEX ESTIMATES FOR
GROUNDWATER TO
INDUSTRIAL INDOOR AIR
 Honeywell 34th Street Facility
 Phoenix, Arizona

LABELING EXPLANATION

ASE-63A (2E+00) — LOCATION (HAZARD QUOTIENT)
 BNZ (89%) — VOC1 (% CONTRIBUTION)

Where VOC1 is contributing at least 10% of the cumulative risk.



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite PSHIA Exposure Area
- Offsite Exposure Area
- FHHRA Study Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - b. The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.
 3. Nine locations (SG-40A, SG-40B, SG-47A, SG-57, SG-59, SG-70, SG-74, SG-90, SG-91) had zero non-detect results; therefore, these locations are not shown on this figure (they are shown on Figures 5-1A and 5-1B).

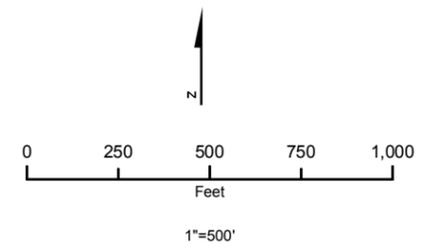
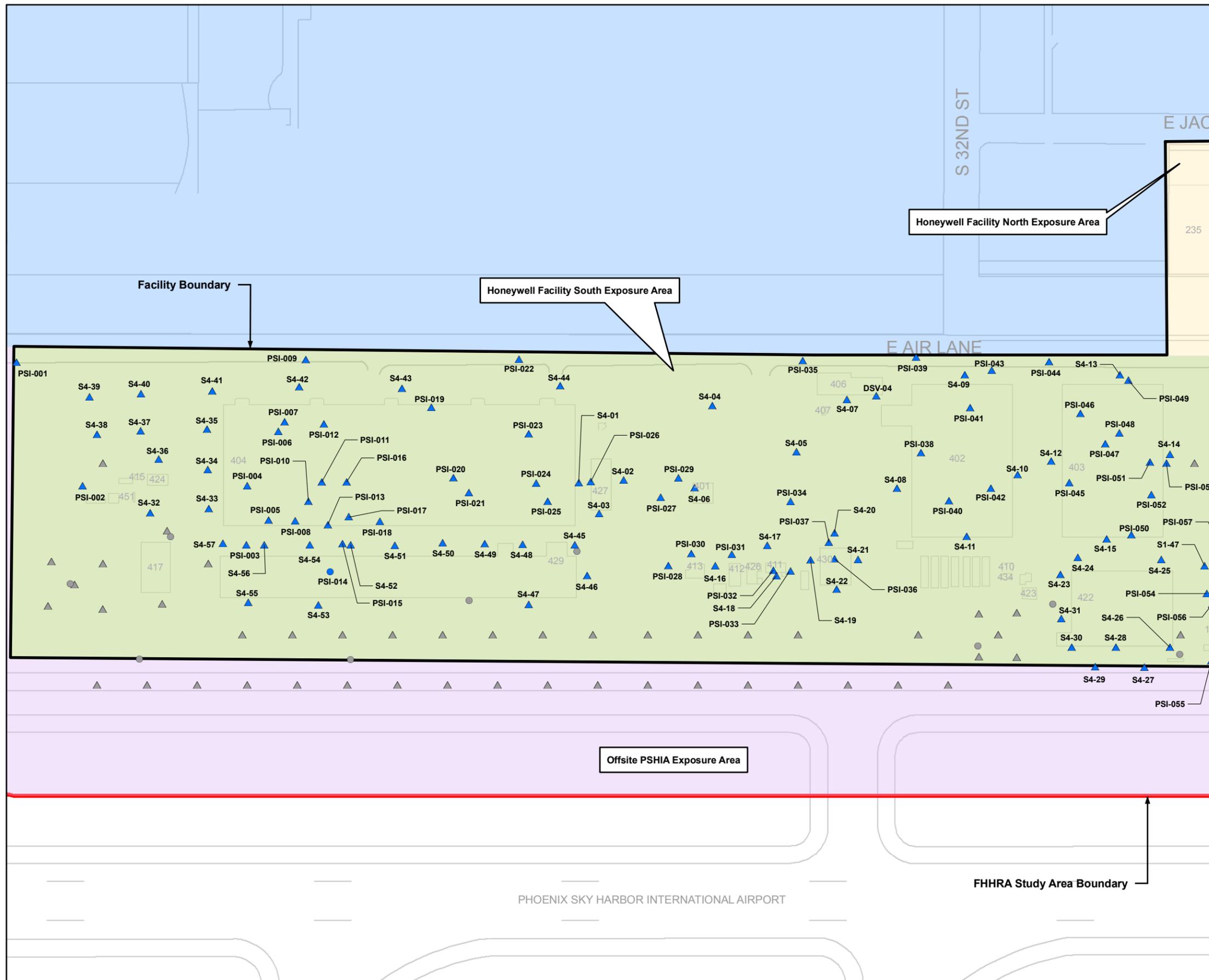


FIGURE 6-1A
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

- ▭ Honeywell 34th Street Facility
- ▭ Honeywell Facility North Exposure Area
- ▭ Honeywell Facility South Exposure Area
- ▭ Offsite PSHIA Exposure Area
- ▭ Offsite Exposure Area
- ▭ FHHRA Study Area
- ▭ Honeywell Buildings
- Street and Airport Features

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Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

Notes:

- Refer to Figure Index for abbreviation/acronym definitions.
- The screening level results presented on this figure were based on:
 - Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.

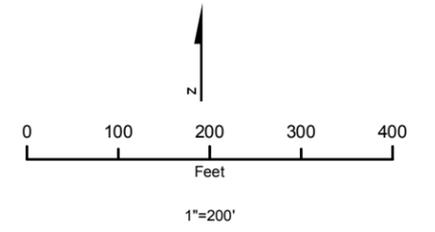
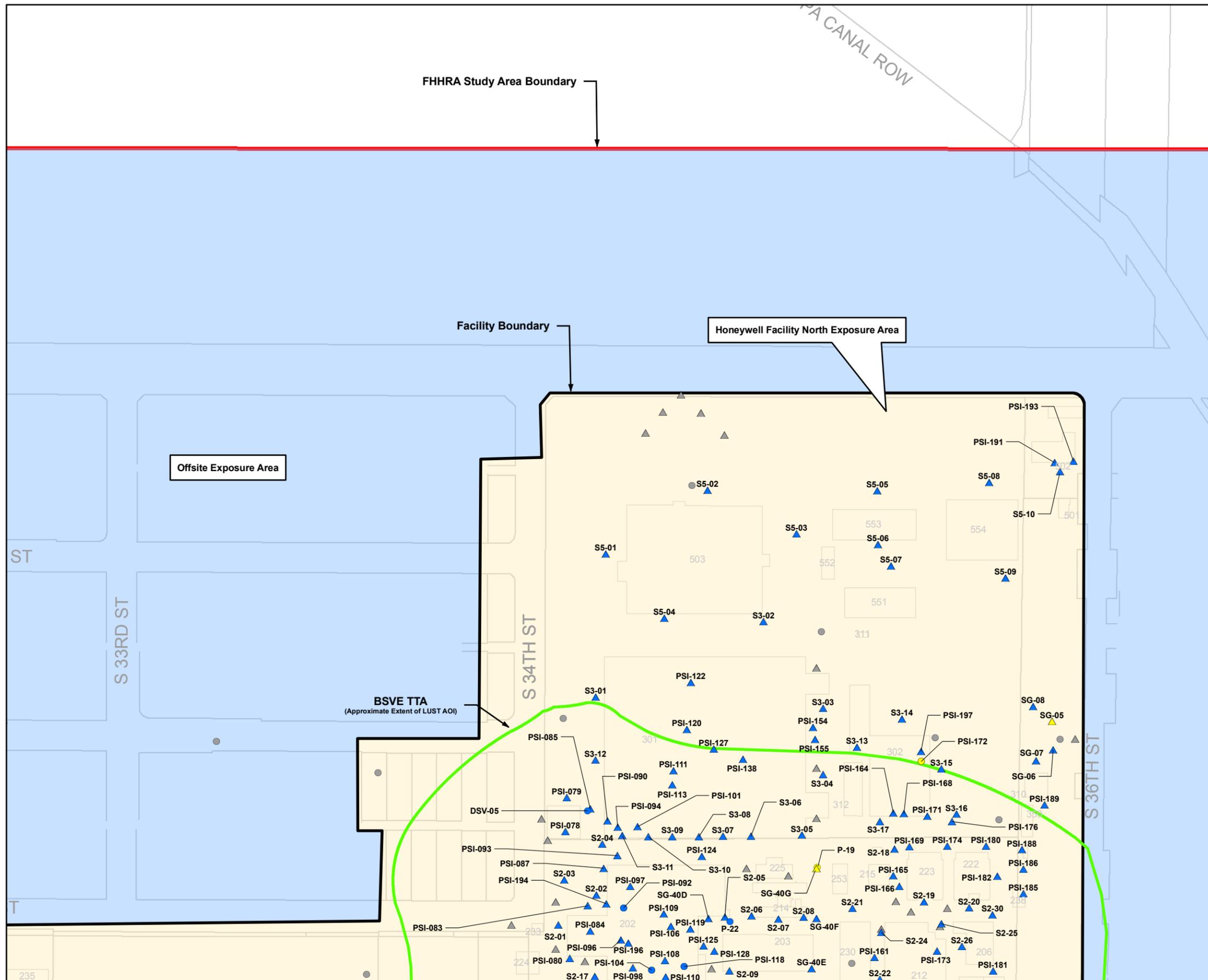


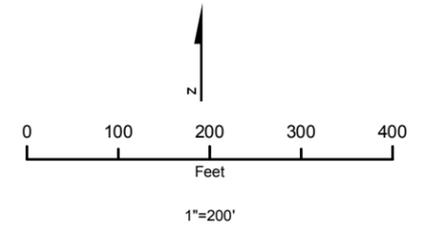
FIGURE 6-1B (FIGURE 6-1A INSET)
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS
 Honeywell 34th Street Facility
 Phoenix, Arizona



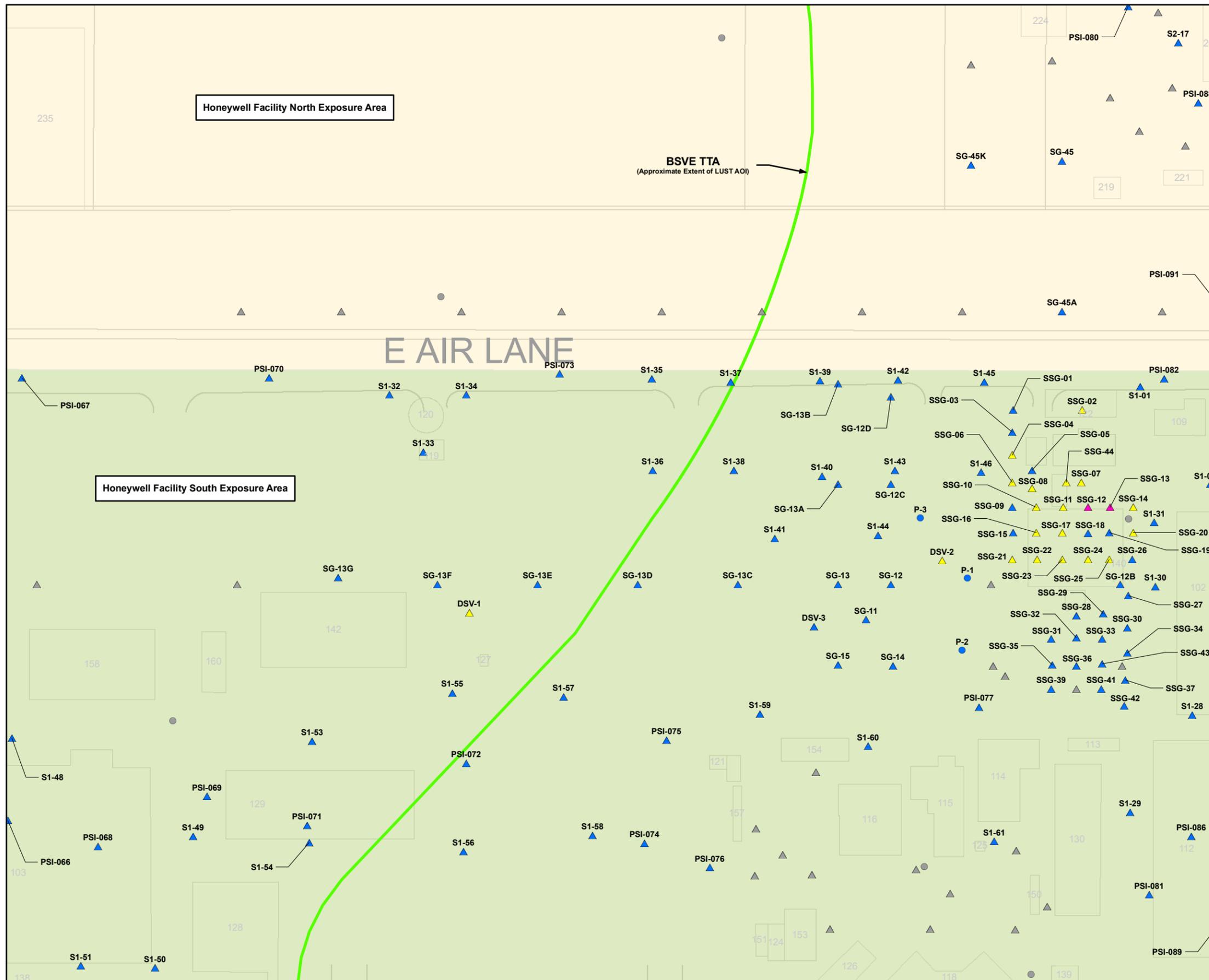
- LEGEND**
- Results for Locations with TO-15 Analysis**
- ELCR ≤ 1E-06
 - ELCR > 1E-06 to ≤ 1E-05
 - ELCR > 1E-05 to ≤ 1E-04
- Results for Locations without TO-15 Analysis**
- ▲ ELCR ≤ 1E-06
 - ▲ ELCR > 1E-06 to ≤ 1E-05
 - ▲ ELCR > 1E-05 to ≤ 1E-04
 - ▲ ELCR > 1E-04
- BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Honeywell Facility North Exposure Area
 - Offsite Exposure Area
 - FHHRA Study Area
 - Honeywell Buildings
 - Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
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Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - b. The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.



**FIGURE 6-1C (FIGURE 6-1A INSET)
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS**
Honeywell 34th Street Facility
Phoenix, Arizona



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

- BSVE Target Treatment Area (TTA)
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - b. The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.

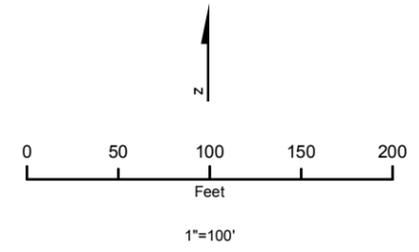
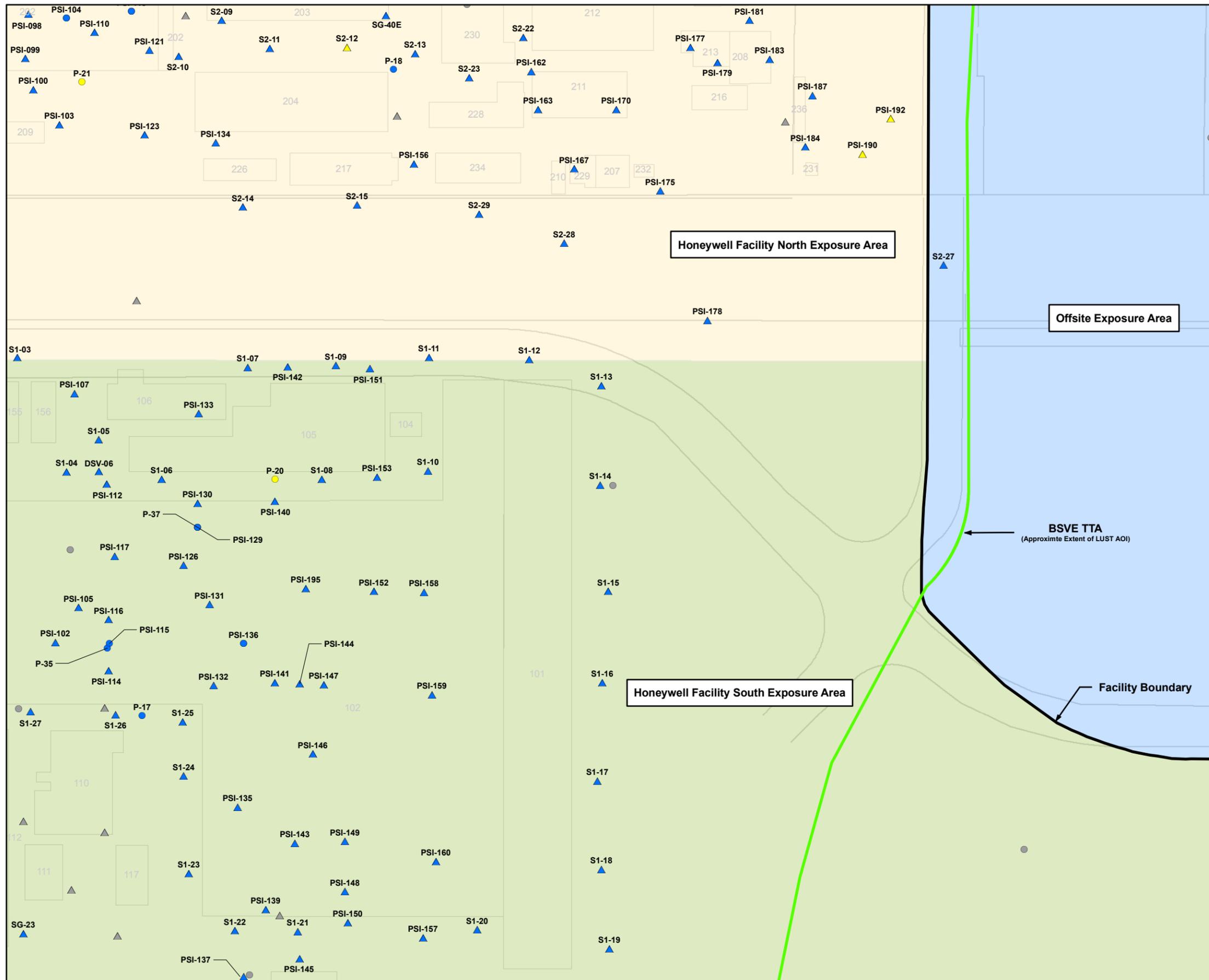


FIGURE 6-1D (FIGURE 6-1A INSET)
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS
 Honeywell 34th Street Facility
 Phoenix, Arizona



LEGEND

Results for Locations with TO-15 Analysis

- ELCR ≤ 1E-06
- ELCR > 1E-06 to ≤ 1E-05
- ELCR > 1E-05 to ≤ 1E-04

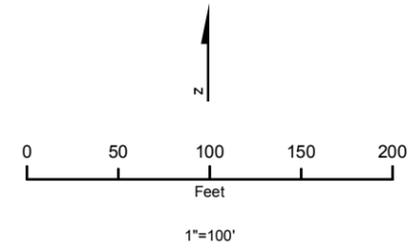
Results for Locations without TO-15 Analysis

- ▲ ELCR ≤ 1E-06
- ▲ ELCR > 1E-06 to ≤ 1E-05
- ▲ ELCR > 1E-05 to ≤ 1E-04
- ▲ ELCR > 1E-04

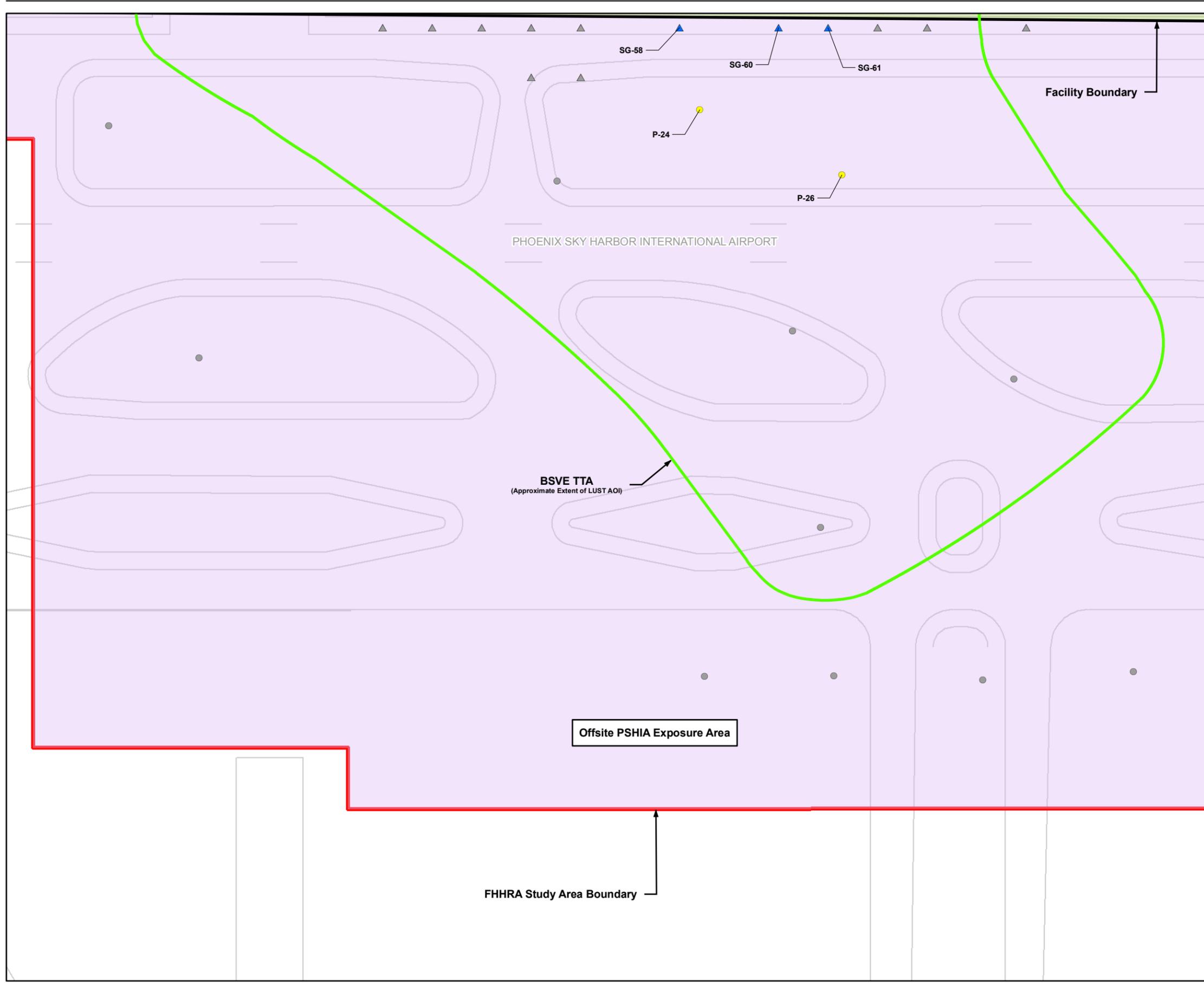
- BSVE Target Treatment Area (TTA)
- Honeywell 34th Street Facility
- Honeywell Facility North Exposure Area
- Honeywell Facility South Exposure Area
- Offsite Exposure Area
- Honeywell Buildings
- Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - b. The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.



**FIGURE 6-1E (FIGURE 6-1A INSET)
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS**
Honeywell 34th Street Facility
Phoenix, Arizona



- LEGEND**
- Results for Locations with TO-15 Analysis**
- ELCR ≤ 1E-06
 - ELCR > 1E-06 to ≤ 1E-05
 - ELCR > 1E-05 to ≤ 1E-04
- Results for Locations without TO-15 Analysis**
- ▲ ELCR ≤ 1E-06
 - ▲ ELCR > 1E-06 to ≤ 1E-05
 - ▲ ELCR > 1E-05 to ≤ 1E-04
 - ▲ ELCR > 1E-04
- BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Honeywell Facility South Exposure Area
 - Offsite PSHIA Exposure Area
 - FHHRA Study Area
 - Honeywell Buildings
 - Street and Airport Features

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Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
1. Refer to Figure Index for abbreviation/acronym definitions.
 2. The screening level results presented on this figure were based on:
 - a. Soil gas samples collected from all sampling depths between 1/01/94 and 9/30/08, *excluding* samples from soil vapor wells with screens intersecting the water table and data collected during the BSVE pilot test (2/27/06 - 4/18/06); and
 - b. The soil gas to indoor air risk-based screening levels for an industrial exposure scenario are presented in Appendix G-5.

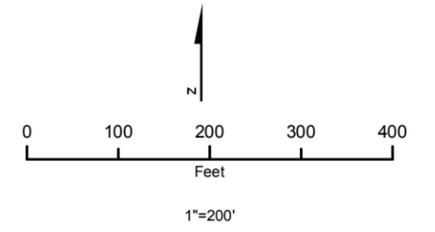


FIGURE 6-1F (FIGURE 6-1A INSET)
SENSITIVITY ANALYSIS: CANCER RISK
CALCULATIONS FOR SOIL GAS
TO INDUSTRIAL INDOOR AIR BASED
ON THE REPORTING LIMITS OF
NON-DETECT RESULTS
 Honeywell 34th Street Facility
 Phoenix, Arizona

Appendix A
BSVE System

Biologically-Enhanced Soil Vapor Extraction (BSVE) System

Contents

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A.1 Background Information	A-2
A.2 Target Treatment Area.....	A-3
A.3 Treatment System Description	A-3
A.4 BSVE System Operation	A-4
A.5 References.....	A-5

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- A-1 Facility Location and Layout
- A-2 BSVE System Soil-Vapor Monitoring Network
- A-3 Historical Free-Product Extent
- A-4 BSVE System Process Flow Diagram

Acronyms and Abbreviations

ADEQ	Arizona Department of Environmental Quality
AOI	Area of Interest
AOS	alternate operating scenario
BSVE	biologically-enhanced soil vapor extraction
CAP	Corrective Action Plan
COP	City of Phoenix
Honeywell	Honeywell International Inc.
IEW	injection/extraction wells
LEL	lower explosive limit
LUST	leaking underground storage tank
O&M	operation and maintenance
OM&M	operation, maintenance, and monitoring
PPA	potassium permanganate absorption
PSHIA	Phoenix Sky Harbor International Airport
TPH	total petroleum hydrocarbon
TTA	target treatment area
USEPA	United States Environmental Protection Agency
UST	underground storage tank
VGAC	vapor-phase granulated activated carbon
VOC	volatile organic compound

Biologically-Enhanced Soil Vapor Extraction (BSVE) System

This appendix presents a high-level description of the Arizona Department of Environmental Quality (ADEQ)-approved biologically enhanced soil vapor extraction (BSVE) system that was installed to address free-phase petroleum hydrocarbons associated with Leaking Underground Storage Tank (LUST) File Nos. 0393.02-.10, .15-.20, Facility ID No. 0-002227, at the Honeywell International Inc. (Honeywell) 34th Street Aerospace Engines Product Center (Facility or Honeywell facility) in Phoenix, Arizona.

Specific details regarding the operation and maintenance of the BSVE system can be found in the *Operation and Maintenance Plan for the BSVE Air Pollution Control Equipment, Honeywell 34th Street System, Revision 5, Phoenix, Arizona* (BSVE O&M Plan; CH2M HILL, 2011) and the *Operation and Maintenance Manual for the Biologically-Enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Revision 4, Phoenix, Arizona, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-.20*. (BSVE O&M Manual; CH2M HILL, 2010).

The BSVE O&M Manual outlines procedures and protocols for the BSVE remediation system operations, maintenance, and monitoring (OM&M) activities at the Honeywell facility. The purpose of this manual is to aid treatment system operators in performing routine and non-routine OM&M activities, including startup, operation, shutdown, emergency shut-off, troubleshooting, ongoing inspections, monitoring, maintenance, sampling, and reporting. The primary objectives of the procedures and protocols identified in this manual are to efficiently manage the operation of the BSVE system and to achieve the cleanup and OM&M performance objectives that have been identified for this Facility as stated in the Corrective Action Plan (CAP; CH2M HILL, 2004a) and approved by ADEQ on October 7, 2005. The BSVE O&M Manual will be revised as necessary to reflect current operating conditions and operating procedures. It covers the equipment and remediation ongoing on the Honeywell property (Phases A and B) and the Phoenix Sky Harbor International Airport (PSHIA) property north of Runway 8-26 (Phase C). The BSVE O&M Manual will be updated following design approval for the work on PSHIA property south of Runway 8-26 (Phase D) or as otherwise necessary. The BSVE O&M Manual covers the operation of the BSVE system in all alternative operating scenarios, as described in the BSVE O&M Plan for BSVE air pollution control equipment.

The BSVE O&M Plan covers Maricopa County Air Quality Department permitted equipment (Title V Operating Permit No. V97-008) that is part of the BSVE system. This includes BSVE system equipment that is operated for the ongoing petroleum hydrocarbon-related volatile organic compound (VOC) remediation at the Honeywell facility (Phases A and B) and at the PSHIA property north of Runway 8-26 (Phase C).

Specific details regarding the ongoing underground storage tank remediation and monitoring activities conducted in association with LUST File Nos. 0393.02-.10, .15-.20, Facility ID No. 0-002227 can be found in the semiannual (formerly quarterly) remediation status reports.¹

A.1 Background Information

The Facility is located within Operable Unit 2 of the Motorola 52nd Street Superfund Site at 111 South 34th Street in Phoenix, Arizona. The Facility is a 118-acre, non-residential facility in Maricopa County that consists of numerous manufacturing-related and administrative buildings. The Facility has been used as a manufacturing and testing facility for the production of aircraft engines and auxiliary equipment since 1951. Figure A-1 illustrates the Facility location and layout.

In 1999, free-phase petroleum hydrocarbons (free product) were detected at the Honeywell facility, and an investigation was initiated under the ADEQ Underground Storage Tank (UST) Corrective Action Section. Since that time, Honeywell has investigated the extent of contamination, initiated corrective actions to recover free product, received ADEQ approval of the CAP, and commenced operation of the approved remedial alternative. The ADEQ-approved CAP (CH2M HILL, 2004a and 2004b) recommends the following remedial actions for the free product and vadose zone:

- Remediate soil contamination in the vadose zone, the petroleum hydrocarbon smear zone, and the free product pool using BSVE.
- Supplement BSVE remediation by selectively removing free product from existing groundwater monitoring wells using a combination of manual and automatic (where necessary) liquid pumping.

In conjunction with free product recovery and the BSVE system, the selected alternative presented in the CAP includes monitored natural attenuation to address any remaining dissolved-phase groundwater contamination after aggressive source removal is complete. Per ADEQ's October 7, 2005, CAP final approval letter (ADEQ, 2005), following completion of free product removal to the maximum extent practicable, the most appropriate remediation method for dissolved-phase groundwater contamination associated with Honeywell's UST program will be revisited with ADEQ to ensure coordination with the remedy selected for the regional chlorinated VOC plume being evaluated by ADEQ's Federal Projects Unit and the United States Environmental Protection Agency (USEPA).

BSVE is the remedial technology being used to reduce the concentrations of petroleum hydrocarbons at the Honeywell facility. BSVE is implemented by aerating the subsurface through injection and extraction of air from wells screened within the unsaturated zone. The primary objective is to oxygenate the subsurface, thereby stimulating biodegradation of the petroleum hydrocarbons. Remediation will also occur as the result of volatilization and extraction of the more volatile compounds. The extracted vapor will be treated, as

¹ Note: Ongoing data collection, evaluation, and risk management decisions related to the remediation of site-related petroleum hydrocarbons are being reported in the semi-annual (formerly quarterly) remediation status reports for Honeywell's LUST File Nos. 0393.02-.10, .15-.20, Facility ID No. 0 002227. This is consistent with agreements with ADEQ's Underground Storage Tank program, the Maricopa County Air Quality District, and the City of Phoenix Aviation Department.

necessary, to meet air quality requirements before being released to the atmosphere. It is expected that the majority of the mass removal will be due to biodegradation.

A.2 Target Treatment Area

The purpose of the BSVE remedial design is to address the free-product plume, vadose zone soil, and associated soil vapor plume beneath the Honeywell facility. The target treatment area (TTA), shown in Figure A-2, was developed based on the historical extent of light nonaqueous-phase liquids and other evidence of hydrocarbon contamination. The TTA is also the approximate extent of the LUST area of interest (AOI). In addition to the BSVE vapor treatment operation, free product is recovered when the thickness is sufficient to allow efficient collection via product skimming pumps and/or manual removal from wells on a periodic basis.

The historical extent of free product is an irregular-shaped elliptical area covering roughly 46 acres; this area is based on free-product wells that have had at least one measurement of 0.1 foot or more (see Figure A-3). The free-product plume and TTA extend south from the Honeywell property onto the PSHIA property.

The remedial implementation is divided into four phases, as illustrated in Figure A-2, to accommodate the range of anticipated changes in system operation that might be required over the life of the remedial action. Phase A targets the remediation for the Honeywell-owned property north of Air Lane (Area 2 and Area 3); Phase B targets the Honeywell leasehold property south of Air Lane (Area 1); and Phase C targets the subsurface jet fuel contamination in the parcel north of Runway 8-26, south of the Honeywell/PSHIA fence line, east of Taxiway A-6, and west of Taxiway A-8 on PSHIA property. Phase D is a future phase that will address subsurface jet fuel contamination on PSHIA property south of Runway 8-26 and north of Taxiway C.

A.3 Treatment System Description

The BSVE system consists of 46 injection/extraction wells (IEW) (Phases A, B, and C), injection and extraction piping to each IEW, and a soil vapor treatment system. Figure A-4 provides the BSVE vapor treatment system process flow diagram for Alternate Operating Scenario #1 (AOS-1). The primary components of the soil vapor treatment system for AOS-1 are a thermal oxidizer, acid gas scrubber, vapor-phase granulated activated carbon (VGAC) units, potassium permanganate absorption (PPA) units, and ancillary equipment.

Additional details on the process equipment associated with vapor treatment are provided in the BSVE O&M Manual (CH2M HILL, 2010). The system may also operate under four other operating scenarios, as described in Air Permit V97-008 and the associated O&M Plan (CH2MHILL, 2011). The other operating scenarios are:

- AOS-2 consists of a second treatment train with the same components as AOS-1 and discharging through the same stack as the AOS-1 treatment system.
- AOS-3 consists of one or two treatment trains (as described by AOS-2) without PPA treatment and can be implemented when vinyl chloride concentrations entering the

BSVE treatment system at the BSVE inlet are below the threshold identified in the air permit.

- AOS-4 consists of one or two treatment trains (as described by AOS-2) with VGAC and PPA only. The thermal oxidizer and associated equipment, such as the scrubber and heat exchanger, are bypassed. This scenario may be implemented when total petroleum hydrocarbons (TPH) and benzene concentrations in the extraction wells are below the threshold identified in the air permit.
- AOS-5 consists of one or two treatment trains (as described by AOS-2) with VGAC only. This scenario may be implemented when TPH and benzene concentrations in the extraction wells and vinyl chloride concentrations at the BSVE inlet are below thresholds identified in the air permit.

To begin the treatment process, soil vapor is filtered to remove particulate matter greater than 5 microns. If necessary, the soil vapor is blended with ambient air to satisfy the thermal oxidizer temperature and/or lower explosive limit (LEL) requirements. Under AOS-1, -2, and -3, the vapors are treated in the thermal oxidizer unit to destroy methane, jet fuel components, and chlorinated VOCs. During combustion, the chlorinated VOCs may generate hydrochloric acid vapors, and the fluorinated VOCs may generate hydrofluoric acid. A caustic (sodium hydroxide) solution is used to neutralize the acidic conditions (if present). Cooling and initial neutralization occurs at a venturi quench chamber located downstream of the discharge ductwork of the thermal oxidizer. A packed-bed acid gas scrubber is used to neutralize any residual acidic conditions in the vapor stream that may exist. Makeup water and blowdown streams are required to avoid buildup of salts and other solids in the quench/scrubber.

In AOS-1, -2, and -4, a series of VGAC units and potassium permanganate-impregnated zeolite vessels (the PPA units) are used to provide additional removal (polish) of any low-concentration levels of petroleum hydrocarbons and chlorinated VOCs that may remain after combustion. To condition the vapor for activated carbon treatment, the vapor stream at the discharge of the quench/scrubber is cooled, and some liquid is condensed and removed. The vapor is then reheated in a booster blower to lower the relative humidity. By both increasing the temperature and lowering the relative humidity of the vapor stream, more efficient activated carbon use can be achieved. In the event there is residual vinyl chloride, which does not adsorb efficiently to carbon, the vapor is treated with potassium permanganate reactive media. In AOS-3 and -5, the PPA units are bypassed. The final step in the process is the discharge of the vapor through a stack.

A.4 BSVE System Operation

Initial ramp-up of the BSVE system under AOS-1, which began on May 27, 2009, addressed soil vapor impacts on the Honeywell-owned property north of Air Lane (Phase A) and the Honeywell-operated property leased from the City of Phoenix (COP) south of Air Lane (Phase B).

During the ramp-up phase, the 36 IEWs at the Honeywell facility were brought online sequentially, which was completed on October 15, 2009. Ramp-up continued with the increase of extraction rate and sequential phasing in of air injection wells. Full operation of

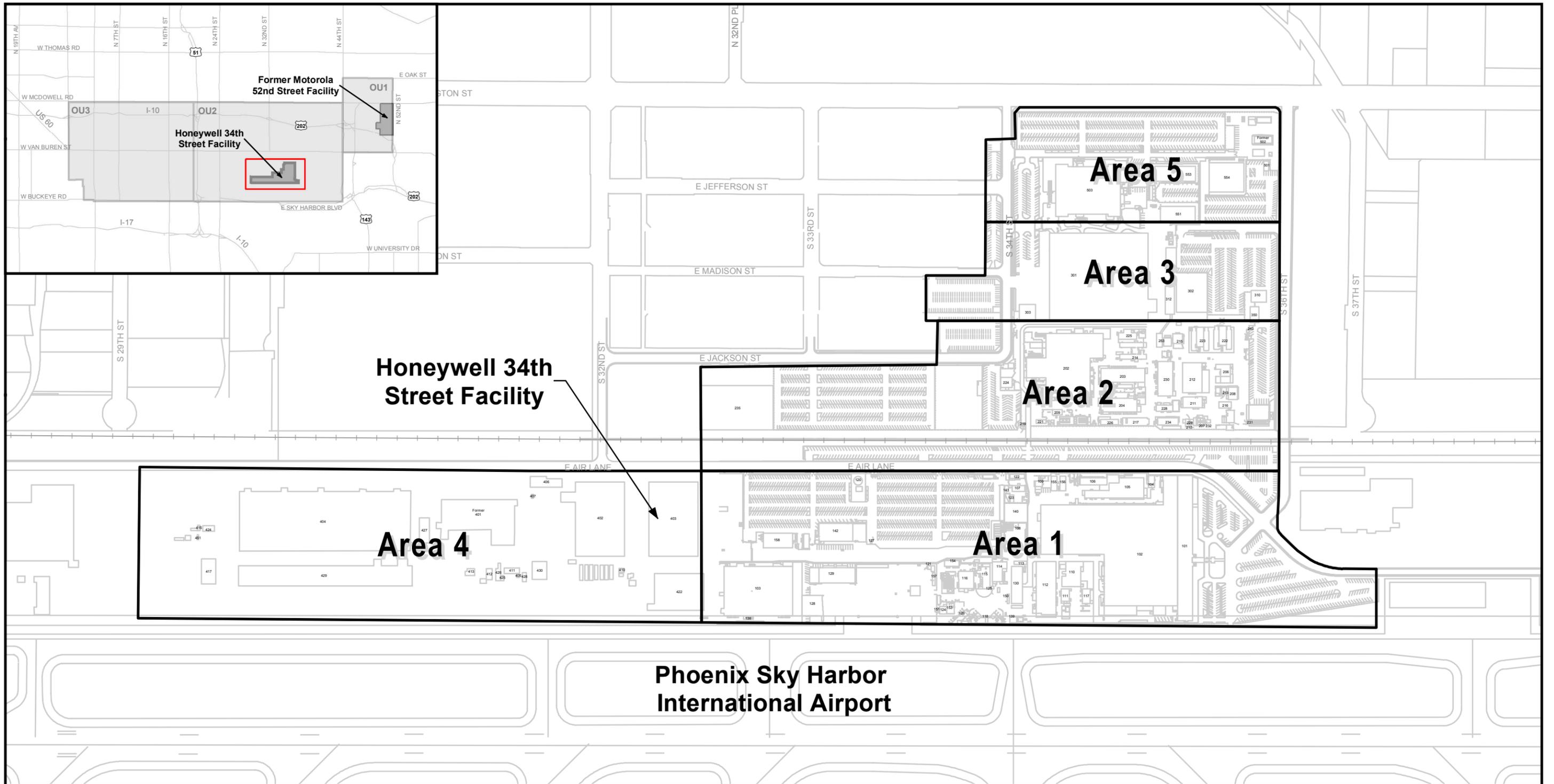
the BSVE system in an area is considered to be achieved when all wells in that area have begun actively extracting vapor, equipment performance has been fully assessed in both extraction and injection modes, and injection of air has occurred throughout the well network consistent with the BSVE O&M Manual (CH2M HILL, 2010). Full-scale BSVE system operation in Phases A and B began on June 17, 2010.

Construction associated with the expansion of the BSVE system onto the northern portion of the PSHIA property north of Runway 8-26 (Phase C) began in Fourth Quarter 2009 with the installation of injection/extraction and process monitoring wells, as shown on Figure A-2. Installation of underground process piping and associated vaults, valves, and electrical systems to connect the Phase C wells to the system tie-in point at the Honeywell facility fence line was completed in Third Quarter 2010. The Phase C Tie-in/Bypass plumbing work to connect Phase C wells to the BSVE system at the treatment pad (located in Phase B) was completed in November 2010, testing of Phase C system components was conducted in December 2010, and the start of soil vapor extraction from Phase C began on December 27, 2010. Air injection in Phase C will be evaluated at a later date, pending the initial removal of methane from the vadose zone in Phase C. Remedial measures in the area south of Runway 8-26 (Phase D) are being evaluated in coordination with the COP. Figure A-2 illustrates the location of BSVE Phases A through C and the proposed layout within Phase D relative to the BSVE TTA.

A.5 References

- Arizona Department of Environmental Quality. 2005. Letter from Mr. Mark W. Lucas and Mr. Joseph Karl Drosendahl/ADEQ to Ms. Troy Meyer/Honeywell. "Corrective Action Plan Final Approval, LUST File No. #0393.02-.10, .15, Facility ID #0-002227; Honeywell, 111 South 34th Street, Phoenix, Arizona." October 7.
- CH2M HILL. 2004a. *Revised Corrective Action Plan, Honeywell 34th Street Facility, Phoenix, Arizona. ADEQ Facility No 0-002227, LUST File Nos. 0393.02 through 0393.10.* July.
- _____. 2004b. Letter from Thomas J. Mooney/CH2M HILL, on behalf of Honeywell, to Mr. Mark Lucas/ADEQ. "Response to ADEQ comments dated September 30, 2004 on Honeywell's Revised Corrective Action Plan, dated July 30, 2004, Honeywell 34th Street Facility, Phoenix, Arizona." November 15..
- _____. 2010. *Operation and Maintenance Manual for the Biologically-Enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Revision 4, Phoenix, Arizona, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15-.20.* December.
- _____. 2011. *Operation and Maintenance Plan for the BSVE Air Pollution Control Equipment, Honeywell 34th Street Facility, Revision 5, Phoenix, Arizona.* January 5.

Figures



Legend

- Street and Airport Features
- Railroad
- Operational Area Boundaries
- Honeywell Buildings

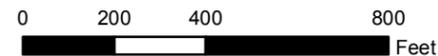
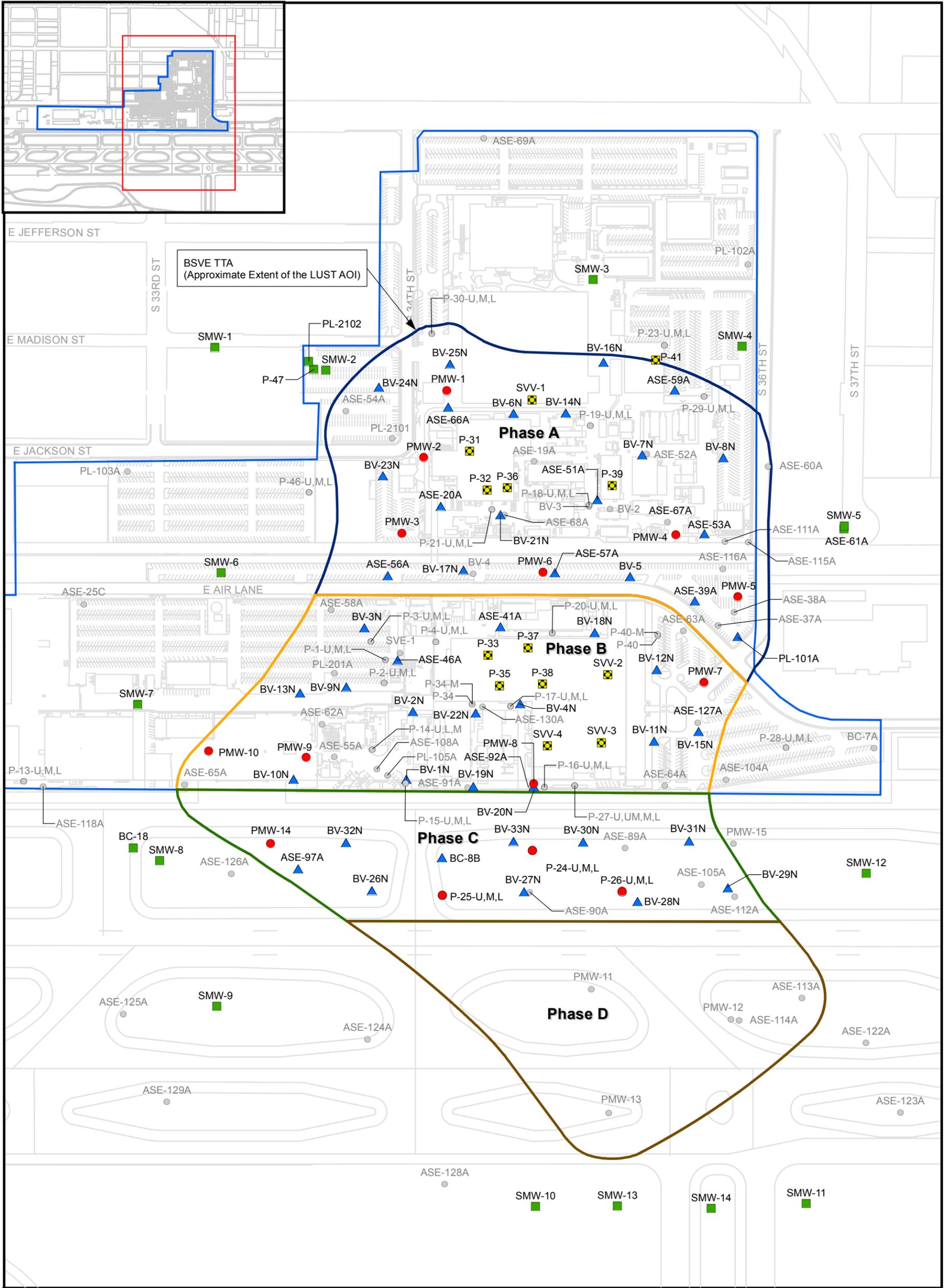


FIGURE A-1
FACILITY LOCATION AND LAYOUT
Honeywell 34th Street Facility
Phoenix, Arizona

Originator:	<i>Rakesh Singh</i>	Approved by STC or PM:	<i>Tasha Lewis</i>
Checked by:	<i>Lars Peterson</i>	Signature:	<i>Tasha Lewis</i>
		Signature:	



Legend

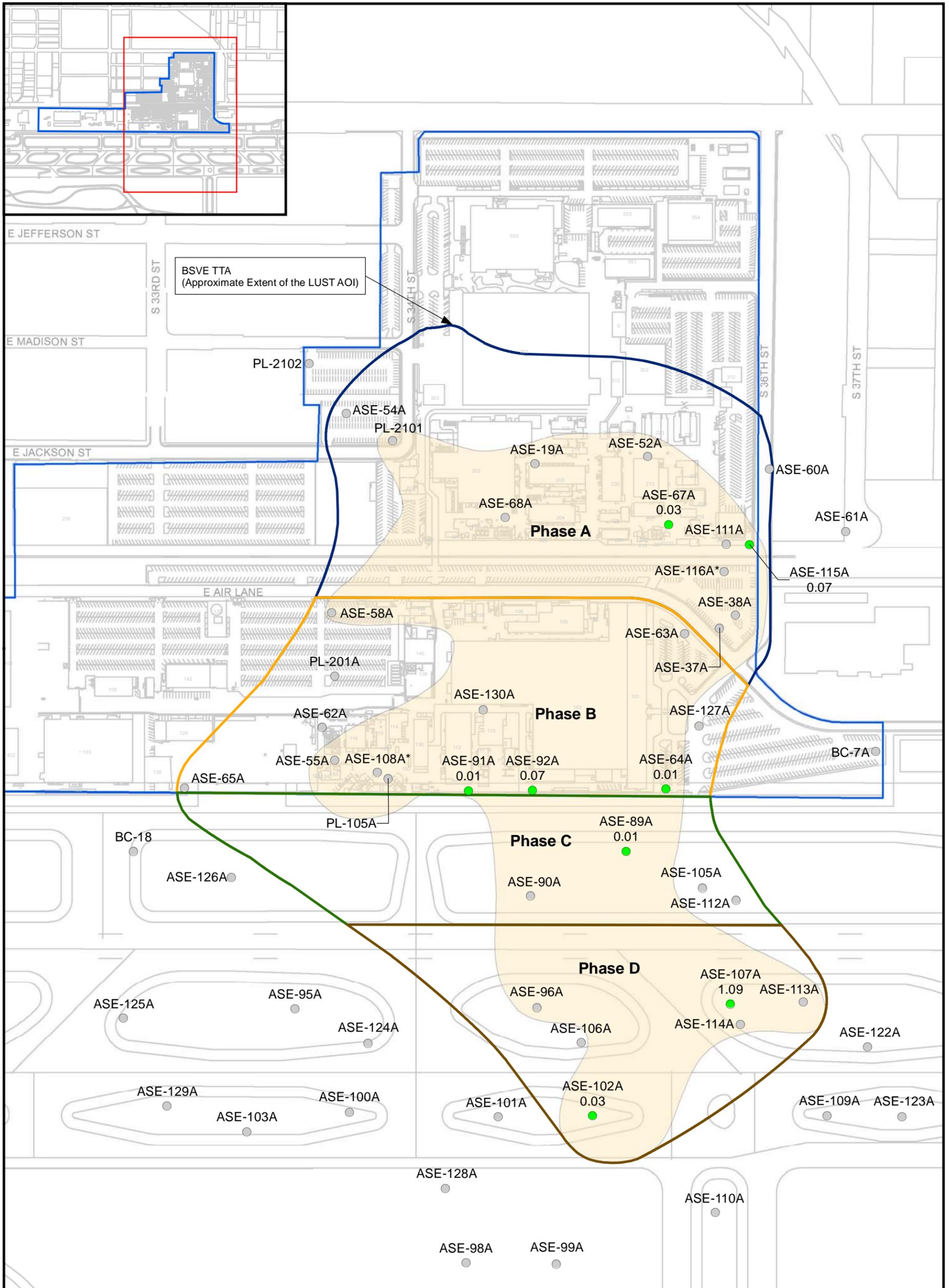
- ▲ Injection/Extraction Well, Triangle, Blue
- Process Monitoring Well, Circle, Red
- Sentinel Monitoring Well, Square, Green
- Potential Data Gap Well, Circle, Gray
- ⊠ Sub-slab Monitoring Well
- Street and Airport Features
- Honeywell Facility
- ▭ Honeywell-owned Property, Phase A
- ▭ Honeywell-leased Property, Phase B
- ▭ PSHIA Property North of Runway 8-26, Phase C
- ▭ PSHIA Property South of Runway 8-26, Phase D

Notes:

- BSVE = Biologically Enhanced Soil Vapor Extraction.
- TTA = Target Treatment Area
- LUST = Leaking Underground Storage Tank
- AOI = Area of Interest
- Phase C Injection Extraction Wells not currently connected to the BSVE System.
- Groundwater wells with a top of screen less than or equal to 75 feet below ground surface presented in figure.
- Utility Vault, and Manhole Monitoring locations not presented.

**FIGURE A-2
BSVE SYSTEM SOIL-VAPOR
MONITORING NETWORK**
*Honeywell 34th Street Facility
Phoenix, Arizona*

Originator: Rakesh Singh	(print name)	Rakesh Singh	Approved by STC or PM: Tasha Lewis
Checked by: Lars Peterson	(print name)	Lars Peterson	Tasha Lewis
		(signature)	(signature)



Legend

- Free Product Detected (thickness provided in feet); 1.09
- Free Product Not Detected
- Street and Airport Features
- Honeywell Facility
- Historical Free-Product Extent (as of Sept 30, 2010)
- Honeywell-owned Property, Phase A
- Honeywell-leased Property, Phase B
- PSHIA Property North of Runway 8-26, Phase C
- PSHIA Property South of Runway 8-26, Phase D

Notes:

- BSVE = Biologically Enhanced Soil Vapor Extraction.
- TTA = Target Treatment Area
- LUST = Leaking Underground Storage Tank
- AOI = Area of Interest
- The maximum free-product thickness measurement collected during the Third Quarter 2010 is posted for monitoring wells that contained free product during this quarter.
- * Free product has not been observed in monitoring wells ASE-108A and ASE-116A. These wells are included within the historical free-product extent due to their proximity to wells that have contained free product.

**FIGURE A-3
HISTORICAL FREE-PRODUCT
EXTENT
Honeywell 34th Street Facility
Phoenix, Arizona**

Originator: Rakesh Singh	Print Name: Rakesh Singh	Signature: Rakesh Singh	Approved by STC or PM: Tasha Lewis
Checked by: Lara Peterson	Print Name: Lara Peterson	Signature: Lara Peterson	Signature: Tasha Lewis

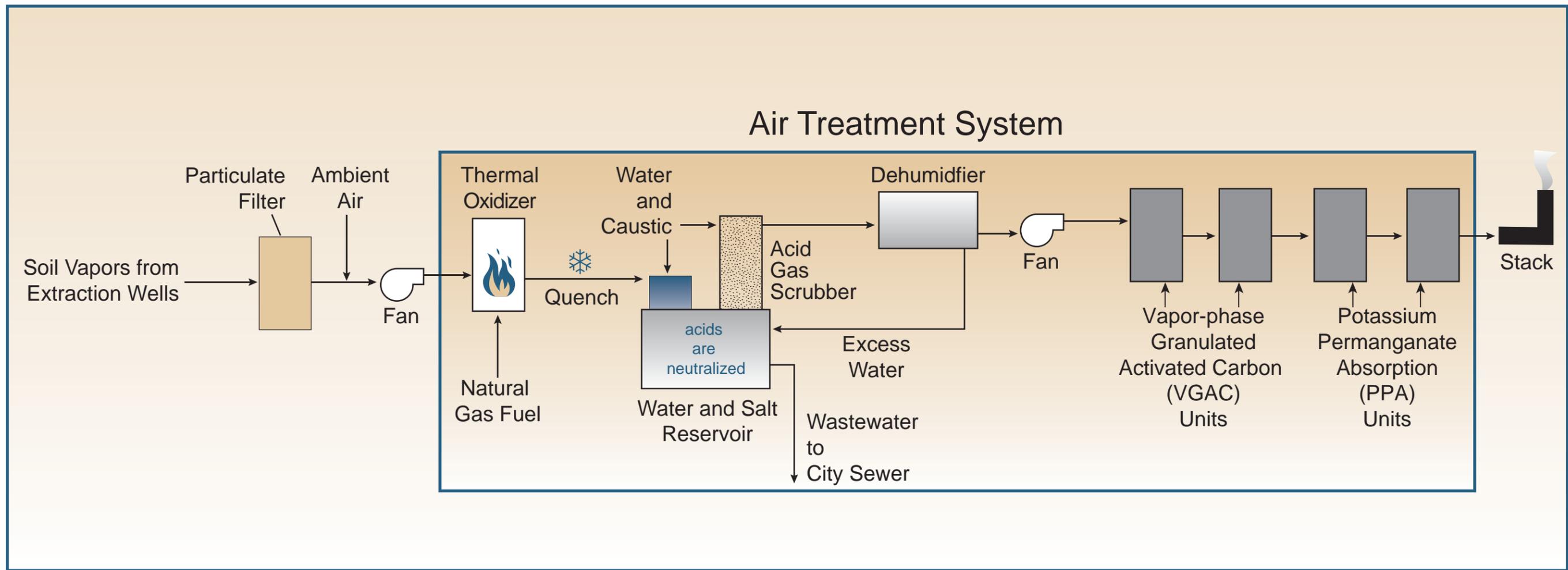


FIGURE A-4
BIOLOGICALLY-ENHANCED SOIL VAPOR EXTRACTION SYSTEM PROCESS FLOW DIAGRAM
Honeywell 34th Street Facility
Phoenix, Arizona

Originator: BSVE O&M Manual (CH2M HILL, 2010)	(print name)	
Checked by: Cara McDaniels	(print name)	<i>Cara McDaniels</i>
Approved by STC or PMA: Tasha Lewis	(print name)	<i>Tasha Lewis</i>

Appendix B
Vault Air Action Levels

APPENDIX B

Vault Air Action Levels (VAALs)

Contents

- B-1 Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona, Technical Memorandum
- B-2 Revised VAAL Cumulative Cancer Risks and Hazard Index Estimate Calculations

Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona

PREPARED FOR: Cynthia Parker/City of Phoenix
CC: Troy Meyer/Honeywell
PREPARED BY: CH2M HILL, Inc.
DATE: July 14, 2006

At the request of the City of Phoenix (COP), CH2M Hill has prepared this technical memorandum (TM), on behalf of Honeywell, to present risk-based action levels (ALs) in air associated with potential worker exposure that may occur during work within underground utility vaults located at the Phoenix Sky Harbor International Airport (PSHIA), coincident with the Honeywell Leaking Underground Storage Tank (LUST) area of interest. The LUST area of interest includes the eastern portion of the Honeywell 34th Street Facility and the north-central portion of the PSHIA (collectively referred to as the Site). A biologically enhanced soil vapor extraction (BSVE) system is being designed to address a free product jet fuel plume that is present in groundwater approximately 70 to 95 feet beneath the ground surface at the Site.

This technical memorandum is a companion document to the Draft Field Sampling Plan (FSP) for PSHIA Subsurface Utility Vault Baseline Air Sampling Using EPA Method TO-15 [CH2M HILL, 2006] and is intended for use in evaluating concentrations in air samples collected from vaults sampled using the FSP. Air samples will be collected from the underground utility vaults under conditions with no air injection occurring, also referred to as "static" conditions.

The ALs were derived using methods and assumptions developed by the U.S. Environmental Protection Agency (USEPA). They are intended only to be used to assess potential exposure to workers entering the underground utility vaults at the Site. Comparison of air sampling results with these ALs, and with ambient concentrations in air, will be provided to the COP for its use in evaluating potential exposures of workers entering the vaults. The results of this evaluation may be used to later compare with conditions during the full-scale operation of the BSVE system.

To assess the potential exposures to workers entering the vaults, air sampling results - collected from the vaults with the vault lids open as described in the FSP - will be compared to the ALs, as well as to concentrations detected in air sample results from vaults on the southern airfield and in above-ground ambient air samples from the southern airfield. At the request of COP, a limited number of air samples will also be collected from the vaults prior to opening the vaults (i.e., vault lids closed during sampling). The results will be evaluated qualitatively in order to support COP risk management decisions.

Derivation of the ALs

ALs were developed for the VOCs included on the EPA Method TO-15 target analyte list. Derivation of the ALs is based on exposure assumptions for the COP's Confined Space Entry Program (COP, 1995) work practices (i.e., the vault entry procedures that are currently under revision, see draft Appendix G - May 2006 Supplemental Update to: the City of Phoenix Aviation Department's Confined Space Entry Program by AMEC [AMEC, 2006]).

The ALs are based on a target cancer risk of 1×10^{-5} or non-cancer Hazard Quotient (HQ) of 1. The target risk level for industrial sites is used. ADEQ Underground Storage Tank (UST) Program Release Reporting and Corrective Action Guidance (ADEQ, 2002) uses a target risk level of $1E-05$ for industrial sites in Arizona. This value is also consistent with the development and implementation of ADEQ's soil remediation levels (SRLs) in A.R.S. § 49-151, 49-152, 49-282. 06.

With the exception of the exposure frequency assumption, EPA's standard default exposure factors for workers (USEPA, 2006) were used to develop the ALs. Based on information provided by Cynthia Parker (COP) during the weekly Honeywell/COP conference call on June 14, 2006, a worker may enter a vault once per month and spends a total of 1 to 2 hours in the vault during that event. The exposure frequency used in the derivation of the AL assumes an 8-hour exposure time, which is more conservative than the 1 to 2 hours in the vault. In addition, an individual worker may be required to enter a vault for 20 minutes per hour over a 24- to 48-hour period, as part of an infrequently-conducted maintenance procedure. Based on this information, a reasonably conservative assumption for the exposure frequency is considered to be 12 days/year, or one full work-day per month, over a duration of 25-years.

Exposure factors are provided in Table 1. The target cancer risk level or noncancer HQ and exposure factors were combined with USEPA-derived toxicity values (cancer potency factors or noncancer RfD values) to derive the ALs. The derived ALs are presented in Table 2.

Application of the Action Levels

The ALs are intended to be used to evaluate concentrations in air within the interior of the vaults under static conditions before operation of the BSVE system (i.e., no air injection), and, as appropriate, during operation of the BSVE system (i.e., air injection and extraction). Prior to startup of the BSVE the ALs will be re-evaluated to assess if the exposure conditions assumed during the derivation of the ALs are still applicable. The ALs are not intended to act as a final site cleanup or closure goal. Information regarding the sampling methodology is outlined in the FSP (CH2M HILL, 2006).

The ALs will be used to evaluate the air sampling results from underground vaults in the northern airfield as described below:

1. As described in the FSP, perform one baseline air sampling event and another subsequent sampling event with a limited subset of sample locations from the baseline event, by collecting air samples from the vaults identified in the FSP and

- analyze the samples using the TO-15 analytical methods with appropriate target reporting limits.
2. As described in the FSP, collect above-ground ambient air samples from locations nearby the vaults at the same time the vault air sampling is being conducted. In addition, collect above-ground ambient air samples and vault air samples from the southern airfield area at the PSHIA.
 3. Compare the relevant air sampling results collected from the vaults (i.e., vault lid open), to the ALs (see Table 2).
 4. If the concentration of a given chemical from a relevant air sampling result collected from a vault is less than or equal to its corresponding AL, Honeywell and the COP will discuss the need for further sampling at that specific vault.
 5. If the concentration of a given chemical from a relevant air sampling result collected from a vault is greater than its corresponding AL, compare the concentration of the specific chemical to the range of concentrations obtained from the above-ground ambient air sample results collected from the southern airfield and air sample results from vaults on the southern airfield.
 6. If the concentration of a given chemical from a relevant air sampling result collected from a vault is less than or equal to the the range of concentrations obtained from the above-ground ambient air sample results collected from the southern airfield and air sample results from vaults on the southern airfield, Honeywell and the COP will discuss the need for further sampling at that specific vault.
 7. If the concentration of a given chemical from a relevant air sampling result collected from a vault is greater than the range of concentrations obtained from the above-ground ambient air sample results and vaults in the southern airfield, then further evaluation may be required for those chemicals. As a part of this further evaluation, Honeywell will identify and propose sampling locations, sampling frequencies, and target analytes for consideration until the startup of the BSVE system. Further sampling during the operation of the BSVE system will be addressed at a later date as part of the BSVE design activities. .In addition, Honeywell is willing, if necessary, to re-sample any vault in which concentrations of certain chemicals exceeded their respective ALs or ambient values during the second round of the static sampling event. Honeywell will need at least one week's notice to prepare for the sampling.
 8. As an additional evaluation step, the two above-ground ambient air samples collected from the northern airfield will also be qualitatively evaluated to identify potential differences between the vault and above air concentrations that may influence the future direction of the vault sampling program.

In addition, the results from the underground vault air sampling will be compared to occupational exposure limits. The COP will be notified promptly in the event that concentrations higher than occupational exposure limits are detected in any of the vaults.

References

AMEC Earth & Environmental, Inc. (AMEC), 2006. DRAFT: Attachment G - May 2006 Supplemental Update to: the City of Phoenix Aviation Department's Confined Space Entry Program, Policies and Procedures for Entry into Confined Spaces, dated February 15, 1995; Standard Operating Procedures for Confined Space Entry into the North Airfield Utility Vaults at the Sky Harbor International Airport. May 25, 2006.

Arizona Department of Environmental Quality (ADEQ). 2002. Release Reporting and Corrective Action Guidance. Underground Storage Tank Program August.

CH2M HILL, Inc. 2006 (to be submitted). Draft Field Sampling Plan for PSHIA Subsurface Utility Vault Baseline Air Sampling Using EPA Method TO-15.

City of Phoenix Aviation Department (COP). 1995. Confined Space Entry Program. February 15, 1995.

United States Environmental Protection Agency (USEPA). 2006. Preliminary Remediation Goals, Revision Date: December 2004.

<http://www.epa.gov/region09/waste/sfund/prg/index.html>

Table 1
Exposure Parameters and Equations for Deriving Action Levels for Air in Vaults under Static Conditions
Derivation of Proposed Air Action Levels for Underground Utility Vaults Technical Memorandum
Honeywell 34th Street Facility, Phoenix, AZ

Exposure Parameter	Abbreviaton	Value	Units	Source	Notes
Target Cancer Risk Level (Carcinogens)	TRL	1E-05	[unitless]	ADEQ, 2002	Target risk level for industrial sites. ADEQ Underground Storage Tank (UST) Program Release Reporting and Corrective Action Guidance (ADEQ, 2002) uses a target risk level of 1E-05 for industrial sites in Arizona, and is consistent with the development and implementation of ADEQ's soil remediation levels (SRLs) in A.R.S. § 49 151, 49-152, 49-282. 06.
Target Hazard Quotient (Non-Carcinogens)	THQ	1	[unitless]	EPA, 1989	
Exposure Duration	ED	25	[years]	EPA, 199	Standard Default Exposure Factors
Exposure Frequency	EF	12	[days/year]	Site-Specific Assumption	Based on information provided by the COP on June 14, 2006 (verbal). A conservative assumption of 8 hours per day based on receptor behavior: the same worker enters a vault once per month each year and spends a total of 1 or 2 hours in the vault. In addition, an individual worker may be required to enter a vault for 20 to 40 minutes per hour for 24 to 48 hours in a vault. However, this activity would not occur on a frequent basis.
Inhalation Rate	InhR	20	[m ³ /day]	EPA, 1989	RAGS Part A
Body Weight	BW	70	[kg]	EPA, 1989	RAGS Part A
Carcinogenic Slope Factor - Inhalation	SFi	chemical-specific	[mg/kg/day] ⁻¹	EPA, 2006	IRIS Database
Reference Dose - Inhalation	RfDi	chemical-specific	[mg/kg/day]	EPA, 2006	IRIS Database
Average Time - Carcinogens	ATc	25550	[days]	EPA, 1989	RAGS Part A
Average Time - Non-Carcinogens	ATnc	9125	[days]	EPA, 1989	RAGS Part A
Units Conversion Factor	CF1	1000	[ug/mg]		

Equation for Vault Air Action Level - Static - Carcinogen

$$VAAL_{static_c} = (TRL * BW * ATc * CF1) / (ED * EF * InhR * SFi)$$

Equation for Vault Air Action Level - Static - Non-Carcinogen

$$VAAL_{static_nc} = (THQ * BW * RfD * ATnc * CF1) / (ED * EF * InhR)$$

Table 2

Vault Air Action Levels (VAALs) - Action Levels for Air in Vaults Under Static Conditions
 Derivation of Proposed Air Action Levels for Underground Utility Vaults Technical Memorandum
 Honeywell 34th Street Facility, Phoenix, AZ

Analyte	CAS NO	Carcinogenic Slope Factor Inhalation [mg/kg/day] ¹	Non-Cancer Reference Dose Inhalation [mg/kg/day]	VAAL 10-5 target cancer risk [µg/m ³]	VAAL HQ=1 non-cancer risk [µg/m ³]	Basis	VAAL [µg/m ³]	Conversion Factor [µg/m ³ to µg/L]	VAAL [µg/L]	Conversion Factor [µg/L to ppmv]	VAAL [ppmv]
1,1,1,2-Tetrachloroethane	630-20-6	0.026	0.030	115	3194	c	115	0.001	0.12	0.15	0.017
1,1,1-Trichloroethane	71-55-6	--	0.63	--	66917	nc	66,917	0.001	67	0.18	12
1,1,2,2-Tetrachloroethane	79-34-5	0.20	0.060	15	6388	c	15	0.001	0.015	0.15	0.0021
1,1,2-trichloro-1,2,2-trifluoroethane	76-13-1	--	8.6	--	915542	nc	915,542	0.001	916	0.13	119
1,1,2-Trichloroethane	79-00-5	0.056	0.0040	53	426	c	53	0.001	0.053	0.18	0.010
1,1-Dichloroethane	75-34-3	--	0.14	--	15208	nc	15,208	0.001	15	0.25	3.8
1,1-Dichloroethene	75-35-4	--	0.057	--	6083	nc	6,083	0.001	6.1	0.25	1.5
1,2,4-Trichlorobenzene	120-82-1	--	0.0010	--	106	nc	106	0.001	0.11	0.13	0.014
1,2,4-Trimethylbenzene	95-63-6	--	0.0017	--	181	nc	181	0.001	0.18	0.20	0.037
1,2-Dibromo-3-Chloropropane	96-12-8	7.0	--	0.43	--	c	0.43	0.001	0.00043	0.10	0.000044
1,2-Dibromoethane (EDB)	106-93-4	2.0	0.0026	1.5	277	c	1.5	0.001	0.0015	0.13	0.00019
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2			n/a				0.001		n/a	
1,2-Dichlorobenzene	95-50-1	--	0.057	--	6083	nc	6,083	0.001	6.1	0.17	1.0
1,2-Dichloroethane	107-06-2	0.091	0.0014	33	149	c	33	0.001	0.033	0.25	0.0081
1,2-Dichloropropane	78-87-5	0.068	0.0011	44	122	c	44	0.001	0.044	0.22	0.010
1,3,5-Trimethylbenzene	108-67-8	--	0.0017	--	181	nc	181	0.001	0.18	0.20	0.036
1,3-Butadiene	106-99-0	0.11	0.00057	27	61	c	27	0.001	0.027	0.45	0.012
1,3-Dichlorobenzene	541-73-1	--	0.030	--	3194	nc	3,194	0.001	3.2	0.16	0.52
1,4-Dichlorobenzene	106-46-7	0.022	0.23	135	24333	c	135	0.001	0.14	0.17	0.023
1,4-Dioxane	123-91-1	0.011	--	271	--	c	271	0.001	0.27	0.28	0.075
2,2,4-Trimethylpentane	540-84-1			n/a				0.001		n/a	
2-Butanone (MEK)	78-93-3	--	1.4	--	149042	nc	149,042	0.001	149	0.34	51
2-Hexanone	591-78-6			n/a				0.001		n/a	
2-Propanol	67-63-0			n/a				0.001		n/a	
4-Ethyltoluene	622-96-8			n/a				0.001		n/a	
Acetone	67-64-1	--	0.90	--	95813	nc	95,813	0.001	96	0.42	40
Acrolein	107-02-8	--	0.0000057	--	1	nc	0.61	0.001	0.00061	0.44	0.00026
Acrylonitrile	107-13-1	0.24	0.00057	13	61	c	13	0.001	0.013	0.46	0.0058
Allyl chloride	107-05-1	--	0.00029	--	30	nc	30	0.001	0.030	0.32	0.010
Benzene	71-43-2	0.027	0.0086	110	913	c	110	0.001	0.11	0.31	0.035
Benzene, (Chloromethyl)-	100-44-7	0.17	0.0029	18	309	c	18	0.001	0.018	0.19	0.0034
Bromodichloromethane	75-27-4	0.062	0.020	48	2129	c	48	0.001	0.048	0.15	0.0070
Bromoethene	593-60-2	0.11	0.00085	27	90	c	27	0.001	0.027	0.23	0.0062
Bromoform	75-25-2	0.0039	0.020	774	2129	c	774	0.001	0.77	0.10	0.075
Bromomethane	74-83-9	--	0.0014	--	152	nc	152	0.001	0.15	0.26	0.039
Carbon Tetrachloride	56-23-5	0.053	0.00070	57	75	c	57	0.001	0.057	0.16	0.0090
Chlorobenzene	108-90-7	--	0.017	--	1810	nc	1,810	0.001	1.8	0.22	0.39
Chloroethane	75-00-3	0.0029	2.9	1027	304167	c	1,027	0.001	1.0	0.38	0.39
Chloroform	67-66-3	0.081	0.014	37	1490	c	37	0.001	0.037	0.20	0.0075
Chloromethane	74-87-3	--	0.026	--	2738	nc	2,738	0.001	2.7	0.48	1.3
cis-1,2-Dichloroethene	156-59-2	--	0.010	--	1065	nc	1,065	0.001	1.1	0.25	0.27
cis-1,3-Dichloropropene	10061-01-5			n/a				0.001		n/a	
Cyclohexane	110-82-7	--	1.7	--	178305	nc	178,305	0.001	178	0.29	52
Dibromochloromethane	124-48-1	0.084	0.020	35	2129	c	35	0.001	0.035	0.12	0.0041
Dichlorodifluoromethane	75-71-8	--	0.057	--	6083	nc	6,083	0.001	6.1	0.20	1.2
Dichlorofluoromethane	75-43-4			n/a				0.001			n/a
Ethyl Acetate	141-78-6	--	0.90	--	95813	nc	95,813	0.001	96	0.28	27
Ethylbenzene	100-41-4	--	0.29	--	30417	nc	30,417	0.001	30	0.23	7.0

Table 2
 Vault Air Action Levels (VAALs) - Action Levels for Air in Vaults Under Static Conditions
 Derivation of Proposed Air Action Levels for Underground Utility Vaults Technical Memorandum
 Honeywell 34th Street Facility, Phoenix, AZ

Analyte	CAS NO	Carcinogenic Slope Factor Inhalation [mg/kg/day] ¹	Non-Cancer Reference Dose Inhalation [mg/kg/day]	VAAL 10-5 target cancer risk [µg/m³]	VAAL HQ=1 non-cancer risk [µg/m³]	Basis	VAAL [µg/m³]	Conversion Factor [µg/m³ to µg/L]	VAAL [µg/L]	Conversion Factor [ug/L to ppmv]	VAAL [ppmv]
Heptane	142-82-5		n/a					0.001		n/a	
Hexachlorobutadiene	87-68-3	0.078	0.00030	38	32	nc	32	0.001	0.032	0.09	0.0030
Hexane	110-54-3	--	0.057	--	6083	nc	6,083	0.001	6.1	0.28	1.7
Isopropylbenzene	98-82-8	--	0.11	--	12167	nc	12,167	0.001	12	0.20	2.5
Methyl isobutyl ketone (MIBK)	108-10-1	--	0.86	--	91554	nc	91,554	0.001	92	0.24	22
Methyl tert-butyl ether (MTBE)	1634-04-4	0.0018	0.86	1656	91250	c	1,656	0.001	1.7	0.28	0.46
Methylene chloride	75-09-2	0.0016	0.86	1812	91554	c	1,812	0.001	1.8	0.29	0.52
Napthalene	91-20-3	--	0.00086	--	91	nc	91	0.001	0.091	0.19	0.017
n-propyl benzene	103-65-1	--	0.040	--	4258	nc	4,258	0.001	4.3	0.20	0.87
p-Isopropyltoluene	99-87-6			n/a				0.001		n/a	
Propylene	115-07-1			n/a				0.001		n/a	
sec-Butylbenzene	135-98-8	--	0.040	--	4258	nc	4,258	0.001	4.3	0.18	0.76
Styrene	100-42-5	--	0.29	--	30417	nc	30,417	0.001	30	0.23	7.1
Tetrachloroethene	127-18-4	0.021	0.010	144	1065	c	144	0.001	0.14	0.15	0.021
Tetrahydrofuran	109-99-9	0.0068	0.086	438	9123	c	438	0.001	0.44	0.34	0.15
Toluene	108-88-3	--	0.11	--	12167	nc	12,167	0.001	12	0.27	3.2
trans-1,2-Dichloroethene	156-60-5	--	0.020	--	2129	nc	2,129	0.001	2	0.25	0.54
trans-1,3-Dichloropropene	10061-02-6			n/a				0.001		n/a	
Trichloroethene	79-01-6	0.0070	0.17	426	18250	c	426	0.001	0.43	0.19	0.079
Trichlorofluoromethane	75-69-4	--	0.20	--	21292	nc	21,292	0.001	21	0.18	3.8
Vinyl acetate	108-05-4	--	0.057	--	6083	nc	6,083	0.001	6.1	0.28	1.7
Vinyl chloride	75-01-4	0.016	0.029	186	3042	c	186	0.001	0.19	0.39	0.073
Xylene, o ¹	95-47-6	--	0.029	--	3087	nc	3,087	0.001	3.1	0.23	0.71
Xylenes, m & p ¹	XYLENES131	--	0.029	--	3087	nc	3,087	0.001	3.1	0.23	0.71
Xylenes, Total	1330-20-7	--	0.029	--	3087	nc	3,087	0.001	3.1	0.23	0.71

Notes:

¹ The inhalation reference dose for total xylenes was used as a surrogate for o-xylene and m&p-xylenes.

Attachment 1: Errata No. 1

Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona

The following information regarding derivation of the vault air action levels (VAALs) is provided to supplement the *Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona Technical Memorandum* (CH2M HILL, 2006).

The following equations and parameters were used to calculate the VAALs presented in Table 2 of the 2006 technical memorandum (TM):

Cancer-based VAALs

$$VAAL (\mu g/m^3) = \frac{TR * BWa * ATc * 1,000 \mu g/mg}{EFo * EDo * IRAa * CPSi}$$

where,

TR = target cancer risk level = 10E-5 (as discussed in the TM)

BWa = body weight, adult = 70 kg (default value)

ATc = averaging time, carcinogenic effect = 25,550 days (default value)

EFo = exposure frequency, occupational = 12 days/year (as discussed in the TM)

EDo = exposure duration, occupational = 25 years (default value)

IRAa = inhalation rate, adult = 20 m³/day (default value)

CPSi = carcinogenic potency slope, inhaled = chemical specific risk per mg/kg/day (obtained from the EPA (2004) Preliminary Remediation Goals as discussed in the TM)

Non-cancer-based VAALs

$$VAAL (\mu g/m^3) = \frac{THQ * RfDi * BWa * ATn * 1,000 \mu g/mg}{EFo * EDo * IRAa}$$

where,

THQ = target hazard quotient = 1 (as discussed in the TM)

RfDi = reference dose, inhaled = chemical specific (obtained from the EPA (2004) Preliminary Remediation Goals as discussed in the TM)

BWa = body weight, adult = 70 kg (default value)

ATn = averaging time, non-carcinogenic effect = ED * 365 days

EFo = exposure frequency, occupational = 12 days/year (as discussed in the TM)

EDo = exposure duration, occupational = 25 years (default value)

IRAa = inhalation rate, adult = 20 m³/day (default value)

Additionally, Table 2 of the TM has been revised to present both cancer- and non-cancer-based VAALs for each constituent.

Revised Cumulative Cancer Risks and Hazard Index Estimate Calculations for Vault Air

Errata No. 1 for Appendix F-9 of the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2009)

This errata updated Appendix F-9 of the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility, Phoenix, Arizona* (Draft FHHRA Report; CH2M HILL, 2009), which is now Appendix B-2 of this FFHRA Report.

Air samples were collected from subsurface utility vaults at Phoenix Sky Harbor International Airport (PSHIA) during January and June 2007 to assess potential worker exposure to volatile organic compounds (VOCs) in the vault air as presented in the *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Technical Memorandum* (CH2M HILL, 2007). Ongoing vault air monitoring at VLT-1156 and VLT-2145 was performed as part of the *Non-Process Soil Vapor Monitoring Program* (NPSVMP), *Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17*. April 18 (CH2M HILL, 2008a).

The potential for VOCs to be transported via the vapor intrusion pathway from impacted groundwater in the vicinity of the Honeywell Leaking Underground Storage Tank area of interest to the air within the subsurface utility vaults at PSHIA was identified during preparation of the *Draft Risk Assessment Update, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2006a). The City of Phoenix (COP) Aviation Environmental Department requested that an assessment be performed (June 14, 2006 project coordination conference call; AMEC, 2006) because workers enter the vaults for brief periods for maintenance and inspection activities related to airport operations.

The VAALs were developed to evaluate the vault air sample results because of the unique exposure scenario (i.e., PSHIA workers may be in the vaults 8 hours per day, 12 times a year for 25 years). Derivation of the VAALs is presented in the *Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix Arizona Technical Memorandum* (CH2M HILL, 2006c) and in Attachment 1: Errata No. 1 to the Derivation of the VAALs TM (CH2M HILL, 2011). The procedures and methods used to collect and analyze vault air samples using evacuated SUMMA canisters from the subsurface utility vaults are described in the *Final Field Sampling Plan for PSHIA Subsurface Utility Vaults for Baseline Air Sampling Using EPA Method TO-15* (CH2M HILL, 2006b). The evaluation of the January and June 2007 sampling data are presented in the *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Draft Technical Memorandum* (CH2M HILL, 2007). The evaluation of the July and August 2008 data associated with VLT-

1156 and VLT-2145 are presented in the *Third Quarter Status Report for 2008, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17* (CH2M HILL, 2008b).

The cumulative cancer risk and hazard index estimates for the 2007 vault air samples were presented in Table 3-1 of the *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Draft Technical Memorandum* (CH2M HILL, 2007). The cumulative cancer risk and hazard index estimates for the 2007 and 2008 vault air samples were presented in Appendix F-9 from the Draft FHHRA Report. However, to address the Agencies' comments (i.e., Arizona Department of Environmental Quality and United States Environmental Protection Agency [USEPA]; Arizona Department of Environmental Quality [ADEQ], 2010) on the Draft FHHRA Report (specifically that the cancer risks presented in Appendix F-9 of the Draft FHHRA Report were calculated using 1E-06 when they should have been calculated using 1E-05) the VAALs and cancer risk calculations were reviewed and Appendix F-9 was updated and renamed as Table B2-1 of Appendix B of this report.

As presented in the *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Draft Technical Memorandum* (CH2M HILL, 2007), air samples were collected from inside the vaults while the lids were open to mimic working conditions (i.e., when workers are in the vaults the lids remain open) in January 2007. However, air samples were also collected from several of the vaults while the lids were closed at the request of the COP to assess VOC concentrations inside the vaults under different conditions in January 2007. A comparison of the sampling results under the different conditions (i.e., vault lids open and closed) concluded that the sampling results for detected compounds are generally the same for samples collected with the vault lid closed and open (CH2M HILL, 2007). The June 2007 vault air sampling was performed with the vault lids closed to evaluate the non-ventilated conditions. Air samples were collected with the vault lid open and closed in August 2008 from VLT-1156 and VLT-2145.

The vault air samples collected in January 2007 were analyzed by both USEPA Methods TO-15 and TO-15 Selective Ion Mode (SIM) to obtain lower reporting limits, while the vault air samples collected in June 2007 and July and August 2008 were analyzed by USEPA Method TO-15 only.

The cumulative cancer risk and non-cancer hazard index estimates for the 2007 and 2008 vault air samples were recalculated and are presented in the attached Table B2-1. The highest detected concentration of each constituent between the open-lid and closed-lid vault air samples was selected for the vaults sampled in January 2007 and August 2008. Additionally, the highest detected concentration of each constituent between the TO-15 and TO-15 SIM results was selected for the vaults sampled in January 2007.

The risk/hazard estimate for each detected constituent was calculated as follows:

- Cancer risk = (sample result [$\mu\text{g/L}$] / VAAL [$\mu\text{g/L}$]) * 1E-05 target cancer risk
- Non-cancer hazard quotient = (sample result [$\mu\text{g/L}$] / VAAL [$\mu\text{g/L}$]) * 1 hazard quotient

This revision to Table B2-1 did not change the conclusions of the *Supplemental Risk Assessment for PSHIA Subsurface Utility Vaults Baseline Air Sampling Results Draft Technical Memorandum* (CH2M HILL, 2007). Detected concentrations of VOCs did not exceed the

VAALs with the exception of acrolein. However, it was concluded that the detected concentrations of acrolein in vault air were similar to those in ambient air (CH2M HILL, 2007). Acrolein is also found in jet and engine exhaust and other airport-related emissions (FAA, 2005).

This revision to Table B2-1 did not change the conclusions as presented in the Draft FHHRA Report with respect to the samples collected from VLT-1156 and VLT-2145. Detected concentrations of VOCs did not exceed the VAALs with the exception of hexane.

The individual risk/hazard estimates were added up for each sample to determine the cumulative cancer risk and hazard index estimate for each vault sampled in January and June 2007 and July and August 2008. The cumulative cancer risk estimates were less than or equal to 1E-05 and the non-cancer hazard quotient estimates were 0.1 or less excluding acrolein for the 2007 vault air samples; therefore the conclusion that there is no apparent additional risk to workers in vaults from exposure to VOCs in subsurface utility vault air under static conditions (i.e., no air injection during biologically-enhanced soil vapor extraction [BSVE] system operation) remains valid. The cumulative cancer risk estimates were less than or equal to 1E-05 for the 2008 vault air samples. However, the non-cancer hazard quotients estimates for the July and August 2008 samples from VLT-2145 were greater than 1.0.

Future sampling efforts to consider potential exposure to VOCs in subsurface utility vault air under dynamic conditions (i.e., active air injection) are being addressed as part of the BSVE operation and maintenance manual.

References

- Arizona Department of Environmental Quality (ADEQ). 2010. Letter from Ms. Sherri Zendri/ADEQ to Ms. Troy Kenney/Honeywell. "Comments on the *Honeywell Draft Focused Human Health Risk Assessment Report (FHHRA)*, dated January 2009, and the *Addendum, Screening Level Analysis of the Groundwater-to-Indoor Air Pathway (Addendum)*, dated September 2009, prepared by CH2M HILL, Honeywell 34th Street Facility, Motorola 52nd Street Superfund Site." May 25.
- AMEC Earth & Environmental, Inc. (AMEC). 2006. Attachment G, *August 3, 2006 Supplemental Update to: the City of Phoenix Aviation Department's Confined Space Entry Program, Policies and Procedures for Entry into Confined Spaces, dated February 15, 1995; Standard Operating Procedures for Confined Space Entry into the North Airfield Utility Vaults at the Sky Harbor International Airport.* August.
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- _____. 2011. *Errata No.1: Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona, Technical Memorandum.* March 2.
- Federal Aviation Administration (FAA). 2005. *O'Hare Modernization Final Environmental Impact Statement.* Chicago Airports District Office. September.

Insert Table B2-1

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	Cancer VAAL (µg/L)	Cancer Risk	% Contribution	Non-Cancer VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
Offsite PSHIA Exposure Area Vault Air									
ELE-VLT-15	1/17/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00056	J	---	---	920	<0.010	0
		1,2-Dichloroethane	0.000032	J	0.033	9.7E-09	0.15	<0.010	0
		1,2-Dichloropropane	0.000013	J	0.044	3.0E-09	0.12	<0.010	0
		1,4-Dichlorobenzene	0.000014	J	0.14	1.0E-09	24	<0.010	0
		2-Hexanone	0.00011	J	---	---	---	---	---
		Acetone	0.0064	J	---	---	96	<0.010	0
		Acrolein	0.00067	J	---	---	0.00061	1.1	100
		Benzene	0.00057	J	0.11	5.2E-08	0.91	<0.010	0
		Carbon tetrachloride	0.0004	J	0.057	7.0E-08	0.075	<0.010	0
		Chloroform	0.000093	J	0.037	2.5E-08	1.5	<0.010	0
		Chloromethane	0.0006	J	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0021	J	---	---	6.1	<0.010	0
		Ethylbenzene	0.00013	J	---	---	30	<0.010	0
		MEK (2-Butanone)	0.0017	J	---	---	150	<0.010	0
		Methylene chloride	0.00019	J	1.8	1.1E-09	92	<0.010	0
		o-Xylene	0.00013	J	---	---	3.1	<0.010	0
		Tetrachloroethene	0.000075	J	0.14	5.4E-09	1.1	<0.010	0
		Toluene	0.00071	J	---	---	12	<0.010	0
		Trichloroethene	0.000029	J	0.43	6.7E-10	18	<0.010	0
		Trichlorofluoromethane	0.001	J	---	---	21	<0.010	0
		Xylenes, mp	0.00038	J	---	---	3.1	<0.010	0
ELE-VLT-15 on 1/17/2007 Cumulative Cancer Risk or Hazard Index					1.7E-07		1.1		
ELE-VLT-16	1/17/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.0018	J	---	---	920	<0.010	0
		1,1-Dichloroethene	0.000089	J	---	---	6.1	<0.010	0
		1,2-Dichloroethane	0.000038	J	0.033	1.2E-08	0.15	<0.010	0
		1,2-Dichloropropane	0.000013	J	0.044	3.0E-09	0.12	<0.010	0
		1,4-Dichlorobenzene	0.000028	J	0.14	2.0E-09	24	<0.010	0
		2-Hexanone	0.00019	J	---	---	---	---	---
		Acetone	0.0076	J	---	---	96	<0.010	0
		Acrolein	0.00073	J	---	---	0.00061	1.2	100
		Benzene	0.00054	J	0.11	4.9E-08	0.91	<0.010	0
		Carbon tetrachloride	0.00042	J	0.057	7.4E-08	0.075	<0.010	0
		Chloromethane	0.0006	J	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0024	J	---	---	6.1	<0.010	0
		Ethylbenzene	0.00014	J	---	---	30	<0.010	0
		MEK (2-Butanone)	0.0019	J	---	---	150	<0.010	0
		Methylene chloride	0.0002	J	1.8	1.1E-09	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00018	J	---	---	92	<0.010	0
		o-Xylene	0.00018	J	---	---	3.1	<0.010	0
		Styrene	0.000087	J	---	---	30	<0.010	0
		Toluene	0.0007	J	---	---	12	<0.010	0
		Trichloroethene	0.000038	J	0.43	8.8E-10	18	<0.010	0
		Trichlorofluoromethane	0.0011	J	---	---	21	<0.010	0
		Xylenes, mp	0.00047	J	---	---	3.1	<0.010	0
ELE-VLT-16 on 1/17/2007 Cumulative Cancer Risk or Hazard Index					1.4E-07		1.2		

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
FBO-VLT-02	1/17/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00056	J	---	---	---	920	<0.010	0
		1,2-Dichloroethane	0.000037		0.033	1.1E-08	6.5	0.15	<0.010	0
		2-Hexanone	0.00015	J	---	---	---	---	---	---
		Acetone	0.0088		---	---	---	96	<0.010	0
		Acrolein	0.00065	J	---	---	---	0.00061	1.1	100
		Benzene	0.00058	J	0.11	5.3E-08	31	0.91	<0.010	0
		Carbon tetrachloride	0.00044	J	0.057	7.7E-08	45	0.075	<0.010	0
		Chloroform	0.000087	J	0.037	2.4E-08	14	1.5	<0.010	0
		Chloromethane	0.00062	J	---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0021		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00016	J	---	---	---	30	<0.010	0
		MEK (2-Butanone)	0.0018		---	---	---	150	<0.010	0
		Methylene chloride	0.00019	J	1.8	1.1E-09	0.61	92	<0.010	0
		o-Xylene	0.00017	J	---	---	---	3.1	<0.010	0
		Styrene	0.000091	J	---	---	---	30	<0.010	0
		Tetrachloroethene	0.000091		0.14	6.5E-09	3.8	1.1	<0.010	0
		Toluene	0.001		---	---	---	12	<0.010	0
		Trichloroethene	0.000028		0.43	6.5E-10	0.38	18	<0.010	0
Trichlorofluoromethane	0.001		---	---	---	21	<0.010	0		
Xylenes, mp	0.00049	J	---	---	---	3.1	<0.010	0		
FBO-VLT-02 on 1/17/2007 Cumulative Cancer Risk or Hazard Index					1.7E-07			1.1		
SW-MH-02	01/17/2007	1,1,1-Trichloroethane	0.00007	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.00057	J	---	---	---	920	<0.010	0
		1,1-Dichloroethane	0.00011	J	---	---	---	6.1	<0.010	0
		1,2-Dichloroethane	0.000039		0.033	1.2E-08	0.11	0.15	<0.010	0
		1,2-Dichloropropane	0.000012	J	0.044	2.7E-09	0.025	0.12	<0.010	0
		1,4-Dichlorobenzene	0.000027	J	0.14	1.9E-09	0.018	24	<0.010	0
		2-Hexanone	0.00019	J	---	---	---	---	---	---
		Acetone	0.0077		---	---	---	96	<0.010	0
		Acrolein	0.00085		---	---	---	0.00061	1.4	99
		Benzene	0.00051	J	0.11	4.6E-08	0.43	0.91	<0.010	0
		Bromodichloromethane	0.014		0.048	2.9E-06	27	2.1	<0.010	0
		Bromoform	0.0025		0.77	3.2E-08	0.30	2.1	<0.010	0
		Carbon tetrachloride	0.00046	J	0.057	8.1E-08	0.74	0.075	<0.010	0
		Chloroform	0.015		0.037	4.1E-06	37	1.5	0.010	0.71
		Chloromethane	0.00056	J	---	---	---	2.7	<0.010	0
		Dibromochloromethane	0.013		0.035	3.7E-06	34	2.1	<0.010	0
		Dichlorodifluoromethane	0.0021		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00017	J	---	---	---	30	<0.010	0
		MEK (2-Butanone)	0.0014		---	---	---	150	<0.010	0
		Methylene chloride	0.00026	J	1.8	1.4E-09	0.013	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00014	J	---	---	---	92	<0.010	0
		o-Xylene	0.00019	J	---	---	---	3.1	<0.010	0
		Tetrachloroethene	0.00012		0.14	8.6E-09	0.079	1.1	<0.010	0
Toluene	0.00081		---	---	---	12	<0.010	0		
Trichloroethene	0.00015		0.43	3.5E-09	0.032	18	<0.010	0		
Trichlorofluoromethane	0.0011		---	---	---	21	<0.010	0		
Vinyl chloride	0.000006	J	0.19	3.2E-10	0.0029	3.0	<0.010	0		
Xylenes, mp	0.00058	J	---	---	---	3.1	<0.010	0		
SW-MH-02 on 1/17/2007 Cumulative Cancer Risk or Hazard Index					1.1E-05			1.4		

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-06	1/23/2007	1,1,1-Trichloroethane	0.00011	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.00064	J	---	---	---	920	<0.010	0
		1,1-Dichloroethane	0.00012	J	---	---	---	15	<0.010	0
		1,1-Dichloroethene	0.000079	J	---	---	---	6.1	<0.010	0
		1,2,4-Trimethylbenzene	0.0032		---	---	---	0.18	0.018	0.98
		1,2-Dichloroethane	0.00005		0.033	1.5E-08	2.0	0.15	<0.010	0
		1,2-Dichloropropane	0.000015	J	0.044	3.4E-09	0.44	0.12	<0.010	0
		1,3,5-Trimethylbenzene	0.0009		---	---	---	0.18	<0.010	0
		1,4-Dichlorobenzene	0.00034	J	0.14	2.4E-08	3.2	24	<0.010	0
		2-Hexanone	0.00023	J	---	---	---	---	---	---
		Acetone	0.026		---	---	---	96	<0.010	0
		Acrolein	0.0011		---	---	---	0.00061	1.8	99
		Benzene	0.0047		0.11	4.3E-07	55	0.91	<0.010	0
		Carbon tetrachloride	0.00039	J	0.057	6.8E-08	8.9	0.075	<0.010	0
		Chloroform	0.00032	J	0.037	8.6E-08	11	1.5	<0.010	0
		Chloromethane	0.00082		---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0025		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.0022		---	---	---	30	<0.010	0
		Isopropylbenzene	0.00022	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0025		---	---	---	150	<0.010	0
		Methylene chloride	0.0014		1.8	7.8E-09	1.0	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00023	J	---	---	---	92	<0.010	0
		Naphthalene	0.00054	J	---	---	---	0.091	<0.010	0
		n-Propylbenzene	0.00059	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.0028		---	---	---	31	<0.010	0
		p-Cymene	0.00031	J	---	---	---	---	---	---
		sec-Butylbenzene	0.00013	J	---	---	---	4.3	<0.010	0
		Styrene	0.0012		---	---	---	30	<0.010	0
		Tetrachloroethene	0.0013		0.14	9.3E-08	12	1.1	<0.010	0
		Toluene	0.011		---	---	---	12	<0.010	0
		Trichloroethene	0.0019		0.43	4.4E-08	5.7	18	<0.010	0
Trichlorofluoromethane	0.0013		---	---	---	21	<0.010	0		
Vinyl chloride	0.000011	J	0.19	5.8E-10	0.075	3.0	<0.010	0		
Xylenes, mp	0.008		---	---	---	3.1	<0.010	0		
ELE-VLT-06 on 1/23/2007 Cumulative Cancer Risk or Hazard Index					7.7E-07		1.8			

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-07	1/23/2007	1,1,1-Trichloroethane	0.000085	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.00056	J	---	---	---	920	<0.010	0
		1,2,4-Trimethylbenzene	0.0019		---	---	---	0.18	0.011	1.0
		1,2-Dichloroethane	0.000042		0.033	1.3E-08	0.37	0.15	<0.010	0
		1,2-Dichloropropane	0.000015	J	0.044	3.4E-09	0.10	0.12	<0.010	0
		1,3,5-Trimethylbenzene	0.00058	J	---	---	---	0.18	<0.010	0
		1,4-Dichlorobenzene	0.00034	J	0.14	2.4E-08	0.70	24	<0.010	0
		Acetone	0.02		---	---	---	96	<0.010	0
		Acrolein	0.00064	J	---	---	---	0.00061	1.0	99
		Benzene	0.0035		0.011	3.2E-06	92	0.91	<0.010	0
		Carbon tetrachloride	0.00039	J	0.057	6.8E-08	2.0	0.075	<0.010	0
		Chloroform	0.00028	J	0.037	7.6E-08	2.2	1.5	<0.010	0
		Chloromethane	0.00089		---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0024		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.0019		---	---	---	30	<0.010	0
		Isopropylbenzene	0.00015	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0022		---	---	---	150	<0.010	0
		Methylene chloride	0.0019		1.8	1.1E-08	0.30	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00034	J	---	---	---	92	<0.010	0
		Naphthalene	0.00033	J	---	---	---	0.091	<0.010	0
		n-Propylbenzene	0.00042	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.0022		---	---	---	3.1	<0.010	0
		p-Cymene	0.00022	J	---	---	---	---	---	---
		Styrene	0.00068		---	---	---	30	<0.010	0
		Tetrachloroethene	0.0011		0.14	7.9E-08	2.3	1.1	<0.010	0
		Toluene	0.01		---	---	---	12	<0.010	0
		Trichloroethene	0.00029		0.43	6.7E-09	0.19	18	<0.010	0
		Trichlorofluoromethane	0.0012		---	---	---	21	<0.010	0
		Vinyl chloride	0.0000058	J	0.19	3.1E-10	0.0088	3.0	<0.010	0
		Xylenes, mp	0.0066		---	---	---	3.1	<0.010	0
ELE-VLT-07 on 1/23/2007 Cumulative Cancer Risk or Hazard Index					3.5E-06		1.1			

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-12	1/23/2007	1,1,1-Trichloroethane	0.00009	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.00054	J	---	---	---	920	<0.010	0
		1,2,4-Trimethylbenzene	0.001		---	---	---	0.18	<0.010	0
		1,2-Dibromoethane (EDB)	0.0000021	J	0.0015	1.4E-08	2.3	0.28	<0.010	0
		1,2-Dichloroethane	0.000044		0.033	1.3E-08	2.2	0.15	<0.010	0
		1,2-Dichloropropane	0.000014	J	0.044	3.2E-09	0.53	0.12	<0.010	0
		1,3,5-Trimethylbenzene	0.00026	J	---	---	---	0.18	<0.010	0
		1,4-Dichlorobenzene	0.00022	J	0.14	1.6E-08	2.6	24	<0.010	0
		2-Hexanone	0.00026	J	---	---	---	---	---	---
		Acetone	0.012		---	---	---	96	<0.010	0
		Acrolein	0.00074		---	---	---	0.00061	1.2	100
		Benzene	0.0031		0.11	2.8E-07	47	0.91	<0.010	0
		Carbon tetrachloride	0.0004	J	0.057	7.0E-08	12	0.075	<0.010	0
		Chloroform	0.00027	J	0.037	7.3E-08	12	1.5	<0.010	0
		Chloromethane	0.00076		---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0024		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.0013		---	---	---	30	<0.010	0
		Isopropylbenzene	0.00019	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0023		---	---	---	150	<0.010	0
		Methylene chloride	0.00092		1.8	5.1E-09	0.86	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00013	J	---	---	---	92	<0.010	0
		n-Propylbenzene	0.0002	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.0017		---	---	---	3.1	<0.010	0
		Styrene	0.00058	J	---	---	---	30	<0.010	0
		Tetrachloroethene	0.0015		0.14	1.1E-07	18	1.1	<0.010	0
		Toluene	0.0059		---	---	---	12	<0.010	0
		Trichloroethene	0.00055	J	0.43	1.3E-08	2.1	18	<0.010	0
		Trichlorofluoromethane	0.0012		---	---	---	21	<0.010	0
		Vinyl chloride	0.0000059	J	0.19	3.1E-10	0.052	3.0	<0.010	0
		Xylenes, mp	0.0042		---	---	---	3.1	<0.010	0
ELE-VLT-12 on 1/23/2007 Cumulative Cancer Risk or Hazard Index					6.0E-07			1.2		

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-20	1/23/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00054	J	---	---	---	920	<0.010	0
		1,2,4-Trimethylbenzene	0.00078		---	---	---	0.18	<0.010	0
		1,2-Dichloroethane	0.00004		0.033	1.2E-08	3.5	0.15	<0.010	0
		1,2-Dichloropropane	0.000011	J	0.044	2.5E-09	0.73	0.12	<0.010	0
		1,4-Dichlorobenzene	0.000066		0.14	4.7E-09	1.4	24	<0.010	0
		2-Hexanone	0.0002	J	---	---	---	---	---	---
		Acetone	0.012		---	---	---	96	<0.010	0
		Acrolein	0.00082		---	---	---	0.00061	1.3	100
		Benzene	0.0019		0.11	1.7E-07	50	0.91	<0.010	0
		Carbon tetrachloride	0.00038	J	0.057	6.7E-08	19	0.075	<0.010	0
		Chloroform	0.00012	J	0.037	3.2E-08	9.4	1.5	<0.010	0
		Chloromethane	0.00076		---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0022		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00061	J	---	---	---	30	<0.010	0
		Isopropylbenzene	0.00013	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0014		---	---	---	150	<0.010	0
		Methylene chloride	0.00057	J	1.8	3.2E-09	0.92	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00011	J	---	---	---	92	<0.010	0
		n-Propylbenzene	0.00015	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.00089		---	---	---	3.1	<0.010	0
		Styrene	0.00023	J	---	---	---	30	<0.010	0
		Tetrachloroethene	0.00066	J	0.14	4.7E-08	14	1.1	<0.010	0
		Toluene	0.0043		---	---	---	12	<0.010	0
Trichloroethene	0.00013	J	0.43	3.0E-09	0.88	18	<0.010	0		
Trichlorofluoromethane	0.0011		---	---	---	21	<0.010	0		
Xylenes, mp	0.0024		---	---	---	3.1	<0.010	0		
ELE-VLT-20 on 1/23/2007 Cumulative Cancer Risk or Hazard Index					3.4E-07			1.3		

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
FBO-VLT-03	1/23/2007	1,1,1-Trichloroethane	0.000091	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.0005	J	---	---	---	920	<0.010	0
		1,2,4-Trimethylbenzene	0.002		---	---	---	0.18	0.011	0.97
		1,2-Dichloroethane	0.000045		0.033	1.4E-08	1.9	0.15	<0.010	0
		1,2-Dichloropropane	0.000013	J	0.044	3.0E-09	0.42	0.12	<0.010	0
		1,3,5-Trimethylbenzene	0.00064	J	---	---	---	0.18	<0.010	0
		1,4-Dichlorobenzene	0.00033	J	0.14	2.4E-08	3.4	24	<0.010	0
		Acetone	0.022		---	---	---	96	<0.010	0
		Acrolein	0.00069	J	---	---	---	0.00061	1.1	99
		Benzene	0.004		0.11	3.6E-07	52	0.91	<0.010	0
		Carbon tetrachloride	0.00038	J	0.057	6.7E-08	9.5	0.075	<0.010	0
		Chloroform	0.00037	J	0.037	1.0E-07	14	1.5	<0.010	0
		Chloromethane	0.00091		---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0026		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.0022		---	---	---	30	<0.010	0
		Isopropylbenzene	0.00016	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0033		---	---	---	150	<0.010	0
		Methylene chloride	0.0022		1.8	1.2E-08	1.7	92	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00033	J	---	---	---	92	<0.010	0
		n-Propylbenzene	0.00045	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.0027		---	---	---	3.1	<0.010	0
		p-Cymene	0.0002	J	---	---	---	---	---	---
		Styrene	0.0011		---	---	---	30	<0.010	0
		Tetrachloroethene	0.0015		0.14	1.1E-07	15	1.1	<0.010	0
		Toluene	0.015		---	---	---	12	<0.010	0
		Trichloroethene	0.00053	J	0.43	1.2E-08	1.8	18	<0.010	0
		Trichlorofluoromethane	0.0012		---	---	---	21	<0.010	0
		Vinyl chloride	0.0000044	J	0.19	2.3E-10	0.033	3.0	<0.010	0
		Xylenes, mp	0.0081		---	---	---	3.1	<0.010	0
		FBO-VLT-03 on 1/23/2007 Cumulative Cancer Risk or Hazard Index					7.0E-07			1.1

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-06	6/18/2007	1,1,1- Trichloroethane	0.00053	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.018		---	---	---	920	<0.010	0
		1,1-Dichloroethane	0.018		---	---	---	15	<0.010	0
		1,1-Dichloroethene	0.023		---	---	---	6.1	<0.010	0
		1,2,4-Trimethylbenzene	0.0006	J	---	---	---	0.18	<0.010	0
		1,2-Dichloroethane	0.000021	J	0.033	6.4E-09	0.20	0.15	<0.010	0
		1,4-Dichlorobenzene	0.00024	J	0.14	1.7E-08	0.54	24	<0.010	0
		2-Hexanone	0.0012		---	---	---	---	---	---
		Acetone	0.036		---	---	---	96	<0.010	0
		Acrolein	0.0047		---	---	---	0.00061	7.7	100
		Acrylonitrile	0.00013	J	0.013	1.0E-07	3.2	0.061	<0.010	0
		Benzene	0.00049	J	0.11	4.5E-08	1.4	0.91	<0.010	0
		Carbon tetrachloride	0.00036	J	0.057	6.3E-08	2.0	0.075	<0.010	0
		Chloroethane	0.00026	J	1.0	2.6E-09	0.082	300	<0.010	0
		Chloroform	0.0042		0.037	1.1E-06	36	1.5	<0.010	0
		cis-1,2-Dichloroethene	0.00037	J	---	---	---	1.1	<0.010	0
		Dichlorodifluoromethane	0.0027		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00025	J	---	---	---	30	<0.010	0
		Isopropylbenzene	0.00014	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0063		---	---	---	150	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00057	J	---	---	---	92	<0.010	0
		Naphthalene	0.00062	J	---	---	---	0.091	<0.010	0
		n-Propylbenzene	0.00018	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.00038	J	---	---	---	3.1	<0.010	0
		Styrene	0.0026		---	---	---	30	<0.010	0
		Tetrachloroethene	0.014		0.14	1.0E-06	32	1.1	0.013	0.16
		Toluene	0.0012		---	---	---	12	<0.010	0
		Trichloroethene	0.031		0.43	7.2E-07	23	18	<0.010	0
		Trichlorofluoromethane	0.0077		---	---	---	21	<0.010	0
		Vinyl acetate	0.0083		---	---	---	6.1	<0.010	0
Vinyl chloride	0.0013		0.19	6.8E-08	2.2	3.0	<0.010	0		
Xylenes, mp	0.00094	J	---	---	---	3.1	<0.010	0		
ELE-VLT-06 on 6/18/2007 Cumulative Cancer Risk or Hazard Index					3.2E-06		7.7			

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	Cancer VAAL (µg/L)	Cancer		Non-Cancer VAAL (µg/L)	Non-Cancer Hazard		
					Cancer Risk	% Contribution		Quotient	% Contribution	
ELE-VLT-11	6/18/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.0047	---	---	---	920	<0.010	0	
		1,2,4-Trimethylbenzene	0.0009	---	---	---	0.18	<0.010	0	
		1,2-Dichloroethane	0.000021	J	0.033	6.4E-09	1.6	0.15	<0.010	0
		1,4-Dichlorobenzene	0.00014		0.14	1.0E-08	2.5	24	<0.010	0
		2-Hexanone	0.0015		---	---	---	---	---	---
		Acetone	0.043		---	---	---	96	<0.010	0
		Acrolein	0.004		---	---	---	0.00061	6.6	100
		Acrylonitrile	0.00012	J	0.013	9.2E-08	23	0.061	<0.010	0
		Benzene	0.0006		0.11	5.5E-08	14	0.91	<0.010	0
		Carbon disulfide	0.0037		---	---	---	21.3	<0.010	0
		Carbon tetrachloride	0.00029	J	0.057	5.1E-08	13	0.075	<0.010	0
		Chlorobenzene	0.00011	J	---	---	---	1.8	<0.010	0
		Chloroethane	0.00038	J	1.0	3.8E-09	0.94	300	<0.010	0
		Chloroform	0.00036	J	0.037	9.7E-08	24	1.5	<0.010	0
		Chloromethane	0.0003	J	---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0023		---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00035	J	---	---	---	30	<0.010	0
		Isopropylbenzene	0.00064	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.013		---	---	---	150	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.0015		---	---	---	92	<0.010	0
		Naphthalene	0.0006	J	---	---	---	0.091	<0.010	0
		n-Propylbenzene	0.00027	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.00056	J	---	---	---	3.1	<0.010	0
		Styrene	0.022		---	---	---	30	<0.010	0
		Tetrachloroethene	0.0012		0.14	8.6E-08	21	1.1	<0.010	0
		Toluene	0.0021		---	---	---	12	<0.010	0
		Trichloroethene	0.000079		0.43	1.8E-09	0.46	18	<0.010	0
		Trichlorofluoromethane	0.0013		---	---	---	21	<0.010	0
		Vinyl acetate	0.0085		---	---	---	6.1	<0.010	0
		Xylenes, mp	0.0012	J	---	---	---	3.1	<0.010	0
ELE-VLT-11 on 6/18/2007 Cumulative Cancer Risk or Hazard Index					4.0E-07		6.6			

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	Cancer VAAL (µg/L)	Cancer		Non-Cancer VAAL (µg/L)	Non-Cancer Hazard		
					Cancer Risk	% Contribution		Quotient	% Contribution	
ELE-VLT-12	6/18/2007	1,1,2-Trichloro-1,2,2-trifluoroethane	0.001	---	---	---	920	<0.010	0	
		1,2,4-Trimethylbenzene	0.0038	---	---	---	0.18	0.021	0.53	
		1,2-Dichloroethane	0.00002	J	0.033	6.1E-09	0.93	0.15	<0.010	0
		1,3,5-Trimethylbenzene	0.0016	---	---	---	---	0.18	<0.010	0
		1,4-Dichlorobenzene	0.00016	---	0.14	1.1E-08	1.8	24	<0.010	0
		2-Hexanone	0.0012	---	---	---	---	---	---	---
		Acetone	0.032	---	---	---	---	96	<0.010	0
		Acrolein	0.0024	---	---	---	---	0.00061	3.9	99
		Acrylonitrile	0.000099	J	0.013	7.6E-08	12	0.061	<0.010	0
		Benzene	0.00052	J	0.11	4.7E-08	7.3	0.91	<0.010	0
		Carbon tetrachloride	0.00032	J	0.057	5.6E-08	8.6	0.075	<0.010	0
		Chloroethane	0.00019	J	1.0	1.9E-09	0.29	300	<0.010	0
		Chloroform	0.00035	---	0.037	9.5E-08	15	1.5	<0.010	0
		Chloromethane	0.00021	J	---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0024	---	---	---	---	6.1	<0.010	0
		Ethylbenzene	0.00039	J	---	---	---	30	<0.010	0
		Isopropylbenzene	0.0017	---	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0091	---	---	---	---	150	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00071	J	---	---	---	92	<0.010	0
		n-Propylbenzene	0.00081	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.00058	J	---	---	---	3.1	<0.010	0
		p-Cymene	0.00024	J	---	---	---	---	---	---
		Styrene	0.0018	---	---	---	---	30	<0.010	0
		Tetrachloroethene	0.0049	---	0.14	3.5E-07	54	1.1	<0.010	0
		Toluene	0.0021	---	---	---	---	12	<0.010	0
		Trichloroethene	0.00026	J	0.43	6.0E-09	0.93	18	<0.010	0
		Trichlorofluoromethane	0.0016	---	---	---	---	21	<0.010	0
Xylenes, mp	0.0013	J	---	---	---	3.1	<0.010	0		
ELE-VLT-12 on 6/18/2007 Cumulative Cancer Risk or Hazard Index					6.5E-07		4.0			

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	J	Cancer			Non-Cancer		
					VAAL (µg/L)	Cancer Risk	% Contribution	VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
ELE-VLT-17	6/18/2007	1,1,1-Trichloroethane	0.00016	J	---	---	---	67	<0.010	0
		1,1,2-Trichloro-1,2,2-trifluoroethane	0.00074	J	---	---	---	920	<0.010	0
		1,2,4-Trimethylbenzene	0.00046	J	---	---	---	0.18	<0.010	0
		1,2-Dichloroethane	0.00004	J	0.033	1.2E-08	4.3	0.15	<0.010	0
		1,4-Dichlorobenzene	0.000088	J	0.14	6.3E-09	2.2	24	<0.010	0
		2-Hexanone	0.00065	J	---	---	---	---	---	---
		Acetone	0.019	J	---	---	---	96	<0.010	0
		Acrolein	0.0038	J	---	---	---	0.00061	6.2	100
		Acrylonitrile	0.00011	J	0.013	8.5E-08	30	0.061	<0.010	0
		Benzene	0.0006	J	0.11	5.5E-08	19	0.91	<0.010	0
		Carbon tetrachloride	0.00035	J	0.057	6.1E-08	22	0.075	<0.010	0
		Chlorobenzene	0.00016	J	---	---	---	1.8	<0.010	0
		Chloroform	0.00016	J	0.037	4.3E-08	15	1.5	<0.010	0
		Chloromethane	0.00028	J	---	---	---	2.7	<0.010	0
		Dichlorodifluoromethane	0.0024	J	---	---	---	6.1	<0.010	0
		Ethylbenzene	0.0002	J	---	---	---	30	<0.010	0
		Isopropylbenzene	0.00021	J	---	---	---	12	<0.010	0
		MEK (2-Butanone)	0.0049	J	---	---	---	150	<0.010	0
		MIBK (Methyl isobutyl ketone)	0.00083	J	---	---	---	92	<0.010	0
		n-Propylbenzene	0.000093	J	---	---	---	4.3	<0.010	0
		o-Xylene	0.0003	J	---	---	---	3.1	<0.010	0
		Styrene	0.00021	J	---	---	---	30	<0.010	0
		Tetrachloroethene	0.00026	J	0.14	1.9E-08	6.6	1.1	<0.010	0
		Toluene	0.0028	J	---	---	---	12	<0.010	0
		Trichloroethene	0.000022	J	0.43	5.1E-10	0.18	18	<0.010	0
		Trichlorofluoromethane	0.0013	J	---	---	---	21	<0.010	0
		Vinyl acetate	0.0067	J	---	---	---	6.1	<0.010	0
		Vinyl chloride	0.0000077	J	0.19	4.1E-10	0.14	3.0	<0.010	0
		Xylenes, mp	0.0007	J	---	---	---	3.1	<0.010	0
		ELE-VLT-17 on 6/18/2007 Cumulative Cancer Risk or Hazard Index					2.8E-07			6.2

Table B2-1

Cumulative Cancer Risk and Hazard Index Estimates for the 2007 and 2008 Vault Air Samples

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Location	Sample Date	Analyte	Sample Concentration (µg/L)	Cancer VAAL (µg/L)	Cancer Risk	% Contribution	Non-Cancer VAAL (µg/L)	Non-Cancer Hazard Quotient	% Contribution
Honeywell Facility South Exposure Area Vault Air									
VLT-1156	7/21/2008	Benzene	0.037	0.11	3.4E-06	100	0.91	0.041	100
VLT-1156 on 7/21/2008 Cumulative Cancer Risk or Hazard Index					3.4E-06			0.041	
Honeywell Facility North Exposure Area Vault Air									
VLT-2145	7/21/2008	1,1,2-Trichloro-1,2,2-trifluoroethane	1.2	---	---	---	920	<0.010	0
		1,1-Dichloroethane	1.6	---	---	---	15	0.11	3.0
		1,1-Dichloroethene	0.24	---	---	---	6.1	0.039	1.1
		Chloroethane	0.11	1.0	1.1E-06	22	300	<0.010	0
		Hexane	21	---	---	---	6.1	3.4	95
		Vinyl chloride	0.074	0.19	3.9E-06	78	3.0	0.025	0.68
VLT-2145 on 7/21/2008 Cumulative Cancer Risk or Hazard Index					5.0E-06			3.6	
VLT-2145	8/4/2008	1,1,2-Trichloro-1,2,2-trifluoroethane	0.86	---	---	---	920	<0.010	0
		1,1-Dichloroethane	1.3	---	---	---	15	0.087	3.2
		1,1-Dichloroethene	0.15	---	---	---	6.1	0.025	0.90
		Hexane	16	---	---	---	6.1	2.6	96
VLT-2145 on 8/4/2008 Cumulative Cancer Risk or Hazard Index					---			2.7	

Notes:

PSHIA - Phoenix Sky Harbor International Airport

Appendix C
Vapor Action Levels

APPENDIX C

Vault Air Action Levels (VAALs)

Contents

Derivation of Vapor Action Levels Technical Memorandum, Honeywell 34th Street Facility, Phoenix Arizona

Derivation of Vapor Action Levels, Honeywell 34th Street Facility, Phoenix, Arizona

PREPARED FOR: Troy Kennedy/Honeywell International Inc.

PREPARED BY: Mike Bedan
Loren Lund
Rob Hinchee

DATE: March 22, 2010

CH2M HILL has prepared this technical memorandum on behalf of Honeywell International Inc. (Honeywell) to evaluate the existing risk-based vapor action levels (VALs) for the jet fuel release monitoring program and to consider any modifications that should be made to the VALs in anticipation of full operation of the biologically-enhanced soil-vapor extraction (BSVE) system. Initially, these VALs were developed in cooperation with the City of Phoenix in 2005 and 2006 (CH2M HILL, 2006a). The VALs were developed as a tool to support efforts to monitor and mitigate potential worker exposure; the VALs are risk-based soil-vapor concentrations that are intended to be protective of workers inhaling volatile organic compounds (VOCs) found in soil vapor that could migrate from the subsurface to air within buildings or structures. VOCs emitted from the subsurface to ambient air are rapidly attenuated and represent much less risk than indoor exposure due to the dilution and wind effects in the ambient air. Consequently, VALs based on exposure to ambient air were not developed.

Since 2005, Honeywell has undertaken a subsurface monitoring program that encompasses the eastern portion of the Honeywell Aerospace 34th Street Engines Product Center (Honeywell facility or Facility) and the north-central portion of the Phoenix Sky Harbor International Airport, collectively referred to as the site. Figure 1 provides a map of the soil-vapor monitoring locations at the site. (All figures are provided at the end of this technical memorandum.) This monitoring program has been in place during the design, construction and initial ramp-up of the BSVE system. This monitoring program will be further enhanced during the operation of the BSVE in accordance with the approved *Operation and Maintenance Plan for the Biologically-enhanced Soil Vapor Extraction System* (CH2M HILL, 2009a), which includes soil vapor and other monitoring requirements.

The VALs published in 2006 were developed assuming “static” conditions (i.e., no injection of air or extraction of vapors). Honeywell initiated soil-vapor extraction on May 27, 2009 and began injecting air into the subsurface on a pilot basis at BV-2N on February 19, 2010. Honeywell requested this evaluation to ensure the existing VALs would be adequately protective under these “dynamic” subsurface conditions and to consider any new information associated with the toxicity of the contaminants that could impact the VALs. Two sets of revised VALs are presented in this technical memorandum:

- **Vapor Action Levels for Biologically-enhanced Soil-vapor Extraction (VALs-BSVE).**
The VALs-BSVE are provided for the first time in this technical memorandum. The

VALs-BSVE are intended to be used during operation of the BSVE system while the extraction rate is at least twice the rate of injection (a 2:1 ratio or greater). The VAL-BSVEs are intended for use in conservatively evaluating concentrations in soil-vapor samples collected from shallow and deep soil-vapor monitoring points collected during the soil-vapor monitoring program (SVMP) (CH2M HILL, 2009a). Two tiers of VALs (Tier 1 and Tier 2) have been established to support decision-making related to the operation of the BSVE system. It should not be assumed that an exceedance of a VAL-BSVE means indoor air concentrations would also exceed target levels; rather, it is only suggestive of a potential for vapor intrusion and would result in additional evaluation, further sampling, or alteration of operating conditions of the BSVE system.

- **Long-term Vapor Action Levels (VALs-LT).** When the BSVE is not operating, the VALs-LT would be used. The VALs-LT were originally developed in 2006 to address ongoing soil-vapor monitoring efforts (CH2M HILL, 2006a). The VALs-LT in this memorandum have been updated to reflect changes in the calculation methods since 2006, including updates of the toxicity values and appropriate changes in risk assessment methods (i.e., changes in modeling assumptions based on the standard of practice for vapor intrusion modeling or knowledge of site conditions). The VALs-LT are intended for use in evaluating concentrations in soil-vapor samples collected from shallow and deep soil-vapor monitoring points collected when the BSVE system is not operating or in areas outside the BSVE target treatment area. Two tiers of VALs-LT (Tier 1 and Tier 2) have been established to support decision-making related to the soil-vapor monitoring. It should not be assumed that an exceedance of a VAL-LT means that indoor air concentrations would also exceed target levels; rather, it is only suggestive of a potential for vapor intrusion and would result in additional evaluation, further sampling, or alteration of operating conditions of the BSVE.

A discussion of how the VALs-BSVE were derived, including the underlying assumptions used in the advanced Johnson and Ettinger (J&E) vapor intrusion model (United States Environmental Protection Agency [USEPA], 2004) and how the VALs-BSVE are applied, is provided below. The methods and assumptions used to derive the VALs-BSVE are similar to those used to derive the VAL-LTs, except that the impact of operation of the BSVE system at an extraction rate of at least twice the injection rate has been taken into consideration. The VALs-BSVE will apply during the remediation period and only when an extraction rate of at least twice the injection rate is maintained. In the event that Honeywell proposes to inject at a greater rate, the VALs-BSVE will be calculated based on the new conditions.

As part of the ongoing review and analysis of soil-vapor monitoring results and other data, along with revisions to the conceptual site model, the appropriateness of the methods and assumptions used in the derivation of the VALs described herein will be reviewed periodically. This review may include evaluation of default and/or site-specific J&E input parameters or empirically based methods for validating modeled values and accounting for additional attenuation mechanisms (e.g., bioattenuation). Any proposed changes to the VALs will be provided in a revision to this technical memorandum.

The VALs-BSVE and VALs-LT are presented in Table 1. (All tables are provided at the end of this technical memorandum.)

Vapor Action Level Summary

The VALs are intended to be conservative (i.e., health-protective) risk-based action levels levels that have been developed for multiple purposes, including to evaluate soil-vapor monitoring results and support operation of the BSVE system in a safe manner. Honeywell has used VALs and other related criteria since 2006 as a tool to initiate, in the event of the exceedance of these criteria, certain contingency measures to mitigate potential risks of exposure of onsite workers to VOCs, including additional monitoring or ventilation.

The following is an overview of the VALs and related criteria developed for the Honeywell facility in cooperation and with input from the City of Phoenix:

- **Pilot Test VALs** are short-term VALs that were developed specifically for application during the air injection pilot test conducted in 2006 (CH2M HILL, 2005). The Pilot Test VALs were derived based on injection of air into the subsurface. The assumptions used included an upward vapor flux based on model results (0.001 standard cubic feet per minute per square foot) to estimate Q_{soil} and an exposure duration limited to the pilot test duration (i.e., one year). The Pilot Test VALs are no longer in use; however, a similar approach was taken when calculating VALs-BSVE that apply when air injection is not greater than two times the rate of air extraction.
- **VALs-LT** were originally developed in 2006 to be applied to VOC soil-vapor sampling results collected from sentinel soil-vapor monitoring wells outside of the target treatment area (at all times) and within the target treatment area while the BSVE system was being designed and constructed. The assumptions included use of the Q_{soil} parameter, which is the average flow rate of soil gas into a building calculated by the J&E model results and an exposure duration of 25 years. The rationale for development of the VALs-LT was originally presented in CH2M HILL (2006a) and is updated in this technical memorandum.
- **VALs-BSVE** are proposed for application to VOC soil-vapor sampling results collected within the target treatment area during the operation of the BSVE system when the extraction rate is at least twice the injection rate. The assumptions used to derive the VALs-BSVE included use of Q_{soil} that was modified based on the influence of the extraction rate and also assumed an exposure duration of 25 years. The development of the VALs-BSVE is presented in this technical memorandum.
- **BSVE Injection VALs (VALs-BSVEinj)** have not yet been developed. However, it is anticipated that these VALs will be developed for application during BSVE operations when the extraction rate is less than twice the injection rate, which may include periods when only injection is anticipated. The exact approach to derive the VALs-BSVEinj will depend on conditions and the toxicology standards and regulatory guidance in place at the time the higher rate of air injection occurs. It is anticipated that the approach will be similar to the approach used to calculate the Pilot Test VALs and the VALs-BSVE. The assumptions for deriving VALs-BSVEinj likely will include use of a Q_{soil} that will be modified to address extraction rates that are less than twice the injection rates.
- **Vault Air Action Levels** were developed specifically to be applied to VOC air sampling results from subsurface vaults (CH2M HILL, 2006b). The assumptions used included a

worker in the subsurface vault 8 hours per day for 12 days per year over a period of 25 years.

- **Risk-based Screening Levels (RBSLs)** were developed for VOC concentrations in soil-vapor samples and were used in the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility Phoenix, Arizona* (CH2M HILL, 2009b) to assess the soil-vapor-to-indoor air exposure pathway. The RBSLs are not VALs and are not applied in the same manner as VALs. RBSLs are more conservative values used for a screening-level human health risk assessment approach. Specifically, the RBSLs were used to estimate cumulative cancer risk and non-cancer hazards on a sample-by-sample basis for all soil-vapor monitoring locations monitored in the previous 3 years. The RBSLs were most recently used in the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility Phoenix, Arizona* (CH2M HILL, 2009a) and will be used in any subsequent human health risk assessments completed for the Facility.
- **Methane Action Levels.** Two methane action levels are being applied. An action level of 10 percent of LEL has been established for application in structures based on guidelines from the Federal Aviation Administration and the City of Phoenix Fire department. An action level of 20 percent of LEL has been established for application in shallow soil gas (CH2M HILL, 2009a). As with the VALs, an exceedance may result in additional evaluation, further sampling, alteration of operating conditions of the BSVE system, or other mitigation measures as appropriate.

Honeywell intends to periodically review these VALs and other criteria and assess whether changes in site conditions or input assumptions warrant revisions. This review process will be conducted in cooperation with the City of Phoenix.

A summary of the key differences in how these VALs and other criteria were derived and how they are applied is presented in Table 2.

Derivation of the BSVE Operation Vapor Action Levels

The VALs-BSVE were developed as a tool to support efforts to monitor and mitigate potential worker exposure to VOCs when the BSVE system is operating. Specifically, the VALs-BSVE are risk-based soil-vapor concentrations that have been developed assuming exposure of onsite workers at the Facility to VOCs found in soil vapor that could migrate from the subsurface to indoor air within buildings or structures during the period of BSVE operations. When the BSVE is not operating (e.g., under baseline or static conditions), the VALs-BSVE do not apply; the VALs-LT (discussed below) are used when the BSVE system is not in operation for a period of at least 30 days.

The proposed VALs-BSVE were derived for sample-by-sample comparison against soil-vapor results collected from shallow and deep process monitoring wells and sub-slab monitoring points after the BSVE system has been operating for 18 months. Based on discussion with the City of Phoenix regarding the operation of the BSVE system, shallow monitoring locations are classified as locations less than 15 feet below ground surface (bgs) and deep monitoring locations are conservatively classified as locations greater than or equal to 15 feet bgs. More detailed information regarding the proposed application of the VALs-BSVE is presented in the next section.

The VALs-BSVE were developed for the VOCs included on the USEPA Method TO-15 target analyte list analyzed during the SVMP (CH2M HILL, 2009a).

The VALs-BSVE are intended to be conservative (i.e., health-protective) values derived using methods developed by the USEPA based on a combination of conservative default and site-specific (where appropriate) assumptions. The VALs-BSVE are risk-based soil-vapor concentrations that were calculated using the advanced version of the J&E soil gas model (USEPA, 2003), a site-specific volumetric flow rate of soil gas into the building (based on professional judgment and surface flux modeling of the BSVE well field layouts shown in Figure 2), a target cancer risk of 1×10^{-6} or 1×10^{-5} , a target hazard quotient (HQ) of 1, and a 25-year exposure duration.

The J&E model incorporates both convective and diffusive mechanisms for estimating the transport of contaminant vapors emanating from either subsurface soils or groundwater into indoor spaces located directly above or in proximity to the source of contamination. Per the USEPA J&E User's Guide (2004), upward diffusion is the primary transport mechanism in the vadose zone until the VOCs reach the zone of influence of a building; after which, advective air movement induced by a negative indoor-to-subslab pressure is the primary transport mechanism. Use of the J&E model to derive VALs-BSVE results in conservative trigger levels since the BSVE system is designed to induce a downward advective flux of air flow in the vadose zone.

Parameters required for implementing the model include:

- Soil properties (such as porosity and moisture content).
- Building properties (dimensions, air exchange rate, soil-building pressure difference, surface area available for soil-vapor intrusion).
- Chemical properties (VOC concentrations in soil vapor, vertical extent of VOC concentrations in soil vapor).
- Exposure assumptions for the various receptor populations (i.e., workers and residents).

Specifically, VALs-BSVE were derived based on the following assumptions:

- The BSVE will operate for a period of 10 years.
- The depth to contamination is 5 feet bgs (for shallow monitoring locations less than 15 feet bgs) and 15 feet bgs (for deep monitoring location 15 feet or greater bgs). While the majority of the contamination found at the site is found much deeper than 15 feet bgs, in some areas, including in the proximity of the tank farm areas and related piping contamination, can be found closer to the surface.
- Based on available soil boring logs and information about the percentage of fines in the soil, the soil type is loamy sand in the first 5 feet bgs and sand deeper than 5 feet bgs.
- The soil temperature (22 degrees Celsius) is based on the default soil temperature for the Phoenix, Arizona area (USEPA, 2003).
- The building type is slab-on-grade foundation (such as that found at the Honeywell facility).

- The building size is assumed to be 5,000 square feet based on the commercial/industrial median building size in the United States (American Society of Heating, Refrigerating and Air Conditioning Engineers [ASHRAE], 2004). A building size of 5,000 square feet represents a conservative assumption for the buildings at the Honeywell facility. Based on a preliminary building survey that was conducted for a select group of buildings located within the BSVE target treatment area during preparation of the *Draft Focused Human Health Risk Assessment, Honeywell 34th Street Facility Phoenix, Arizona*, the building size ranged from 1,635 to 183,038 square feet with an average of 42,434 square feet (CH2M HILL, 2009b).
- As part of the BSVE system operation, air may be injected into one or more injection wells at a total injection rate of up to 1,650 cubic feet per minute and extracted at a total extraction rate of up to 3,300 cubic feet per minute. The surface flux based on convective mechanisms was modeled during the design and testing of the four BSVE well field layouts assuming an extraction rate of at least twice the rate of air injection. As shown in Figure 2, the modeled average upward surface flux for the four well field layouts ranges from -0.003 to -0.00003 standard cubic feet per minute per square foot throughout the site. Positive surface flux values indicate an average upward flux while negative surface flux values indicate downward flux. Therefore, the average surface flux across the BSVE target treatment area during the operation of the BSVE system is downward due to advective mechanisms, and it is reasonable to assume that the average soil-vapor flow rate into a hypothetical building footprint (Q_{soil}) will be lower during operation of the system compared with baseline conditions. Therefore, it is also reasonable to assume that the average soil-vapor flow rate into a building (Q_{soil}) will be lower compared with when the system is not operating. A Q_{soil} of 2 liters per minute (L/min) was used in the development of the long-term VALs assuming the BSVE system is not in operation. Long-term VALs were initially developed in conjunction with the City of Phoenix (CH2M HILL, 2006a) and are updated in this technical memorandum. Based on professional judgment, a lower Q_{soil} of 0.5 L/min was assumed to be the derivation of the VALs-BSVE. Although there are uncertainties associated with this input parameter, subslab and shallow soil-vapor monitoring will be conducted in accordance with the *Operation and Maintenance Plan for the Biologically-enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Phoenix, Arizona* (CH2M HILL, 2009a) to verify that shallow and subslab soil-vapor concentrations decrease with time. If future modeling or soil-vapor or field parameter monitoring indicates an average upward flux, this assumption will be reevaluated. Note that attenuation (diffusion- and/or bioattenuation-induced) from soil vapor in deeper to shallower depths (e.g., from 75 to 15 feet bgs) has not been accounted for in the development of the VALs. These additional attenuation processes are examples of factors that would need to be assessed in the event a VAL is exceeded.
- The receptor individual works in the aboveground building for 250 days per year (8 hours a day, 40 hours a week) for a duration of 25 years (the assumed duration that air is being injected and extracted in the subsurface is only 10 years).
- Toxicity values were selected based on the USEPA (2009a) toxicity value selection hierarchy used in the derivation of the regional screening levels:
 - USEPA's (2009b) Integrated Risk Information System.

- The Provisional Peer Reviewed Toxicity Values derived by USEPA's (2009a) Superfund Health Risk Technical Support Center for the USEPA Superfund program.
- The Agency for Toxic Substances and Disease Registry minimal risk levels.
- The California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's toxicity values (Cal/EPA, 2009).
- The USEPA (1997) Superfund Program Health Effects Assessment Summary Tables.
- The Tier 1 VALs are based on the minimum of a risk-based concentration using a target risk level of 1E-06 (1×10^{-6}) or target HQ of 1. The Tier 2 VALs are based on the minimum of a risk-based concentration using a 1E-05 (1×10^{-5}) target risk level or target HQ of 1. Both target risk levels are consistent with USEPA's acceptable risk range of 1E-04 to 1E-06 and the Arizona Department of Environmental Quality (ADEQ) Underground Storage Tank Program Release Reporting and Corrective Action Guidance (ADEQ, 2002) target risk level of 1E-05 for industrial sites in Arizona and are consistent with the development and implementation of ADEQ's soil remediation levels in A.A.C. § 18-07 and A.R.S. § 49-151, 49-152, 49-282. 06. The Tier 2 target risk level of 1E-05 is consistent with the target risk recommended in USEPA's (2002) vapor intrusion guidance.

These assumptions are considered to be conservative because:

- Soil-vapor samples collected from 5 to 15 feet bgs are to be compared against the shallow VALs-BSVE. The depth to VOC contamination for the shallow VALs-BSVE is conservatively assumed to be 5 feet bgs.
- Soil-vapor samples collected from 15 feet bgs or deeper are to be compared against the deep VALs-BSVE. The depth to VOC contamination for the deep VALs-BSVE is conservatively assumed to be 15 feet bgs.
- BSVE-VALs were derived using the J&E model, which assumes diffusion-based upward migration in the vadose zone. However, as discussed above, the BSVE system has been designed to induce an advective downward flux of soil vapor.
- The J&E model is based on one-dimensional transport (diffusion and/or advection) through the unsaturated zone and into a building. Biodegradation of VOCs is not accounted for in the J&E model; therefore, attenuation is likely underestimated and risk overestimated, especially for biodegradable petroleum hydrocarbons.

The chemical properties and toxicity values for the VOCs are presented in Table 3. Table 4 provides the J&E model input parameters (including subsurface and building parameters) and the exposure assumptions for the shallow VALs-BSVE. Table 5 presents the shallow VALs-BSVE. Table 6 provides J&E model input parameters (including subsurface and building parameters) and the exposure assumptions for the deep VALs-BSVE. Table 7 presents the deep VALs-BSVE. The J&E model calculation worksheets are provided in Attachment 1.

Application of the BSVE Operation Vapor Action Levels

The VALs-BSVE are intended to be used to evaluate concentrations in soil-vapor samples collected as part of the SVMP during operation of the BSVE system (i.e., during periods where the rate of extraction is at least twice the air injection rate) from the process monitoring wells (PMWs) and the subslab monitoring ports located within the target treatment area, shown in Figure 1. Application of the BSVE-VALs only to those soil-vapor sampling results collected within the target treatment area is based on the assumption that the soil-vapor extraction and air injection influences the potential soil-vapor flow into the building only within the target treatment area. If Honeywell proposes to extract at a rate that is less than twice the injection rate, new VALs that are applicable during BSVE operations may be needed. When BSVE operations cease, the VALs-LT, which are derived assuming no soil-vapor extraction or air injection is occurring, will again apply to samples collected in the target treatment area.

A description of the soil-vapor monitoring program that will be conducted during the BSVE system operation is described in *Operation and Maintenance Plan for the Biologically-enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility Phoenix, Arizona* (CH2M HILL, 2009a).

The VALs-BSVE are not intended to be used for soil-vapor samples collected from locations outside the BSVE system target treatment area. The use of VALs-LT for soil-vapor samples collected from outside the target treatment area is discussed below.

During BSVE operations at an extraction rate of at least twice the injection rate, soil-vapor concentrations from the shallow or deep soil-vapor monitoring points within the target treatment area will be evaluated against Tier 1 and 2 VALs-BSVE using the decision framework presented in Figure 3.

Derivation of the Long-term Vapor Action Levels

The VALs-LT were developed as a tool to support efforts to monitor and mitigate potential worker exposure to VOCs when the VALs-BSVE do not apply. Specifically, the VALs-LT are risk-based soil-vapor concentrations that have been developed assuming exposure of onsite workers at the Facility to VOCs found in soil vapor that could migrate from the subsurface to indoor air within buildings or structures when the BSVE system is not operating and at all times in areas outside of the BSVE target treatment area.

VALs-LT were derived for sample-by-sample comparison against soil-vapor results collected from shallow and deep monitoring points in sentinel monitoring wells and other soil-vapor monitoring points after BSVE system shutdown. Shallow monitoring locations are classified as locations less than 15 feet bgs; deep monitoring locations are conservatively classified as locations greater than or equal to 15 feet bgs. More detailed information regarding the application of the VALs-LT is presented in the next section.

VALs-LT were developed for the VOCs included on the USEPA Method TO-15 target analyte list analyzed during the SVMP (CH2M HILL, 2009a).

The VALs-LT are risk-based soil-vapor concentrations that were calculated using the advanced version of the J&E soil gas model (USEPA, 2003), a Q_{soil} estimated by the model,

and standard occupational exposure parameters. Specifically, VALs-LT are derived based on the following assumptions:

- The depths to contamination are 5 feet bgs and 15 feet bgs for the shallow VALs-LT and deep VALs-LT, respectively.
- Based on available soil boring logs and information about the percentage of fines in the soil, the soil type is loamy sand in the first 5 feet bgs and sand deeper than 5 feet bgs.
- The soil temperature (22 degrees Celsius) is based on the default soil temperature for the Phoenix, Arizona area (USEPA, 2003).
- The building type is slab-on-grade foundation (such as that found at the Honeywell facility).
- The building size is 5,000 square feet based on the commercial/industrial median building size in the United States (ASHRAE, 2004).
- The value for Q_{soil} (the average upward soil-vapor flow rate) of 2 L/min was derived using the analytical solution from Nazaroff (1988) included in the J&E model.
- The receptor individual works in the aboveground building for 250 days per year (8 hours a day, 40 hours a week) for a duration of 25 years.
- Toxicity values were selected based on USEPA (2009a) toxicity value selection hierarchy used in the derivation of the regional screening levels:
 - USEPA's (2009b) Integrated Risk Information System.
 - The Provisional Peer Reviewed Toxicity Values derived by USEPA's Superfund Health Risk Technical Support Center for the USEPA Superfund program (USEPA, 2009a).
 - The Agency for Toxic Substances and Disease Registry minimal risk levels.
 - The California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's toxicity values (Cal/EPA, 2009).
 - The USEPA (1997) Superfund Program Health Effects Assessment Summary Tables.
- The Tier 1 VALs-LT were based on the minimum of a risk-based concentration using a target risk level of $1E-06$ (1×10^{-6}) or target HQ of 1. The Tier 2 VALs-LT are based on the minimum of a risk-based concentration using a $1E-05$ (1×10^{-5}) target risk level or target HQ of 1.

These assumptions are considered to be conservative because:

- Soil-vapor samples collected from 5 to 15 feet bgs are to be compared against the shallow VALs-LT. The depth to VOC contamination for the shallow VALs-LT is conservatively assumed to be 5 feet bgs.
- Soil-vapor samples collected from 15 feet bgs or deeper are to be compared against the deep VALs-LT. The depth to VOC contamination for the deep VALs-LT is conservatively assumed to be 15 feet bgs.

- VOCs may biodegrade; however, the J&E model does not account for biodegradation. The result is that attenuation is likely underestimated and risk is likely overestimated.

The chemical properties and toxicity values for the VOCs are presented in Table 3. Table 8 provides the J&E model input parameters (including subsurface and building parameters) and the exposure assumptions for the shallow VALs-LT. Table 9 presents the shallow VALs-LT. Table 10 provides the J&E model input parameters (including subsurface and building parameters) and the exposure assumptions for the deep VALs-LT. Table 11 presents the deep VALs-LT. The J&E model calculation worksheets are provided in Attachment 1.

Application of the Long-term Vapor Action Levels

Soil-vapor concentration data collected under the following conditions will be compared against the VALs-LT:

- Soil-vapor samples collected during the SVMP from sentinel monitoring wells (SMWs) outside of the BSVE target treatment area (Figure 1), whether the BSVE system is operating or not. The proposed monitoring network outside the target treatment area (comprising sentinel wells or monitoring points) is designed to provide comprehensive coverage of soil vapor with a focus on potential receptors near the ground surface and to monitor and address that the operation of the BSVE system does not spread contamination outside of the target treatment area (CH2M HILL, 2009a). These sentinel wells are located approximately 200 feet from the boundary of the target treatment area and are spaced approximately 500 feet apart. The distribution of the monitoring wells encompasses the target treatment area and provides early warning detection capabilities.
- Soil-vapor samples collected during the SVMP from PMWs, subslab monitoring points, and SMWs when the BSVE system is not operating (i.e., the subsurface is not affected by extraction of vapors or injection of air that occurs during BSVE operation) for a period of more than 30 days.

A description of the SVMP that will be conducted during the operation of the BSVE system and which soil vapor monitoring points are being sampled is provided in *Operation and Maintenance Plan for the Biologically-enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility Phoenix, Arizona* (CH2M HILL, 2009a).

The decision framework when applying the VALs-LT that includes triggers for reporting and contingency actions is presented in Figure 4. Spatial and temporal trends will be evaluated to assess the potential for soil-vapor contamination to spread beyond the existing target treatment area. Trends will be evaluated initially using exploratory data analysis techniques (e.g., summary data tables, time-series scatter or box plots, data postings on sample location maps, etc.). A more detailed trend analysis protocol may be implemented once the size of the data set is sufficient and could involve exploratory data techniques along with statistical trend analyses (e.g., Mann Kendall test for presence of consistent trend, Sen slope or Kendall-Theil tests for measure of magnitude of slope, Seasonal Kendall test for relationships between seasonal time periods, Wilcoxon-Mann-Whitney step trend analysis, parametric regression statistics, etc.).

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Tables

Table 1
 BSVE and Long-term Vapor Action Levels
 Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Tier 1 BSVE Shallow Vapor Action Level (<15 ft bgs) ug/L	Tier 2 BSVE Shallow Vapor Action Level (<15 ft bgs) ug/L	Tier 1 BSVE Deep Vapor Action Level (>=15 ft bgs) ug/L	Tier 2 BSVE Deep Vapor Action Level (>=15 ft bgs) ug/L	Tier 1 Long-term Shallow Vapor Action Level (<15 ft bgs) ug/L	Tier 2 Long-term Shallow Vapor Action Level (<15 ft bgs) ug/L	Tier 1 Long-term Deep Vapor Action Level (>=15 ft bgs) ug/L	Tier 2 Long-term Deep Vapor Action Level (>=15 ft bgs) ug/L
1,2,4-Trimethylbenzene	95636	400	400	420	420	110	110	130	130
1,3,5-Trimethylbenzene	108678	340	340	360	360	91	91	110	110
Benzene	71432	20	200	21	210	5	53	6	60
Chloroethane (ethyl chloride)	75003	510,000	510,000	520,000	520,000	140,000	140,000	150,000	150,000
Chloroform	67663	7	68	7	70	2	18	2	20
cis-1,2-Dichloroethylene	156592	3,400	3,400	3,500	3,500	900	900	1,000	1,000
Ethylbenzene	100414	63	630	66	660	17	170	19	190
Hexane	110543	38,000	38,000	38,000	38,000	9,900	9,900	11,000	11,000
MTBE	1634044	600	6,000	620	6,200	160	1,600	180	1,800
m-Xylene	108383	40,000	40,000	41,000	41,000	11,000	11,000	12,000	12,000
o-Xylene	95476	39,000	39,000	41,000	41,000	10,000	10,000	12,000	12,000
p-Xylene	106423	39,000	39,000	41,000	41,000	10,000	10,000	12,000	12,000
Tetrachloroethylene	127184	27	270	28	280	7	71	8	83
Toluene	108883	280,000	280,000	290,000	290,000	74,000	74,000	84,000	84,000
Trichloroethylene	79016	79	790	82	820	21	210	24	240
Vinyl chloride (chloroethene)	75014	36	360	37	370	9	93	10	100

Table 2
Vapor Action Level Summary
Honeywell 34th Street Site, Phoenix, Arizona

Date Available	Vapor Action Level (VAL)	Source	Application	Applicable Depth	Sample Depth	Exposure	Qsoil (L/min)	Soil Type	Toxicity Value Source
September 2005	Short-term (Pilot Test)	CH2M HILL and HYDRO GEO CHEM. 2005. <i>Air Injection Pilot Test Work Plan</i> . October.	* VOCs * LEL/Methane (10% of LEL) * During 2006 air injection pilot testing	All depths	Start Depth >= 5 feet bgs	Onsite worker (1 year Exposure duration)	(calculated by J&E model)	Silty Soil (0 - 5 feet bgs)	IRIS toxicity database (2005)
July 2006	Vault Air Action Level	CH2M HILL. 2006. <i>Derivation of Proposed Air Action Levels for Underground Utility Vaults, PSHIA North Airfield, Phoenix, Arizona</i> . July 14.	* VOCs * At all times in subsurface vaults or structures	Subsurface vaults or structures	Subsurface vaults or structures	Onsite Worker (12 days per year for 25 years)	NA	NA	IRIS toxicity database (2006)
September 2006	Shallow Long-term (Tier 1 and Tier 2)	CH2M HILL. 2006. <i>Draft Human Health Risk Assessment Update</i> . September (derivation details). CH2M HILL. 2009. <i>Operation and Maintenance Plan for the Biologically-enhanced Soil Vapor Extraction System, Honeywell 34th Street Facility, Phoenix, Arizona</i> . Volume 1. May.	* VOCs * Before BSVE initiation in all SVMP wells * At all times in shallow sentinel wells * At closure in all SVMP wells	< 15 feet bgs	Subslab and Start Depth = 5 to < 15 feet bgs	Onsite worker (25 years Exposure duration)	4.86 (calculated by J&E model)	Silty Soil (0 - 5 feet bgs)	IRIS toxicity database (2006)
September 2006	Deep Long-term (Tier 1 and Tier 2)	CH2M HILL. 2006. <i>Draft Human Health Risk Assessment Update</i> . September (derivation details).	* VOCs * Sentinel wells at all times * At closure in all deep wells	>= 15 feet bgs	Start Depth > 15 feet bgs	Onsite worker (25 years Exposure duration)	4.86 (calculated by J&E model)	Silty Soil (0 - 5 feet bgs)	IRIS toxicity database (2006)
September 2006	LEL/Methane in Structures	CH2M HILL. 2006. <i>Draft Human Health Risk Assessment Update</i> . September.	* LEL/Methane * 10% of LEL (not just methane) * At all times	Subsurface vaults or structures	Subsurface vaults or structures	Onsite Worker	NA	NA	NA
September 2008	Shallow LEL/Methane	SOW section 3.1.1.2.A	* LEL/Methane * 20% of LEL (not just methane) * At all times	< 15 feet bgs	Subslab & Start Depth = 5 to < 15 feet bgs	Onsite Worker	NA	NA	NA
January 2009	Risk-based Screening Levels (Vapor Intrusion Exposure Pathway)	CH2M HILL. 2009. <i>Draft Focused Human Health Risk Assessment</i> . January 9.	* VOCs * Screening-levels to assess the vapor intrusion exposure pathway as part of the human health risk assessment (these are not VALs)	Multiple depths: 5, 15, 30, 60, 75 & 100 feet bgs	5 to < 15, 15 to < 30, 30 to < 60, 60 to < 75, 75 to < 100 & =>100 feet bgs	Onsite Worker (25 years), Onsite Resident (30 years).	5	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	1. IRIS toxicity database (2008) 2. Regional Screening Levels (2008) 3. Cal/EPA Toxicity Criteria (2008)
August 2009	Shallow BSVE (Tier 1 and Tier 2)	CH2M HILL. 2009. <i>Derivation of Vapor Action Levels for BSVE Extraction/Injection Operations, Honeywell 34th Street Site, Phoenix, Arizona</i> . October 30. DRAFT.	* VOCs * During BSVE operations when extraction rate is at least twice air injection rate	< 15 feet bgs	Subslab & Start Depth = 5 to < 15 feet bgs	Onsite Worker (25 year exposure duration)	0.5 (A Qsoil of 0 L/min (diffusion only) is suggested based on modeled average upward surface flux. However, based on professional judgment and in order to address uncertainties related to subsurface airflow, a value 0.5 L/min was used to derive the BSVE VAL.)	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	1. IRIS toxicity database (2009) 2. Regional Screening Levels (2009) 3. Cal/EPA Toxicity Criteria (2009)
August 2009	Deep BSVE (Tier 1 and Tier 2)	CH2M HILL. 2009. <i>Derivation of Vapor Action Levels for BSVE Extraction/Injection Operations, Honeywell 34th Street Site, Phoenix, Arizona</i> . October 30. DRAFT.	* VOCs * During BSVE operations when extraction rate is at least twice air injection rate	>= 15 feet bgs	Start Depth => 15 feet bgs	Onsite Worker (25 year exposure duration)	2 (calculated by J&E model)	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	1. IRIS toxicity database (2009) 2. Regional Screening Levels (2009) 3. Cal/EPA Toxicity Criteria (2009)
August 2009	Shallow Long-term (Tier 1 and Tier 2)	CH2M HILL. 2009. <i>Derivation of Vapor Action Levels for BSVE Extraction/Injection Operations, Honeywell 34th Street Site, Phoenix, Arizona</i> . October 30. DRAFT.	* VOCs * BSVE system is not operating	< 15 feet bgs	Subslab & Start Depth = 5 to < 15 feet bgs	Onsite Worker (25 year exposure duration)	2 (calculated by J&E model)	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	1. IRIS toxicity database (2009) 2. Regional Screening Levels (2009) 3. Cal/EPA Toxicity Criteria (2009)
August 2009	Deep Long-term (Tier 1 and Tier 2)	CH2M HILL. 2009. <i>Derivation of Vapor Action Levels for BSVE Extraction/Injection Operations, Honeywell 34th Street Site, Phoenix, Arizona</i> . October 30. DRAFT.	* VOCs * BSVE system is not operating	>= 15 feet bgs	Start Depth => 15 feet bgs	Onsite Worker (25 year exposure duration)	2 (calculated by J&E model)	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	1. IRIS toxicity database (2009) 2. Regional Screening Levels (2009) 3. Cal/EPA Toxicity Criteria (2009)
TBD	Shallow BSVE-Injection (Tier 1 and Tier 2)	TBD (before air injection is planned).	TBD (when extraction rate is less than twice the air injection rate or air injection only)	< 15 feet bgs	Subslab and Start Depth = 5 to < 15 feet bgs	Onsite Worker (25 year exposure duration)	TBD	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	TBD at time of calculation
TBD	Deep BSVE-Injection (Tier 1 and Tier 2)	TBD (before air injection is planned).	TBD (when extraction rate is less than twice the air injection rate or air injection only)	>= 15 feet bgs	Subslab and Start Depth = 5 to < 15 feet bgs	Onsite Worker (25 year exposure duration)	TBD	Loamy Sand (0 - 5 feet bgs); Sand (>5 feet bgs)	TBD at time of calculation

Notes:
TBD : to be determined

Table 3
 Chemical Properties used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1)
 Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Diffusivity in air, D _a (cm ² /s)	Source	Diffusivity in water, D _w (cm ² /s)	Source	Henry's law constant at reference temperature, H (atm-m ³ /mol)	Source	Henry's law constant reference temperature, T _s (°C)	Source	Enthalpy of vaporization at the normal boiling point, DH _v (cal/mol)	Source	Normal boiling point, T _b (°K)	Source	Critical temperature, T _c (°K)	Source	Molecular weight, MW (g/mol)	Source	Unit risk factor, URF ^a (ug/m ³) ⁻¹	Source	Reference conc., RfC ^b (mg/m ³)	Source
1,2,4-Trimethylbenzene	95636	6.06E-02	J	7.92E-06	J	6.14E-03	J	25	J	9,369	J	442.30	J	649.17	J	120	J	NA	NA	7.00E-03	P
1,3,5-Trimethylbenzene	108678	6.02E-02	J	8.67E-06	J	5.87E-03	J	25	J	9,321	J	437.89	J	637.25	J	120	J	NA	NA	6.00E-03	P
Benzene	71432	8.80E-02	J	9.80E-06	J	5.54E-03	J	25	J	7,342	J	353.24	J	562.16	J	78	J	7.80E-06	I	3.00E-02	I
Chloroethane (ethyl chloride)	75003	2.71E-01	J	1.15E-05	J	8.80E-03	J	25	J	5,879	J	285.30	J	460.40	J	65	J	NA	NA	1.00E+01	I
Chloroform	67663	1.04E-01	J	1.00E-05	J	3.66E-03	J	25	J	6,988	J	334.32	J	536.40	J	119	J	2.30E-05	I	9.80E-02	A
cis-1,2-Dichloroethylene	156592	7.36E-02	J	1.13E-05	J	4.07E-03	J	25	J	7,192	J	333.65	J	544.00	J	97	J	NA	NA	6.00E-02	P (sur.)
Ethylbenzene	100414	7.50E-02	J	7.80E-06	J	7.86E-03	J	25	J	8,501	J	409.34	J	617.20	J	106	J	2.50E-06	C-AT	1.00E+00	I
Hexane	110543	2.00E-01	J	7.77E-06	J	1.85E+00	J	25	J	6,895	J	341.70	J	528.00	J	86	J	NA	NA	7.00E-01	I
MTBE	1634044	1.02E-01	J	1.05E-05	J	6.22E-04	J	25	J	6,678	J	328.30	J	497.10	J	88	J	2.60E-07	C-AT	3.00E+00	I
m-Xylene	109383	7.00E-02	J	7.80E-06	J	7.32E-03	J	25	J	8,523	J	412.27	J	617.05	J	106	J	NA	NA	7.00E-01	C
o-Xylene	95476	8.70E-02	J	1.00E-05	J	5.18E-03	J	25	J	8,661	J	417.60	J	630.30	J	106	J	NA	NA	7.00E-01	C
p-Xylene	106423	7.69E-02	J	8.44E-06	J	7.64E-03	J	25	J	8,525	J	411.52	J	616.20	J	106	J	NA	NA	7.00E-01	C
Tetrachloroethylene	127184	7.20E-02	J	8.20E-06	J	1.84E-02	J	25	J	8,288	J	394.40	J	620.20	J	166	J	5.90E-06	C-AT	2.70E-01	A
Toluene	108883	8.70E-02	J	8.60E-06	J	6.62E-03	J	25	J	7,930	J	383.78	J	591.79	J	92	J	NA	NA	5.00E+00	I
Trichloroethylene	79016	7.90E-02	J	9.10E-06	J	1.03E-02	J	25	J	7,505	J	360.36	J	544.20	J	131	J	2.00E-06	C-AT	NA	NA
Vinyl chloride (chloroethene)	75014	1.06E-01	J	1.23E-05	J	2.69E-02	J	25	J	5,250	J	259.25	J	432.00	J	63	J	4.40E-06	I	1.00E-01	I

Notes:
 a : URF and RfC toxicity values are from the USEPA Regional Screening Levels (RSLs) Table Master April 2009 (<http://www.epa.gov/region09/superfund/prg/index.html>).
 NA: Not Available
 J : USEPA, 2003. Advance Johnson and Ettinger Soil Gas Model: http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm. Accessed July 2009.
 The following sources are from the USEPA Regional Screening Levels (RSLs) Table Master April 2009 (<http://www.epa.gov/region09/superfund/prg/index.html>):
 P = Provisional Peer-Reviewed Toxicity Value (PPRTV)
 C = California OEHHA Reference Exposure Level and Cancer Potency Factors (Dec. 2008)
 C-AT = California OEHHA AIR TOXICS HOT SPOTS PROGRAM TECHNICAL SUPPORT DOCUMENT FOR CANCER POTENCY FACTORS (May 2009)
 I = Integrated Risk Information System USEPA (2009)
 H = Health Effects Assessment Summary Tables USEPA (1997)
 A = Agency for Toxic Substances and Disease Registry

Table 4

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : BSVE VALs - Shallow Soil vapor (< 15 feet bgs) to Indoor Air
 Honeywell 34th Street Site, Phoenix, Arizona

Subsurface Assumptions		Value	Unit	Rationale
Depth below grade to bottom of enclosed space floor	L_F	15	cm	Default value (USEPA, 2004).
Soil gas sampling depth below grade	L_S	152.4	cm	5 feet below ground surface. Site-specific assumption.
Average soil temperature	T_S	22	°C	Default value for Phoenix area (USEPA, 2004).
Thickness of soil stratum A	h_A	152.4	cm	5 feet below ground surface. Site-specific assumption.
Thickness of soil stratum B	h_B	0	cm	not applicable
Thickness of soil stratum C	h_C	0	cm	not applicable
Stratum A SCS soil type		LS		Loamy sand soil type based on site-specific information (boring logs).
Stratum A soil dry bulk density	r_b^A	1.62	(g/cm ³)	Default value for loamy sand soil (USEPA, 2004).
Stratum A soil total porosity	n^A	0.39	(unitless)	Default value for loamy sand soil (USEPA, 2004).
Stratum A soil water-filled porosity	q_w^A	0.076	(cm ³ /cm ³)	Default value for loamy sand soil (USEPA, 2004).
Stratum B SCS soil type		S		not applicable
Stratum B soil dry bulk density	r_b^B	1.66	(g/cm ³)	not applicable
Stratum B soil total porosity	n^B	0.375	(unitless)	not applicable
Stratum B soil water-filled porosity	q_w^B	0.054	(cm ³ /cm ³)	not applicable
Stratum C SCS soil type		S		not applicable
Stratum C soil dry bulk density	r_b^C	1.66	(g/cm ³)	not applicable
Stratum C soil total porosity	n^C	0.375	(unitless)	not applicable
Stratum C soil water-filled porosity	q_w^C	0.054	(cm ³ /cm ³)	not applicable
Soil stratum A SCS soil type (used to estimate soil vapor permeability)		LS		Loamy sand soil type based on site-specific information (boring logs).
User-defined stratum A soil vapor permeability (Leave blank to let JEM calculate)	k_v		cm ²	
Building Assumptions		Value	Unit	Rationale
Enclosed space floor thickness	L_{crack}	10	cm	Default value (USEPA, 2004)
Soil-building pressure differential	DP	40	g/cm-s ²	Default value (USEPA, 2004)
Enclosed space floor length	L_B	2154	cm	70 feet. Site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space floor width	W_B	2154	cm	70 feet. Site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space height	H_B	244	cm	Default value (USEPA, 2004) Assumes slab-on-grade foundation
Floor-wall seam crack width	w	0.1	cm	Default value (USEPA, 2004)
Indoor air exchange rate	ER	1	1/h	Site-specific assumption based on an industrial setting (DTSC, 2005; CH2M HILL, 2009)
Average vapor flow rate into building	Q_{soil}	0.5	L/m	Site-specific assumption. The modeled maximum average upward vapor surface flux based on the average configuration of the four wellfield layouts is 0 ft ³ /ft ² /min. The average values range from 0 to - 0.003 ft ³ /ft ² /min. However, a conservative Q_{soil} of 0.5 L/min was assumed. See text for additional discussion. Attenuation Factor ~ 2.5E-5.

Table 4

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : BSVE VALs - Shallow Soil vapor (< 15 feet bgs) to Indoor Air
 Honeywell 34th Street Site, Phoenix, Arizona

Exposure Assumptions		Value	Unit	Rationale
Target Risk Level	TRL	1E-06	unitless	Default value (USEPA, 2004)
Target Hazard Quotient	THQ	1	unitless	Default value (USEPA, 2004)
Exposure Duration	ED	25	yrs	Assumed duration of BSVE operation
Exposure Frequency	EF	250	days/yr	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for carcinogens	ATc	70	yrs	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for noncarcinogens	ATnc	25	yrs	Standard industrial scenario; default value (USEPA, 2004)

Notes:

SCS : Soil Conservation Service

ASHRAE. 2004. *ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality in Commercial, Institutional, Industrial and High Rise Residential Buildings.*

CH2M HILL. 2009. DRAFT Focused Human Health Risk Assessment Report. Honeywell 34th Street Facility Phoenix, Arizona. January 9.

DTSC. 2005. *Advisory on Methane Assessment and Common Remedies at School Site.* June.

USEPA. 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response.* June 19.

Table 5

BSVE VALs - Shallow Soil vapor (< 15 feet bgs) to Indoor Air
Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Risk-based Concentration (Carcinogenic Endpoint) ug/m3	Risk-based Concentration (Non-carcinogenic Endpoint) ug/m3	1 x 10 ⁻⁶ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁵ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁴ Risk-based Concentration (Carcinogenic Endpoint) ug/L	Risk-based Concentration (Non-carcinogenic Endpoint) ug/L	Tier 1 BSVE Vapor Action Level (5 ft bgs) ug/L	Tier 2 BSVE Vapor Action Level (5 ft bgs) ug/L
1,2,4-Trimethylbenzene	95636	NA	3.97E+05	NA	NA	NA	397	397	397
1,3,5-Trimethylbenzene	108678	NA	3.40E+05	NA	NA	NA	340	340	340
Benzene	71432	20,159	1.68E+06	20	0,202	2,016	1,685	20	202
Chloroethane (ethyl chloride)	75003	NA	5.12E+08	NA	NA	NA	512,290	512,290	512,290
Chloroform	67663	6,810	5.48E+06	7	68	681	5,482	7	68
cis-1,2-Dichloroethylene	156592	NA	3.38E+06	NA	NA	NA	3,383	3,383	3,383
Ethylbenzene	100414	63,123	5.64E+07	63	631	6,312	56,360	63	631
Hexane	110543	NA	3.77E+07	NA	NA	NA	37,714	37,714	37,714
MTBE	1634044	602,688	1.68E+08	603	6,027	60,269	167,892	603	6,027
m-Xylene	108383	NA	3.95E+07	NA	NA	NA	39,517	39,517	39,517
o-Xylene	95476	NA	3.93E+07	NA	NA	NA	39,320	39,320	39,320
p-Xylene	106423	NA	3.94E+07	NA	NA	NA	39,429	39,429	39,429
Tetrachloroethylene	127184	26,773	1.52E+07	27	268	2,677	15,232	27	268
Toluene	108883	NA	2.81E+08	NA	NA	NA	280,857	280,857	280,857
Trichloroethylene	79016	78,810	NA	79	788	7,881	NA	79	788
Vinyl chloride (chloroethene)	75014	35,583	5.59E+06	36	356	3,558	5,592	36	356

Notes:

Physical/chemical parameters for m-xylene used as a surrogate for xylenes (total) and m,p-xylene.

NA: Not Available.

Tier 1 VAL is the minimum of the non-carcinogenic RBC and the 1E-06 carcinogenic RBC.

Tier 2 VAL is the minimum of the non-carcinogenic RBC and the 1E-05 carcinogenic RBC.

Table 6

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : BSVE VALs - Deep Soil vapor (=> 15 feet bgs) to Indoor Air
 Honeywell 34th Street Site, Phoenix, Arizona

Subsurface Assumptions		Value	Unit	Rationale
Depth below grade to bottom of enclosed space floor	L_F	15	cm	Default value (USEPA, 2004)
Soil gas sampling depth below grade	L_s	457.2	cm	15 feet below ground surface; site-specific assumption
Average soil temperature	T_s	22	°C	Default value for Phoenix area (USEPA, 2004)
Thickness of soil stratum A	h_A	152.4	cm	5 feet below ground surface; site-specific assumption
Thickness of soil stratum B	h_B	304.8	cm	5 to 15 feet below ground surface; site-specific assumption
Thickness of soil stratum C	h_C	0	cm	<i>Not applicable</i>
Stratum A SCS soil type		LS		Loamy sand soil type based on site-specific information (boring logs)
Stratum A soil dry bulk density	ρ_b^A	1.62	(g/cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil total porosity	n^A	0.39	(unitless)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil water-filled porosity	θ_w^A	0.076	(cm ³ /cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum B SCS soil type		S		Default value for sandy soil (USEPA, 2004)
Stratum B soil dry bulk density	ρ_b^B	1.66	(g/cm ³)	Default value for sandy soil (USEPA, 2004)
Stratum B soil total porosity	n^B	0.375	(unitless)	Default value for sandy soil (USEPA, 2004)
Stratum B soil water-filled porosity	θ_w^B	0.054	(cm ³ /cm ³)	Default value for sandy soil (USEPA, 2004)
Stratum C SCS soil type		S		<i>Not applicable</i>
Stratum C soil dry bulk density	ρ_b^C	1.66	(g/cm ³)	<i>Not applicable</i>
Stratum C soil total porosity	n^C	0.375	(unitless)	<i>Not applicable</i>
Stratum C soil water-filled porosity	θ_w^C	0.054	(cm ³ /cm ³)	<i>Not applicable</i>
Soil stratum A SCS soil type (used to estimate soil vapor permeability)		LS		Loamy sand soil type based on site-specific information (boring logs)
User-defined stratum A soil vapor permeability (Leave blank to let JEM calculate)	k_v		cm ²	
Building Assumptions				
Enclosed space floor thickness	L_{crack}	10	cm	Default value (USEPA, 2004)
Soil-building pressure differential	ΔP	40	g/cm-s ²	Default value (USEPA, 2004)
Enclosed space floor length	L_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2005)
Enclosed space floor width	W_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space height	H_B	244	cm	Default value (USEPA, 2004); assumes slab-on-grade foundation
Floor-wall seam crack width	w	0.1	cm	Default value (USEPA, 2004)
Indoor air exchange rate	ER	1	1/h	Site-specific assumption based on an industrial setting (DTSC, 2005; CH2M HILL, 2009)
Average vapor flow rate into building	Q_{soil}	0.5	L/m	Site-specific assumption. The modeled maximum average upward vapor surface flux based on the average configuration of the four wellfield layouts is 0 ft ³ /ft ² /min. The average values range from 0 to - 0.003 ft ³ /ft ² /min. However, a conservative Q_{soil} of 0.5 L/min was assumed. See text for additional discussion. Attenuation Factor ~ 2.5E-5.

Table 6

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : BSVE VALs - Deep Soil vapor (=> 15 feet bgs) to Indoor Air

Honeywell 34th Street Site, Phoenix, Arizona

Exposure Assumptions		Value	Unit	Rationale
Target Risk Level	TRL	1E-06	unitless	Default value (USEPA, 2004)
Target Hazard Quotient	THQ	1	unitless	Default value (USEPA, 2004)
Exposure Duration	ED	25	yrs	Assumed duration of BSVE operation
Exposure Frequency	EF	250	days/yr	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for carcinogens	ATc	70	yrs	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for noncarcinogens	ATnc	25	yrs	Standard industrial scenario; default value (USEPA, 2004)

Notes:

SCS : Soil Conservation Service

ASHRAE 2004. *ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality in Commercial, Institutional, Industrial and High Rise Residential Buildings*

CH2M HILL. 2009. *DRAFT Focused Human Health Risk Assessment Report. Honeywell 34th Street Facility Phoenix, Arizona.* January 9.

DTSC. 2005. *Advisory on Methane Assessment and Common Remedies at School Site.* June.

USEPA. 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response.* June 19.

Table 7

BSVE VALs - Deep Soil Vapor (=> 15 feet bgs) to Indoor Air
 Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Risk-based Concentration (Carcinogenic Endpoint) ug/m3	Risk-based Concentration (Non-carcinogenic Endpoint) ug/m3	1 x 10 ⁻⁶ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁵ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁴ Risk-based Concentration (Carcinogenic Endpoint) ug/L	Risk-based Concentration (Non-carcinogenic Endpoint) ug/L	Tier 1 BSVE Vapor Action Level (15 ft bgs) ug/L	Tier 2 BSVE Vapor Action Level (15 ft bgs) ug/L
1,2,4-Trimethylbenzene	95636	NA	4.18E+05	NA	NA	NA	418	418	418
1,3,5-Trimethylbenzene	108678	NA	3.58E+05	NA	NA	NA	358	358	358
Benzene	71432	20,899	1.75E+06	21	209	2,090	1,747	21	209
Chloroethane (ethyl chloride)	75003	NA	5.19E+08	NA	NA	NA	518,988	518,988	518,988
Chloroform	67663	7,023	5.65E+06	7	70	0,702	5,653	7	70
cis-1,2-Dichloroethylene	156592	NA	3.53E+06	NA	NA	NA	3,531	3,531	3,531
Ethylbenzene	100414	65,834	5.88E+07	66	658	6,583	58,780	66	658
Hexane	110543	NA	3.83E+07	NA	NA	NA	38,350	38,350	38,350
MTBE	1634044	621,778	1.73E+08	622	6,218	62,178	173,209	622	6218
m-Xylene	108383	NA	4.13E+07	NA	NA	NA	41,332	41,332	41,332
o-Xylene	95476	NA	4.08E+07	NA	NA	NA	40,781	40,781	40,781
p-Xylene	106423	NA	4.11E+07	NA	NA	NA	41,081	41,081	41,081
Tetrachloroethylene	127184	27,969	1.59E+07	28	280	2,797	15,913	28	280
Toluene	108883	NA	2.91E+08	NA	NA	NA	291,289	291,289	291,289
Trichloroethylene	79016	82,026	NA	82	820	8,203	NA	82	820
Vinyl chloride (chloroethene)	75014	36,673	5.76E+06	37	367	3,667	5,763	37	367

Notes:

Physical/chemical parameters for m-xylene used as a surrogate for xylenes (total) and m,p-xylene.

NA: Not Available.

Tier 1 VAL is the minimum of the non-carcinogenic RBC and the 1E-06 carcinogenic RBC.

Tier 2 VAL is the minimum of the non-carcinogenic RBC and the 1E-05 carcinogenic RBC.

Table 8

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : Longterm VALS - Shallow Soil vapor (< 15 feet bgs) to Indoor Air
Honeywell 34th Street Site, Phoenix, Arizona

Subsurface Assumptions		Value	Unit	Rationale
Depth below grade to bottom of enclosed space floor	L_F	15	cm	Default value (USEPA, 2004)
Soil gas sampling depth below grade	L_S	152.4	cm	5 feet below ground surface; site-specific assumption
Average soil temperature	T_S	22	°C	Default value for Phoenix area (USEPA, 2004)
Thickness of soil stratum A	h_A	152.4	cm	5 feet below ground surface; site-specific assumption
Thickness of soil stratum B	h_B	0	cm	Not applicable
Thickness of soil stratum C	h_C	0	cm	Not applicable
Stratum A SCS soil type		LS		Loamy sand soil type based on site-specific information (boring logs)
Stratum A soil dry bulk density	ρ_b^A	1.62	(g/cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil total porosity	n^A	0.39	(unitless)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil water-filled porosity	θ_w^A	0.076	(cm ³ /cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum B SCS soil type		S		Not applicable
Stratum B soil dry bulk density	ρ_b^B	1.66	(g/cm ³)	Not applicable
Stratum B soil total porosity	n^B	0.375	(unitless)	Not applicable
Stratum B soil water-filled porosity	θ_w^B	0.054	(cm ³ /cm ³)	Not applicable
Stratum C SCS soil type		S		Not applicable
Stratum C soil dry bulk density	ρ_b^C	1.66	(g/cm ³)	Not applicable
Stratum C soil total porosity	n^C	0.375	(unitless)	Not applicable
Stratum C soil water-filled porosity	θ_w^C	0.054	(cm ³ /cm ³)	Not applicable
Soil stratum A SCS soil type (used to estimate soil vapor permeability)		LS		Loamy sand soil type based on site-specific information (boring logs)
User-defined stratum A soil vapor permeability (Leave blank to let JEM calculate)	k_v		cm ²	
Building Assumptions		Value	Unit	Rationale
Enclosed space floor thickness	L_{crack}	10	cm	Default value (USEPA, 2004)
Soil-building pressure differential	ΔP	40	g/cm-s ²	Default value (USEPA, 2004)
Enclosed space floor length	L_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space floor width	W_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space height	H_B	244	cm	Default value (USEPA, 2004); assumes slab-on-grade foundation
Floor-wall seam crack width	w	0.1	cm	Default value (USEPA, 2004)
Indoor air exchange rate	ER	1	1/h	Site-specific assumption based on an industrial setting (DTSC, 2005; CH2M HILL, 2009)
Average vapor flow rate into building	Q_{soil}	2	L/m	Qsoil calculated by J&E Model. Average attenuation factor is 0.0001.

Table 8

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : Longterm VALS - Shallow Soil vapor (< 15 feet bgs) to Indoor Air
Honeywell 34th Street Site, Phoenix, Arizona

Exposure Assumptions		Value	Unit	Rationale
Target Risk Level	TRL	1E-06	unitless	Default value (USEPA, 2004)
Target Hazard Quotient	THQ	1	unitless	Default value (USEPA, 2004)
Exposure Duration	ED	25	yrs	Assumed worker exposure scenario (USEPA, 2004)
Exposure Frequency	EF	250	days/yr	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for carcinogens	ATc	70	yrs	Standard industrial scenario; default value (USEPA, 2004)
Averaging time for noncarcinogens	ATnc	25	yrs	Standard industrial scenario; default value (USEPA, 2004)

Notes:

SCS : Soil Conservation Service

ASHRAE. 2004. *ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality in Commercial, Institutional, Industrial and High Rise Residential Buildings*

CH2M HILL. 2009. *DRAFT Focused Human Health Risk Assessment Report. Honeywell 34th Street Facility Phoenix, Arizona.* January 9.

DTSC. 2005. *Advisory on Methane Assessment and Common Remedies at School Site.* June.

USEPA. 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response.* June 19.

Table 9

Longterm VALs - Shallow Soil vapor (< 15 feet bgs) to Indoor Air

Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Risk-based Concentration (Carcinogenic Endpoint) ug/m3	Risk-based Concentration (Non-carcinogenic Endpoint) ug/m3	1 x 10 ⁻⁶ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁵ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁴ Risk-based Concentration (Carcinogenic Endpoint) ug/L	Risk-based Concentration (Non-carcinogenic Endpoint) ug/L	Tier 1 BSVE Vapor Action Level (5 ft bgs) ug/L	Tier 2 BSVE Vapor Action Level (5 ft bgs) ug/L
1,2,4-Trimethylbenzene	95636	NA	1.1E+05	NA	NA	NA	107	107	107
1,3,5-Trimethylbenzene	108678	NA	91,396	NA	NA	NA	91	91	91
Benzene	71432	5,289	4.4E+05	5	53	529	442	5	53
Chloroethane (ethyl chloride)	75003	NA	1.4E+08	NA	NA	NA	140,015	140,015	140,015
Chloroform	67663	1,773	1.4E+06	2	18	177	1,427	2	18
cis-1,2-Dichloroethylene	156592	NA	9.0E+05	NA	NA	NA	897	897	897
Ethylbenzene	100414	16,711	1.5E+07	17	167	1,671	14,920	17	167
Hexane	110543	NA	9.9E+06	NA	NA	NA	9,889	9,889	9,889
MTBE	1634044	157,021	4.4E+07	157	1,570	15,702	43,742	157	1,570
m-Xylene	108383	NA	1.1E+07	NA	NA	NA	10,508	10,508	10,508
o-Xylene	95476	NA	1.0E+07	NA	NA	NA	10,322	10,322	10,322
p-Xylene	106423	NA	1.0E+07	NA	NA	NA	10,422	10,422	10,422
Tetrachloroethylene	127184	7,106	4.0E+06	7	71	711	4,043	7	71
Toluene	108883	NA	7.4E+07	NA	NA	NA	73,726	73,726	73,726
Trichloroethylene	79016	20,799	NA	21	208	2,080	NA	21	208
Vinyl chloride (chloroethene)	75014	9,258	1.5E+06	9	93	926	1455	9	93

Notes:

Physical/chemical parameters for m-xylene used as a surrogate for xylenes (total) and m,p-xylene.

NA: Not Available.

Tier 1 VAL is the minimum of the non-carcinogenic RBC and the 1E-06 carcinogenic RBC.

Tier 2 VAL is the minimum of the non-carcinogenic RBC and the 1E-05 carcinogenic RBC.

Table 10

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : Longterm VALs - Deep Soil vapor (=> 15 feet bgs) to Indoor Air

Honeywell 34th Street Site, Phoenix, Arizona

Subsurface Assumptions		Value	Unit	Rationale
Depth below grade to bottom of enclosed space floor	L_F	15	cm	Default value (USEPA, 2004)
Soil gas sampling depth below grade	L_S	457.2	cm	15 feet below ground surface; site-specific assumption
Average soil temperature	T_S	22	°C	Default value for Phoenix area (USEPA, 2004)
Thickness of soil stratum A	h_A	152.4	cm	5 feet below ground surface; site-specific assumption
Thickness of soil stratum B	h_B	304.8	cm	5 to 15 feet below ground surface; site-specific assumption
Thickness of soil stratum C	h_C	0	cm	Not applicable
Stratum A SCS soil type		LS		Loamy sand soil type based on site-specific information (boring logs)
Stratum A soil dry bulk density	ρ_b^A	1.62	(g/cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil total porosity	n^A	0.39	(unitless)	Default value for loamy sand soil (USEPA, 2004)
Stratum A soil water-filled porosity	θ_w^A	0.076	(cm ³ /cm ³)	Default value for loamy sand soil (USEPA, 2004)
Stratum B SCS soil type		S		Default value for sandy soil (USEPA, 2004)
Stratum B soil dry bulk density	ρ_b^B	1.66	(g/cm ³)	Default value for sandy soil (USEPA, 2004)
Stratum B soil total porosity	n^B	0.375	(unitless)	Default value for sandy soil (USEPA, 2004)
Stratum B soil water-filled porosity	θ_w^B	0.054	(cm ³ /cm ³)	Default value for sandy soil (USEPA, 2004)
Stratum C SCS soil type		S		Not applicable
Stratum C soil dry bulk density	ρ_b^C	1.66	(g/cm ³)	Not applicable
Stratum C soil total porosity	n^C	0.375	(unitless)	Not applicable
Stratum C soil water-filled porosity	θ_w^C	0.054	(cm ³ /cm ³)	Not applicable
Soil stratum A SCS soil type (used to estimate soil vapor permeability)		LS		Loamy sand soil type based on site-specific information (boring logs)
User-defined stratum A soil vapor permeability (Leave blank to let JEM calculate)	k_v		cm ²	
Building Assumptions		Value	Unit	Rationale
Enclosed space floor thickness	L_{crack}	10	cm	Default value (USEPA, 2004)
Soil-building pressure differential	ΔP	40	g/cm-s ²	Default value (USEPA, 2004)
Enclosed space floor length	L_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space floor width	W_B	2154	cm	70 feet; site-specific assumption based on median commercial/industrial building size (ASHRAE, 2004)
Enclosed space height	H_B	244	cm	Default value (USEPA, 2004); assumes slab-on-grade foundation
Floor-wall seam crack width	w	0.1	cm	Default value (USEPA, 2004)
Indoor air exchange rate	ER	1	1/h	Site-specific assumption based on an industrial setting (DTSC, 2005; CH2M HILL, 2009)
Average vapor flow rate into building	Q_{soil}	2	L/m	Qsoil calculated by J&E Model. Average attenuation factor is 0.00009.

Table 10

Input Assumptions used in the Advanced Soil Gas Johnson & Ettinger Model (v. 3.1) : Longterm VALs - Deep Soil vapor (=> 15 feet bgs) to Indoor Air

Honeywell 34th Street Site, Phoenix, Arizona

Exposure Assumptions		Value	Unit	Rationale
Target Risk Level	TRL	1E-06	unitless	Default value (USEPA, 2004)
Target Hazard Quotient	THQ	1	unitless	Default value (USEPA, 2004)
Exposure Duration	ED	25	yrs	Assumed worker exposure scenario (USEPA, 2004)
Exposure Frequency	EF	250	days/yr	Standard industrial scenario. Default value (USEPA, 2004)
Averaging time for carcinogens	ATc	70	yrs	Standard industrial scenario. Default value (USEPA, 2004)
Averaging time for noncarcinogens	ATnc	25	yrs	Standard industrial scenario. Default value (USEPA, 2004)

Notes:

SCS : Soil Conservation Service

ASHRAE. 2004. *ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality in Commercial, Institutional, Industrial and High Rise Residential Buildings A*

CH2M HILL. 2009. *DRAFT Focused Human Health Risk Assessment Report. Honeywell 34th Street Facility Phoenix, Arizona.* January 9.

DTSC. 2005. *Advisory on Methane Assessment and Common Remedies at School Site.* June.

USEPA. 2004. *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Office of Emergency and Remedial Response.* June 19.

Table 11

Longterm VALs : Deep Soil vapor (=> 15 feet bgs) to Indoor Air
 Honeywell 34th Street Site, Phoenix, Arizona

Chemical	Chemical CAS No.	Risk-based Concentration (Carcinogenic Endpoint) ug/m3	Risk-based Concentration (Non-carcinogenic Endpoint) ug/m3	1 x 10 ⁻⁶ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁵ Risk-based Concentration (Carcinogenic Endpoint) ug/L	1 x 10 ⁻⁴ Risk-based Concentration (Carcinogenic Endpoint) ug/L	Risk-based Concentration (Non-carcinogenic Endpoint) ug/L	Tier 1 BSVE Vapor Action Level (15 ft bgs) ug/L	Tier 2 BSVE Vapor Action Level (15 ft bgs) ug/L
1,2,4-Trimethylbenzene	95636	NA	1.28E+05	NA	NA	NA	128	128	128
1,3,5-Trimethylbenzene	108678	NA	1.09E+05	NA	NA	NA	109	109	109
Benzene	71432	6,029	5.04E+05	6	60	603	504	6	60
Chloroethane (ethyl chloride)	75003	NA	1.47E+08	NA	NA	NA	146,713	146,713	146,713
Chloroform	67663	1,986	1.60E+06	2	20	199	1,599	2	20
cis-1,2-Dichloroethylene	156592	NA	1.04E+06	NA	NA	NA	1,045	1,045	1,045
Ethylbenzene	100414	19,422	1.73E+07	19	194	1942	17,341	19	194
Hexane	110543	NA	1.05E+07	NA	NA	NA	10,524	10,524	10,524
MTBE	1634044	176,111	4.91E+07	176	1,761	17,611	49,060	176	1,761
m-Xylene	108383	NA	1.23E+07	NA	NA	NA	12,323	12,323	12,323
o-Xylene	95476	NA	1.18E+07	NA	NA	NA	11,782	11,782	11,782
p-Xylene	106423	NA	1.21E+07	NA	NA	NA	12,075	12,075	12,075
Tetrachloroethylene	127184	8,302	4.72E+06	8	83	830	4,723	8	83
Toluene	108883	NA	8.42E+07	NA	NA	NA	84,158	84,158	84,158
Trichloroethylene	79016	24,015	NA	24	240	2,402	NA	24	240
Vinyl chloride (chloroethene)	75014	10,348	1.63E+06	10	103	1,035	1,626	10	103

Notes:

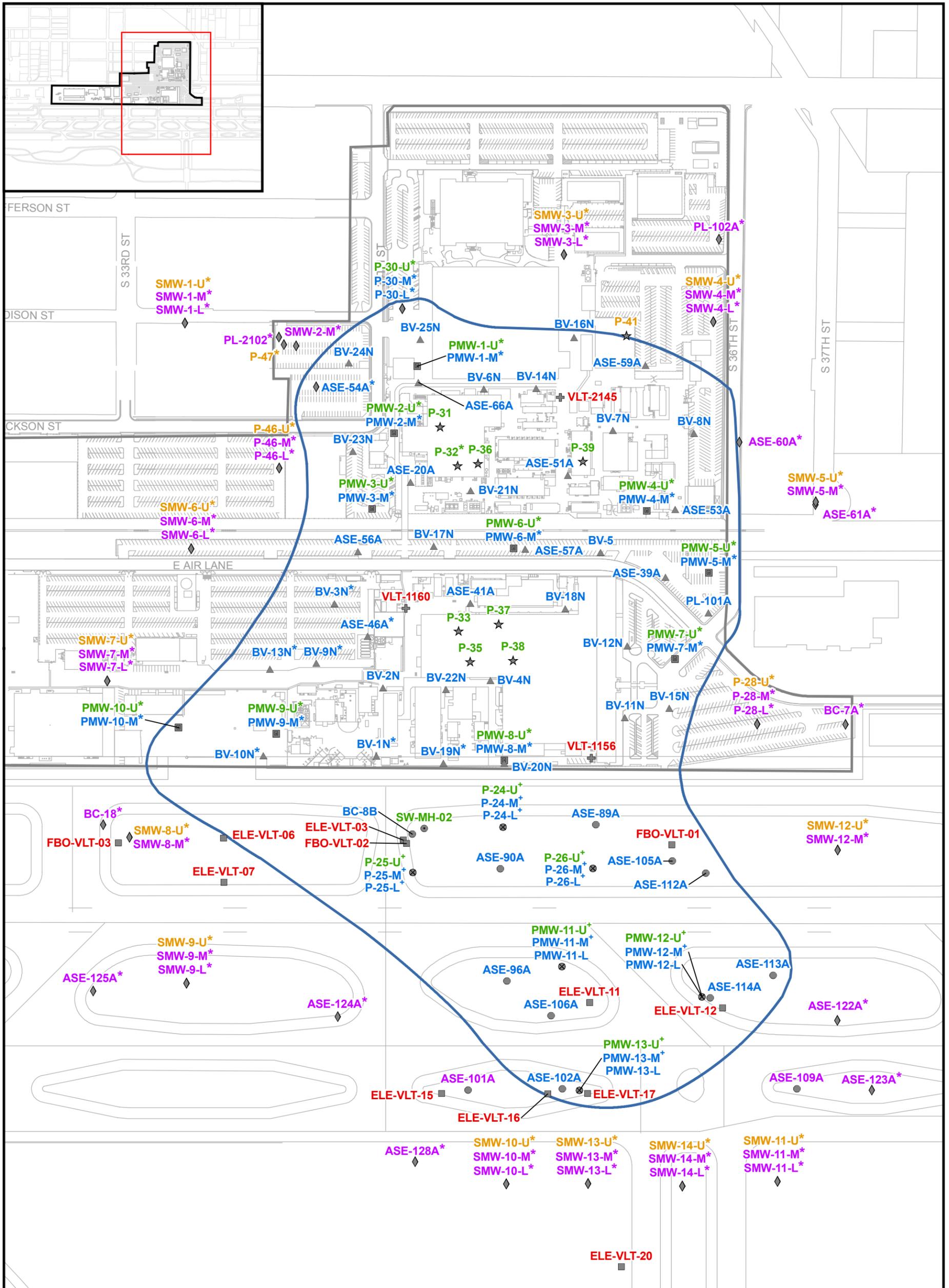
Physical/chemical parameters for m-xylene used as a surrogate for xylenes (total) and m,p-xylene.

NA: Not Available

Tier 1 VAL is the minimum of the non-carcinogenic RBC and the 1E-06 carcinogenic RBC.

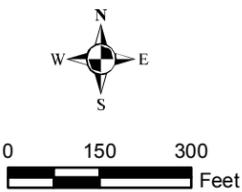
Tier 2 VAL is the minimum of the non-carcinogenic RBC and the 1E-05 carcinogenic RBC.

Figures



Legend

- Groundwater Monitoring Well
 - ⊕ Honeywell Utility Vault
 - Manhole
 - PSHIA Utility Vault
 - Process Monitoring Well
 - ◆ Sentinel Monitoring Well
 - ★ Sub-Slab
 - ⊗ Uncategorized
 - ▲ Injection/Extraction Wells
 - Street and Airport Features
 - BSVE Treatment Area
 - Honeywell Facility
- Well ID Color Category**
- Blue = Tier 1 and 2 BSVE Deep
 - Green = Tier 1 and 2 BSVE Shallow
 - Purple = Tier 1 and 2 Long Term Deep
 - Orange = Tier 1 and 2 Long Term Shallow
 - Red = VAALs

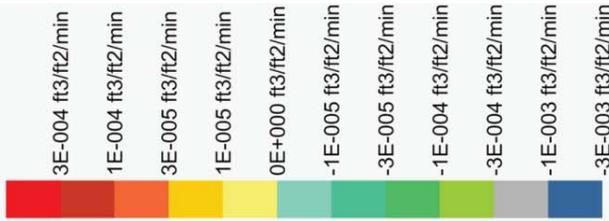
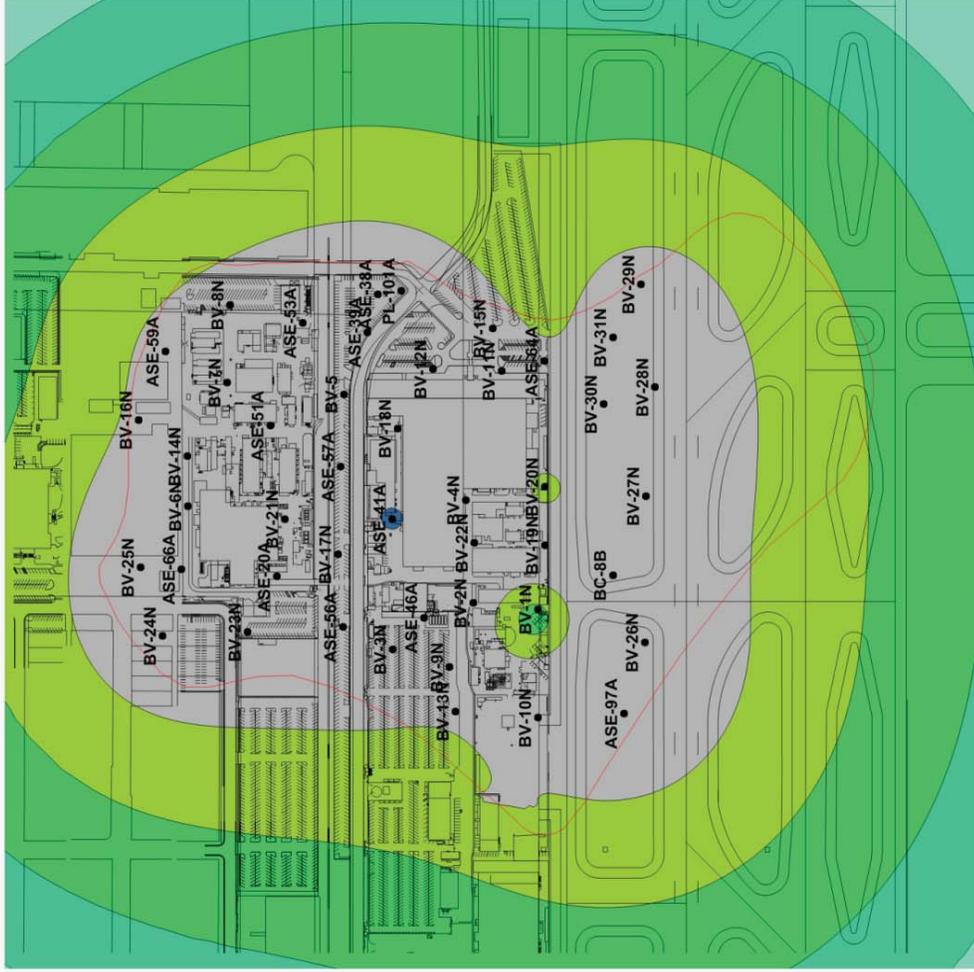


Notes:
 * Part of Quarterly Soil Vapor Monitoring Program
 † To be included in Quarterly Soil Vapor Monitoring Program

**FIGURE 1
 SOIL-VAPOR MONITORING LOCATIONS
 HONEYWELL FACILITY
 BASED ON THE FOURTH QUARTER 2009
 BSVE SOIL-VAPOR MONITORING EVENT**

*Honeywell 34th Street Facility
 Phoenix, Arizona*





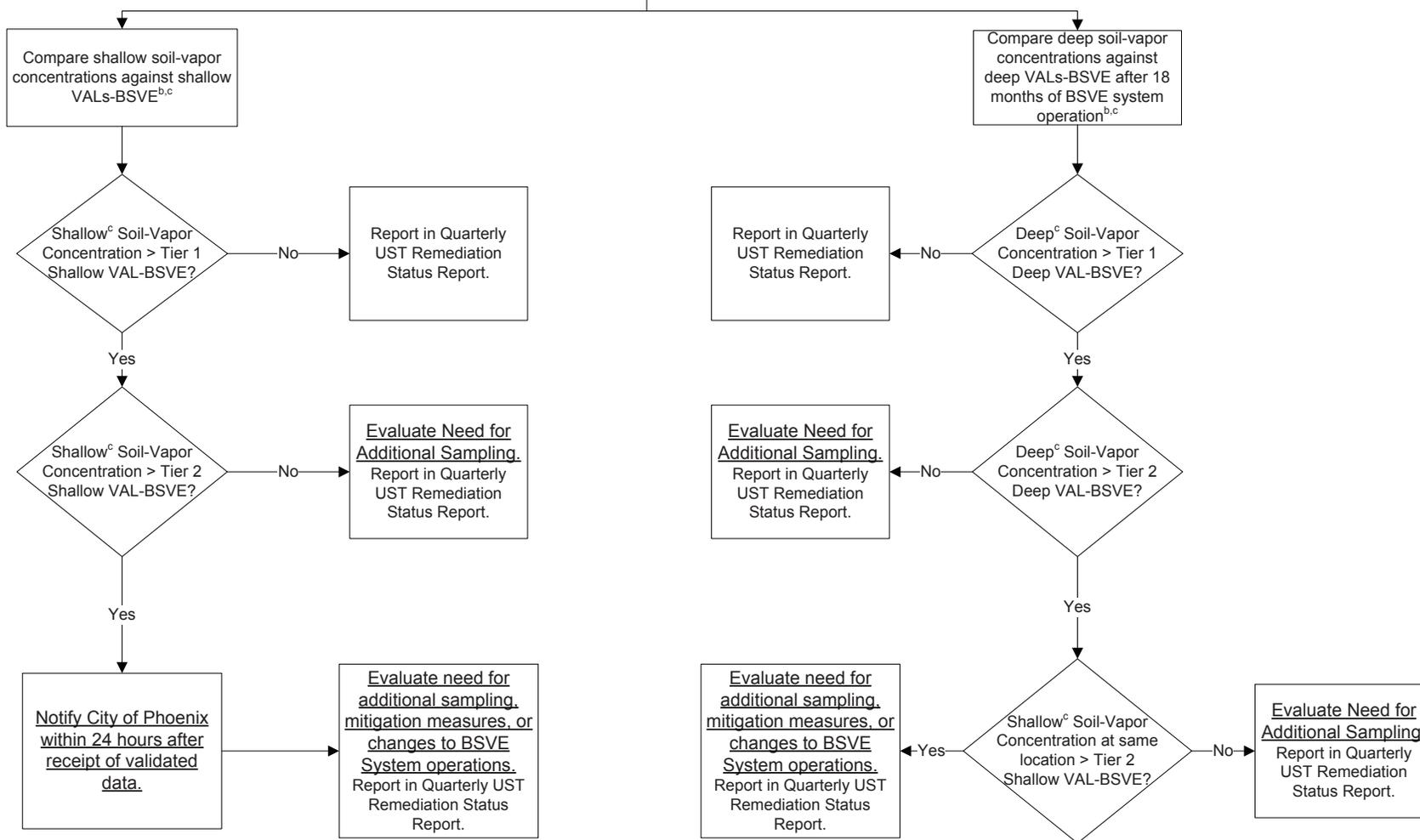
Model Run:
08/17/2009



WELLFIELD LAYOUT 1,2,3,4- AVERAGE SURFACE FLUX
(POSITIVE VALUE INDICATE UPWARD FLUX
NEGATIVE VALUES INDICATE DOWNWARD FLUX
TOTAL INJECTION 2650 CFM TOTAL EXTRACTION 5300 CFM

FIGURE 2
AVERAGE SURFACE FLUX
VAPOR ACTION LEVELS UPDATE
Honeywell 34th Street Facility
Phoenix, Arizona
CH2MHILL

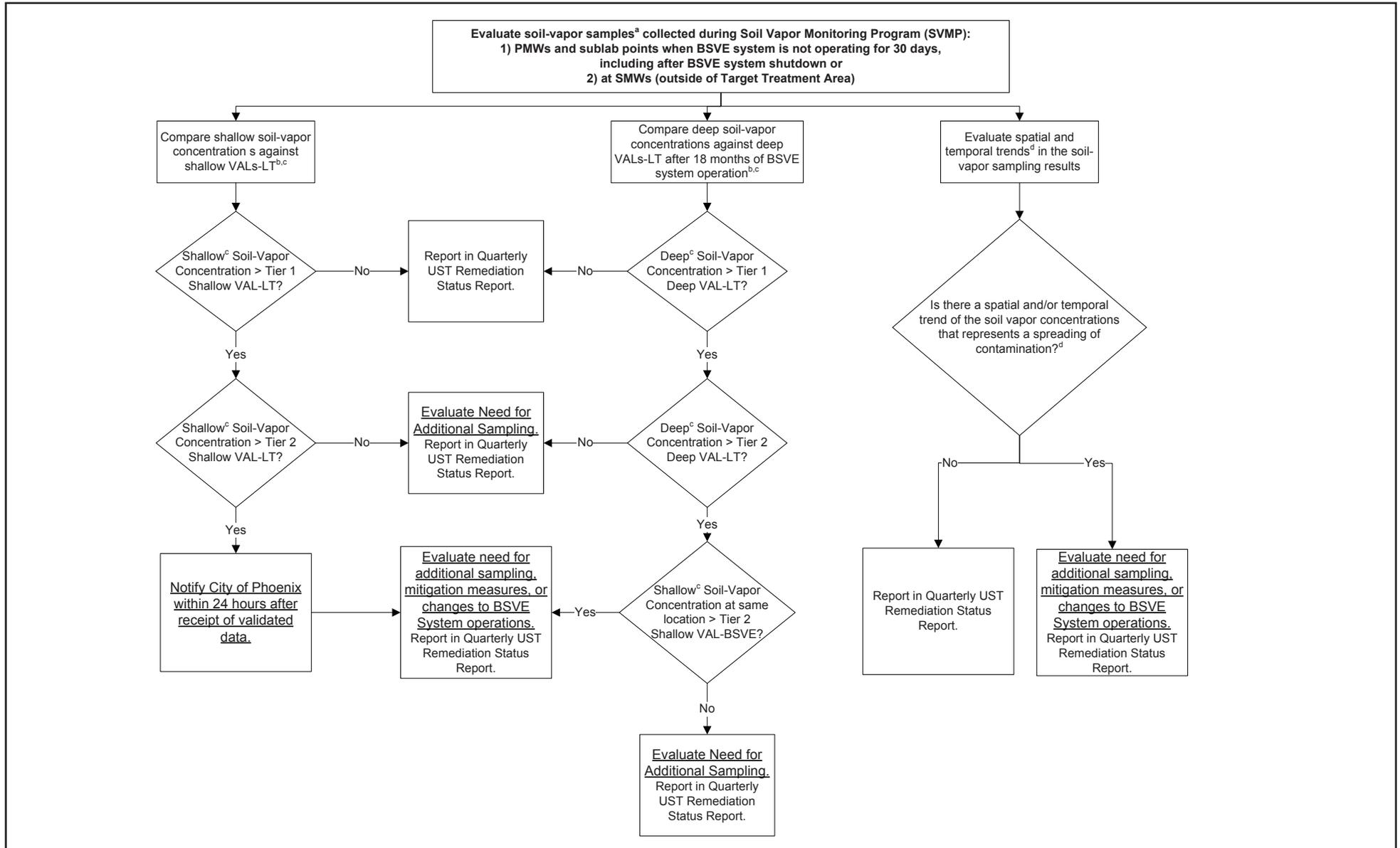
Evaluate soil-vapor samples^a collected during Soil Vapor Monitoring Program (SVMP) from PMWs and subslab points within Target Treatment Area when BSVE system is operating



NOTE:

- a : Validated soil-vapor concentration data will be compared against the Vapor Action Levels (VALs).
- b : VALs-BSVE (Vapor Action Levels – BSVE System)
- c : Shallow – samples collected from monitoring points < 15 feet below ground surface. Deep – samples collected from monitoring points >= 15 feet below ground surface.

FIGURE 3
APPLICATION OF VALS-BSVE
MARCH 2010 VAPOR ACTION LEVELS UPDATE
Honeywell 34th Street Facility
Phoenix, Arizona



NOTE:

- a : Validated soil-vapor concentration data will be compared against the Vapor Action Levels (VALs).
- b : VALs-LT (Vapor Action Levels – Long Term)
- c : Shallow – samples collected from monitoring points < 15 feet below ground surface. Deep – samples collected from monitoring points >= 15 feet below ground surface.
- d : Spatial and temporal trends will be evaluated to assess the potential for soil-vapor contamination to spread beyond the existing target treatment area. Trends will be evaluated using exploratory data analysis until the size of the data set is sufficient for a more defined trend analysis protocol is established.

FIGURE 4
APPLICATION OF VALS-LT
MARCH 2010 VAPOR ACTION LEVELS UPDATE
Honeywell 34th Street Facility
Phoenix, Arizona

**Attachment 1 J&E Model Calculation
Worksheets**

Advanced Soil Gas Johnson & Ettinger Model - VALs-BSVE (Shallow)

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.00E+00		0.00E+00	Benzene

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_S (cm)	ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Totals must add up to value of L_S (cell F24)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)						
15	152.4	22	152.4	0	0	LS	0.00E+00	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	2154	2154	244	0.1	1	0.5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Shallow)

January 24, 2010

Chemical	Chemical CAS No.	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu\text{g}/\text{m}^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm- m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1,2,4-Trimethylbenzene	95636	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,541	5.04E-03	2.08E-01
1,3,5-Trimethylbenzene	108678	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,521	4.82E-03	1.99E-01
Benzene	71432	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,998	4.83E-03	1.99E-01
Chloroethane (ethyl chloride)	75003	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	5,764	7.97E-03	3.29E-01
Chloroform	67663	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,429	3.22E-03	1.33E-01
cis-1,2-Dichloroethylene	156592	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,612	3.57E-03	1.47E-01
Ethylbenzene	100414	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,017	6.62E-03	2.73E-01
Hexane	110543	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,576	1.46E+00	6.03E+01
MTBE	1634044	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,139	5.52E-04	2.28E-02
m-Xylene	108383	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,114	6.16E-03	2.54E-01
o-Xylene	95476	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,268	4.34E-03	1.79E-01
p-Xylene	106423	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,107	6.42E-03	2.65E-01
Tetrachloroethylene	127184	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,431	1.56E-02	6.45E-01
Toluene	108883	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,023	5.67E-03	2.34E-01
Trichloroethylene	79016	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	8,407	8.89E-03	3.67E-01
Vinyl chloride (chloroethene)	75014	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	4,864	2.48E-02	1.02E+00

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Shallow)

January 24, 2010

Chemical	Chemical CAS No.	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Average Building Ventilation Rate, $Q_{building}$ (cm ³ /s)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
	1	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
1,2,4-Trimethylbenzene	95636	1.79E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	137.4	15	1.00E+00	0.10	8.33E+00	8.42E-03	8.62E+02	9.79E+04	2.58E-05	2.58E-05	3.14E+05	NA	7.0E-03
1,3,5-Trimethylbenzene	108678	1.79E-04	8.36E-03	0.00E+00	0.00E+00	8.36E-03	137.4	15	1.00E+00	0.10	8.33E+00	8.36E-03	8.62E+02	1.06E+05	2.58E-05	2.58E-05	3.14E+05	NA	6.0E-03
Benzene	71432	1.79E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.22E-02	8.62E+02	2.73E+03	2.60E-05	2.60E-05	3.14E+05	7.8E-06	3.0E-02
Chloroethane (ethyl chloride)	75003	1.79E-04	3.76E-02	0.00E+00	0.00E+00	3.76E-02	137.4	15	1.00E+00	0.10	8.33E+00	3.76E-02	8.62E+02	1.31E+01	2.85E-05	2.85E-05	3.14E+05	NA	1.0E+01
Chloroform	67663	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.44E-02	8.62E+02	8.09E+02	2.61E-05	2.61E-05	3.14E+05	2.3E-05	9.8E-02
cis-1,2-Dichloroethylene	156592	1.79E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.02E-02	8.62E+02	1.29E+04	2.59E-05	2.59E-05	3.14E+05	NA	6.0E-02
Ethylbenzene	100414	1.79E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.04E-02	8.62E+02	1.08E+04	2.59E-05	2.59E-05	3.14E+05	2.5E-06	1.0E+00
Hexane	110543	1.79E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	137.4	15	1.00E+00	0.10	8.33E+00	2.78E-02	8.62E+02	3.25E+01	2.71E-05	2.71E-05	3.14E+05	NA	7.0E-01
MTBE	1634044	1.79E-04	1.42E-02	0.00E+00	0.00E+00	1.42E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.42E-02	8.62E+02	8.98E+02	2.61E-05	2.61E-05	3.14E+05	2.6E-07	3.0E+00
m-Xylene	108383	1.79E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	137.4	15	1.00E+00	0.10	8.33E+00	9.72E-03	8.62E+02	2.09E+04	2.59E-05	2.59E-05	3.14E+05	NA	7.0E-01
o-Xylene	95476	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.21E-02	8.62E+02	2.99E+03	2.60E-05	2.60E-05	3.14E+05	NA	7.0E-01
p-Xylene	106423	1.79E-04	1.07E-02	0.00E+00	0.00E+00	1.07E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.07E-02	8.62E+02	8.57E+03	2.59E-05	2.59E-05	3.14E+05	NA	7.0E-01
Tetrachloroethylene	127184	1.79E-04	1.00E-02	0.00E+00	0.00E+00	1.00E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.00E-02	8.62E+02	1.59E+04	2.59E-05	2.59E-05	3.14E+05	5.9E-06	2.7E-01
Toluene	108883	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.21E-02	8.62E+02	3.00E+03	2.60E-05	2.60E-05	3.14E+05	NA	5.0E+00
Trichloroethylene	79016	1.79E-04	1.10E-02	0.00E+00	0.00E+00	1.10E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.10E-02	8.62E+02	6.74E+03	2.59E-05	2.59E-05	3.14E+05	2.0E-06	NA
Vinyl chloride (chloroethene)	75014	1.79E-04	1.47E-02	0.00E+00	0.00E+00	1.47E-02	137.4	15	1.00E+00	0.10	8.33E+00	1.47E-02	8.62E+02	7.13E+02	2.61E-05	2.61E-05	3.14E+05	4.4E-06	1.0E-01

RESULTS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALS-BSVE (Shallow)

January 24, 2010

Chemical	Chemical CAS No.	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Risk-Based Concentration Cancer Basis ug/m3	Risk-Based Concentration Noncancer Basis ug/m3
1,2,4-Trimethylbenzene	95636	NA	2.5E-06	NA	396,664
1,3,5-Trimethylbenzene	108678	NA	2.9E-06	NA	340,060
Benzene	71432	5.0E-11	5.9E-07	20,159	1.68E+06
Chloroethane (ethyl chloride)	75003	NA	2.0E-09	NA	5.12E+08
Chloroform	67663	1.5E-10	1.8E-07	6,810	5.48E+06
cis-1,2-Dichloroethylene	156592	NA	3.0E-07	NA	3.38E+06
Ethylbenzene	100414	1.6E-11	1.8E-08	63,123	5.64E+07
Hexane	110543	NA	2.7E-08	NA	3.77E+07
MTBE	1634044	1.7E-12	6.0E-09	602,688	1.68E+08
m-Xylene	108383	NA	2.5E-08	NA	3.95E+07
o-Xylene	95476	NA	2.5E-08	NA	3.93E+07
p-Xylene	106423	NA	2.5E-08	NA	3.94E+07
Tetrachloroethylene	127184	3.7E-11	6.6E-08	26,773	1.52E+07
Toluene	108883	NA	3.6E-09	NA	2.81E+08
Trichloroethylene	79016	1.3E-11	NA	78,810	NA
Vinyl chloride (chloroethene)	75014	2.8E-11	1.8E-07	35,583	5.59E+06

Advanced Soil Gas Johnson & Ettinger Model - VALs-BSVE (Deep)

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.00E+00		0.00E+00	Benzene

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_S (cm)	ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Totals must add up to value of L_S (cell F24)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)						
15	457.2	22	152.4	304.8	0	LS	0.00E+00	
			457.2					

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil total bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}\cdot\text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	2154	2154	244	0.1	1	0.5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu\text{g}/\text{m}^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1,2,4-Trimethylbenzene	95636	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,541
1,3,5-Trimethylbenzene	108678	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,521
Benzene	71432	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,998
Chloroethane (ethyl chloride)	75003	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	5,764
Chloroform	67663	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,429
cis-1,2-Dichloroethylene	156592	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,612
Ethylbenzene	100414	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,017
Hexane	110543	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,576
MTBE	1634044	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,139
m-Xylene	108383	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,114
o-Xylene	95476	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,268
p-Xylene	106423	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,107
Tetrachloroethylene	127184	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,431
Toluene	108883	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,023
Trichloroethylene	79016	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	8,407
Vinyl chloride (chloroethene)	75014	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	4,864

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} (µg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)
	1	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1,2,4-Trimethylbenzene	95636	5.04E-03	2.08E-01	1.79E-04	8.42E-03	9.80E-03	0.00E+00	9.32E-03	442.2	15	1.00E+00	0.10	8.33E+00	8.42E-03	8.62E+02	9.79E+04
1,3,5-Trimethylbenzene	108678	4.82E-03	1.99E-01	1.79E-04	8.36E-03	9.73E-03	0.00E+00	9.26E-03	442.2	15	1.00E+00	0.10	8.33E+00	8.36E-03	8.62E+02	1.06E+05
Benzene	71432	4.83E-03	1.99E-01	1.79E-04	1.22E-02	1.42E-02	0.00E+00	1.35E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.22E-02	8.62E+02	2.73E+03
Chloroethane (ethyl chloride)	75003	7.97E-03	3.29E-01	1.79E-04	3.76E-02	4.38E-02	0.00E+00	4.17E-02	442.2	15	1.00E+00	0.10	8.33E+00	3.76E-02	8.62E+02	1.31E+01
Chloroform	67663	3.22E-03	1.33E-01	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.44E-02	8.62E+02	8.09E+02
cis-1,2-Dichloroethylene	156592	3.57E-03	1.47E-01	1.79E-04	1.02E-02	1.19E-02	0.00E+00	1.13E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.02E-02	8.62E+02	1.29E+04
Ethylbenzene	100414	6.62E-03	2.73E-01	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.15E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.04E-02	8.62E+02	1.08E+04
Hexane	110543	1.46E+00	6.03E+01	1.79E-04	2.78E-02	3.23E-02	0.00E+00	3.08E-02	442.2	15	1.00E+00	0.10	8.33E+00	2.78E-02	8.62E+02	3.25E+01
MTBE	1634044	5.52E-04	2.28E-02	1.79E-04	1.42E-02	1.66E-02	0.00E+00	1.58E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.42E-02	8.62E+02	8.98E+02
m-Xylene	108383	6.16E-03	2.54E-01	1.79E-04	9.72E-03	1.13E-02	0.00E+00	1.08E-02	442.2	15	1.00E+00	0.10	8.33E+00	9.72E-03	8.62E+02	2.09E+04
o-Xylene	95476	4.34E-03	1.79E-01	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.34E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.21E-02	8.62E+02	2.99E+03
p-Xylene	106423	6.42E-03	2.65E-01	1.79E-04	1.07E-02	1.24E-02	0.00E+00	1.18E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.07E-02	8.62E+02	8.57E+03
Tetrachloroethylene	127184	1.56E-02	6.45E-01	1.79E-04	1.00E-02	1.16E-02	0.00E+00	1.11E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.00E-02	8.62E+02	1.59E+04
Toluene	108883	5.67E-03	2.34E-01	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.34E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.21E-02	8.62E+02	3.00E+03
Trichloroethylene	79016	8.89E-03	3.67E-01	1.79E-04	1.10E-02	1.28E-02	0.00E+00	1.22E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.10E-02	8.62E+02	6.74E+03
Vinyl chloride (chloroethene)	75014	2.48E-02	1.02E+00	1.79E-04	1.47E-02	1.71E-02	0.00E+00	1.63E-02	442.2	15	1.00E+00	0.10	8.33E+00	1.47E-02	8.62E+02	7.13E+02

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{building} ($\mu\text{g}/\text{m}^3$)	Average Building Ventilation Rate Q_{building} (cm^3/s)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RfC (mg/m^3)
	1	33	34	35	36	37
1,2,4-Trimethylbenzene	95636	2.45E-05	2.45E-05	3.14E+05	NA	7.0E-03
1,3,5-Trimethylbenzene	108678	2.45E-05	2.45E-05	3.14E+05	NA	6.0E-03
Benzene	71432	2.51E-05	2.51E-05	3.14E+05	7.8E-06	3.0E-02
Chloroethane (ethyl chloride)	75003	2.81E-05	2.81E-05	3.14E+05	NA	1.0E+01
Chloroform	67663	2.53E-05	2.53E-05	3.14E+05	2.3E-05	9.8E-02
cis-1,2-Dichloroethylene	156592	2.48E-05	2.48E-05	3.14E+05	NA	6.0E-02
Ethylbenzene	100414	2.48E-05	2.48E-05	3.14E+05	2.5E-06	1.0E+00
Hexane	110543	2.66E-05	2.66E-05	3.14E+05	NA	7.0E-01
MTBE	1634044	2.53E-05	2.53E-05	3.14E+05	2.6E-07	3.0E+00
m-Xylene	108383	2.47E-05	2.47E-05	3.14E+05	NA	7.0E-01
o-Xylene	95476	2.51E-05	2.51E-05	3.14E+05	NA	7.0E-01
p-Xylene	106423	2.49E-05	2.49E-05	3.14E+05	NA	7.0E-01
Tetrachloroethylene	127184	2.48E-05	2.48E-05	3.14E+05	5.9E-06	2.7E-01
Toluene	108883	2.51E-05	2.51E-05	3.14E+05	NA	5.0E+00
Trichloroethylene	79016	2.49E-05	2.49E-05	3.14E+05	2.0E-06	NA
Vinyl chloride (chloroethene)	75014	2.53E-05	2.53E-05	3.14E+05	4.4E-06	1.0E-01

RESULTS SHEET

December 7, 2009

Advanced Soil Gas Johnson Ettinger Model - VALs-BSVE (Deep)

Chemical	Chemical CAS No.	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Risk-Based Concentration Cancer Basis ug/m3	Risk-Based Concentration Noncancer Basis ug/m3
1,2,4-Trimethylbenzene	95636	NA	2.4E-06	NA	417,631
1,3,5-Trimethylbenzene	108678	NA	2.8E-06	NA	358,152
Acrolein	107028	NA	8.7E-04	NA	1,153
Benzene	71432	4.8E-11	5.7E-07	20,899	1.75E+06
Chloroethane (ethyl chloride)	75003	NA	1.9E-09	NA	5.19E+08
Chloroform	67663	1.4E-10	1.8E-07	7,023	5.65E+06
cis-1,2-Dichloroethylene	156592	NA	2.8E-07	NA	3.53E+06
Ethylbenzene	100414	1.5E-11	1.7E-08	65,834	5.88E+07
Hexane	110543	NA	2.6E-08	NA	3.83E+07
MTBE	1634044	1.6E-12	5.8E-09	621,778	1.73E+08
m-Xylene	108383	NA	2.4E-08	NA	4.13E+07
o-Xylene	95476	NA	2.5E-08	NA	4.08E+07
p-Xylene	106423	NA	2.4E-08	NA	4.11E+07
Tetrachloroethylene	127184	3.6E-11	6.3E-08	27,969	1.59E+07
Toluene	108883	NA	3.4E-09	NA	2.91E+08
Trichloroethylene	79016	1.2E-11	NA	82,026	NA
Vinyl chloride (chloroethene)	75014	2.7E-11	1.7E-07	36,673	5.76E+06

Advanced Soil Gas Johnson & Ettinger Model - DATAENTER

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
71432	1.00E+00		0.00E+00	Benzene

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Totals must add up to value of L _S (cell F24)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
Thickness of soil stratum A, h _A (cm)	Thickness of soil stratum B, (Enter value or 0) h _B (cm)	Thickness of soil stratum C, (Enter value or 0) h _C (cm)						
15	152.4	22	152.4	0	0	LS	0.00E+00	

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
10	40	2154	2154	244	0.1	1	

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model VALs-LT (Shallow)

December 7, 2009

Chemical	Chemical CAS No.	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective fluid saturation, S_{ie} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu\text{g}/\text{m}^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($\text{atm}\cdot\text{m}^3/\text{mol}$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1,2,4-Trimethylbenzene	95636	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,541	5.04E-03	2.08E-01
1,3,5-Trimethylbenzene	108678	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,521	4.82E-03	1.99E-01
Acrolein	107028	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,120	1.08E-04	4.45E-03
Benzene	71432	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,998	4.83E-03	1.99E-01
Chloroethane (ethyl chloride)	75003	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	5,764	7.97E-03	3.29E-01
Chloroform	67663	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,429	3.22E-03	1.33E-01
cis-1,2-Dichloroethylene	156592	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,612	3.57E-03	1.47E-01
Ethylbenzene	100414	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,017	6.62E-03	2.73E-01
Hexane	110543	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,576	1.46E+00	6.03E+01
MTBE	1634044	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,139	5.52E-04	2.28E-02
m-Xylene	108383	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,114	6.16E-03	2.54E-01
o-Xylene	95476	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,268	4.34E-03	1.79E-01
p-Xylene	106423	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,107	6.42E-03	2.65E-01
Tetrachloroethylene	127184	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,431	1.56E-02	6.45E-01
Toluene	108883	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,023	5.67E-03	2.34E-01
Trichloroethylene	79016	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	8,407	8.89E-03	3.67E-01
Vinyl chloride (chloroethene)	75014	7.88E+08	137.4	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	4,864	2.48E-02	1.02E+00

INTERMEDIATE CALCULATIONS SHEET

December 7, 2009

Advanced Soil Gas Johnson Ettinger Model VALs-LT (Shallow)

Chemical	Chemical CAS No.	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s)	Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s)	Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Pecllet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m ³)	Average Building Ventilation Rate, $Q_{building}$ (cm ³ /s)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
	1	20	21	22	23	24	25	26	27	28	29	30	31	32	33	35	36	37	38
1,2,4-Trimethylbenzene	95636	1.79E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	137.4	15	1.00E+00	0.10	3.36E+01	8.42E-03	8.62E+02	1.39E+20	9.59E-05	9.59E-05	3.14E+05	NA	7.0E-03
1,3,5-Trimethylbenzene	108678	1.79E-04	8.36E-03	0.00E+00	0.00E+00	8.36E-03	137.4	15	1.00E+00	0.10	3.36E+01	8.36E-03	8.62E+02	1.90E+20	9.58E-05	9.58E-05	3.14E+05	NA	6.0E-03
Acrolein	107028	1.79E-04	1.46E-02	0.00E+00	0.00E+00	1.46E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.46E-02	8.62E+02	4.20E+11	1.00E-04	1.00E-04	3.14E+05	NA	2.0E-05
Benzene	71432	1.79E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.22E-02	8.62E+02	7.44E+13	9.91E-05	9.91E-05	3.14E+05	7.8E-06	3.0E-02
Chloroethane (ethyl chloride)	75003	1.79E-04	3.76E-02	0.00E+00	0.00E+00	3.76E-02	137.4	15	1.00E+00	0.10	3.36E+01	3.76E-02	8.62E+02	3.20E+04	1.04E-04	1.04E-04	3.14E+05	NA	1.0E+01
Chloroform	67663	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.44E-02	8.62E+02	5.47E+11	1.00E-04	1.00E-04	3.14E+05	2.3E-05	9.8E-02
cis-1,2-Dichloroethylene	156592	1.79E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.02E-02	8.62E+02	3.85E+16	9.77E-05	9.77E-05	3.14E+05	NA	6.0E-02
Ethylbenzene	100414	1.79E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.04E-02	8.62E+02	1.89E+16	9.79E-05	9.79E-05	3.14E+05	2.5E-06	1.0E+00
Hexane	110543	1.79E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	137.4	15	1.00E+00	0.10	3.36E+01	2.78E-02	8.62E+02	1.27E+06	1.03E-04	1.03E-04	3.14E+05	NA	7.0E-01
MTBE	1634044	1.79E-04	1.42E-02	0.00E+00	0.00E+00	1.42E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.42E-02	8.62E+02	8.33E+11	1.00E-04	1.00E-04	3.14E+05	2.6E-07	3.0E+00
m-Xylene	108383	1.79E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	137.4	15	1.00E+00	0.10	3.36E+01	9.72E-03	8.62E+02	2.75E+17	9.73E-05	9.73E-05	3.14E+05	NA	7.0E-01
o-Xylene	95476	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.21E-02	8.62E+02	1.07E+14	9.90E-05	9.90E-05	3.14E+05	NA	7.0E-01
p-Xylene	106423	1.79E-04	1.07E-02	0.00E+00	0.00E+00	1.07E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.07E-02	8.62E+02	7.48E+15	9.81E-05	9.81E-05	3.14E+05	NA	7.0E-01
Tetrachloroethylene	127184	1.79E-04	1.00E-02	0.00E+00	0.00E+00	1.00E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.00E-02	8.62E+02	9.00E+16	9.75E-05	9.75E-05	3.14E+05	5.9E-06	2.7E-01
Toluene	108883	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.21E-02	8.62E+02	1.07E+14	9.90E-05	9.90E-05	3.14E+05	NA	5.0E+00
Trichloroethylene	79016	1.79E-04	1.10E-02	0.00E+00	0.00E+00	1.10E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.10E-02	8.62E+02	2.83E+15	9.83E-05	9.83E-05	3.14E+05	2.0E-06	NA
Vinyl chloride (chloroethene)	75014	1.79E-04	1.47E-02	0.00E+00	0.00E+00	1.47E-02	137.4	15	1.00E+00	0.10	3.36E+01	1.47E-02	8.62E+02	3.28E+11	1.00E-04	1.00E-04	3.14E+05	4.4E-06	1.0E-01

RESULTS SHEET

December 7, 2009

Advanced Soil Gas Johnson Ettinger Model - VALs-LT (Shallow)

Chemical	Chemical CAS No.	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Risk-Based Concentration Cancer Basis ug/m3	Risk-Based Concentration Noncancer Basis ug/m3
1,2,4-Trimethylbenzene	95636	NA	9.4E-06	NA	106,555
1,3,5-Trimethylbenzene	108678	NA	1.1E-05	NA	91,396
Acrolein	107028	NA	3.4E-03	NA	291
Benzene	71432	1.9E-10	2.3E-06	5,289	441,983
Chloroethane (ethyl chloride)	75003	NA	7.1E-09	NA	1.40E+08
Chloroform	67663	5.6E-10	7.0E-07	1,773	1.43E+06
cis-1,2-Dichloroethylene	156592	NA	1.1E-06	NA	896,672
Ethylbenzene	100414	6.0E-11	6.7E-08	16,711	1.49E+07
Hexane	110543	NA	1.0E-07	NA	9.89E+06
MTBE	1634044	6.4E-12	2.3E-08	157,021	4.37E+07
m-Xylene	108383	NA	9.5E-08	NA	1.05E+07
o-Xylene	95476	NA	9.7E-08	NA	1.03E+07
p-Xylene	106423	NA	9.6E-08	NA	1.04E+07
Tetrachloroethylene	127184	1.4E-10	2.5E-07	7,106	4.04E+06
Toluene	108883	NA	1.4E-08	NA	7.37E+07
Trichloroethylene	79016	4.8E-11	NA	20,799	NA
Vinyl chloride (chloroethene)	75014	1.1E-10	6.9E-07	9,258	1.45E+06

Advanced Soil Gas Johnson & Ettinger Model - DATAENTER - VALs-LT (Deep)

SG-ADV
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
71432	1.00E+00		0.00E+00	Benzene

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth below grade, L _S (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Totals must add up to value of L _s (cell F24)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
Thickness of soil stratum A, h _A (cm)	Thickness of soil stratum B, (Enter value or 0) h _B (cm)	Thickness of soil stratum C, (Enter value or 0) h _C (cm)						
15	457.2	22	152.4	304.8	0	LS	0.00E+00	
			457.2					

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space floor width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
10	40	2154	2154	244	0.1	1	

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

IF(ISBLANK(Qsoil),"",Qsoil)

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALS-LT (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. $Q_{building}$ ($\mu\text{g}/\text{m}^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm- m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D_A^{eff} (cm^2/s)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1,2,4-Trimethylbenzene	95636	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,541	5.04E-03	2.08E-01	1.79E-04	8.42E-03
1,3,5-Trimethylbenzene	108678	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	11,521	4.82E-03	1.99E-01	1.79E-04	8.36E-03
Acrolein	107028	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,120	1.08E-04	4.45E-03	1.79E-04	1.46E-02
Benzene	71432	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,998	4.83E-03	1.99E-01	1.79E-04	1.22E-02
Chloroethane (ethyl chloride)	75003	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	5,764	7.97E-03	3.29E-01	1.79E-04	3.76E-02
Chloroform	67663	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,429	3.22E-03	1.33E-01	1.79E-04	1.44E-02
cis-1,2-Dichloroethylene	156592	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,612	3.57E-03	1.47E-01	1.79E-04	1.02E-02
Ethylbenzene	100414	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,017	6.62E-03	2.73E-01	1.79E-04	1.04E-02
Hexane	110543	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,576	1.46E+00	6.03E+01	1.79E-04	2.78E-02
MTBE	1634044	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	7,139	5.52E-04	2.28E-02	1.79E-04	1.42E-02
m-Xylene	108383	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,114	6.16E-03	2.54E-01	1.79E-04	9.72E-03
o-Xylene	95476	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,268	4.34E-03	1.79E-01	1.79E-04	1.21E-02
p-Xylene	106423	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	10,107	6.42E-03	2.65E-01	1.79E-04	1.07E-02
Tetrachloroethylene	127184	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,431	1.56E-02	6.45E-01	1.79E-04	1.00E-02
Toluene	108883	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	9,023	5.67E-03	2.34E-01	1.79E-04	1.21E-02
Trichloroethylene	79016	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	8,407	8.89E-03	3.67E-01	1.79E-04	1.10E-02
Vinyl chloride (chloroethene)	75014	7.88E+08	442.2	0.314	0.321	0.321	0.079	1.66E-08	0.957	1.59E-08	8,616	1.00E+00	3.14E+05	4.77E+06	1.81E-04	15	4,864	2.48E-02	1.02E+00	1.79E-04	1.47E-02

INTERMEDIATE CALCULATIONS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALS-LT (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Stratum B effective diffusion coefficient, D_B^{eff} (cm^2/s)	Stratum C effective diffusion coefficient, D_C^{eff} (cm^2/s)	Total overall effective diffusion coefficient, D_T^{eff} (cm^2/s)	Diffusion path length, L_d (cm)	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D_{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Average Building Ventilation Rate $Q_{building}$ (cm^3/s)	Unit risk factor, URF ($\mu g/m^3$) ⁻¹	Reference conc., RfC (mg/m^3)
	1	22	23	24	25	26	27	28	29	30	31	32	33	35	36	37	38
1,2,4-Trimethylbenzene	95636	9.80E-03	0.00E+00	9.32E-03	442.2	15	1.00E+00	0.10	3.36E+01	8.42E-03	8.62E+02	1.39E+20	8.01E-05	8.01E-05	3.14E+05	NA	7.0E-03
1,3,5-Trimethylbenzene	108678	9.73E-03	0.00E+00	9.26E-03	442.2	15	1.00E+00	0.10	3.36E+01	8.36E-03	8.62E+02	1.90E+20	8.00E-05	8.00E-05	3.14E+05	NA	6.0E-03
Acrolein	107028	1.70E-02	0.00E+00	1.62E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.46E-02	8.62E+02	4.20E+11	8.96E-05	8.96E-05	3.14E+05	NA	2.0E-05
Benzene	71432	1.42E-02	0.00E+00	1.35E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.22E-02	8.62E+02	7.44E+13	8.69E-05	8.69E-05	3.14E+05	7.8E-06	3.0E-02
Chloroethane (ethyl chloride)	75003	4.38E-02	0.00E+00	4.17E-02	442.2	15	1.00E+00	0.10	3.36E+01	3.76E-02	8.62E+02	3.20E+04	9.95E-05	9.95E-05	3.14E+05	NA	1.0E+01
Chloroform	67663	1.68E-02	0.00E+00	1.60E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.44E-02	8.62E+02	5.47E+11	8.95E-05	8.95E-05	3.14E+05	2.3E-05	9.8E-02
cis-1,2-Dichloroethylene	156592	1.19E-02	0.00E+00	1.13E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.02E-02	8.62E+02	3.85E+16	8.39E-05	8.39E-05	3.14E+05	NA	6.0E-02
Ethylbenzene	100414	1.21E-02	0.00E+00	1.15E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.04E-02	8.62E+02	1.89E+16	8.42E-05	8.42E-05	3.14E+05	2.5E-06	1.0E+00
Hexane	110543	3.23E-02	0.00E+00	3.08E-02	442.2	15	1.00E+00	0.10	3.36E+01	2.78E-02	8.62E+02	1.27E+06	9.71E-05	9.71E-05	3.14E+05	NA	7.0E-01
MTBE	1634044	1.66E-02	0.00E+00	1.58E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.42E-02	8.62E+02	8.33E+11	8.93E-05	8.93E-05	3.14E+05	2.6E-07	3.0E+00
m-Xylene	108383	1.13E-02	0.00E+00	1.08E-02	442.2	15	1.00E+00	0.10	3.36E+01	9.72E-03	8.62E+02	2.75E+17	8.29E-05	8.29E-05	3.14E+05	NA	7.0E-01
o-Xylene	95476	1.41E-02	0.00E+00	1.34E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.21E-02	8.62E+02	1.07E+14	8.67E-05	8.67E-05	3.14E+05	NA	7.0E-01
p-Xylene	106423	1.24E-02	0.00E+00	1.18E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.07E-02	8.62E+02	7.48E+15	8.46E-05	8.46E-05	3.14E+05	NA	7.0E-01
Tetrachloroethylene	127184	1.16E-02	0.00E+00	1.11E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.00E-02	8.62E+02	9.00E+16	8.35E-05	8.35E-05	3.14E+05	5.9E-06	2.7E-01
Toluene	108883	1.41E-02	0.00E+00	1.34E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.21E-02	8.62E+02	1.07E+14	8.67E-05	8.67E-05	3.14E+05	NA	5.0E+00
Trichloroethylene	79016	1.28E-02	0.00E+00	1.22E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.10E-02	8.62E+02	2.83E+15	8.51E-05	8.51E-05	3.14E+05	2.0E-06	NA
Vinyl chloride (chloroethene)	75014	1.71E-02	0.00E+00	1.63E-02	442.2	15	1.00E+00	0.10	3.36E+01	1.47E-02	8.62E+02	3.28E+11	8.98E-05	8.98E-05	3.14E+05	4.4E-06	1.0E-01

RESULTS SHEET
Advanced Soil Gas Johnson Ettinger Model - VALS-LT (Deep)

December 7, 2009

Chemical	Chemical CAS No.	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Risk-Based Concentration Cancer Basis ug/m3	Risk-Based Concentration Noncancer Basis ug/m3
1,2,4-Trimethylbenzene	95636	NA	7.8E-06	NA	127,523
1,3,5-Trimethylbenzene	108678	NA	9.1E-06	NA	109,487
Acrolein	107028	NA	3.1E-03	NA	326
Benzene	71432	1.7E-10	2.0E-06	6,029	503,865
Chloroethane (ethyl chloride)	75003	NA	6.8E-09	NA	1.47E+08
Chloroform	67663	5.0E-10	6.3E-07	1,986	1.60E+06
cis-1,2-Dichloroethylene	156592	NA	9.6E-07	NA	1.04E+06
Ethylbenzene	100414	5.1E-11	5.8E-08	19,422	1.73E+07
Hexane	110543	NA	9.5E-08	NA	1.05E+07
MTBE	1634044	5.7E-12	2.0E-08	176,111	4.91E+07
m-Xylene	108383	NA	8.1E-08	NA	1.23E+07
o-Xylene	95476	NA	8.5E-08	NA	1.18E+07
p-Xylene	106423	NA	8.3E-08	NA	1.21E+07
Tetrachloroethylene	127184	1.2E-10	2.1E-07	8,302	4.72E+06
Toluene	108883	NA	1.2E-08	NA	8.42E+07
Trichloroethylene	79016	4.2E-11	NA	24,015	NA
Vinyl chloride (chloroethene)	75014	9.7E-11	6.1E-07	10,348	1.63E+06

Appendix E
List of the Honeywell Reports Documenting
the Work Plans, Field Sampling Plans,
QAPPs, and Sampling Reports
That Were Used for the FHHRA

APPENDIX E

List of Honeywell Reports Documenting the Work Plans, Field Sampling Plans, QAPPs, and Sampling Reports that were used for the FHHRA

Contents

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APPENDIX E

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Note: Appendix was generated from Section 8 of this report.

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- _____. 2005h. *Work Plan for Phase III Monitoring Well Installation on Honeywell Leasehold and Phoenix Sky Harbor International Airport, Honeywell 34th Street Facility.* September 7
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- _____. 2006f. *Air Injection Pilot Test Report, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15.* October 20.
- _____. 2006g. *September 2005 Semiannual Groundwater Monitoring Report, Honeywell 34th Street Facility, Phoenix, Arizona.* February.
- _____. 2006h. *Soil Vapor Field Sampling Report, Honeywell 34th Street Facility, 111 S. 34th Street, Phoenix, Arizona.* January 13.
- _____. 2006i. *Quarterly Status Report, Quarter 1 (October 17, 2005 to January 15, 2006), Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File No. 0393.02-.10, .15.* January 16.

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- _____. 2007e. *Master Quality Assurance Project Plan, Honeywell International, Inc., 34th Street Facility, Phoenix, Arizona. September 20.*
- _____. 2007f. *September 2006 Semiannual Groundwater Monitoring Report, Honeywell International, Inc. 34th Street Facility, Phoenix, Arizona. Prepared for Honeywell International Inc. January 30.*
- _____. 2007g. *Fourth Quarter Status Report for 2006, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17. February 27.*
- _____. 2007h. *First Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17. May 23.*
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- _____. 2008c. *Characterization and Remediation of the 2005 Building 103 Used Oil Spill Report, Honeywell 34th Street Facility, Phoenix, Arizona. August 20.*
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- _____. 2008e. *Biologically-Enhanced Soil Vapor Extraction Underground Process Pipeline Installation – Soil Observation Plan. February 20.*
- _____. 2008f. *Fourth Quarter Status Report for 2007, Honeywell 34th Street Facility, Facility ID No. 0-002227, LUST File Nos. 0393.02-.10, .15-.17. February 26*
- _____. 2008g. *Non-Process Soil Vapor Monitoring Program, Honeywell 34th Street Facility, Facility ID #0-002227, LUST File #0393.02-.10, .15-.17. April 18.*
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Appendix F
Focused Human Health Risk Assessment Dataset

Focused Human Health Risk Assessment Dataset

Contents

Electronic Files

SkyharborALLData_20100830.mdb

SkyharborDataHHRADData_GWDirect_Soil.mdb

SkyharborHHRADData_SoilGas_GWtoIndoorAir.mdb

This appendix can be found on the DVD provided with the report.

Appendix G
Risk-based Screening Levels and
Supporting Information

Risk-based Screening Levels and Supporting Information

Contents

Electronic Files

- G-1 United States Environmental Protection Agency Regional Screening Level Composite Table
- G-2 United States Environmental Protection Agency Regional Screening Level User's Guide
- G-3 United States Environmental Protection Agency Regional Screening Level Equations
- G-4 Calculated Construction Worker Soil Exposure Risk-Based Screening Levels
 - G-4A Construction Worker Particulate Emission Factor
 - G-4B Construction Worker Exposure Factors
 - G-4C Construction Worker Risk-based Screening Levels
- G-5 Soil Gas-to-Indoor Air and Groundwater-to-Indoor Air Risk-Based Screening Levels
 - G-5A Johnson-Ettinger Modeling - Physical Properties and Toxicity Factors
 - G-5B Johnson-Ettinger Modeling - Soil Gas (5 feet) Data Entry Form
 - G-5C Johnson-Ettinger Modeling - Soil Gas (5 feet) Input Data
 - G-5D Johnson-Ettinger Modeling - Soil Gas (5 feet) Risk-based Screening Levels
 - G-5E Johnson-Ettinger Modeling - Soil Gas (15 feet) Data Entry Form
 - G-5F Johnson-Ettinger Modeling - Soil Gas (15 feet) Input Data
 - G-5G Johnson-Ettinger Modeling - Soil Gas (15 feet) Risk-based Screening Levels
 - G-5H Johnson-Ettinger Modeling - Soil Gas (15 feet/Basement Scenario) Data Entry Form
 - G-5I Johnson-Ettinger Modeling - Soil Gas (15 feet/Basement Scenario) InterCalcs Worksheet
 - G-5J Johnson-Ettinger Modeling - Soil Gas (30 feet) Data Entry Form
 - G-5K Johnson-Ettinger Modeling - Soil Gas (30 feet) Input Data
 - G-5L Johnson-Ettinger Modeling - Soil Gas (30 feet) Risk-based Screening Levels

G-5M Johnson-Ettinger Modeling - Groundwater (35 feet) Data Entry Form

G-5N Johnson-Ettinger Modeling - Groundwater (35 feet) Input Data

G-5O Johnson-Ettinger Modeling - Groundwater (35 feet) Screening Levels

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information													Contaminant		Screening Levels										Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³) ⁻¹	key	RFD _o (mg/kg-day)	key	RF _{C1} (mg/m ³)	key	vo	muta-	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				9.0E-03	P						1	0.1	Bifenox	42576-02-3	5.5E+02	n	5.5E+03	n					3.3E+02	n		2.5E+00	
				1.5E-02	I						1	0.1	Biphenthrin	82657-04-3	9.2E+02	n	9.2E+03	n					5.5E+02	n		2.5E+03	
7.0E-02	H	1.0E-05	H	5.0E-02	I			V			1	2.1E+02	Biphenyl, 1,1'-	92-52-4	3.9E+03	ns	5.1E+04	ns					1.8E+03	n		1.9E+01	
				4.0E-02	I			V			1	1.0E+03	Bis(2-chloro-1-methylethyl) ether	108-60-1	4.6E+00	c	2.2E+01	c	2.4E-01	c	1.2E+00	c	3.2E-01	c		1.2E-04	
				3.0E-03	P						1	0.1	Bis(2-chloroethoxy)methane	111-91-1	1.8E+02	n	1.8E+03	n					1.1E+02	n		2.5E-02	
1.1E+00	I	3.3E-04	I	2.0E-02	I			V			1	5.1E+03	Bis(2-chloroethyl)ether	111-44-4	2.1E-01	c	1.0E+00	c	7.4E-03	c	3.7E-02	c	1.2E-02	c		3.1E-06	
1.4E-02	I	2.4E-06	C	2.0E-02	I						1	0.1	Bis(2-ethylhexyl)phthalate	117-81-7	3.5E+01	c*	1.2E+02	c	1.0E+00	c	5.1E+00	c	4.8E+00	c	6.0E+00	1.1E+00	1.4E+00
2.2E+02	I	6.2E-02	I					V			1	4.2E+03	Bis(chloromethyl)ether	542-88-1	7.7E-05	c	3.9E-04	c	3.9E-05	c	2.0E-04	c	6.2E-05	c		1.5E-08	
				5.0E-02	I						1	0.1	Bisphenol A	80-05-7	3.1E+03	n	3.1E+04	n					1.8E+03	n		1.4E+02	
				2.0E-01	I	2.0E-02	H				1		Boron And Borates Only	7440-42-8	1.6E+04	n	2.0E+05	nm	2.1E+01	n	8.8E+01	n	7.3E+03	n		2.3E+01	
				4.0E-02	C	1.3E-02	C				1		Boron Trifluoride	7637-07-2	3.1E+03	n	4.1E+04	n	1.4E+01	n	5.7E+01	n	1.5E+03	n			
7.0E-01	I			4.0E-03	I						1		Bromate	15541-45-4	9.1E-01	c	4.1E+00	c					9.6E-02	c	1.0E+01	7.4E-04	7.7E-02
2.0E+00	X	6.0E-04	X					V			1	2.4E+03	Bromo-2-chloroethane, 1-	107-04-0	2.4E-02	c	1.2E-01	c	4.1E-03	c	2.0E-02	c	6.5E-03	c		1.8E-06	
				8.0E-03	I	6.0E-02	I	V			1	6.8E+02	Bromobenzene	108-86-1	3.0E+02	n	1.8E+03	ns	6.3E+01	n	2.6E+02	n	8.8E+01	n		5.9E-02	
6.2E-02	I	3.7E-05	C	2.0E-02	I			V			1	9.3E+02	Bromodichloromethane	75-27-4	2.7E-01	c	1.4E+00	c	6.6E-02	c	3.3E-01	c	1.2E-01	c	8.0E+01	3.2E-05	2.2E-02
7.9E-03	I	1.1E-06	I	2.0E-02	I						1	0.1	Bromoform	75-25-2	6.1E+01	c*	2.2E+02	c*	2.2E+00	c	1.1E+01	c	8.5E+00	c*	8.0E+01	2.3E-03	2.1E-02
				1.4E-03	I	5.0E-03	I	V			1	3.6E+03	Bromomethane	74-83-9	7.3E+00	n	3.2E+01	n	5.2E+00	n	2.2E+01	n	8.7E+00	n		2.2E-03	
				5.0E-03	H						1	0.1	Bromophos	2104-96-3	3.1E+02	n	3.1E+03	n					1.8E+02	n		7.7E-01	
				2.0E-02	I						1	0.1	Bromoxynil	1689-84-5	1.2E+03	n	1.2E+04	n					7.3E+02	n		6.3E-01	
3.4E+00	C	3.0E-05	I	2.0E-02	I						1	0.1	Bromoxynil Octanoate	1689-99-2	1.2E+03	n	1.2E+04	n					7.3E+02	n		6.4E+00	
				1.0E-01	I	2.0E-03	I	V			1	0.1	Butadiene, 1,3-	106-99-0	5.4E-02	c*	2.6E-01	c*	8.1E-02	c*	4.1E-01	c*	1.8E-02	c		9.7E-06	
				2.0E-02	I						1	0.1	Butanol, N-	71-36-3	6.1E+03	n	6.2E+04	n					3.7E+03	n		7.6E-01	
1.9E-03	P			2.0E-01	I						1	0.1	Butyl Benzyl Phthlate	85-68-7	2.6E+02	c*	9.1E+02	c					3.5E+01	c		5.1E-01	
				2.0E+00	P	3.0E+01	P				1	0.1	Butyl alcohol, sec-	78-92-2	1.2E+05	nm	1.2E+06	nm	3.1E+04	n	1.3E+05	n	7.3E+04	n		1.5E+01	
				5.0E-02	I						1	0.1	Butylate	2008-41-5	3.1E+03	n	3.1E+04	n					1.8E+03	n		1.8E+00	
2.0E-04	C	5.7E-08	C	1.0E+00	I						1	0.1	Butylated hydroxyanisole	25013-16-5	2.4E+03	n	8.6E+03	c	4.3E+01	c	2.2E+02	c	3.4E+02	c		6.3E-01	
				2.0E-02	A						1	0.1	Butylphthalyl Butylglycolate	85-70-1	6.1E+04	n	6.2E+05	nm					3.7E+04	n		8.3E+02	
				2.0E-02	A						1	0.1	Cacodylic Acid	75-60-5	1.2E+03	n	1.2E+04	n					7.3E+02	n			
				1.8E-03	I	1.0E-03	I	1.0E-05	A	0.025	0.001		Cadmium (Diet)	7440-43-9	7.0E+01	n	8.0E+02	n					1.8E+01	n	5.0E+00	1.4E+00	3.8E-01
				1.8E-03	I	5.0E-04	I	1.0E-05	A	0.05	0.001		Cadmium (Water)	7440-43-9	7.0E+01	n	8.0E+02	n	1.4E-03	c**	6.8E-03	c**	1.8E+01	n	5.0E+00	1.4E+00	3.8E-01
				5.0E-01	I						1	0.1	Caprolactam	105-60-2	3.1E+04	n	3.1E+05	nm					1.8E+04	n		4.5E+00	
1.5E-01	C	4.3E-05	C	2.0E-03	I						1	0.1	Captafol	2425-06-1	3.2E+00	c*	1.1E+01	c	5.7E-02	c	2.9E-01	c	4.5E-01	c		7.9E-04	
2.3E-03	C	6.6E-07	C	1.3E-01	I						1	0.1	Captan	133-06-2	2.1E+02	c*	7.5E+02	c	3.7E+00	c	1.9E+01	c	2.9E+01	c		2.1E-02	
				1.0E-01	I						1	0.1	Carbaryl	63-25-2	6.1E+03	n	6.2E+04	n					3.7E+03	n		3.3E+00	
				5.0E-03	I						1	0.1	Carbofuran	1563-66-2	3.1E+02	n	3.1E+03	n					1.8E+02	n	4.0E+01	7.1E-02	1.6E-02
7.0E-02	I	6.0E-06	I	1.0E-01	I	7.0E-01	I	V			1	7.4E+02	Carbon Disulfide	75-15-0	8.2E+02	ns	3.7E+03	ns	7.3E+02	n	3.1E+03	n	1.0E+03	n		3.1E-01	
				4.0E-03	I	1.0E-01	I	V			1	4.6E+02	Carbon Tetrachloride	56-23-5	6.1E-01	c	3.0E+00	c	4.1E-01	c	2.0E+00	c	4.4E-01	c	5.0E+00	1.7E-04	1.9E-03
				1.0E-02	I						1	0.1	Carbosulfan	55285-14-8	6.1E+02	n	6.2E+03	n					3.7E+02	n		8.8E+00	
				1.0E-01	I						1	0.1	Carboxin	5234-68-4	6.1E+03	n	6.2E+04	n					3.7E+03	n		2.0E+00	
				9.0E-04	I						1		Ceric oxide	1306-38-3	1.3E+06	nm	5.4E+06	nm	9.4E-01	n	3.9E+00	n					
4.0E-01	H			1.0E-01	I						1	0.1	Chloral Hydrate	302-17-0	6.1E+03	n	6.2E+04	n					3.7E+03	n		7.4E-01	
				1.5E-02	I						1	0.1	Chloramben	133-90-4	9.2E+02	n	9.2E+03	n					5.5E+02	n		1.3E-01	
											1	0.1	Chloranil	118-75-2	1.2E+00	c	4.3E+00	c					1.7E-01	c		1.4E-04	
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I				1	0.04	Chlordane	12789-03-6	1.6E+00	c*	6.5E+00	c*	2.4E-02	c*	1.2E-01	c*	1.9E-01	c*	2.0E+00	1.3E-02	1.4E-01
1.0E+01	I	4.6E-03	C	3.0E-04	I						1	0.1	Chlordecone (Kepone)	143-50-0	4.9E-02	c	1.7E-01	c	5.3E-04	c	2.7E-03	c	6.7E-03	c		2.4E-04	
				7.0E-04	A						1	0.1	Chlorfenvinphos	470-90-6	4.3E+01	n	4.3E+02	n					2.6E+01	n		7.0E-02	
				2.0E-02	I						1	0.1	Chlorimuron, Ethyl-	90982-32-4	1.2E+03	n	1.2E+04	n					7.3E+02	n		2.5E-01	
				1.0E-01	I	1.5E-04	A				1		Chlorine	7782-50-5	7.5E+03	n	9.1E+04	n	1.5E-01	n	6.4E-01	n	3.7E+03	n		1.8E+00	
				3.0E-02	I	2.0E-04	I				1		Chlorine Dioxide	10049-04-4	2.3E+03	n	3.0E+04	n	2.1E-01	n	8.8E-01	n	1.1E+03	n			
				3.0E-02	I						1		Chlorite (Sodium Salt)	7758-19-2	2.3E+03	n	3.1E+04	n					1.1E+03	n	1.0E+03		
				5.0E+01	I	V					1	1.2E+03	Chloro-1,1-difluoroethane, 1-	75-68-3	5.8E+04	ns	2.4E+05	nms	5.2E+04	n	2.2E+05	n	1.0E+05	n		5.2E+01	
4.6E-01																											

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information													Contaminant		Screening Levels								Protection of Ground Water SSLs						
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³ -day) ⁻¹	key	RFD _o (mg/kg-day)	key	RF _{C1} (mg/m ³)	key	vo	muta-	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)		
2.4E+00	C	6.9E-04	C	8.0E-02	I		V			1		2.6E+04	Chloromethyl Methyl Ether	107-30-2	1.9E-02	c	9.4E-02	c	3.5E-03	c	1.8E-02	c	5.6E-03	c		1.2E-06			
							V			1		1.8E+02	Chloronaphthalene, Beta-	91-58-7	6.3E+03	ns	8.2E+04	ns					2.9E+03	c		1.5E+01			
3.0E-01	P			3.0E-03	P	1.0E-05	X			1	0.1		Chloronitrobenzene, o-	88-73-3	1.6E+00	c	5.7E+00	c	1.0E-02	n	4.4E-02	n	2.2E-01	c		2.1E-04			
6.3E-03	P			1.0E-03	P	6.0E-04	P			1	0.1		Chloronitrobenzene, p-	100-00-5	6.1E+01	n	2.7E+02	c**	6.3E-01	n	2.6E+00	n	1.1E+01	c**		9.9E-03			
				5.0E-03	I		V			1		2.2E+04	Chlorophenol, 2-	95-57-8	3.9E+02	n	5.1E+03	n								1.8E+02	n	1.5E-01	
				4.0E-04	C	V				1		6.2E+02	Chloropicrin	76-06-2	2.1E+00	n	8.8E+00	n	4.2E-01	n	1.8E+00	n	8.3E-01	n		2.5E-04			
3.1E-03	C	8.9E-07	C	1.5E-02	I		V			1	0.1		Chlorothalonil	1897-45-6	1.6E+02	c**	5.6E+02	c*	2.7E+00	c	1.4E+01	c	2.2E+01	c*		4.9E-02			
				2.0E-02	I		V			1		9.1E+02	Chlorotoluene, o-	95-49-8	1.6E+03	ns	2.0E+04	ns					7.3E+02	n		7.1E-01			
				7.0E-02	P		V			1		2.5E+02	Chlorotoluene, p-	106-43-4	5.5E+03	ns	7.2E+04	ns					2.6E+03	n		2.5E+00			
2.4E+02	C	6.9E-02	C							1	0.1		Chlorozotocin	54749-90-5	2.0E-03	c	7.2E-03	c	3.5E-05	c	1.8E-04	c	2.8E-04	n		6.2E-08			
				2.0E-01	I					1	0.1		Chlorpropham	101-21-3	1.2E+04	n	1.2E+05	nm					7.3E+03	n		6.6E+00			
				3.0E-03	I					1	0.1		Chlorpyrifos	2921-88-2	1.8E+02	n	1.8E+03	n					1.1E+02	n		1.6E+00			
				1.0E-02	H					1	0.1		Chlorpyrifos Methyl	5598-13-0	6.1E+02	n	6.2E+03	n					3.7E+02	n		1.7E+00			
				5.0E-02	I					1	0.1		Chlorsulfuron	64902-72-3	3.1E+03	n	3.1E+04	n					1.8E+03	n		1.5E+00			
				8.0E-04	H					1	0.1		Chlorthiophos	60238-56-4	4.9E+01	n	4.9E+02	n					2.9E+01	n		7.5E-01			
5.0E-01	J	8.4E-02	S	1.5E+00	I	1.0E-04	I	M		0.013			Chromium(III), Insoluble Salts	16065-83-1	1.2E+05	nm	1.5E+06	nm					5.5E+04	n		9.9E+07			
				3.0E-03	I					0.025			Chromium(VI)	18540-29-9	2.9E-01	c	5.6E+00	c	1.1E-05	c	1.5E-04	c	4.3E-02	c	1.0E+02	8.3E-04			
		9.0E-03	P	3.0E-04	P	6.0E-06	P			0.013			Chromium, Total	7440-47-3	2.3E+01	n	3.0E+02	n	2.7E-04	c*	1.4E-03	c*	1.1E+01	n		4.9E+01	1.8E+05		
		6.2E-04	I					M		1	0.1		Cobalt	7440-48-4				1.5E-03	c	2.0E-02	c								
				4.0E-02	H					1			Copper	7440-50-8	3.1E+03	n	4.1E+04	n					1.5E+03	n	1.3E+03	5.1E+01	4.6E+01		
				5.0E-02	I	6.0E-01	C			1	0.1		Cresol, m-	108-39-4	3.1E+03	n	3.1E+04	n	6.3E+02	n	2.6E+03	n	1.8E+03	n		1.5E+00			
				5.0E-02	I	6.0E-01	C			1	0.1		Cresol, o-	95-48-7	3.1E+03	n	3.1E+04	n	6.3E+02	n	2.6E+03	n	1.8E+03	n		1.5E+00			
				5.0E-03	H	6.0E-01	C			1	0.1		Cresol, p-	106-44-5	3.1E+02	n	3.1E+03	n	6.3E+02	n	2.6E+03	n	1.8E+02	n		1.5E-01			
				1.0E-01	X					1	0.1		Cresol, p-chloro-m-	59-50-7	6.1E+03	n	6.2E+04	n					3.7E+03	n		4.3E+00			
				1.0E-01	A	6.0E-01	C	V		1		5.0E+04	Cresols	1319-77-3	7.5E+03	n	9.1E+04	ns	6.3E+02	n	2.6E+03	n	9.3E+02	n		7.6E-01			
1.9E+00	H						V			1		1.7E+04	Crotonaldehyde, trans-	123-73-9	3.4E-01	c	1.5E+00	c					3.5E-02	c		7.2E-06			
				1.0E-01	I	4.0E-01	I	V		1		2.7E+02	Cumene	98-82-8	2.1E+03	ns	1.1E+04	ns	4.2E+02	n	1.8E+03	n	6.8E+02	n		1.1E+00			
2.2E-01	C	6.3E-05	C							1	0.1		Cupferron	135-20-6	2.2E+00	c	7.8E+00	c	3.9E-02	c	1.9E-01	c	3.1E-01	c		5.3E-04			
8.4E-01	H			2.0E-03	H					1	0.1		Cyanazine	21725-46-2	5.8E-01	c	2.1E+00	c					8.0E-02	c		3.7E-05			
				4.0E-02	I					1			Cyanides																
				5.0E-03	I					1			~Calcium Cyanide	592-01-8	3.1E+03	n	4.1E+04	n					1.5E+03	n					
				2.0E-02	I		V			1		1.0E+07	~Copper Cyanide	544-92-3	3.9E+02	n	5.1E+03	n					1.8E+02	n					
				4.0E-02	I		V			1		1.5E+03	~Cyanide (CN-)	57-12-5	1.6E+03	n	2.0E+04	n					7.3E+02	n	2.0E+02	7.4E+00	2.0E+00		
				9.0E-02	I		V			1		1.0E+05	~Cyanogen	460-19-5	3.1E+03	ns	4.1E+04	ns					1.5E+03	n		3.3E-01			
				5.0E-02	I		V			1		4.3E+03	~Cyanogen Bromide	506-68-3	7.0E+03	n	9.2E+04	n					3.3E+03	n		9.8E-01			
				6.0E-04	I	8.0E-04	I	V		1		1.2E+05	~Cyanogen Chloride	506-77-4	3.9E+03	n	5.1E+04	ns					1.8E+03	n		3.9E-01			
				5.0E-02	I					1			~Hydrogen Cyanide	74-90-8	4.6E+00	n	2.1E+01	n	8.3E-01	n	3.5E+00	n	1.6E+00	n		3.2E-04			
				2.0E-01	I					0.04			~Potassium Cyanide	151-50-8	3.9E+03	n	5.1E+04	n					1.8E+03	n					
				1.0E-01	I					0.04			~Potassium Silver Cyanide	506-61-6	1.6E+04	n	2.0E+05	nm					7.3E+03	n					
				4.0E-02	I					1			~Silver Cyanide	506-64-9	7.8E+03	n	1.0E+05	nm					3.7E+03	n					
				2.0E-04	P		V			1		4.6E+03	~Sodium Cyanide	143-33-9	3.1E+03	n	4.1E+04	n					1.5E+03	n	2.0E+02	1.5E-03			
				5.0E-02	I					1			~Thiocyanate	463-56-9	1.6E+01	n	2.0E+02	n					7.3E+00	n					
				6.0E+00	I	V				1		1.2E+02	~Zinc Cyanide	557-21-1	3.9E+03	n	5.1E+04	n					1.8E+03	n					
2.3E-02	H						V			1	0.1		Cyclohexane	110-82-7	7.0E+03	ns	2.9E+04	ns	6.3E+03	n	2.6E+04	n	1.3E+04	n		1.3E+01			
				5.0E+00	I					1	0.1		Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	2.1E+01	c	7.5E+01	c					2.9E+00	c		1.7E-02			
				2.0E-01	I					1	0.1		Cyclohexanone	108-94-1	3.1E+05	nm	3.1E+06	nm					1.8E+05	n		4.3E+01			
				5.0E-03	I					1	0.1		Cyclohexylamine	108-91-8	1.2E+04	n	1.2E+05	nm					7.3E+03	n		1.9E+00			
				1.0E-02	I					1	0.1		Cyhalothrin/karate	68085-85-8	3.1E+02	n	3.1E+03	n					1.8E+02	n		1.2E+02			
				7.5E-03	I					1	0.1		Cypermethrin	52315-07-8	6.1E+02	n	6.2E+03	n					3.7E+02	n		5.8E+01			
2.4E-01	I	6.9E-05	C							1	0.1		Cyromazine	66215-27-8	4.6E+02	n	4.6E+03	n					2.7E+02	n		7.0E-02			
3.4E-01	I	9.7E-05	C							1	0.1		DDD	72-54-8	2.0E+00	c	7.2E+00	c	3.5E-02	c	1.8E-01	c	2.8E-01	c		6.6E-02			
				5.0E-04	I					1	0.03		DDE, p,p'-	72-55-9	1.4E+00	c	5.1E+00	c	2.5E-02	c	1.3E-01	c	2.0E-01	c		4.7E-02			
3.4E-01	I	9.7E-05	I							1	0.1		DDT	50-29-3	1.7E+00	c*	7.0E+00	c*	2.5E-02	c	1.3E-01	c	2.0E-01	c*		6.7E-02			

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information														Contaminant		Screening Levels										Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³) ⁻¹	key	RFD _o (mg/kg-day)	key	RfC _i (mg/m ³)	key	Vol _c	muta-	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
		1.0E-02	H	4.0E-03	X	V				1		2.8E+03	Dibromomethane (Methylene Bromide)	74-95-3	2.5E+01	n	1.1E+02	n	4.2E+00	n	1.8E+01	n	8.2E+00	n		2.0E-03		
		1.0E-01	I							1	0.1		Dibutyl Phthalate	84-74-2	6.1E+03	n	6.2E+04	n					3.7E+03	n		9.2E+00		
		3.0E-04	P							1	0.1		Dibutyltin Compounds	NA	1.8E+01	n	1.8E+02	n					1.1E+01	n				
		4.2E-03	P					V		1		5.2E+02	Dicamba	1918-00-9	1.8E+03	n	1.8E+04	n					1.1E+03	n		2.8E-01		
		4.2E-03	P					V		1	0.1	5.2E+02	Dichloro-2-butene, 1,4-	764-41-0	6.5E-03	c	3.3E-02	c	5.8E-04	c	2.9E-03	c	1.2E-03	c		5.4E-07		
								V		1	0.1	7.6E+02	Dichloro-2-butene, cis-1,4-	1476-11-5	6.9E-03	c	3.5E-02	c	5.8E-04	c	2.9E-03	c	1.2E-03	c		5.4E-07		
5.0E-02	I	4.2E-03	P	4.0E-03	I	2.0E-01	H	V		1	0.1	3.8E+02	Dichloro-2-butene, trans-1,4-	110-57-6	6.9E-03	c	3.5E-02	c	5.8E-04	c	2.9E-03	c	1.2E-03	c	6.0E+01	5.4E-07	1.2E-02	
				9.0E-02	I					1			Dichloroacetic Acid	79-43-6	9.7E+00	c*	3.4E+01	c*					1.3E+00	c	6.0E+02	2.8E-04	5.8E-01	
										1			Dichlorobenzene, 1,2-	95-50-1	1.9E+03	ns	9.8E+03	ns	2.1E+02	n	8.8E+02	n	3.7E+02	n		3.6E-01		
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V		1			Dichlorobenzene, 1,4-	106-46-7	2.4E+00	c	1.2E+01	c	2.2E-01	c	1.1E+00	c	4.3E-01	c	7.5E+01	4.1E-04	7.2E-02	
4.5E-01	I	3.4E-04	C							1	0.1		Dichlorobenzidine, 3,3'-	91-94-1	1.1E+00	c	3.8E+00	c	7.2E-03	c	3.6E-02	c	1.5E-01	c		9.8E-04		
				9.0E-03	X					1	0.1		Dichlorobenzophenone, 4,4'-	90-98-2	5.5E+02	n	5.5E+03	n					3.3E+02	n		2.0E+00		
		2.0E-01	I	2.0E-01	H	V				1		8.5E+02	Dichlorodifluoromethane	75-71-8	1.8E+02	n	7.8E+02	n	2.1E+02	n	8.8E+02	n	3.9E+02	n		6.1E-01		
5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1		1.7E+03	Dichloroethane, 1,1-	75-34-3	3.3E+00	c	1.7E+01	c	1.5E+00	c	7.7E+00	c	2.4E+00	c		6.9E-04		
9.1E-02	I	2.6E-05	I	2.0E-02	P	2.4E+00	A	V		1		3.0E+03	Dichloroethane, 1,2-	107-06-2	4.3E-01	c	2.2E+00	c	9.4E-02	c	4.7E-01	c	1.5E-01	c	5.0E+00	4.2E-05	1.4E-03	
		5.0E-02	I	2.0E-01	I	V				1		1.2E+03	Dichloroethylene, 1,1-	75-35-4	2.4E+02	n	1.1E+03	n	2.1E+02	n	8.8E+02	n	3.4E+02	n	7.0E+00	1.2E-01	2.5E-03	
		9.0E-03	H					V		1		1.3E+03	Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0	7.0E+02	n	9.2E+03	ns					3.3E+02	n		9.7E-02		
		2.0E-03	I					V		1		2.4E+03	Dichloroethylene, 1,2-cis-	156-59-2	1.6E+02	n	2.0E+03	n					7.3E+01	n	7.0E+01	2.1E-02	2.1E-02	
		2.0E-02	I	6.0E-02	P	V				1		1.7E+03	Dichloroethylene, 1,2-trans-	156-60-5	1.5E+02	n	6.9E+02	n	6.3E+01	n	2.6E+02	n	1.1E+02	n	1.0E+02	3.1E-02	2.9E-02	
		3.0E-03	I							1	0.1		Dichlorophenol, 2,4-	120-83-2	1.8E+02	n	1.8E+03	n					1.1E+02	n		1.3E-01		
		1.0E-02	I							1	0.05		Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	6.9E+02	n	7.7E+03	n					3.7E+02	n	7.0E+01	9.5E-02	1.8E-02	
		8.0E-03	I							1	0.1		Dichlorophenoxybutyric Acid, 4-(2,4-	94-82-6	4.9E+02	n	4.9E+03	n					2.9E+02	n		1.2E-01		
3.6E-02	C	1.0E-05	C	9.0E-02	A	4.0E-03	I	V		1		1.4E+03	Dichloropropane, 1,2-	78-87-5	8.9E-01	c*	4.5E+00	c*	2.4E-01	c*	1.2E+00	c*	3.9E-01	c*	5.0E+00	1.3E-04	1.7E-03	
		2.0E-02	P					V		1		1.5E+03	Dichloropropane, 1,3-	142-28-9	1.6E+03	ns	2.0E+04	ns					7.3E+02	n		2.5E-01		
		3.0E-03	I							1	0.1		Dichloropropanol, 2,3-	616-23-9	1.8E+02	n	1.8E+03	n					1.1E+02	n		2.3E-02		
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V		1		1.6E+03	Dichloropropene, 1,3-	542-75-6	1.7E+00	c*	8.1E+00	c*	6.1E-01	c*	3.1E+00	c*	4.3E-01	c*		1.5E-04		
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I	V		1	0.1		Dichlorvos	62-73-7	1.7E+00	c*	5.9E+00	c*	2.9E-02	c*	1.5E-01	c*	2.3E-01	c*		7.1E-05		
		8.0E-03	P	7.0E-03	P	V				1		1.3E+02	Dicyclopentadiene	77-73-6	2.7E+01	n	1.2E+02	n	7.3E+00	n	3.1E+01	n	1.4E+01	n		4.8E-02		
1.6E+01	I	4.6E-03	I	5.0E-05	I					1	0.1		Dieldrin	60-57-1	3.0E-02	c	1.1E-01	c	5.3E-04	c	2.7E-03	c	4.2E-03	c		1.7E-04		
		3.0E-04	C			5.0E-03	I			1	0.1		Diesel Engine Exhaust	NA					8.1E-03	c	4.1E-02	c						
				3.0E-03	C					1	0.1		Diethanolamine	111-42-2	4.3E+06	nm	1.8E+07	nm	3.1E+00	n	1.3E+01	n			2.9E+04	n	1.2E+01	
		8.0E-01	I							1	0.1		Diethyl Phthalate	84-66-2	4.9E+04	n	4.9E+05	nm							1.1E+03	n	2.4E-01	
		3.0E-02	P	1.0E-04	P					1	0.1		Diethylene Glycol Monoethyl Ether	112-34-5	1.8E+03	n	1.8E+04	n	1.0E-01	n	4.4E-01	n			1.1E+03	n		
		6.0E-02	P	3.0E-04	P					1	0.1		Diethylene Glycol Monoethyl Ether	111-90-0	3.6E+03	n	3.6E+04	n	3.1E-01	n	1.3E+00	n	2.2E+03	n		4.4E-01		
3.5E+02	C	1.0E-01	C	1.0E-03	P					1	0.1		Diethylformamide	617-84-5	6.1E+01	n	6.2E+02	n							3.7E+01	n	7.5E-03	
										1	0.1		Diethylstilbestrol	56-53-1	1.4E-03	c	4.9E-03	c	2.4E-05	c	1.2E-04	c	1.9E-04	c		1.1E-04		
		8.0E-02	I							1	0.1		Difenoquat	43222-48-6	4.9E+03	n	4.9E+04	n							2.9E+03	n		
		2.0E-02	I							1	0.1		Diffubenzuron	35367-38-5	1.2E+03	n	1.2E+04	n							7.3E+02	n	8.2E-01	
				4.0E+01	I	V				1		1.4E+03	Diffuoroethane, 1,1-	75-37-6	5.2E+04	ns	2.2E+05	nms	4.2E+04	n	1.8E+05	n	8.3E+04	n		2.8E+01		
4.4E-02	C	1.3E-05	C							1	0.1		Dihydrosafrole	94-58-6	1.1E+01	c	3.9E+01	c	1.9E-01	c	9.4E-01	c	1.5E+00	c		1.9E-03		
				4.0E-01	P	V				1		2.3E+03	Diisopropyl Ether	108-20-3	1.4E+03	n	5.8E+03	ns	4.2E+02	n	1.8E+03	n	8.3E+02	n		2.1E-01		
		8.0E-02	I					V		1		5.3E+02	Diisopropyl Methylphosphonate	1445-75-6	6.3E+03	ns	8.2E+04	ns					2.9E+03	n		8.3E-01		
		2.0E-02	I							1	0.1		Dimethipin	55290-64-7	1.2E+03	n	1.2E+04	n							7.3E+02	n	1.6E-01	
1.4E-02	H			2.0E-04	I					1	0.1		Dimethoate	60-51-5	1.2E+01	n	1.2E+02	n							7.3E+00	n	1.6E-03	
										1	0.1		Dimethoxybenzidine, 3,3'-	119-90-4	3.5E+01	c	1.2E+02	c							4.8E+00	c	5.8E-03	
1.7E-03	P			6.0E-02	P					1	0.1		Dimethyl methylphosphonate	756-79-6	2.9E+02	c*	1.0E+03	c*							4.0E+01	c*	8.3E-03	
4.6E+00	C	1.3E-03	C							1	0.1		Dimethylamino azobenzene [p-]	60-11-7	1.1E-01	c	3.7E-01	c	1.9E-03	c	9.4E-03	c	1.5E-02	c		6.2E-05		
5.8E-01	H									1	0.1		Dimethylaniline HCl, 2,4-	21436-96-4	8.4E-01	c	3.0E+00	c							1.2E-01	c	6.6E-05	
7.5E-01	H									1	0.1		Dimethylaniline, 2,4-	95-68-1	6.5E-01	c	2.3E+00	c							9.0E-02	c	5.1E-05	
				2.0E-03	I			V		1		8.3E+02	Dimethylaniline, N,N-	121-69-7	1.6E+02	n	2.0E+03	ns							7.3E+01	n	2.6E-02	
1.1E+01	P									1	0.1		Dimethylbenzidine, 3,3'-	119-93-7	4.4E-02	c</												

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information													Contaminant		Screening Levels								Protection of Ground Water SSLs				
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³) ⁻¹	key	RFD _o (mg/kg-day)	key	RF _C (mg/m ³)	key	Volu- gen	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
6.8E-01	I										1	0.1	Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	7.1E-01	c	2.5E+00	c					9.9E-02	c		1.4E-04	
3.1E-01	C	8.9E-05	C	2.0E-03	I	1.0E-03	P				1	0.102	Dinitrotoluene, 2,4-	121-14-2	1.6E+00	c*	5.5E+00	c	2.7E-02	c	1.4E-01	c	2.2E-01	c		2.9E-04	
				2.0E-03	S	2.0E-03	S				1	0.099	Dinitrotoluene, 2,6-	606-20-2	6.1E+01	n	6.2E+02	n					3.7E+01	n		5.0E-02	
				2.0E-03	S						1	0.006	Dinitrotoluene, 2-Amino-4,6-	35572-78-2	1.5E+02	n	2.0E+03	n					7.3E+01	n		5.6E-02	
				2.0E-03	S						1	0.009	Dinitrotoluene, 4-Amino-2,6-	19406-51-0	1.5E+02	n	1.9E+03	n					7.3E+01	n		5.6E-02	
1.0E-01	I	7.7E-06	C	3.0E-02	I	3.6E+00	A				1	0.1	Dinoseb	88-85-7	6.1E+01	n	6.2E+02	n					3.7E+01	n	7.0E+00	3.2E-01	6.2E-02
				3.0E-02	I						1	0.1	Dioxane, 1,4-	123-91-1	4.9E+00	c	1.7E+01	c	3.2E-01	c	1.6E+00	c	6.7E-01	c		1.4E-04	
6.2E+03	I	1.3E+00	I								1	0.03	Dioxins	NA	9.4E-05	c	3.9E-04	c	1.9E-06	c	9.4E-06	c	1.1E-05	c		9.0E-06	
1.3E+05	C	3.8E+01	C	1.0E-09	A	4.0E-08	C				1	0.03	*Hexachlorodibenzo-p-dioxin, Mixture *TCDD, 2,3,7,8-	1746-01-6	4.5E-06	c*	1.8E-05	c*	6.4E-08	c	3.2E-07	c	5.2E-07	c*	3.0E-05	2.6E-07	1.5E-05
				3.0E-02	I						1	0.1	Diphenamid	957-51-7	1.8E+03	n	1.8E+04	n					1.1E+03	n		1.1E+01	
				8.0E-04	X						1	0.1	Diphenyl Sulfone	127-63-9	4.9E+01	n	4.9E+02	n					2.9E+01	n		7.1E-02	
				2.5E-02	I						1	0.1	Diphenylamine	122-39-4	1.5E+03	n	1.5E+04	n					9.1E+02	n		1.7E+00	
8.0E-01	I	2.2E-04	I								1	0.1	Diphenylhydrazine, 1,2-	122-66-7	6.1E-01	c	2.2E+00	c	1.1E-02	c	5.6E-02	c	8.4E-02	c		2.7E-04	
				2.2E-03	I						1	0.1	Diquat	85-00-7	1.3E+02	n	1.4E+03	n					8.0E+01	n	2.0E+01	1.5E+00	3.7E-01
7.4E+00	C	2.1E-03	C								1	0.1	Direct Black 38	1937-37-7	6.6E-02	c	2.3E-01	c	1.2E-03	c	5.8E-03	c	9.1E-03	c		4.4E+00	
7.4E+00	C	2.1E-03	C								1	0.1	Direct Blue 6	2602-46-2	6.6E-02	c	2.3E-01	c	1.2E-03	c	5.8E-03	c	9.1E-03	c		1.4E+01	
6.7E+00	C	1.9E-03	C								1	0.1	Direct Brown 95	16071-86-6	7.2E-02	c	2.6E-01	c	1.3E-03	c	6.5E-03	c	1.0E-02	c		2.7E-03	
				4.0E-05	I						1	0.1	Disulfoton	298-04-4	2.4E+00	n	2.5E+01	n					1.5E+00	n		2.7E-03	
				1.0E-02	I						1	0.1	Dithiane, 1,4-	505-29-3	6.1E+02	n	6.2E+03	n					3.7E+02	n		1.8E-01	
				2.0E-03	I						1	0.1	Diuron	330-54-1	1.2E+02	n	1.2E+03	n					7.3E+01	n		3.1E-02	
				4.0E-03	I						1	0.1	Dodine	2439-10-3	2.4E+02	n	2.5E+03	n					1.5E+02	n		7.5E-01	
				2.5E-02	I			V			1	4.1E+02	EPTC	759-94-4	2.0E+03	ns	2.6E+04	ns					9.1E+02	n		4.8E-01	
				6.0E-03	I						1	0.1	Endosulfan	115-29-7	3.7E+02	n	3.7E+03	n					2.2E+02	n		3.0E+00	
				2.0E-02	I						1	0.1	Endothall	145-73-3	1.2E+03	n	1.2E+04	n					7.3E+02	n	1.0E+02	1.7E-01	2.4E-02
				3.0E-04	I						1	0.1	Endrin	72-20-8	1.8E+01	n	1.8E+02	n					1.1E+01	n	2.0E+00	4.4E-01	8.1E-02
9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V			1	1.1E+04	Epichlorohydrin	106-89-8	2.0E+01	n	8.8E+01	n	1.0E+00	n	4.4E+00	n	2.1E+00	n		4.5E-04	
				2.0E-02	I	V					1	1.5E+04	Epoxybutane, 1,2-	106-88-7	1.7E+02	n	7.2E+02	n	2.1E+01	n	8.8E+01	n	4.2E+01	n		9.2E-03	
				5.0E-03	I						1	0.1	Ethephon	16672-87-0	3.1E+02	n	3.1E+03	n					1.8E+02	n		3.8E-02	
				5.0E-04	I						1	0.1	Ethion	563-12-2	3.1E+01	n	3.1E+02	n					1.8E+01	n		3.6E-02	
				3.0E-01	H	3.0E-01	C				1	0.1	Ethoxyethanol Acetate, 2-	111-15-9	1.8E+04	n	1.8E+05	nm	3.1E+02	n	1.3E+03	n	1.1E+04	n		2.3E+00	
				4.0E-01	H	2.0E-01	I				1	0.1	Ethoxyethanol, 2-	110-80-5	2.4E+04	n	2.5E+05	nm	2.1E+02	n	8.8E+02	n	1.5E+04	n		2.9E+00	
4.8E-02	H			9.0E-01	I			V			1	1.1E+04	Ethyl Acetate	141-78-6	7.0E+04	ns	9.2E+05	nms					3.3E+04	n		7.0E+00	
								V			1	2.5E+03	Ethyl Acrylate	140-88-5	1.3E+01	c	6.0E+01	c					1.4E+00	c		3.1E-04	
				1.0E+01	I	V					1	2.1E+03	Ethyl Chloride	75-00-3	1.5E+04	ns	6.1E+04	ns	1.0E+04	n	4.4E+04	n	2.1E+04	n		5.9E+00	
				2.0E-01	I	V					1	1.0E+04	Ethyl Ether	60-29-7	1.6E+04	ns	2.0E+05	nms					7.3E+03	n		1.6E+00	
				9.0E-02	H	V					1	1.1E+03	Ethyl Methacrylate	97-63-2	7.0E+03	ns	9.2E+04	ns					3.3E+03	n		7.7E-01	
				1.0E-05	I						1	0.1	Ethyl-p-nitrophenyl Phosphonate	2104-64-5	6.1E-01	n	6.2E+00	n					3.7E-01	n		1.1E-02	
1.1E-02	C	2.5E-06	C	1.0E-01	I	1.0E+00	I	V			1	4.8E+02	Ethylbenzene	100-41-4	5.4E+00	c	2.7E+01	c	9.7E-01	c	4.9E+00	c	1.5E+00	c	7.0E+02	1.7E-03	7.8E-01
				3.0E-02	P						1	0.1	Ethylene Cyanohydrin	109-78-4	1.8E+03	n	1.8E+04	n					1.1E+03	n		2.2E-01	
				9.0E-02	P						1	0.1	Ethylene Diamine	107-15-3	5.5E+03	n	5.5E+04	n					3.3E+03	n		7.5E-01	
				2.0E+00	I	4.0E-01	C				1	0.1	Ethylene Glycol	107-21-1	1.2E+05	nm	1.2E+06	nm	4.2E+02	n	1.8E+03	n	7.3E+04	n		1.5E+01	
				1.0E-01	I	1.6E+00	I				1	0.1	Ethylene Glycol Monobutyl Ether	111-76-2	6.1E+03	n	6.2E+04	n	1.7E+03	n	7.0E+03	n	3.7E+03	n		7.5E-01	
3.1E-01	C	8.8E-05	C	3.0E-02	C	V					1	1.2E+05	Ethylene Oxide	75-21-8	1.7E-01	c	8.3E-01	c	2.8E-02	c	1.4E-01	c	4.4E-02	c		9.1E-06	
4.5E-02	C	1.3E-05	C	8.0E-05	I						1	0.1	Ethylene Thiourea	96-45-7	4.9E+00	n	3.8E+01	c**	1.9E-01	c	9.4E-01	c	1.5E+00	c**		3.4E-04	
6.5E+01	C	1.9E-02	C								1	0.1	Ethyleneimine	151-56-4	7.5E-03	c	2.7E-02	c	1.3E-04	c	6.5E-04	c	1.0E-03	c		2.3E-07	
				3.0E+00	I						1	0.1	Ethylphthalyl Ethyl Glycolate	84-72-0	1.8E+05	nm	1.8E+06	nm					1.1E+05	n		2.5E+02	
				8.0E-03	I						1	0.1	Express	101200-48-0	4.9E+02	n	4.9E+03	n					2.9E+02	n		1.1E-01	
				2.5E-04	I						1	0.1	Fenamiphos	22224-92-6	1.5E+01	n	1.5E+02	n					9.1E+00	n		9.1E-03	
				2.5E-02	I						1	0.1	Fenproprathrin	39515-41-8	1.5E+03	n	1.5E+04	n					9.1E+02	n		4.1E+01	
				1.3E-02	I						1	0.1	Fluometuron	2164-17-2	7.9E+02	n	8.0E+03	n					4.7E+02	n		3.7E-01	
				4.0E-02	C	1.3E-02	C				1		Fluoride	16984-48-8	3.1E+03	n	4.1E+04	n	1.4E+01	n	5.7E+01	n	1.5E+03	n		1.5E+03	
				6.0E-02	I	1.3E-02	C				1		Fluorine (Soluble Fluoride)	7782-41-4	4.7E+03	n	6.1E+04	n	1.4E+01	n	5.7E+0						

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information													Contaminant		Screening Levels								Protection of Ground Water SSLs						
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³ -day) ⁻¹	key	RFD _o (mg/kg-day)	key	RF _C (mg/m ³)	key	vo	muta-	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)		
1.0E-01	I	7.0E-04	C							1	0.1		Maleic Anhydride	108-31-6	6.1E+03	n	6.1E+04	n	7.3E-01	n	3.1E+00	n	3.7E+03	n		7.4E-01			
5.0E-01	I									1	0.1		Maleic Hydrazide	123-33-1	3.1E+04	n	3.1E+05	nm					1.8E+04	n		3.8E+00			
1.0E-04	P									1	0.1		Malononitrile	109-77-3	6.1E+00	n	6.2E+01	n					3.7E+00	n		7.5E-04			
3.0E-02	H									1	0.1		Mancozeb	8018-01-7	1.8E+03	n	1.8E+04	n					1.1E+03	n		1.5E+00			
5.0E-03	I									1	0.1		Maneb	12427-38-2	3.1E+02	n	3.1E+03	n					1.8E+02	n		2.6E-01			
1.4E-01	I	5.0E-05	I							1			Manganese (Diet)	7439-96-5															
2.4E-02	S	5.0E-05	I							0.04			Manganese (Non-diet)	7439-96-5	1.8E+03	n	2.3E+04	n	5.2E-02	n	2.2E-01	n	8.8E+02	n		5.7E+01			
9.0E-05	H									1	0.1		Mepfosfolan	950-10-7	5.5E+00	n	5.5E+01	n					3.3E+00	n		4.8E-03			
3.0E-02	I									1	0.1		Mepiquat Chloride	24307-26-4	1.8E+03	n	1.8E+04	n					1.1E+03	n		3.6E-01			
Mercury Compounds																													
3.0E-04	I	3.0E-05	C							0.07			*Mercuric Chloride (and other Mercury salts)	7487-94-7	2.3E+01	n	3.1E+02	n	3.1E-02	n	1.3E-01	n	1.1E+01	n	2.0E+00				
1.6E-04	C	3.0E-04	I V							1		3.1E+00	*Mercury (elemental)	7439-97-6	5.6E+00	ns	3.4E+01	ns	3.1E-01	n	1.3E+00	n	5.7E-01	n	2.0E+00	3.0E-02	1.0E-01		
1.0E-04	I									1			*Methyl Mercury	22967-92-6	7.8E+00	n	1.0E+02	n					3.7E+00	n					
8.0E-05	I									1	0.1		*Phenylmercuric Acetate	62-38-4	4.9E+00	n	4.9E+01	n					2.9E+00	n		9.1E-04			
3.0E-05	I									1	0.1		Merphos	150-50-5	1.8E+00	n	1.8E+01	n					1.1E+00	n		1.1E-01			
3.0E-05	I									1	0.1		Merphos Oxide	78-48-8	1.8E+00	n	1.8E+01	n					1.1E+00	n		5.4E-03			
6.0E-02	I									1	0.1		Metalaxyl	57837-19-1	3.7E+03	n	3.7E+04	n					2.2E+03	n		6.1E-01			
1.0E-04	I	7.0E-04	H V							1		4.6E+03	Methacrylonitrile	126-98-7	3.2E+00	n	1.8E+01	n	7.3E-01	n	3.1E+00	n	1.0E+00	n		2.4E-04			
5.0E-05	I									1	0.1		Methamidophos	10265-92-6	3.1E+00	n	3.1E+01	n					1.8E+00	n		3.8E-04			
5.0E-01	I	4.0E+00	C							1	0.1		Methanol	67-56-1	3.1E+04	n	3.1E+05	nm	4.2E+03	n	1.8E+04	n	1.8E+04	n		3.7E+00			
1.0E-03	I									1	0.1		Methodathion	950-37-8	6.1E+01	n	6.2E+02	n					3.7E+01	n		8.9E-03			
2.5E-02	I									1	0.1		Methomyl	16752-77-5	1.5E+03	n	1.5E+04	n					9.1E+02	n		2.0E-01			
4.9E-02	C	1.4E-05	C							1	0.1		Methoxy-5-nitroaniline, 2-	99-59-2	9.9E+00	c	3.5E+01	c	1.7E-01	c	8.8E-01	c	1.4E+00	c		4.7E-04			
5.0E-03	I									1	0.1		Methoxychlor	72-43-5	3.1E+02	n	3.1E+03	n					1.8E+02	n	4.0E+01	9.9E+00	2.2E+00		
2.0E-03	H	9.0E-02	C							1	0.1		Methoxyethanol Acetate, 2-	110-49-6	1.2E+02	n	1.2E+03	n	9.4E+01	n	3.9E+02	n	7.3E+01	n		1.5E-02			
3.0E-03	P	2.0E-02	I							1	0.1		Methoxyethanol, 2-	109-86-4	1.8E+02	n	1.8E+03	n	2.1E+01	n	8.8E+01	n	1.1E+02	n		2.2E-02			
1.0E+00	H									1		2.9E+04	Methyl Acetate	79-20-9	7.8E+04	ns	1.0E+06	nms					3.7E+04	n		7.5E+00			
3.0E-02	H									1		6.8E+03	Methyl Acrylate	96-33-3	2.3E+03	n	3.1E+04	ns					1.1E+03	n		2.3E-01			
6.0E-01	I	5.0E+00	I V							1		2.8E+04	Methyl Ethyl Ketone (2-Butanone)	78-93-3	2.8E+04	n	2.0E+05	nms	5.2E+03	n	2.2E+04	n	7.1E+03	n		1.5E+00			
8.0E-02	H	3.0E+00	I V							1		3.4E+03	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	5.3E+03	ns	5.3E+04	ns	3.1E+03	n	1.3E+04	n	2.0E+03	n		4.5E-01			
1.4E+00	I	7.0E-01	I V							1	0.1	2.4E+03	Methyl Isocyanate	624-83-9	1.4E+06	nm	6.0E+06	nm	1.0E+00	n	4.4E+00	n				3.1E-01			
2.5E-04	I									1	0.1		Methyl Methacrylate	80-62-6	4.8E+03	ns	2.1E+04	ns	7.3E+02	n	3.1E+03	n	1.4E+03	n		1.5E-02			
6.0E-02	X									1	0.1		Methyl Parathion	298-00-0	1.5E+01	n	1.5E+02	n					9.1E+00	n		1.5E-02			
9.9E-02	C	2.8E-05	C							1	0.1		Methyl Phosphonic Acid	993-13-5	3.7E+03	n	3.7E+04	n					2.2E+03	n		4.4E-01			
6.0E-03	H	4.0E-02	H V							1		3.8E+02	Methyl Styrene (Mixed Isomers)	25013-15-4	2.5E+02	n	1.6E+03	ns	4.2E+01	n	1.8E+02	n	6.0E+01	n		9.7E-02			
1.8E-03	C	2.6E-07	C							1		8.9E+03	Methyl methanesulfonate	66-27-3	4.9E+00	c	1.7E+01	c	8.7E-02	c	4.4E-01	c	6.8E-01	c		1.4E-04			
3.3E-02	H									1	0.1		Methyl tert-Butyl Ether (MTBE)	1634-04-4	4.3E+01	c	2.2E+02	c	9.4E+00	c	4.7E+01	c	1.2E+01	c		2.8E-03			
8.3E+00	C	2.4E-03	C							1	0.1		Methyl-5-Nitroaniline, 2-	99-55-8	1.5E+01	c	5.2E+01	c					2.0E+00	c		1.1E-03			
1.3E-01	C	3.7E-05	C							1	0.1		Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	5.8E-02	c	2.1E-01	c	1.0E-03	c	5.1E-03	c	8.1E-03	c		2.8E-06			
2.2E+01	C	6.3E-03	C							1	0.1		Methylaniline Hydrochloride, 2-	636-21-5	3.7E+00	c	1.3E+01	c	6.6E-02	c	3.3E-01	c	5.2E-01	c		2.2E-04			
7.5E-03	I	4.7E-07	I							1		3.3E+03	Methylarsonic acid	124-58-3	6.1E+02	n	6.2E+03	n					3.7E+02	n		3.7E-02			
1.0E-01	P	4.3E-04	C							1	0.1		Methylcholanthrene, 3-	56-49-5	2.2E-02	c	7.8E-02	c	3.9E-04	c	1.9E-03	c	3.1E-03	c		5.9E-03			
4.6E-02	I	1.3E-05	C							1	0.1		Methylene Chloride	75-09-2	1.1E+01	c	5.3E+01	c	5.2E+00	c	2.6E+01	c	4.8E+00	c	5.0E+00	1.2E-03	1.3E-03		
1.6E+00	C	4.6E-04	C							1	0.1		Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	1.2E+00	c	1.7E+01	c*	2.2E-03	c	2.9E-02	c	2.2E-01	c		2.5E-03			
7.0E-02	H									1	0.1		Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.1E+01	c	3.7E+01	c	1.9E-01	c	9.4E-01	c	1.5E+00	c		8.1E-03			
1.5E-01	I									1	0.1		Methylenedisobenzylamine, 4,4'-	101-77-9	3.0E-01	c	1.1E+00	c	5.3E-03	c	2.7E-02	c	4.2E-02	c		1.9E-04			
2.5E-02	I									1	0.1		Methylenediphenyl Diisocyanate	101-68-8	8.5E+05	nm	3.6E+06	nm	6.3E-01	n	2.6E+00	n				4.1E+00			
4.5E-06	X	1.0E-02	X							1	0.1		Methylstyrene, Alpha-	98-83-9	5.5E+03	ns	7.2E+04	ns					2.6E+03	n		4.1E+00			
1.8E+01	C	5.1E-03	C							1	0.1		Metolachlor	51218-45-2	9.2E+03	n	9.2E+04	n					5.5E+03	n		6.4E+00			
2.0E-03	I									1	0.1		Metribuzin	21087-64-9	1.5E+03	n	1.5E+04	n					9.1E+02	n		2.8E-01			
5.0E-03	I									1			Midrange Aliphatic Hydrocarbon Streams	NA	7.8E+02	n	1.0E+04	n	5.4E-01	c	2.7E+00	c	1.1E+00	c					
3.0E+00	P									1	0.1		Mineral oils	8012-95-1	1.8E+05	nm	1.8E+06	nm					1.1E+05	n		4.3E+03			
2.0E-04	I									1	0.1		Mirex	2385-85-5	2.7E-02	c	9.6E-02	c	4.8E-04	c</									

Regional Screening Level (RSL) Summary Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information										Contaminant		Screening Levels								Protection of Ground Water SSLs							
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³) ⁻¹	key	RfD _o (mg/kg-day)	key	RfC _i (mg/m ³)	key	mutagen	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
		2.6E-04	C	2.0E-02	I	9.0E-05	A			0.04		Nickel Soluble Salts	7440-02-0	1.5E+03	n	2.0E+04	n	9.4E-03	c*	4.7E-02	c**	7.3E+02	n		4.8E+01		
1.7E+00	C	4.8E-04	I	5.0E-02	C	5.0E-05	C			0.04		Nickel Subsulphide	12035-72-2	3.8E-01	c	1.7E+00	c	5.1E-03	c*	2.6E-02	c**	4.0E-02	c				
		1.6E+00	I	1.0E-01	I					1		Nitrate	14797-55-8	1.3E+05	nm	1.6E+06	nm							1.0E+04			
		1.0E-01	I							1		Nitrite	14797-65-0	7.8E+03	n	1.0E+05	nm							1.0E+03			
2.0E-02	P			1.0E-02	X	5.0E-05	X			1	0.1	Nitroaniline, 2-	88-74-4	6.1E+02	n	6.0E+03	n	5.2E-02	n	2.2E-01	n	3.7E+02	n		1.5E-01		
		4.0E-03	P	6.0E-03	P					1	0.1	Nitroaniline, 4-	100-01-6	2.4E+01	c*	8.6E+01	c*	6.3E+00	n	2.6E+01	n	3.4E+00	c*		1.4E-03		
		4.0E-05	I	2.0E-03	I	9.0E-03	I	V		1	3.1E+03	Nitrobenzene	98-95-3	4.8E+00	c*	2.4E+01	c*	6.1E-02	c	3.1E-01	c	1.2E-01	c		7.9E-05		
1.3E+00	C	3.7E-04	C			3.0E+03	P			1	0.1	Nitrocellulose	9004-70-0	1.8E+08	nm	1.8E+09	nm							1.1E+08		2.4E+04	
				7.0E-02	H					1	0.1	Nitrofurantoin	67-20-9	4.3E+03	n	4.3E+04	n							2.6E+03		1.1E+00	
										1	0.1	Nitrofurazone	59-87-0	3.7E-01	c	1.3E+00	c	6.6E-03	c	3.3E-02	c	5.2E-02	c		4.7E-05		
1.7E-02	P			1.0E-04	P					1	0.1	Nitroglycerin	55-63-0	6.1E+00	n	6.2E+01	n							3.7E+00		1.6E-03	
				1.0E-01	I					1	0.1	Nitroguanidine	556-88-7	6.1E+03	n	6.2E+04	n							3.7E+03		8.8E-01	
		9.0E-06	P			2.0E-02	P	V		1	1.8E+04	Nitromethane	75-52-5	4.9E+00	c*	2.5E+01	c*	2.7E-01	c*	1.4E+00	c*	5.4E-01	c*		1.2E-04		
2.7E+01	C	7.7E-03	C			2.0E-02	I	V		1	4.9E+03	Nitropropane, 2-	79-46-9	1.3E-02	c	6.4E-02	c	9.0E-04	c	4.5E-03	c	1.8E-03	c		4.7E-07		
1.2E+02	C	3.4E-02	C							1	0.1	Nitroso-N-ethylurea, N-	759-73-9	1.8E-02	c	6.4E-02	c	3.2E-04	c	1.6E-03	c	2.5E-03	c		6.0E-07		
										1	0.1	Nitroso-N-methylurea, N-	684-93-5	4.0E-03	c	1.4E-02	c	7.2E-05	c	3.6E-04	c	5.6E-04	c		1.2E-07		
5.4E+00	I	1.6E-03	I					V		1	7.1E+03	Nitroso-di-N-butylamine, N-	924-16-3	8.7E-02	c	4.0E-01	c	1.5E-03	c	7.7E-03	c	2.4E-03	c		5.0E-06		
7.0E+00	I	2.0E-03	C							1	0.1	Nitroso-di-N-propylamine, N-	621-64-7	6.9E-02	c	2.5E-01	c	1.2E-03	c	6.1E-03	c	9.6E-03	c		7.2E-06		
2.8E+00	I	8.0E-04	C							1	0.1	Nitrosodiethanolamine, N-	1116-54-7	1.7E-01	c	6.2E-01	c	3.0E-03	c	1.5E-02	c	2.4E-02	c		4.9E-06		
1.5E+02	I	4.3E-02	I							1	0.1	Nitrosodiethylamine, N-	55-18-5	7.7E-04	c	1.1E-02	c	2.2E-05	c	2.9E-04	c	1.4E-04	c		5.3E-08		
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X	M		1	0.1	Nitrosodimethylamine, N-	62-75-9	2.3E-03	c	3.4E-02	c	6.9E-05	c	8.8E-04	c	4.2E-04	c		1.0E-07		
4.9E-03	I	2.6E-06	C							1	0.1	Nitrosodiphenylamine, N-	86-30-6	9.9E+01	c	3.5E+02	c	9.4E-01	c	4.7E+00	c	1.4E+01	c		7.5E-02		
2.2E+01	I	6.3E-03	C							1	0.1	Nitrosomethylethylamine, N-	10595-95-6	2.2E-02	c	7.8E-02	c	3.9E-04	c	1.9E-03	c	3.1E-03	c		8.8E-07		
6.7E+00	C	1.9E-03	C							1	0.1	Nitrosomorpholine [N-]	59-89-2	7.2E-02	c	2.6E-01	c	1.3E-03	c	6.5E-03	c	1.0E-02	c		2.5E-06		
9.4E+00	C	2.7E-03	C							1	0.1	Nitrosopiperidine [N-]	100-75-4	5.2E-02	c	1.8E-01	c	9.0E-04	c	4.5E-03	c	7.2E-03	c		3.8E-06		
2.1E+00	I	6.1E-04	I							1	0.1	Nitrosopyrrolidine, N-	930-55-2	2.3E-01	c	8.2E-01	c	4.0E-03	c	2.0E-02	c	3.2E-02	c		1.2E-05		
				1.0E-04	X					1	0.1	Nitrotoluene, m-	99-08-1	6.1E+00	n	6.2E+01	n							3.7E+00		3.4E-03	
2.2E-01	P			9.0E-04	P			V		1	1.5E+03	Nitrotoluene, o-	88-72-2	2.9E+00	c**	1.3E+01	c*							3.1E-01		2.9E-04	
1.6E-02	P			4.0E-03	P					1	0.1	Nitrotoluene, p-	99-99-0	3.0E+01	c**	1.1E+02	c*							4.2E+00	c*	3.9E-03	
				3.0E-04	X	2.0E-01	P	V		1	6.9E+00	Nonane, n-	111-84-2	2.1E+01	ns	2.3E+02	ns	2.1E+02	n	8.8E+02	n	1.1E+01	n		1.5E-01		
				4.0E-02	I					1	0.1	Norflurazon	27314-13-2	2.4E+03	n	2.5E+04	n							1.5E+03		9.4E+00	
7.0E-04	I									1	0.1	Nustar	85509-19-9	4.3E+01	n	4.3E+02	n							2.6E+01		4.1E+00	
3.0E-03	I									1	0.1	Octabromodiphenyl Ether	32536-52-0	1.8E+02	n	1.8E+03	n							1.1E+02		2.2E+01	
5.0E-02	I									1	0.006	Octahydro-1,3,5,7-tetra	2691-41-0	3.8E+03	n	4.9E+04	n							1.8E+03		2.3E+00	
2.0E-03	H									1	0.1	Octamethylpyrophosphoramide	152-16-9	1.2E+02	n	1.2E+03	n							7.3E+01		1.8E-02	
5.0E-02	I									1	0.1	Oryzalin	19044-88-3	3.1E+03	n	3.1E+04	n							1.8E+03		3.4E+00	
5.0E-03	I									1	0.1	Oxadiazon	19666-30-9	3.1E+02	n	3.1E+03	n							1.8E+02		1.9E+00	
2.5E-02	I									1	0.1	Oxamyl	23135-22-0	1.5E+03	n	1.5E+04	n							9.1E+02	2.0E+02	2.0E-01	
1.3E-02	I									1	0.1	Paclobutrazol	76738-62-0	7.9E+02	n	8.0E+03	n							4.7E+02		9.7E-01	
4.5E-03	I									1	0.1	Paraquat Dichloride	1910-42-5	2.7E+02	n	2.8E+03	n							1.6E+02		2.3E+00	
6.0E-03	H									1	0.1	Parathion	56-38-2	3.7E+02	n	3.7E+03	n							2.2E+02		1.1E+00	
5.0E-02	H									1	0.1	Pebulate	1114-71-2	3.1E+03	n	3.1E+04	n							1.8E+03		1.5E+00	
4.0E-02	I									1	0.1	Pendimethalin	40487-42-1	2.4E+03	n	2.5E+04	n							1.5E+03		1.7E+01	
2.0E-03	I									1	0.1	Pentabromodiphenyl Ether	32534-81-9	1.2E+02	n	1.2E+03	n							7.3E+01		3.2E+00	
1.0E-04	I									1	0.1	Pentabromodiphenyl ether, 2,2',4,4',5-	60348-60-9	6.1E+00	n	6.2E+01	n							3.7E+00		1.6E-01	
8.0E-04	I									1	0.1	Pentachlorobenzene	608-93-5	4.9E+01	n	4.9E+02	n							2.9E+01		2.2E-01	
9.0E-02	P									1	0.1	Pentachloroethane	76-01-7	5.4E+00	c	1.9E+01	c							7.5E-01		3.6E-04	
2.6E-01	H									1	0.1	Pentachloronitrobenzene	82-68-8	1.9E+00	c*	6.6E+00	c							2.6E-01		3.2E-03	
4.0E-01	I	5.1E-06	C							1	0.25	Pentachlorophenol	87-86-5	8.9E-01	c	2.7E+00	c	4.8E-01	c	2.4E+00	c	1.7E-01	c	1.0E+00		1.7E-03	1.0E-02
						1.0E+00	P	V		1	3.9E+02	Pentane, n-	109-66-0	8.7E+02	ns	3.7E+03	ns	1.0E+03	n	4.4E+03	n	2.1E+03	n		1.5E+01(F)		1.0E+01
				7.0E-04	I					1		Perchlorate and Perchlorate Salts	14797-73-0	5.5E+01	n	7.2E+02	n							2.6E+01			
				5.0E-02	I					1	0.1	Permethrin	52645-53-1	3.1E+03	n	3.1E+04	n							1.8E+03		4.3E+02	
2.2E-03	C	6.3E-07	C							1	0.1	Phenacetin	62-44-2	2.2E+02	c	7.8E+02	c	3.9E+00	c	1.9E+							

Regional Screening Level (RSL) Summary Table November 2010

Toxicity and Chemical-specific Information												Contaminant		Screening Levels								Protection of Ground Water SSLs						
SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³ -y) ⁻¹	key	RFD _o (mg/kg-day)	key	RFCD ₁ (mg/m ³ -y)	key	Volu- t	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
		1.0E+00	H	2.0E+00	I	2.0E-02	C			1	0.1		Phthalic Acid, P-	100-21-0	6.1E+04	n	6.2E+05	nm	2.1E+01	n	8.8E+01	n	3.7E+04	n		1.3E+01		
		7.0E-02	I	1.0E-04	X	1.0E-02	I			1	0.1		Phthalic Anhydride	85-44-9	1.2E+05	nm	1.2E+06	nm	2.1E+01	n	8.8E+01	n	7.3E+04	n		1.6E+01		
		1.0E-02	I	1.0E-04	X	1.0E-02	I			1	0.1		Picloram	1918-02-1	4.3E+03	n	4.3E+04	n							5.0E+02	7.1E-01	1.4E-01	
		1.0E-02	I	1.0E-04	X	1.0E-02	I			1	0.1		Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	6.1E+00	n	6.2E+01	n							3.7E+00	n	2.4E-03	
		1.0E-02	I	1.0E-04	X	1.0E-02	I			1	0.1		Pirimiphos, Methyl	29232-93-7	6.1E+02	n	6.2E+03	n							3.7E+02	n	3.5E-01	
3.0E+01	C	8.6E-03	C	7.0E-06	H					1	0.1		Polybrominated Biphenyls	59536-65-1	1.6E-02	c*	5.7E-02	c*	2.8E-04	c	1.4E-03	c	2.2E-03	c				
7.0E-02	S	2.0E-05	S	7.0E-05	I					1	0.14		Polychlorinated Biphenyls (PCBs)															
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.6E+02	*Aroclor 1016	12674-11-2	3.9E+00	n	2.1E+01	c**	1.2E-01	c	6.1E-01	c	9.6E-01	c**		9.2E-02		
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.3E+01	*Aroclor 1221	11104-28-2	1.4E-01	c	5.4E-01	c	4.3E-03	c	2.1E-02	c	6.8E-03	c		1.2E-04		
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.3E+01	*Aroclor 1232	11141-16-5	1.4E-01	c	5.4E-01	c	4.3E-03	c	2.1E-02	c	6.8E-03	c		1.2E-04		
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.3E+01	*Aroclor 1242	53469-21-9	2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c		5.3E-03		
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.3E+01	*Aroclor 1248	12672-29-6	2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c		5.2E-03		
		2.0E+00	S	5.7E-04	S	2.0E-05	I		V	1	0.14	7.6E+02	*Aroclor 1254	11097-69-1	2.2E-01	c**	7.4E-01	c*	4.3E-03	c	2.1E-02	c	3.4E-02	c*		8.8E-03		
		2.0E+00	S	5.7E-04	S				V	1	0.14	7.3E+01	*Aroclor 1260	11096-82-5	2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c		2.4E-02		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		1.2E-02		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 167)	52663-72-6	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		7.2E-03		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 157)	69782-90-7	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		7.4E-03		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 156)	38380-08-4	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		7.4E-03		
		3.9E+03	E	1.1E+00	E	3.3E-08	E	1.3E-06	E	1	0.14		*Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	1.1E-04	c*	3.8E-04	c*	2.1E-06	c	1.1E-05	c	1.7E-05	c*		7.2E-06		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Pentachlorobiphenyl, 2,3,4,4',5'- (PCB 123)	65510-44-3	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		4.5E-03		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Pentachlorobiphenyl, 2,3,3',4,4',5'- (PCB 118)	31508-00-6	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		4.4E-03		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Pentachlorobiphenyl, 2,3,3',4,4',5'- (PCB 105)	32598-14-4	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		4.5E-03		
		3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E	1	0.14		*Pentachlorobiphenyl, 2,3,4,4',5'- (PCB 114)	74472-37-0	1.1E-01	c*	3.8E-01	c*	2.1E-03	c	1.1E-02	c	1.7E-02	c*		4.5E-03		
		1.3E+04	E	3.8E+00	E	1.0E-08	E	4.0E-07	E	1	0.14		*Pentachlorobiphenyl, 3,3',4,4',5'- (PCB 126)	57465-28-8	3.4E-05	c*	1.1E-04	c*	6.4E-07	c	3.2E-06	c	5.2E-06	c*		1.3E-06		
		2.0E+00	I	5.7E-04	I				V	1	0.14		*Polychlorinated Biphenyls (high risk)	1336-36-3	2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c						
		4.0E-01	I	1.0E-04	I				V	1	0.14		*Polychlorinated Biphenyls (lowest risk)	1336-36-3	2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	1.7E-01	c	5.0E-01	2.6E-02	7.8E-02	
		1.3E+01	E	3.8E-03	E	1.0E-05	E	4.0E-04	E	1	0.14		*Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	3.4E-02	c*	1.1E-01	c*	6.4E-04	c	3.2E-03	c	5.2E-03	c*		8.1E-04		
		3.9E+01	E	1.1E-02	E	3.3E-06	E	1.3E-04	E	1	0.14		*Tetrachlorobiphenyl, 3,4,4',5'- (PCB 81)	70362-50-4	1.1E-02	c*	3.8E-02	c*	2.1E-04	c	1.1E-03	c	1.7E-03	c*		2.7E-04		
		6.0E-04	I						V	1	0.1		Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9	8.5E+05	nm	3.6E+06	nm	6.3E-01	n	2.6E+00	n						
		6.0E-02	I						V	1	0.13		Polynuclear Aromatic Hydrocarbons (PAHs)															
		3.0E-01	I						V	1	0.13		*Acenaphthene	83-32-9	3.4E+03	n	3.3E+04	n					2.2E+03	n		2.2E+01		
		7.3E-01	E	1.1E-04	C				M	1	0.13		*Anthracene	120-12-7	1.7E+04	n	1.7E+05	nm					1.1E+04	n		3.6E+02		
		1.2E+00	C	1.1E-04	C				M	1	0.13		*Benz[a]anthracene	56-55-3	1.5E-01	c	2.1E+00	c	8.7E-03	c	1.1E-01	c	2.9E-02	c		1.0E-02		
		1.2E+00	C	1.1E-04	C				M	1	0.13		*Benzo[fl]fluoranthene	205-82-3	3.8E-01	c	1.3E+00	c	2.2E-02	c	1.1E-01	c	5.6E-02	c		6.7E-02		
		7.3E-01	I	1.1E-03	C				M	1	0.13		*Benzo[a]pyrene	50-32-8	1.5E-02	c	2.1E-01	c	8.7E-04	c	1.1E-02	c	2.9E-03	c	2.0E-01	3.5E-03	2.4E-01	
		7.3E-01	E	1.1E-04	C				M	1	0.13		*Benzo[b]fluoranthene	205-99-2	1.5E-01	c	2.1E+00	c	8.7E-03	c	1.1E-01	c	2.9E-02	c		3.5E-02		
		7.3E-02	E	1.1E-04	C				M	1	0.13		*Benzo[k]fluoranthene	207-08-9	1.5E+00	c	2.1E+01	c	8.7E-03	c	1.1E-01	c	2.9E-02	c		3.5E-01		
		7.3E-03	E	1.1E-05	C				M	1	0.13		*Chrysene	218-01-9	1.5E+01	c	2.1E+02	c	8.7E-02	c	1.1E+00	c	2.9E+00	c		1.1E+00		
		7.3E+00	E	1.2E-03	C				M	1	0.13		*Dibenz[a,h]anthracene	53-70-3	1.5E-02	c	2.1E-01	c	8.0E-04	c	1.0E-02	c	2.9E-03	c		1.1E-02		
		1.2E+01	C	1.1E-03	C				M	1	0.13		*Dibenzo[a,e]pyrene	192-65-4	3.8E-02	c	1.3E-01	c	2.2E-03	c	1.1E-02	c	5.6E-03	c		7.3E-02		
		2.5E+02	C	7.1E-02	C				M	1	0.13		*Dimethylbenz[a]anthracene, 7,12-	57-97-6	1.8E-03	c	6.2E-03	c	3.4E-05	c	1.7E-04	c	2.7E-04	c		2.7E-04		
		4.0E-02	I						V	1	0.13		*Fluoranthene	206-44-0	2.3E+03	n	2.2E+04	n					1.5E+03	n		1.6E+02		
		4.0E-02	I						V	1	0.13		*Fluorene	86-73-7	2.3E+03	n	2.2E+04	n					1.5E+03	n		2.7E+01		
		7.3E-01	E	1.1E-04	C				M	1	0.13		*Indeno[1,2,3-cd]pyrene	193-39-5	1.5E-01	c	2.1E+00	c	8.7E-03	c	1.1E-01	c	2.9E-02	c		1.2E-01		
		2.9E-02	P	7.0E-02	A				V	1	3.9E+02		*Methylnaphthalene, 1-	90-12-0	2.2E+01	c	9.9E+01	c					2.3E+00	c		1.2E-02		
		2.9E-02	P	4.0E-03	I				V	1	3.7E+02		*Methylnaphthalene, 2-	91-57-6	3.1E+02	n	4.1E+03	ns					1.5E+02	n		7.5E-01		
		1.2E+00	C	1.1E-04	C				V	1	0.13		*Naphthalene	91-20-3	3.6E+00	c*	1.8E+01	c*	7.2E-02	c*	3.6E-01	c*	1.4E-01	c*		4.7E-04		
		3.0E-02	I						V	1	0.13																	

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SFO (mg/kg-day) ⁻¹	key	IUR (ug/m ³ -day) ⁻¹	key	RFD _o (mg/kg-day)	key	RF _{C1} (mg/m ³)	key	vo	muta-	GIABS	ABS	C _{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m ³)	key	Industrial Air (ug/m ³)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
		3.0E-04	A								1	0.1	Tri-n-butyltin	688-73-3	1.8E+01	n	1.8E+02	n					1.1E+01	n		2.4E-01		
		1.3E-02	I								1	0.1	Triallate	2303-17-5	7.9E+02	n	8.0E+03	n					4.7E+02	n		1.1E+00		
		1.0E-02	I								1	0.1	Triasulfuron	82097-50-5	6.1E+02	n	6.2E+03	n					3.7E+02	n		3.8E-01		
		5.0E-03	I								1	0.1	Tribromobenzene, 1,2,4-	615-54-3	3.1E+02	n	3.1E+03	n					1.8E+02	n		2.6E-01		
9.2E-03	P	2.0E-01	P								1	0.1	Tributyl Phosphate	126-73-8	5.3E+01	c	1.9E+02	c					7.3E+00	c		3.6E-02		
		3.0E-04	P								1	0.1	Tributyltin Compounds	NA	1.8E+01	n	1.8E+02	n					1.1E+01	n				
		3.0E-04	I								1	0.1	Tributyltin Oxide	56-35-9	1.8E+01	n	1.8E+02	n					1.1E+01	n		5.7E+02		
		3.0E+01	I	3.0E+01	H	V					1	9.1E+02	Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	4.3E+04	ns	1.8E+05	nms	3.1E+04	n	1.3E+05	n	5.9E+04	n		1.5E+02		
2.9E-02	H										1	0.1	Trichloroacetic Acid	76-03-9										6.0E+01			1.2E-02	
											1	0.1	Trichloroaniline HCl, 2,4,6-	33663-50-2	1.7E+01	c	5.9E+01	c					2.3E+00	c		6.4E-03		
3.4E-02	H										1	0.1	Trichloroaniline, 2,4,6-	634-93-5	1.4E+01	c	5.1E+01	c					2.0E+00	c		1.8E-02		
		8.0E-04	X					V			1	0.1	1.5E+02	Trichlorobenzene, 1,2,3-	87-61-6	4.9E+01	n	4.9E+02	ns					2.9E+01	n		8.7E-02	
2.9E-02	P	1.0E-02	I	2.0E-03	P	V					1	4.0E+02	Trichlorobenzene, 1,2,4-	120-82-1	2.2E+01	c**	9.9E+01	c**	2.1E+00	n	8.8E+00	n	2.3E+00	c**	7.0E+01	6.8E-03	2.0E-01	
		2.0E+00	I	5.0E+00	I	V					1	6.4E+02	Trichloroethane, 1,1,1-	71-55-6	8.7E+03	ns	3.8E+04	ns	5.2E+03	n	2.2E+04	n	9.1E+03	n	2.0E+02	3.2E+00	7.0E-02	
5.7E-02	I	1.6E-05	I	4.0E-03	I	V					1	2.2E+03	Trichloroethane, 1,1,2-	79-00-5	1.1E+00	c	5.3E+00	c	1.5E-01	c	7.7E-01	c	2.4E-01	c	5.0E+00	7.8E-05	1.6E-03	
5.9E-03	C	2.0E-06	C								1	6.9E+02	Trichloroethylene	79-01-6	2.8E+00	c	1.4E+01	c	1.2E+00	c	6.1E+00	c	2.0E+00	c	5.0E+00	7.2E-04	1.8E-03	
		3.0E-01	I	7.0E-01	H	V					1	1.2E+03	Trichlorofluoromethane	75-69-4	7.9E+02	n	3.4E+03	ns	7.3E+02	n	3.1E+03	n	1.3E+03	n		8.3E-01		
1.1E-02	I	3.1E-06	I	1.0E-01	I						1	0.1	Trichlorophenol, 2,4,5-	95-95-4	6.1E+03	n	6.2E+04	n					3.7E+03	n		1.4E+01		
		1.0E-03	P								1	0.1	Trichlorophenol, 2,4,6-	88-06-2	4.4E+01	c**	1.6E+02	c**	7.8E-01	c	4.0E+00	c	6.1E+00	c**		2.3E-02		
		1.0E-02	I								1	0.1	Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	6.1E+02	n	6.2E+03	n					3.7E+02	n		1.5E-01		
		8.0E-03	I								1	0.1	Trichlorophenoxypropionic acid, -2,4,5	93-72-1	4.9E+02	n	4.9E+03	n					2.9E+02	n	5.0E+01	1.6E-01	2.8E-02	
		5.0E-03	I					V			1	1.3E+03	Trichloropropane, 1,1,2-	598-77-6	3.9E+02	n	5.1E+03	ns					1.8E+02	n		7.1E-02		
3.0E+01	I	4.0E-03	I	3.0E-04	I	V	M				1	1.4E+03	Trichloropropane, 1,2,3-	96-18-4	5.0E-03	c	9.5E-02	c	3.1E-01	n	1.3E+00	n	7.2E-04	c		3.1E-07		
		3.0E-03	X	3.0E-04	P	V					1	4.5E+02	Trichloropropene, 1,1,2-	96-19-5	7.8E-01	n	3.3E+00	n	3.1E-01	n	1.3E+00	n	6.2E-01	n		3.1E-04		
		3.0E-03	I								1	0.1	Tridiphane	58138-08-2	1.8E+02	n	1.8E+03	n					1.1E+02	n		7.8E-01		
7.7E-03	I			7.0E-03	I	V					1	2.8E+04	Triethylamine	121-44-8	1.2E+02	n	5.2E+02	n	7.3E+00	n	3.1E+01	n	1.5E+01	n		4.4E-03		
3.7E-02	H			7.5E-03	I						1	0.1	Trifluralin	1582-09-8	6.3E+01	c**	2.2E+02	c*									2.9E-01	
											1	0.1	Trimethyl Phosphate	512-56-1	1.3E+01	c	4.7E+01	c					1.8E+00	c		4.0E-04		
				7.0E-03	P	V					1	2.2E+02	Trimethylbenzene, 1,2,4-	95-63-6	6.2E+01	n	2.6E+02	ns	7.3E+00	n	3.1E+01	n	1.5E+01	n		2.1E-02		
		1.0E-02	X					V			1	1.8E+02	Trimethylbenzene, 1,3,5-	108-67-8	7.8E+02	ns	1.0E+04	ns					3.7E+02	n		5.2E-01		
		3.0E-02	I								1	0.019	Trinitrobenzene, 1,3,5-	99-35-4	2.2E+03	n	2.7E+04	n					1.1E+03	n		3.9E+00		
3.0E-02	I	5.0E-04	I								1	0.032	Trinitrotoluene, 2,4,6-	118-96-7	1.9E+01	c**	7.9E+01	c**					2.2E+00	c**		1.3E-02		
		2.0E-02	P								1	0.1	Triphenylphosphine Oxide	791-28-6	1.2E+03	n	1.2E+04	n					7.3E+02	n		3.0E+00		
		2.0E-02	A								1	0.1	Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	1.2E+03	n	1.2E+04	n					7.3E+02	n		1.6E+01		
2.0E-02	P	7.0E-03	P								1	0.1	Tris(2-chloroethyl)phosphate	115-96-8	2.4E+01	c*	8.6E+01	c*					3.4E+00	c*		3.3E-03		
3.2E-03	P	1.0E-01	P								1	0.1	Tris(2-ethylhexyl)phosphate	78-42-2	1.5E+02	c*	5.4E+02	c					2.1E+01	c		1.0E+02		
		3.0E-03	I	3.0E-04	A						1		Uranium (Soluble Salts)	NA	2.3E+02	n	3.1E+03	n	3.1E-01	n	1.3E+00	n	1.1E+02	n	3.0E+01	4.9E+01	1.4E+01	
1.0E+00	C	2.9E-04	C								1	0.1	Urethane	51-79-6	4.9E-01	c	1.7E+00	c	8.4E-03	c	4.2E-02	c	6.7E-02	c		1.5E-05		
		8.3E-03	P	9.0E-03	I	7.0E-06	P				0.026		Vanadium Pentoxide	1314-62-1	4.0E+02	c**	2.0E+03	c**	2.9E-04	c*	1.5E-03	c*	3.3E+02	n				
		2.0E-02	H								0.026		Vanadium Sulfate	36907-42-3	1.6E+03	n	2.0E+04	n					7.3E+02	n				
		5.0E-03	S								1		Vanadium and Compounds	NA	3.9E+02	n	5.2E+03	n					1.8E+02	n		1.8E+02		
		7.0E-05	P	1.0E-04	A						0.026		Vanadium, Metallic	7440-62-2	5.5E+00	n	7.2E+01	n	1.0E-01	n	4.4E-01	n	2.6E+00	n		2.6E+00		
		1.0E-03	I								1	0.1	Vernolate	1929-77-7	6.1E+01	n	6.2E+02	n					3.7E+01	n		2.9E-02		
		2.5E-02	I								1	0.1	Vinclozolin	50471-44-8	1.5E+03	n	1.5E+04	n					9.1E+02	n		7.0E-01		
		1.0E+00	H	2.0E-01	I	V					1	2.8E+03	Vinyl Acetate	108-05-4	9.7E+02	n	4.1E+03	ns	2.1E+02	n	8.8E+02	n	4.1E+02	n		8.8E-02		
		3.2E-05	H								1	3.4E+03	Vinyl Bromide	593-60-2	1.1E-01	c*	5.6E-01	c*	7.6E-02	c*	3.8E-01	c*	1.5E-01	c*		4.4E-05		
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M		1	3.9E+03	Vinyl Chloride	75-01-4	6.0E-02	c	1.7E+00	c	1.6E-01	c	2.8E+00	c	1.6E-02	c	2.0E+00	5.6E-06	6.9E-04	
		3.0E-04	I								1	0.1	Warfarin	81-81-2	1.8E+01	n	1.8E+02	n					1.1E+01	n		1.2E-02		
		2.0E-01	I	1.0E-01	I	V					1	2.6E+02	Xylene, Mixture	1330-20-7	6.3E+02	ns	2.7E+03	ns	1.0E+02	n	4.4E+02	n	2.0E+02	n	1.0E+04	2.0E-01	9.8E+00	
		2.0E-01	S	7.0E-01	C	V					1	3.9E+02	Xylene, p-	106-42-3	3.4E+03	ns	1.7E+04	ns	7.3E+02	n	3.1E+03	n	1.2E+03	n		1.2E+00		
		2.0E-01	S	7.0E-01	C	V					1	3.9E+02	Xylene, m-	108-38-3	3.4E+03	ns	1.7E+04	ns	7.3E+02	n	3.1E+03	n	1.2E+03	n		1.2E+00		
		2.0E-01	S	7.0E-01	C	V																						

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	ke (ug/m ³) ⁻¹	IUR (ug/m ³ -day)	ke (mg/kg-day)	RfD ₀ (mg/m ³)	ke (mg/m ³)	ke (mg/kg-day)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)							
1.8E-02	C	5.1E-06	C	1.5E-01	I	1	0.1	1.4E+09					ALAR	1596-84-5	3.5E+01	1.1E+02	6.5E+05	2.7E+01	1.2E+04	4.2E+04		9.2E+03	
8.7E-03	I	2.2E-06	I	4.0E-03	I	1	0.1	1.4E+09					Acephate	30560-19-1	7.3E+01	2.3E+02		5.6E+01	3.1E+02	1.1E+03		2.4E+02	
				9.0E-03	I V	1		1.1E+05	1.4E+09	9.4E+03			Acetaldehyde	75-07-0			1.0E+01	1.0E+01		8.8E+01		8.8E+01	
				2.0E-02	I	1	0.1	1.4E+09					Acetochlor	34256-82-1					1.6E+03	5.6E+03		1.2E+03	
				9.0E-01	I	1		1.1E+05	1.4E+09	1.5E+04			Acetone	67-64-1					7.0E+04		4.7E+05	6.1E+04	
				3.0E-03	P	1		1.1E+05	1.4E+09	2.6E+04			Acetone Cyanohydrin	75-86-5					2.3E+02		1.6E+03	2.0E+02	
				6.0E-02	I V	1		1.3E+05	1.4E+09	1.4E+04			Acetonitrile	75-05-8							8.7E+02	8.7E+02	
3.8E+00	C	1.3E-03	C	1.0E-01	I	1		2.5E+03	1.4E+09	6.4E+04			Acetophenone	98-86-2	1.7E-01	5.3E-01	2.5E+03	1.3E-01	7.8E+03			7.8E+03	
				6.0E-02	I V	1	0.1	1.4E+09					Acetylaminofluorene, 2-	53-96-3								7.8E+03	
				5.0E-04	I	1		2.3E+04	1.4E+09	7.4E+03			Acrolein	107-02-8					3.9E+01		1.6E-01	1.5E-01	
5.0E-01	I	1.0E-04	I	2.0E-03	I	1	0.1	1.4E+09					Acrylamide	79-06-1	3.0E-01	1.0E+00	1.3E+04	2.3E-01	1.6E+02	5.6E+02	8.5E+06	1.2E+02	
				5.0E-01	I	1	0.1	1.4E+09					Acrylic Acid	79-10-7					3.9E+04	1.4E+05	1.4E+06	3.0E+04	
				2.0E-03	I V	1		1.1E+04	1.4E+09	8.3E+03			Acrylonitrile	107-13-1	1.2E+00		3.0E-01	2.4E-01	3.1E+03		1.7E+01	1.7E+01	
5.4E-01	I	6.8E-05	I	4.0E-02	A	1	0.1	1.4E+09					Adiponitrile	111-69-3							8.5E+06	8.5E+06	
				6.0E-03	P	1	0.1	1.4E+09					Alachlor	15972-60-8	1.1E+01	3.6E+01		8.7E+00	7.8E+02	2.8E+03		6.1E+02	
5.6E-02	C	1.0E-02	C	1.0E-03	I	1	0.1	1.4E+09					Aldicarb	116-06-3					7.8E+01	2.8E+02		6.1E+01	
				1.0E-03	I	1	0.1	1.4E+09					Aldicarb Sulfone	1646-88-4					7.8E+01	2.8E+02		6.1E+01	
1.7E+01	I	4.9E-03	I	3.0E-05	I	1	0.1	1.4E+09					Aldrin	309-00-2	3.8E-02	1.2E-01	6.8E+02	2.9E-02	2.3E+00	8.4E+00		1.8E+00	
				2.5E-01	I	1	0.1	1.4E+09					Allyl	74223-64-6					2.0E+04	7.0E+04		1.5E+04	
2.1E-02	C	6.0E-06	C	5.0E-03	I	1	0.1	1.4E+09					Allyl Alcohol	107-18-6					3.9E+02	1.4E+03	1.4E+05	3.0E+02	
				1.0E-03	I V	1		1.4E+03	1.4E+09	1.7E+03			Allyl Chloride	107-05-1	3.0E+01		6.9E-01	6.8E-01			1.8E+00	1.8E+00	
				1.0E+00	P	1		1.4E+09					Aluminum	7429-90-5					7.8E+04		7.1E+06	7.7E+04	
				4.0E-04	I	1		1.4E+09					Aluminum Phosphide	20859-73-8					3.1E+01			3.1E+01	
				3.0E-04	I	1	0.1	1.4E+09					Amdro	67485-29-4					2.3E+01	8.4E+01		1.8E+01	
				9.0E-03	I	1	0.1	1.4E+09					Ametryn	834-12-8					7.0E+02	2.5E+03		5.5E+02	
2.1E+01	C	6.0E-03	C	8.0E-02	P	1	0.1	1.4E+09					Aminobiphenyl, 4-	92-67-1	3.0E-02	9.6E-02	5.5E+02	2.3E-02	6.3E+03	2.2E+04		4.9E+03	
				2.0E-02	P	1	0.1	1.4E+09					Aminophenol, m-	591-27-5					6.3E+03	2.2E+04		4.9E+03	
				2.0E-02	P	1	0.1	1.4E+09					Aminophenol, p-	123-30-8					1.6E+03	5.6E+03		1.2E+03	
				2.5E-03	I	1	0.1	1.4E+09					Amiraz	33089-61-1					2.0E+02	7.0E+02		1.5E+02	
				1.0E-01	I	1		1.4E+09					Ammonia	7664-41-7									
				7.0E-04	I	1		1.4E+09					Ammonium Perchlorate	7790-98-9					5.5E+01			5.5E+01	
5.7E-03	I	1.6E-06	C	2.0E-01	I	1		1.4E+09					Ammonium Sulfamate	7773-06-0					1.6E+04			1.6E+04	
				7.0E-03	P	1	0.1	1.4E+09					Aniline	62-53-3	1.1E+02	3.5E+02	2.1E+06	8.5E+01	5.5E+02	2.0E+03	1.4E+06		4.3E+02
				4.0E-04	I	0.15		1.4E+09					Antimony (metallic)	7440-36-0					3.1E+01			3.1E+01	
				5.0E-04	H	0.15		1.4E+09					Antimony Pentoxide	1314-60-9					3.9E+01			3.9E+01	
				9.0E-04	H	0.15		1.4E+09					Antimony Potassium Tartrate	11071-15-1					7.0E+01			7.0E+01	
				4.0E-04	H	0.15		1.4E+09					Antimony Tetroxide	1332-81-6					3.1E+01			3.1E+01	
				2.0E-04	I	0.15		1.4E+09					Antimony Trioxide	1309-64-4							2.8E+05	2.8E+05	
				1.3E-02	I	1	0.1	1.4E+09					Apollo	74115-24-5					1.0E+03	3.6E+03		7.9E+02	
2.5E-02	I	7.1E-06	I	5.0E-02	H	1	0.1	1.4E+09					Aramite	140-57-8	2.6E+01	8.1E+01	4.7E+05	1.9E+01	3.9E+03	1.4E+04		3.1E+03	
1.5E+00	I	4.3E-03	I	3.0E-04	I	1	0.03	1.4E+09					Arsenic, Inorganic	7440-38-2	4.3E-01	4.5E+00	7.7E+02	3.9E-01	2.3E+01	2.8E+02	2.1E+04	2.2E+01	
				3.5E-06	C	1		1.4E+09					Arsine	7784-42-1					2.7E-01		7.1E+04	2.7E-01	
				9.0E-03	I	1	0.1	1.4E+09					Assure	76578-14-8					7.0E+02	2.5E+03		5.5E+02	
				5.0E-02	I	1	0.1	1.4E+09					Asulam	3337-71-1					3.9E+03	1.4E+04		3.1E+03	
2.3E-01	C	3.5E-02	C	3.5E-02	I	1	0.1	1.4E+09					Atrazine	1912-24-9	2.8E+00	8.8E+00		2.1E+00	2.7E+03	9.8E+03		2.1E+03	
				9.0E-03	I	1	0.1	1.4E+09					Auramine	492-80-8					2.7E+03	9.8E+03		2.1E+03	
8.8E-01	C	2.5E-04	C	4.0E-04	I	1	0.1	1.4E+09					Avermectin B1	65195-55-3	7.3E-01	2.3E+00	1.3E+04	5.5E-01	3.1E+01	1.1E+02		2.4E+01	
1.1E-01	I	3.1E-05	I	1.0E-01	I V	1		1.4E+09	5.8E+05				Azobenzene	103-33-3	5.8E+00		4.5E+01	5.1E+00					
				2.0E-01	I	0.07		1.4E+09					Barium	7440-39-3					1.6E+04		7.1E+05	1.5E+04	
				4.0E-03	I	1	0.1	1.4E+09					Baygon	114-26-1					3.1E+02	1.1E+03		2.4E+02	
				3.0E-02	I	1	0.1	1.4E+09					Bayleton	43121-43-3					2.3E+03	8.4E+03		1.8E+03	
				2.5E-02	I	1	0.1	1.4E+09					Baythroid	68359-37-5					2.0E+03	7.0E+03		1.5E+03	
				3.0E-01	I	1	0.1	1.4E+09					Benefin	1861-40-1					2.3E+04	8.4E+04		1.8E+04	
				5.0E-02	I	1	0.1	1.4E+09					Benomyl	17804-35-2					3.9E+03	1.4E+04		3.1E+03	
				3.0E-02	I	1	0.1	1.4E+09					Bentazon	25057-89-0					2.3E+03	8.4E+03		1.8E+03	
5.5E-02	I	7.8E-06	I	1.0E-01	I	1		1.2E+03	1.4E+09	2.4E+04			Benzaldehyde	100-52-7	1.2E+01		1.2E+00	1.1E+00	7.8E+03			7.8E+03	
				4.0E-03	I V	1		1.8E+03	1.4E+09	3.8E+03			Benzene	71-43-2					3.1E+02		1.2E+02	8.6E+01	
				1.0E-05	H	1		1.3E+03	1.4E+09	2.1E+04			Benzenethiol	108-98-5					7.8E-01			7.8E-01	
2.3E+02	I	6.7E-02	I	3.0E-03	I	1	0.1	1.4E+09					Benzidine	92-87-5	6.5E-04	2.2E-03	1.9E+01	5.0E-04	2.3E+02	8.4E+02		1.8E+02	

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1					
SFO (mg/kg-day) ⁻¹	ky	IUR (ug/m ³) ⁻¹	ky	RfD ₀ (mg/kg-day)	ky	RfC ₀ (ug/m ³)	ky	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
1.3E+01	I			1.0E-01	P				1	0.1	3.2E+02	1.4E+09	7.3E+04	Benzotrichloride	98-07-7	4.9E-02			4.9E-02					
1.7E-01	I	4.9E-05	C	2.0E-03	P	1.0E-03	P	V	1		1.5E+03	1.4E+09	2.7E+04	Benzyl Alcohol	100-51-6	3.8E+00		1.4E+00	1.0E+00	7.8E+03	2.8E+04	2.9E+01	6.1E+03	
		2.4E-03	I	2.0E-03	P	2.0E-05	I		0.007			1.4E+09		Beryllium and compounds	7440-41-7			1.4E+03	1.4E+03	1.6E+02	2.8E+04		1.6E+02	
		1.0E-04	I						1	0.1	1.4E+09			Bidrin	141-66-2					7.8E+00	2.8E+01		6.1E+00	
		9.0E-03	P						1	0.1	1.4E+09			Bifenox	42576-02-3					7.0E+02	2.5E+03		5.5E+02	
		1.5E-02	I						1	0.1	1.4E+09			Biphenthrin	82657-04-3					1.2E+03	4.2E+03		9.2E+02	
7.0E-02	H	1.0E-05	H	5.0E-02	I			V	1		2.1E+02	1.4E+09	1.2E+05	Biphenyl, 1,1'-	92-52-4					3.9E+03			3.9E+03	
		4.0E-02	I					V	1		1.0E+03	1.4E+09	3.8E+04	Bis(2-chloro-1-methylethyl) ether	108-60-1	9.1E+00		9.2E+00	4.6E+00	3.1E+03			3.1E+03	
		3.0E-03	P						1	0.1	1.4E+09			Bis(2-chloroethoxy)methane	111-91-1					2.3E+02	8.4E+02		1.8E+02	
1.1E+00	I	3.3E-04	I					V	1		5.1E+03	1.4E+09	4.6E+04	Bis(2-chloroethyl)ether	111-44-4	5.8E-01		3.4E-01	2.1E-01				3.9E+03	
1.4E-02	I	2.4E-06	C	2.0E-02	I				1	0.1	1.4E+09			Bis(2-ethylhexyl)phthalate	117-81-7	4.6E+01	1.4E+02	1.4E+06	3.5E+01	1.6E+03	5.6E+03		1.2E+03	
2.2E+02	I	6.2E-02	I					V	1		4.2E+03	1.4E+09	2.0E+03	Bis(chloromethyl)ether	542-88-1	2.9E-03		7.9E-05	7.7E-05				3.1E+03	
		5.0E-02	I	2.0E-01	I	2.0E-02	H		1	0.1	1.4E+09			Bisphenol A	80-05-7					3.9E+03	1.4E+04		3.1E+03	
		4.0E-02	C	1.3E-02	C				1		1.4E+09			Boron And Borates Only	7440-42-8					1.6E+04		2.8E+07	1.6E+04	
7.0E-01	I	4.0E-03	I					V	1		1.4E+09			Boron Trifluoride	7637-07-2					3.1E+03		1.8E+07	3.1E+03	
2.0E+00	X	6.0E-04	X					V	1		2.4E+03	1.4E+09	6.4E+03	Bromate	15541-45-4	9.1E-01			9.1E-01	3.1E+02			3.1E+02	
		8.0E-03	I	6.0E-02	I	V			1		6.8E+02	1.4E+09	9.0E+03	Bromo-2-chloroethane, 1-	107-04-0	3.2E-01		2.6E-02	2.4E-02				3.1E+02	
6.2E-02	I	3.7E-05	C	2.0E-02	I	V			1		9.3E+02	1.4E+09	4.3E+03	Bromobenzene	108-86-1	1.0E+01		2.8E-01	2.7E-01	6.3E+02		5.6E+02	3.0E+02	
7.9E-03	I	1.1E-06	I	2.0E-02	I				1	0.1	1.4E+09			Bromodichloromethane	75-27-4	8.1E+01	2.6E+02	3.0E+06	6.1E+01	1.6E+03	5.6E+03		1.6E+03	
		1.4E-03	I	5.0E-03	I	V			1		3.6E+03	1.4E+09	1.5E+03	Bromofom	75-25-2					1.6E+03	5.6E+03		1.2E+03	
		5.0E-03	H						1	0.1	1.4E+09			Bromomethane	74-83-9					1.1E+02		7.8E+00	7.3E+00	
		2.0E-02	I						1	0.1	1.4E+09			Bromophos	2104-96-3					3.9E+02	1.4E+03		3.1E+02	
		2.0E-02	I						1	0.1	1.4E+09			Bromoxynil	1689-84-5					1.6E+03	5.6E+03		1.2E+03	
3.4E+00	C	3.0E-05	I	1.0E-01	I	2.0E-03	I	V	1	0.1	6.7E+02	1.4E+09	9.3E+02	Bromoxynil Octanoate	1689-99-2					1.6E+03	5.6E+03		1.2E+03	
		1.0E-01	I						1	0.1	1.4E+09			Butadiene, 1,3-	106-99-0	1.9E-01		7.6E-02	5.4E-02	7.8E+03	2.8E+04	1.9E+00	1.9E+00	
1.9E-03	P	2.0E-01	I						1	0.1	1.4E+09			Butanol, N-	71-36-3					7.8E+03	2.8E+04		6.1E+03	
		2.0E+00	P	3.0E+01	P				1	0.1	1.4E+09			Butyl Benzyl Phthlate	85-68-7	3.4E+02	1.1E+03		2.6E+02	1.6E+04	5.6E+04			1.2E+04
		5.0E-02	I						1	0.1	1.4E+09			Butyl alcohol, sec-	78-92-2					1.6E+05	5.6E+05	4.3E+10	1.2E+05	
2.0E-04	C	5.7E-08	C						1	0.1	1.4E+09			Butylate	2008-41-5					3.9E+03	1.4E+04		3.1E+03	
		1.0E+00	I						1	0.1	1.4E+09			Butylated hydroxyanisole	25013-16-5	3.2E+03	1.0E+04	5.8E+07	2.4E+03				6.1E+04	
		2.0E-02	A						1	0.1	1.4E+09			Butylphthalyl Butylglycolate	85-70-1					7.8E+04	2.8E+05		1.2E+03	
		1.8E-03	I	1.0E-03	I	1.0E-05	A		0.025	0.001	1.4E+09			Cacodylic Acid	75-60-5					1.6E+03	5.6E+03		1.2E+03	
		1.8E-03	I	5.0E-04	I	1.0E-05	A		0.05	0.001	1.4E+09			Cadmium (Diet)	7440-43-9			1.8E+03	1.8E+03	7.8E+01	7.0E+02	1.4E+04	7.0E+01	
		5.0E-01	I						1	0.1	1.4E+09			Cadmium (Water)	7440-43-9					3.9E+04	1.4E+05		3.1E+04	
		5.0E-01	I						1	0.1	1.4E+09			Caprolactam	105-60-2					3.9E+04	1.4E+05		3.1E+04	
1.5E-01	C	4.3E-05	C	2.0E-03	I				1	0.1	1.4E+09			Captafol	2425-06-1	4.3E+00	1.3E+01	7.7E+04	3.2E+00	1.6E+02	5.6E+02		1.2E+02	
2.3E-03	C	6.6E-07	C	1.3E-01	I				1	0.1	1.4E+09			Captan	133-06-2	2.8E+02	8.8E+02	5.0E+06	2.1E+02	1.0E+04	3.6E+04		7.9E+03	
		1.0E-01	I						1	0.1	1.4E+09			Carbaryl	63-25-2					7.8E+03	2.8E+04		6.1E+03	
		5.0E-03	I						1	0.1	1.4E+09			Carbofuran	1563-66-2					3.9E+02	1.4E+03		3.1E+02	
7.0E-02	I	6.0E-06	I	1.0E-01	I	7.0E-01	I	V	1		7.4E+02	1.4E+09	1.3E+03	Carbon Disulfide	75-15-0					7.8E+03		9.2E+02	8.2E+02	
		4.0E-03	I	1.0E-01	I	V			1		4.6E+02	1.4E+09	1.6E+03	Carbon Tetrachloride	56-23-5	9.1E+00		6.5E-01	6.1E-01	3.1E+02		1.7E+02	1.1E+02	
		1.0E-02	I						1	0.1	1.4E+09			Carbosulfan	55285-14-8					7.8E+02	2.8E+03		6.1E+02	
		1.0E-01	I						1	0.1	1.4E+09			Carboxin	5234-68-4					7.8E+03	2.8E+04		6.1E+03	
		9.0E-04	I						1		1.4E+09			Ceric oxide	1306-38-3							1.3E+06	1.3E+06	
4.0E-01	H	1.5E-02	I						1	0.1	1.4E+09			Chloral Hydrate	302-17-0					7.8E+03	2.8E+04		6.1E+03	
		1.0E-01	I						1	0.1	1.4E+09			Chloramben	133-90-4	1.6E+00	5.0E+00		1.2E+00	1.2E+03	4.2E+03		9.2E+02	
		1.0E-01	I						1	0.1	1.4E+09			Chloranil	118-75-2					7.8E+03	2.8E+04		6.1E+03	
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I		1	0.04	1.4E+09			Chlordane	12789-03-6	1.8E+00	1.4E+01	3.3E+04	1.6E+00	3.9E+01	3.5E+02	9.9E+05	3.5E+01	
1.0E+01	I	4.6E-03	C	3.0E-04	I				1	0.1	1.4E+09			Chlordecone (Kepone)	143-50-0	6.4E-02	2.0E-01	7.2E+02	4.9E-02	2.3E+01	8.4E+01		1.8E+01	
		7.0E-04	A						1	0.1	1.4E+09			Chlorfenvinphos	470-90-6					5.5E+01	2.0E+02		4.3E+01	
		2.0E-02	I						1	0.1	1.4E+09			Chlorimuron, Ethyl-	90982-32-4					1.6E+03	5.6E+03		1.2E+03	
		1.0E-01	I	1.5E-04	A				1		1.4E+09			Chlorine	7782-50-5					7.8E+03		2.1E+05	7.5E+03	
		3.0E-02	I	2.0E-04	I				1		1.4E+09			Chlorine Dioxide	10049-04-4					2.3E+03		2.8E+05	2.3E+03	
		3.0E-02	I						1		1.4E+09			Chlorite (Sodium Salt)	7758-19-2					2.3E+03			2.3E+03	
		3.0E-04	I	2.0E-02	H	5.0E+01	I	V	1		1.2E+03	1.4E+09	1.1E+03	Chloro-1,1-difluoroethane, 1-	75-68-3							5.8E+04	5.8E+04	
		3.0E-04	I	2.0E-02	H	2.0E-02	I	V	1		7.													

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1					
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
2.0E-01	P			4.0E-03 2.0E-02	I P V	3.0E-05 5.0E-02	I P V		1 1	0.1 0.1	1.4E+09 1.4E+09		6.9E+03	Chloroacetophenone, 2- Chloroaniline, p- Chlorobenzene	532-27-4 106-47-8 108-90-7	3.2E+00	1.0E+01		2.4E+00	3.1E+02 1.6E+03	1.1E+03		4.3E+04 3.6E+02	4.3E+04 2.4E+02 2.9E+02
1.1E-01	C	3.1E-05	C	2.0E-02 3.0E-02 3.0E-03	I X P	2.0E-02 3.0E-01	I P V		1 1 1	0.1 0.1	1.4E+09 1.4E+09		7.3E+03	Chlorobenzilate Chlorobenzoic Acid, p- Chlorobenzotrifluoride, 4-	510-15-6 74-11-3 98-56-6	5.8E+00	1.8E+01	1.1E+05	4.4E+00	1.6E+03 2.3E+03	5.6E+03 8.4E+03		1.2E+03 1.8E+03 2.1E+02	
3.1E-02	C	2.3E-05	I	1.0E-02	I	5.0E+01 9.8E-02	I V A V		1 1		1.7E+03 2.5E+03	1.4E+09 1.4E+09	1.0E+03 2.8E+03	Chlorobutane, 1- Chlorodifluoromethane Chloroform	109-69-3 75-45-6 67-66-3	2.1E+01		3.0E-01	2.9E-01	7.8E+02		5.3E+04 2.9E+02	3.1E+03 5.3E+04 2.1E+02	
2.4E+00	C	6.9E-04	C	8.0E-02	I	9.0E-02	I V		1		1.3E+03 2.6E+04	1.4E+09 1.4E+09	1.3E+03 5.7E+03	Chloromethane Chloromethyl Methyl Ether Chloronaphthalene, Beta-	74-87-3 107-30-2 91-58-7	2.7E-01		2.0E-02	1.9E-02	6.3E+03		1.2E+02	1.2E+02	
3.0E-01 6.3E-03	P P			3.0E-03 1.0E-03 5.0E-03	P P I	1.0E-05 6.0E-04	X P V		1 1 1	0.1 0.1	1.4E+09 1.4E+09		1.3E+05	Chloronitrobenzene, o- Chloronitrobenzene, p- Chlorophenol, 2-	88-73-3 100-00-5 95-57-8	2.1E+00 1.0E+02	6.7E+00 3.2E+02		1.6E+00 7.7E+01	2.3E+02 7.8E+01 3.9E+02	8.4E+02 2.8E+02	1.4E+04 8.5E+05	1.8E+02 6.1E+01 3.9E+02	
3.1E-03	C	8.9E-07	C	1.5E-02 2.0E-02	I I	4.0E-04	C V		1 1	0.1	6.2E+02 1.4E+09	1.4E+09	5.0E+03	Chloropicrin Chlorothalonil Chlorotoluene, o-	76-06-2 1897-45-6 95-49-8	2.1E+02	6.5E+02	3.7E+06	1.6E+02	1.2E+03 1.6E+03	4.2E+03	2.1E+00	2.1E+00 9.2E+02 1.6E+03	
2.4E+02	C	6.9E-02	C	7.0E-02 2.0E-01	P I		V		1 1	0.1 0.1	2.5E+02 1.4E+09	1.4E+09	7.9E+03	Chlorotoluene, p- Chlorozotocin Chlorpropham	106-43-4 54749-90-5 101-21-3	2.7E-03	8.4E-03	4.8E+01	2.0E-03	5.5E+03		1.6E+04 5.6E+04	1.2E+04 5.5E+03	
5.0E-01	J	8.4E-02	S	8.0E-04 1.5E+00 3.0E-03	H I I	1.0E-04	I		1 0.013 0.025		1.4E+09 1.4E+09	1.4E+09		Chlorthiophos Chromium(III), Insoluble Salts Chromium(VI)	60238-56-4 16065-83-1 18540-29-9	3.0E-01		1.6E+01	2.9E-01	6.3E+01 1.2E+05 2.3E+02	2.2E+02	1.4E+05	4.9E+01 1.2E+05 2.3E+02	
		9.0E-03 6.2E-04	P I	3.0E-04	P	6.0E-06	P		1 1	0.1	1.4E+09	1.4E+09		Chromium, Total Cobalt Coke Oven Emissions	7440-47-3 7440-48-4 8007-45-2			3.7E+02	3.7E+02	2.3E+01		8.5E+03	2.3E+01	
		4.0E-02 5.0E-02 5.0E-02	H I I	6.0E-01	C	6.0E-01	C		1 1 1	0.1	1.4E+09	1.4E+09		Copper Cresol, m- Cresol, o-	7440-50-8 108-39-4 95-48-7				3.1E+03 3.9E+03 3.9E+03	1.4E+04 1.4E+04	8.5E+08 8.5E+08	3.1E+03 3.1E+03		
		5.0E-03 1.0E-01 1.0E-01	H X A	6.0E-01	C	6.0E-01	C V		1 1 1	0.1	1.4E+09	1.4E+09	3.3E+05	Cresol, p- Cresol, p-chloro-m- Cresols	106-44-5 59-50-7 1319-77-3				3.9E+02 7.8E+03 7.8E+03	1.4E+03 2.8E+04	8.5E+08	3.1E+02 6.1E+03 7.5E+03		
1.9E+00	H			1.0E-01	I	4.0E-01	I V		1		1.7E+04 2.7E+02	1.4E+09	2.0E+04 6.7E+03	Crotonaldehyde, trans- Cumene Cupferron	123-73-9 98-82-8 135-20-6	3.4E-01			3.4E-01	7.8E+03		2.8E+03	2.1E+03	
2.2E-01	C	6.3E-05	C	2.0E-03	H				1	0.1	1.4E+09	1.4E+09		Cyanazine Cyanides ~Calcium Cyanide	21725-46-2 592-01-8	7.6E-01	2.4E+00		5.8E-01	1.6E+02	5.6E+02		1.2E+02	
		4.0E-02	I	5.0E-03 2.0E-02 4.0E-02	I I I		V		1 1 1		1.0E+07 1.5E+03	1.4E+09	5.0E+04 1.3E+03	~Copper Cyanide ~Cyanide (CN-) ~Cyanogen	544-92-3 57-12-5 460-19-5					3.9E+02 1.6E+03 3.1E+03		3.9E+02 1.6E+03 3.1E+03		
		9.0E-02 5.0E-02 6.0E-04	I I I	8.0E-04	I V		V		1 1 1		1.0E+05 4.3E+03 1.2E+05	1.4E+09	9.7E+02 2.1E+03 6.1E+03	~Cyanogen Bromide ~Cyanogen Chloride ~Hydrogen Cyanide	506-68-3 506-77-4 74-90-8					7.0E+03 3.9E+03 4.7E+01		5.1E+00	7.0E+03 3.9E+03 4.6E+00	
		5.0E-02 2.0E-01 1.0E-01	I I I						1 0.04 0.04		1.4E+09	1.4E+09		~Potassium Cyanide ~Potassium Silver Cyanide ~Silver Cyanide	151-50-8 506-61-6 506-64-9					3.9E+03 1.6E+04 7.8E+03		3.9E+03 1.6E+04 7.8E+03		
		4.0E-02 2.0E-04 5.0E-02	I P I				V		1 1 1		4.6E+03	1.4E+09	7.1E+03	~Sodium Cyanide ~Thiocyanate ~Zinc Cyanide	143-33-9 463-56-9 557-21-1					3.1E+03 1.6E+01 3.9E+03		3.1E+03 1.6E+01 3.9E+03		
2.3E-02	H			6.0E+00	I V				1		1.2E+02	1.4E+09	1.1E+03	Cyclohexane Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro- Cyclohexanone	110-82-7 87-84-3 108-94-1	2.8E+01	8.8E+01		2.1E+01		7.0E+03		7.0E+03	
		2.0E-01 5.0E-03 1.0E-02	I I I						1 1 1	0.1	1.4E+09	1.4E+09		Cyclohexylamine Cyhalothrin/karate Cypermethrin	108-91-8 68085-85-8 52315-07-8					1.6E+04 3.9E+02 7.8E+02	5.6E+04 1.4E+03 2.8E+03		1.2E+04 3.1E+02 6.1E+02	

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	ky	IUR (ug/m ³) ⁻¹	ky	RfD ₀ (mg/kg-day)	ky	RfC ₀ (mg/m ³)	ky	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
2.4E-01	I	6.9E-05	C	7.5E-03	I					1	0.1	1.4E+09		Cyromazine	66215-27-8					5.9E+02	2.1E+03		4.6E+02
3.4E-01	I	9.7E-05	C							1	0.1	1.4E+09		DDD	72-54-8	2.7E+00	8.4E+00	4.8E+04	2.0E+00				
										1	0.1	1.4E+09		DDE, p,p'	72-55-9	1.9E+00	6.0E+00	3.4E+04	1.4E+00				
3.4E-01	I	9.7E-05	I	5.0E-04	I					1	0.03	1.4E+09		DDT	50-29-3	1.9E+00	2.0E+01	3.4E+04	1.7E+00	3.9E+01	4.7E+02		3.6E+01
				1.0E-02	I					1	0.1	1.4E+09		Dachthal	1861-32-1					7.8E+02	2.8E+03		6.1E+02
				3.0E-02	I					1	0.1	1.4E+09		Dalapon	75-99-0					2.3E+03	8.4E+03		1.8E+03
7.0E-04	I			7.0E-03	I					1	0.1	1.4E+09		Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'-(BDE-209)	1163-19-5	9.1E+02	2.9E+03		6.9E+02	5.5E+02	2.0E+03		4.3E+02
				4.0E-05	I					1	0.1	1.4E+09		Demeton	8065-48-3					3.1E+00	1.1E+01		2.4E+00
1.2E-03	I			6.0E-01	I					1	0.1	1.4E+09		Di(2-ethylhexyl)adipate	103-23-1	5.3E+02	1.7E+03		4.0E+02	4.7E+04	1.7E+05		3.7E+04
6.1E-02	H									1	0.1	1.4E+09		Diallate	2303-16-4	1.0E+01	3.3E+01		8.0E+00				
				7.0E-04	A					1	0.1	1.4E+09		Diazinon	333-41-5					5.5E+01	2.0E+02		4.3E+01
8.0E-01	P	6.0E-03	P	2.0E-04	P	2.0E-04	I	V	M	1	9.8E+02	1.4E+09	3.4E+04	Dibromo-3-chloropropane, 1,2-	96-12-8	1.9E-01		5.5E-03	5.4E-03	1.6E+01	2.0E+02	7.2E+00	4.9E+00
				1.0E-02	I					1	0.1	1.4E+09		Dibromobenzene, 1,4-	106-37-6					7.8E+02	2.8E+03		6.1E+02
8.4E-02	I	2.7E-05	C	2.0E-02	I			V		1	0.1	8.0E+02	1.4E+09	8.6E+03	Dibromochloromethane	124-48-1	7.6E+00	2.4E+01	7.7E-01	6.8E-01	1.6E+03	5.6E+03	1.2E+03
2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		1	1.3E+03	1.4E+09	9.3E+03	Dibromoethane, 1,2-	106-93-4	3.2E-01		3.8E-02	3.4E-02	7.0E+02		8.7E+01	7.8E+01
				1.0E-02	H	4.0E-03	X	V		1	2.8E+03	1.4E+09	6.1E+03	Dibromomethane (Methylene Bromide)	74-95-3					7.8E+02		2.5E+01	2.5E+01
				1.0E-01	I					1	0.1	1.4E+09		Dibutyl Phthalate	84-74-2					7.8E+03	2.8E+04		6.1E+03
				3.0E-04	P					1	0.1	1.4E+09		Dibutyltin Compounds	NA					2.3E+01	8.4E+01		1.8E+01
				3.0E-02	I					1	0.1	1.4E+09		Dicamba	1918-00-9					2.3E+03	8.4E+03		1.8E+03
		4.2E-03	P					V		1	5.2E+02	1.4E+09	1.1E+04	Dichloro-2-butene, 1,4-	764-41-0			6.5E-03	6.5E-03				
		4.2E-03	P					V		1	0.1	5.2E+02	1.4E+09	1.2E+04	Dichloro-2-butene, cis-1,4-	1476-11-5			6.9E-03	6.9E-03			
5.0E-02	I	4.2E-03	P					V		1	0.1	7.6E+02	1.4E+09	1.2E+04	Dichloro-2-butene, trans-1,4-	110-57-6			6.9E-03	6.9E-03			
				4.0E-03	I	2.0E-01	H	V		1	0.1	1.4E+09		Dichloroacetic Acid	79-43-6	1.3E+01	4.0E+01		9.7E+00	3.1E+02	1.1E+03		2.4E+02
				9.0E-02	I					1	3.8E+02	1.4E+09	1.3E+04	Dichlorobenzene, 1,2-	95-50-1					7.0E+03		2.6E+03	1.9E+03
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V		1	1.4E+09	1.1E+04		Dichlorobenzene, 1,4-	106-46-7	1.2E+02		2.5E+00	2.4E+00	5.5E+03		9.4E+03	3.5E+03
4.5E-01	I	3.4E-04	C							1	0.1	1.4E+09		Dichlorobenzidine, 3,3'	91-94-1	1.4E+00	4.5E+00	9.7E+03	1.1E+00				
				9.0E-03	X					1	0.1	1.4E+09		Dichlorobenzophenone, 4,4'	90-98-2					7.0E+02	2.5E+03		5.5E+02
				2.0E-01	I	2.0E-01	H	V		1	8.5E+02	1.4E+09	9.0E+02	Dichlorodifluoromethane	75-71-8					1.6E+04		1.9E+02	1.8E+02
5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1	1.7E+03	1.4E+09	2.2E+03	Dichloroethane, 1,1-	75-34-3	1.1E+02		3.4E+00	3.3E+00	1.6E+04		1.6E+04	
9.1E-02	I	2.6E-05	I	2.0E-02	P	2.4E+00	A	V		1	3.0E+03	1.4E+09	4.9E+03	Dichloroethane, 1,2-	107-06-2	7.0E+00		4.6E-01	4.3E-01	1.6E+03	1.2E+04		1.4E+03
				5.0E-02	I	2.0E-01	I	V		1	1.2E+03	1.4E+09	1.2E+03	Dichloroethylene, 1,1-	75-35-4					3.9E+03		2.6E+02	2.4E+02
				9.0E-03	H			V		1	1.3E+03	1.4E+09	2.7E+03	Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0					7.0E+02		7.0E+02	
				2.0E-03	I			V		1	2.4E+03	1.4E+09	2.7E+03	Dichloroethylene, 1,2-cis-	156-59-2					1.6E+02		1.6E+02	
				2.0E-02	I	6.0E-02	P	V		1	1.7E+03	1.4E+09	2.7E+03	Dichloroethylene, 1,2-trans-	156-60-5					1.6E+03		1.7E+02	1.5E+02
				3.0E-03	I					1	0.1	1.4E+09		Dichlorophenol, 2,4-	120-83-2					2.3E+02	8.4E+02		1.8E+02
				1.0E-02	I					1	0.05	1.4E+09		Dichlorophenoxy Acetic Acid, 2,4-	94-75-7					7.8E+02	5.6E+03		6.9E+02
				8.0E-03	I					1	0.1	1.4E+09		Dichlorophenoxy)butyric Acid, 4-(2,4-	94-82-6					6.3E+02	2.2E+03		4.9E+02
3.6E-02	C	1.0E-05	C	9.0E-02	A	4.0E-03	I	V		1	1.4E+03	1.4E+09	3.9E+03	Dichloropropane, 1,2-	78-87-5	1.8E+01		9.4E-01	8.9E-01	7.0E+03		1.6E+01	1.6E+01
				2.0E-02	P			V		1	1.5E+03	1.4E+09	7.3E+03	Dichloropropane, 1,3-	142-28-9					1.6E+03			1.6E+03
				3.0E-03	I					1	0.1	1.4E+09		Dichloropropanol, 2,3-	616-23-9					2.3E+02	8.4E+02		1.8E+02
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V		1	1.6E+03	1.4E+09	3.7E+03	Dichloropropene, 1,3-	542-75-6	6.4E+00		2.2E+00	1.7E+00	2.3E+03		7.7E+01	7.4E+01
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I			1	0.1	1.4E+09		Dichlorvos	62-73-7	2.2E+00	7.0E+00	4.0E+04	1.7E+00	3.9E+01	1.4E+02	7.1E+05	3.1E+01
				8.0E-03	P	7.0E-03	P	V		1	1.3E+02	1.4E+09	3.9E+03	Dicyclopentadiene	77-73-6					6.3E+02		2.8E+01	2.7E+01
1.6E+01	I	4.6E-03	I	5.0E-05	I					1	0.1	1.4E+09		Dieldrin	60-57-1	4.0E-02	1.3E-01	7.2E+02	3.0E-02	3.9E+00	1.4E+01		3.1E+00
				5.0E-03	I					1	0.1	1.4E+09		Diesel Engine Exhaust	NA								
				3.0E-03	C					1	0.1	1.4E+09		Diethanolamine	111-42-2							4.3E+06	4.3E+06
				8.0E-01	I					1	0.1	1.4E+09		Diethyl Phthalate	84-66-2					6.3E+04	2.2E+05		4.9E+04
				3.0E-02	P	1.0E-04	P			1	0.1	1.4E+09		Diethylene Glycol Monobutyl Ether	112-34-5					2.3E+03	8.4E+03	1.4E+05	1.8E+03
				6.0E-02	P	3.0E-04	P			1	0.1	1.4E+09		Diethylene Glycol Monoethyl Ether	111-90-0					4.7E+03	1.7E+04	4.3E+05	3.6E+03
3.5E+02	C	1.0E-01	C	1.0E-03	P					1	0.1	1.4E+09		Diethylformamide	617-84-5	1.8E-03	5.8E-03	3.3E+01	1.4E-03	7.8E+01	2.8E+02		6.1E+01
				8.0E-02	I					1	0.1	1.4E+09		Diethylstilbestrol	56-53-1								
				2.0E-02	I					1	0.1	1.4E+09		Difenzoquat	43222-48-6					6.3E+03	2.2E+04		4.9E+03
				4.0E+01	I	V				1	1.4E+03	1.4E+09	1.2E+03	Diflubenzuron	35367-38-5					1.6E+03	5.6E+03		1.2E+03
4.4E-02	C	1.3E-05	C							1	0.1	1.4E+09		Difluoroethane, 1,1-	75-37-6							5.2E+04	5.2E+04
				4.0E-01	P	V				1	2.3E+03	1.4E+09	3.3E+03	Dihydrosafrole	94-58-6	1.5E+01	4.6E+01	2.5E+05	1.1E+01				
				8.0E-02	I																		

Regional Screening Level (RSL) Resident Soil Table November 2010

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Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1					
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
1.7E-03	P			6.0E-02	P					1	0.1	1.4E+09		Dimethyl methylphosphonate	756-79-6	3.8E+02	1.2E+03		2.9E+02	4.7E+03	1.7E+04		3.7E+03	
4.6E+00	C	1.3E-03	C							1	0.1	1.4E+09		Dimethylamino azobenzene [p-]	60-11-7	1.4E-01	4.4E-01	2.5E+03	1.1E-01					
5.8E-01	H									1	0.1	1.4E+09		Dimethylaniline HCl, 2,4-	21436-96-4	1.1E+00	3.5E+00		8.4E-01					
7.5E-01	H									1	0.1	1.4E+09		Dimethylaniline, 2,4-	95-68-1	8.5E-01	2.7E+00		6.5E-01					
1.1E+01	P			2.0E-03	I		V			1	0.1	8.3E+02	1.4E+09	3.4E+04	Dimethylaniline, N,N-	121-69-7				1.6E+02			1.6E+02	
				1.0E-01	P	3.0E-02	I			1	0.1	1.4E+09		Dimethylformamide	68-12-2				7.8E+03	2.8E+04	4.3E+07		6.1E+03	
5.5E+02	C	1.6E-01	C	1.0E-04	X	2.0E-06	X			1	0.1	1.4E+09		Dimethylhydrazine, 1,1-	57-14-7	1.2E-03	3.7E-03	2.1E+01	8.8E-04	7.8E+00	2.8E+01	2.8E+03	6.1E+00	
				2.0E-02	I					1	0.1	1.4E+09		Dimethylphenol, 2,4-	105-67-9				1.6E+03	5.6E+03			1.2E+03	
				6.0E-04	I					1	0.1	1.4E+09		Dimethylphenol, 2,6-	576-26-1				4.7E+01	1.7E+02			3.7E+01	
				1.0E-03	I					1	0.1	1.4E+09		Dimethylphenol, 3,4-	95-65-8				7.8E+01	2.8E+02			6.1E+01	
4.5E-02	C	1.3E-05	C	1.0E-01	I		V			1	0.1	5.5E+00	1.4E+09	2.3E+04	Dimethylterephthalate	120-61-6	1.4E+01	4.5E+01	2.5E+05	1.1E+01	6.3E+00	2.2E+01		7.8E+03
				8.0E-05	X					1	0.1	1.4E+09		Dimethylvinylchloride	513-37-1									7.8E+03
				2.0E-03	I					1	0.1	1.4E+09		Dinitro-o-cresol, 4,6-	534-52-1									4.9E+00
				1.0E-04	P					1	0.1	1.4E+09		Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5					1.6E+02	5.6E+02			1.2E+02
				1.0E-04	P					1	0.1	1.4E+09		Dinitrobenzene, 1,2-	528-29-0					7.8E+00	2.8E+01			6.1E+00
				1.0E-04	I					1	0.1	1.4E+09		Dinitrobenzene, 1,3-	99-65-0					7.8E+00	2.8E+01			6.1E+00
6.8E-01	I			1.0E-04	P					1	0.1	1.4E+09		Dinitrobenzene, 1,4-	100-25-4					7.8E+00	2.8E+01			6.1E+00
				2.0E-03	I					1	0.1	1.4E+09		Dinitrophenol, 2,4-	51-28-5					1.6E+02	5.6E+02			1.2E+02
				2.0E-03	S					1	0.1	1.4E+09		Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	9.4E-01	3.0E+00		7.1E-01					1.5E+02
3.1E-01	C	8.9E-05	C	2.0E-03	I					1	0.102	1.4E+09		Dinitrotoluene, 2,4-	121-14-2	2.1E+00	6.4E+00	3.7E+04	1.6E+00	1.6E+02	5.5E+02			1.2E+02
				1.0E-03	P					1	0.099	1.4E+09		Dinitrotoluene, 2,6-	606-20-2					7.8E+01	2.8E+02			6.1E+01
				2.0E-03	S					1	0.006	1.4E+09		Dinitrotoluene, 2-Amino-4,6-	35572-78-2					1.6E+02	9.3E+03			1.5E+02
				2.0E-03	S					1	0.009	1.4E+09		Dinitrotoluene, 4-Amino-2,6-	19406-51-0					1.6E+02	6.2E+03			1.5E+02
1.0E-01	I	7.7E-06	C	1.0E-03	I					1	0.1	1.4E+09		Dinoseb	88-85-7					7.8E+01	2.8E+02			6.1E+01
				3.0E-02	I	3.6E+00	A			1	0.1	1.4E+09		Dioxane, 1,4-	123-91-1	6.4E+00	2.0E+01	4.3E+05	4.9E+00	2.3E+03	8.4E+03	5.1E+09		1.8E+03
6.2E+03	I	1.3E+00	I							1	0.03	1.4E+09		Dioxins										
1.3E+05	C	3.8E+01	C	1.0E-09	A	4.0E-08	C			1	0.03	1.4E+09		~Hexachlorodibenzo-p-dioxin, Mixture	NA	1.0E-04	1.1E-03	2.5E+00	9.4E-05	7.8E-05	9.3E-04	5.7E+01	7.2E-05	
				3.0E-02	I					1	0.1	1.4E+09		~TCDD, 2,3,7,8-	1746-01-6	4.9E-06	5.2E-05	8.7E-02	4.5E-06					
				8.0E-04	X					1	0.1	1.4E+09		Diphenamid	957-51-7					2.3E+03	8.4E+03			1.8E+03
				2.5E-02	I					1	0.1	1.4E+09		Diphenyl Sulfone	127-63-9					6.3E+01	2.2E+02			4.9E+01
										1	0.1	1.4E+09		Diphenylamine	122-39-4					2.0E+03	7.0E+03			1.5E+03
8.0E-01	I	2.2E-04	I							1	0.1	1.4E+09		Diphenylhydrazine, 1,2-	122-66-7	8.0E-01	2.5E+00	1.5E+04	6.1E-01					
7.4E+00	C	2.1E-03	C	2.2E-03	I					1	0.1	1.4E+09		Diquat	85-00-7					1.7E+02	6.1E+02			1.3E+02
7.4E+00	C	2.1E-03	C							1	0.1	1.4E+09		Direct Black 38	1937-37-7	8.6E-02	2.7E-01	1.6E+03	6.6E-02					
6.7E+00	C	1.9E-03	C							1	0.1	1.4E+09		Direct Blue 6	2602-46-2	8.6E-02	2.7E-01	1.6E+03	6.6E-02					
				4.0E-05	I					1	0.1	1.4E+09		Direct Brown 95	16071-86-6	9.5E-02	3.0E-01	1.7E+03	7.2E-02					
										1	0.1	1.4E+09		Disulfoton	298-04-4					3.1E+00	1.1E+01			2.4E+00
				1.0E-02	I					1	0.1	1.4E+09		Dithiane, 1,4-	505-29-3					7.8E+02	2.8E+03			6.1E+02
				2.0E-03	I					1	0.1	1.4E+09		Diuron	330-54-1					1.6E+02	5.6E+02			1.2E+02
				4.0E-03	I					1	0.1	1.4E+09		Dodine	2439-10-3					3.1E+02	1.1E+03			2.4E+02
				2.5E-02	I		V			1		4.1E+02	1.4E+09	1.3E+05	EPTC	759-94-4								2.0E+03
				6.0E-03	I					1	0.1	1.4E+09		Endosulfan	115-29-7					4.7E+02	1.7E+03			3.7E+02
				2.0E-02	I					1	0.1	1.4E+09		Endothall	145-73-3					1.6E+03	5.6E+03			1.2E+03
9.9E-03	I	1.2E-06	I	3.0E-04	I					1	0.1	1.4E+09		Endrin	72-20-8					2.3E+01	8.4E+01			1.8E+01
				6.0E-03	P	1.0E-03	I	V		1		1.1E+04	1.4E+09	2.0E+04	Epichlorohydrin	106-89-8	6.5E+01		4.1E+01	2.5E+01	4.7E+02		2.1E+01	2.0E+01
				2.0E-02	I	V				1		1.5E+04	1.4E+09	8.2E+03	Epoxybutane, 1,2-	106-88-7							1.7E+02	1.7E+02
				5.0E-03	I					1	0.1	1.4E+09		Ethephon	16672-87-0					3.9E+02	1.4E+03			3.1E+02
				5.0E-04	I					1	0.1	1.4E+09		Ethion	563-12-2					3.9E+01	1.4E+02			3.1E+01
				3.0E-01	H	3.0E-01	C			1	0.1	1.4E+09		Ethoxyethanol Acetate, 2-	111-15-9					2.3E+04	8.4E+04	4.3E+08		1.8E+04
4.8E-02	H			4.0E-01	H	2.0E-01	I			1	0.1	1.4E+09		Ethoxyethanol, 2-	110-80-5					3.1E+04	1.1E+05	2.8E+08		2.4E+04
				9.0E-01	I					1		1.1E+04	1.4E+09	9.3E+03	Ethyl Acetate	141-78-6				7.0E+04				7.0E+04
										1		2.5E+03	1.4E+09	6.8E+03	Ethyl Acrylate	140-88-5	1.3E+01		1.3E+01					
				1.0E+01	I	V				1		2.1E+03	1.4E+09	1.4E+03	Ethyl Chloride	75-00-3							1.5E+04	1.5E+04
				2.0E-01	I	V				1		1.0E+04	1.4E+09	3.4E+03	Ethyl Ether	60-29-7				1.6E+04				1.6E+04
				9.0E-02	H		V			1		1.1E+03	1.4E+09	6.2E+03	Ethyl Methacrylate	97-63-2				7.0E+03				7.0E+03
1.1E-02	C	2.5E-06	C	1.0E-05	I					1	0.1	1.4E+09		Ethyl-p-nitrophenyl Phosphonate	2104-64-5					7.8E-01	2.8E+00			6.1E-01
				1.0E-01	I	1.0E+00	I	V		1		4.8												

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1														Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1					
Toxicity and Chemical-specific Information														Contaminant		Carcinogenic SL				Noncancer SL			
SFO (mg/kg-day) ⁻¹	ke y	IUR (ug/m ³) ⁻¹	ke y	RfD ₀ (mg/kg-day)	ke y	RfC ₀ (mg/m ³)	ke y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
				9.0E-02	P					1	0.1	1.4E+09		Ethylene Diamine	107-15-3					7.0E+03	2.5E+04		5.5E+03
				2.0E+00	I	4.0E-01	C			1	0.1	1.4E+09		Ethylene Glycol	107-21-1					1.6E+05	5.6E+05	5.7E+08	1.2E+05
				1.0E-01	I	1.6E+00	I			1	0.1	1.4E+09		Ethylene Glycol Monobutyl Ether	111-76-2					7.8E+03	2.8E+04	2.3E+09	6.1E+03
3.1E-01	C	8.8E-05	C			3.0E-02	C V			1	1.2E+05	1.4E+09	6.6E+03	Ethylene Oxide	75-21-8	2.1E+00		1.8E-01	1.7E-01			2.0E+02	2.0E+02
4.5E-02	C	1.3E-05	C	8.0E-05	I					1	0.1	1.4E+09		Ethylene Thiourea	96-45-7	1.4E+01	4.5E+01	2.5E+05	1.1E+01	6.3E+00	2.2E+01		4.9E+00
6.5E+01	C	1.9E-02	C							1	0.1	1.4E+09		Ethyleneimine	151-56-4	9.8E-03	3.1E-02	1.7E+02	7.5E-03				
				3.0E+00	I					1	0.1	1.4E+09		Ethylphthalyl Ethyl Glycolate	84-72-0					2.3E+05	8.4E+05		1.8E+05
				8.0E-03	I					1	0.1	1.4E+09		Express	101200-48-0					6.3E+02	2.2E+03		4.9E+02
				2.5E-04	I					1	0.1	1.4E+09		Fenamiphos	22224-92-6					2.0E+01	7.0E+01		1.5E+01
				2.5E-02	I					1	0.1	1.4E+09		Fenpropathrin	39515-41-8					2.0E+03	7.0E+03		1.5E+03
				1.3E-02	I					1	0.1	1.4E+09		Fluometuron	2164-17-2					1.0E+03	3.6E+03		7.9E+02
				4.0E-02	C	1.3E-02	C			1		1.4E+09		Fluoride	16984-48-8					3.1E+03		1.8E+07	3.1E+03
				6.0E-02	I	1.3E-02	C			1		1.4E+09		Fluorine (Soluble Fluoride)	7782-41-4					4.7E+03		1.8E+07	4.7E+03
				8.0E-02	I					1	0.1	1.4E+09		Fluridone	59756-60-4					6.3E+03	2.2E+04		4.9E+03
				2.0E-02	I					1	0.1	1.4E+09		Flurprimidol	56425-91-3					1.6E+03	5.6E+03		1.2E+03
				6.0E-02	I					1	0.1	1.4E+09		Flutolanil	66332-96-5					4.7E+03	1.7E+04		3.7E+03
				1.0E-02	I					1	0.1	1.4E+09		Fluvinalinate	69409-94-5					7.8E+02	2.8E+03		6.1E+02
3.5E-03	I			1.0E-01	I					1	0.1	1.4E+09		Folpet	133-07-3	1.8E+02	5.8E+02		1.4E+02	7.8E+03	2.8E+04		6.1E+03
1.9E-01	I			2.0E-03	I					1	0.1	1.4E+09		Fomesafen	72178-02-0	3.4E+00	1.1E+01		2.6E+00				1.2E+02
		1.3E-05	I	2.0E-01	I	9.8E-03	A			1	0.1	1.4E+09		Fonofos	944-22-9					1.6E+02	5.6E+02		1.2E+02
				2.0E+00	H	3.0E-03	P			1	0.1	1.4E+09		Formaldehyde	50-00-0			2.5E+05	2.5E+05	1.6E+04	5.6E+04	1.4E+07	1.2E+04
				3.0E+00	I					1	0.1	1.4E+09		Formic Acid	64-18-6					1.6E+05	5.6E+05	4.3E+06	1.2E+05
										1	0.1	1.4E+09		Fosetyl-AL	39148-24-8					2.3E+05	8.4E+05		1.8E+05
				1.0E-03	X			V		1	1.7E+02	1.4E+09	2.1E+05	~Dibenzofuran	132-64-9					7.8E+01			7.8E+01
				1.0E-03	I			V		1	6.2E+03	1.4E+09	2.8E+03	~Furan	110-00-9					7.8E+01			7.8E+01
3.8E+00	H									1	0.1	1.4E+09		Furazolidone	67-45-8	1.7E-01	5.3E-01		1.3E-01				1.8E+02
1.5E+00	C	4.3E-04	C	3.0E-03	I	5.0E-02	H			1	0.1	1.4E+09		Furfural	98-01-1					2.3E+02	8.4E+02	7.1E+07	1.8E+02
3.0E-02	I	8.6E-06	C							1	0.1	1.4E+09		Furium	531-82-8	4.3E-01	1.3E+00	7.7E+03	3.2E-01				
				4.0E-04	I					1	0.1	1.4E+09		Furmecyclohex	60568-05-0	2.1E+01	6.7E+01	3.8E+05	1.6E+01				
						8.0E-05	C			1	0.1	1.4E+09		Glufosinate, Ammonium	77182-82-2					3.1E+01	1.1E+02		2.4E+01
				4.0E-04	I	1.0E-03	H			1	0.1	1.4E+09		Glutaraldehyde	111-30-8					3.1E+01	1.1E+02	1.1E+05	1.1E+05
										1	0.1	1.4E+09		Glycidyl	765-34-4							1.4E+06	2.4E+01
				1.0E-01	I					1	0.1	1.4E+09		Glyphosate	1071-83-6					7.8E+03	2.8E+04		6.1E+03
				3.0E-03	I					1	0.1	1.4E+09		Goal	42874-03-3					2.3E+02	8.4E+02		1.8E+02
				3.0E-03	A	1.0E-02	A			1	0.1	1.4E+09		Guthion	86-50-0					2.3E+02	8.4E+02	1.4E+07	1.8E+02
				5.0E-05	I					1	0.1	1.4E+09		Haloxyp, Methyl	69806-40-2					3.9E+00	1.4E+01		3.1E+00
				1.3E-02	I					1	0.1	1.4E+09		Harmony	79277-27-3					1.0E+03	3.6E+03		7.9E+02
4.5E+00	I	1.3E-03	I	5.0E-04	I					1	0.1	1.4E+09		Heptachlor	76-44-8	1.4E-01	4.5E-01	2.5E+03	1.1E-01	3.9E+01	1.4E+02		3.1E+01
9.1E+00	I	2.6E-03	I	1.3E-05	I					1	0.1	1.4E+09		Heptachlor Epoxide	1024-57-3	7.0E-02	2.2E-01	1.3E+03	5.3E-02	1.0E+00	3.6E+00		7.9E-01
				2.0E-03	I					1	0.1	1.4E+09		Hexabromobenzene	87-82-1					1.6E+02	5.6E+02		1.2E+02
				2.0E-04	I					1	0.1	1.4E+09		Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2					1.6E+01	5.6E+01		1.2E+01
1.6E+00	I	4.6E-04	I	8.0E-04	I					1	0.1	1.4E+09		Hexachlorobenzene	118-74-1	4.0E-01	1.3E+00	7.2E+03	3.0E-01	6.3E+01	2.2E+02		4.9E+01
7.8E-02	I	2.2E-05	I	1.0E-03	P					1	0.1	1.4E+09		Hexachlorobutadiene	87-68-3	8.2E+00	2.6E+01	1.5E+05	6.2E+00	7.8E+01	2.8E+02		6.1E+01
6.3E+00	I	1.8E-03	I	8.0E-03	A					1	0.1	1.4E+09		Hexachlorocyclohexane, Alpha-	319-84-6	1.0E-01	3.2E-01	1.8E+03	7.7E-02	6.3E+02	2.2E+03		4.9E+02
1.8E+00	I	5.3E-04	I							1	0.1	1.4E+09		Hexachlorocyclohexane, Beta-	319-85-7	3.5E-01	1.1E+00	6.2E+03	2.7E-01				
1.1E+00	C	3.1E-04	C	3.0E-04	I					1	0.04	1.4E+09		Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	5.8E-01	4.6E+00	1.1E+04	5.2E-01	2.3E+01	2.1E+02		2.1E+01
1.8E+00	I	5.1E-04	I							1	0.1	1.4E+09		Hexachlorocyclohexane, Technical	608-73-1	3.5E-01	1.1E+00	6.5E+03	2.7E-01				
				6.0E-03	I	2.0E-04	I			1	0.1	1.4E+09		Hexachlorocyclopentadiene	77-47-4					4.7E+02	1.7E+03	2.8E+05	3.7E+02
1.4E-02	I	4.0E-06	I	1.0E-03	I					1	0.1	1.4E+09		Hexachloroethane	67-72-1	4.6E+01	1.4E+02	8.3E+05	3.5E+01	7.8E+01	2.8E+02		6.1E+01
				3.0E-04	I					1	0.1	1.4E+09		Hexachlorophene	70-30-4					2.3E+01	8.4E+01		1.8E+01
1.1E-01	I			3.0E-03	I					1	0.015	1.4E+09		Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	5.8E+00	1.2E+02		5.5E+00	2.3E+02	5.6E+03		2.3E+02
						1.0E-05	I V			1	5.2E+03	1.4E+09	3.2E+05	Hexamethylene Diisocyanate, 1,6-	822-06-0							3.4E+00	3.4E+00
				6.0E-02	H	7.0E-01	I V			1	1.4E+02	1.4E+09	8.9E+02	Hexane, N-	110-54-3					4.7E+03		6.5E+02	5.7E+02
				2.0E+00	P					1	0.1	1.4E+09		Hexanedioic Acid	124-04-9					1.6E+05	5.6E+05		1.2E+05
				5.0E-03	I	3.0E-02	I V			1	3.3E+03	1.4E+09	1.4E+04	Hexanone, 2-	591-78-6					3.9E+02		4.5E+02	2.1E+02
				3.3E-02	I					1	0.1	1.4E+09		Hexazinone	51235-04-2					2.6E+03	9.2E+03		2.0E+03
3.0E+00	I	4.9E-03	I			3.0E-05	P			1		1.4E+09		Hydrazine	302-01-2	2.1E-01							

Regional Screening Level (RSL) Resident Soil Table November 2010

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Toxicity and Chemical-specific Information											Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1								
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)		
6.0E-02	P			4.0E-02	C	1.4E-02	C		1	0.1		1.4E+09		Hydrogen Fluoride	7664-39-3					3.1E+03			2.0E+07	3.1E+03	
				2.0E-03	I				1			1.4E+09		Hydrogen Sulfide	7783-06-4							2.8E+06	2.8E+06		
				1.0E-02	A				1			1.4E+09		Hydroquinone	123-31-9	1.1E+01	3.4E+01		8.1E+00	3.1E+03	1.1E+04		2.4E+03	2.4E+03	
				1.3E-02	I				1	0.1		1.4E+09		Imazalil	35554-44-0					1.0E+03	3.6E+03		7.9E+02	7.9E+02	
				2.5E-01	I				1	0.1		1.4E+09		Imazaquin	81335-37-7					2.0E+04	7.0E+04		1.5E+04	1.5E+04	
				1.0E-02	A				1			1.4E+09		Iodine	7553-56-2					7.8E+02			7.8E+02	7.8E+02	
				4.0E-02	I				1	0.1		1.4E+09		Iprodione	36734-19-7					3.1E+03	1.1E+04		2.4E+03	2.4E+03	
				7.0E-01	P				1			1.4E+09		Iron	7439-89-6					5.5E+04			5.5E+04	5.5E+04	
				3.0E-01	I			V	1		1.0E+04	1.4E+09	3.0E+04	Isobutyl Alcohol	78-83-1					2.3E+04			2.3E+04	2.3E+04	
9.5E-04	I			2.0E-01	I	2.0E+00	C		1	0.1		1.4E+09		Isophorone	78-59-1	6.7E+02	2.1E+03		5.1E+02	1.6E+04	5.6E+04	2.8E+09	1.2E+04	1.2E+04	
				1.5E-02	I				1	0.1		1.4E+09		Isopropalin	33820-53-0					1.2E+03	4.2E+03		9.2E+02	9.2E+02	
						7.0E+00	C		1	0.1		1.4E+09		Isopropanol	67-63-0							9.9E+09	9.9E+09	9.9E+09	
				1.0E-01	I				1	0.1		1.4E+09		Isopropyl Methyl Phosphonic Acid	1832-54-8					7.8E+03	2.8E+04		6.1E+03	6.1E+03	
				5.0E-02	I				1	0.1		1.4E+09		Isoxaben	82558-50-7					3.9E+03	1.4E+04		3.1E+03	3.1E+03	
						3.0E-01	A	V	1			1.4E+09		JP-7	NA							4.3E+08	4.3E+08	4.3E+08	
				7.5E-02	I				1	0.1		1.4E+09		Kerb	23950-58-5					5.9E+03	2.1E+04		4.6E+03	4.6E+03	
				2.0E-03	I				1	0.1		1.4E+09		Lactofen	77501-63-4					1.6E+02	5.6E+02		1.2E+02	1.2E+02	
														Lead Compounds											
2.8E-01	C	8.0E-05	C						1	0.1		1.4E+09		~Lead acetate	301-04-2	2.3E+00	7.2E+00	4.1E+04	1.7E+00					4.0E+02	
3.8E-02	C	1.1E-05	C						1	0.1		1.4E+09		~Lead and Compounds	7439-92-1										
				1.0E-07	I				1	0.1		1.4E+09		~Lead subacetate	1335-32-6	1.7E+01	5.3E+01	3.0E+05	1.3E+01						
				2.0E-03	I				1	0.1		1.4E+09		~Tetraethyl Lead	78-00-2					7.8E-03	2.8E-02		6.1E-03	6.1E-03	
				2.0E-03	P				1	0.1		1.4E+09		Linuron	330-55-2					1.6E+02	5.6E+02		1.2E+02	1.2E+02	
				7.0E-04	I				1			1.4E+09		Lithium	7439-93-2					1.6E+02			1.6E+02	1.6E+02	
				2.0E-01	I				1	0.1		1.4E+09		Lithium Perchlorate	7791-03-9					5.5E+01			5.5E+01	5.5E+01	
				2.0E-01	I				1	0.1		1.4E+09		Londax	83055-99-6					1.6E+04	5.6E+04		1.2E+04	1.2E+04	
				5.0E-04	I				1	0.1		1.4E+09		MCPA	94-74-6					3.9E+01	1.4E+02		3.1E+01	3.1E+01	
				1.0E-02	I				1	0.1		1.4E+09		MCPB	94-81-5					7.8E+02	2.8E+03		6.1E+02	6.1E+02	
				1.0E-03	I				1	0.1		1.4E+09		MCPD	93-65-2					7.8E+01	2.8E+02		6.1E+01	6.1E+01	
				2.0E-02	I				1	0.1		1.4E+09		Malathion	121-75-5					1.6E+03	5.6E+03		1.2E+03	1.2E+03	
				1.0E-01	I	7.0E-04	C		1	0.1		1.4E+09		Maleic Anhydride	108-31-6					7.8E+03	2.8E+04	9.9E+05	6.1E+03	6.1E+03	
				5.0E-01	I				1	0.1		1.4E+09		Maleic Hydrizide	123-33-1					3.9E+04	1.4E+05		3.1E+04	3.1E+04	
				1.0E-04	P				1	0.1		1.4E+09		Malononitrile	109-77-3					7.8E+00	2.8E+01		6.1E+00	6.1E+00	
				3.0E-02	H				1	0.1		1.4E+09		Mancozeb	8018-01-7					2.3E+03	8.4E+03		1.8E+03	1.8E+03	
				5.0E-03	I				1	0.1		1.4E+09		Maneb	12427-38-2					3.9E+02	1.4E+03		3.1E+02	3.1E+02	
				1.4E-01	I	5.0E-05	I		1			1.4E+09		Manganese (Diet)	7439-96-5					3.9E+02	1.4E+03		3.1E+02	3.1E+02	
				2.4E-02	S	5.0E-05	I		0.04			1.4E+09		Manganese (Non-diet)	7439-96-5					1.9E+03		7.1E+04	1.8E+03	1.8E+03	
				9.0E-05	H				1	0.1		1.4E+09		Mephosolan	950-10-7					7.0E+00	2.5E+01		5.5E+00	5.5E+00	
				3.0E-02	I				1	0.1		1.4E+09		Mepiquat Chloride	24307-26-4					2.3E+03	8.4E+03		1.8E+03	1.8E+03	
														Mercury Compounds											
				3.0E-04	I	3.0E-05	C		0.07			1.4E+09		~Mercuric Chloride (and other Mercury salts)	7487-94-7					2.3E+01		4.3E+04	2.3E+01	2.3E+01	
				1.6E-04	C	3.0E-04	I	V	1		3.1E+00	1.4E+09	3.2E+04	~Mercury (elemental)	7439-97-6					1.3E+01		1.0E+01	5.6E+00	5.6E+00	
				1.0E-04	I				1			1.4E+09		~Methyl Mercury	22967-92-6					7.8E+00			7.8E+00	7.8E+00	
				8.0E-05	I				1	0.1		1.4E+09		~Phenylmercuric Acetate	62-38-4					6.3E+00	2.2E+01		4.9E+00	4.9E+00	
				3.0E-05	I				1	0.1		1.4E+09		Merphos	150-50-5					2.3E+00	8.4E+00		1.8E+00	1.8E+00	
				3.0E-05	I				1	0.1		1.4E+09		Merphos Oxide	78-48-8					2.3E+00	8.4E+00		1.8E+00	1.8E+00	
				6.0E-02	I				1	0.1		1.4E+09		Metalaxyl	57837-19-1					4.7E+03	1.7E+04		3.7E+03	3.7E+03	
				1.0E-04	I	7.0E-04	H	V	1		4.6E+03	1.4E+09	7.3E+03	Methacrylonitrile	126-98-7					7.8E+00		5.3E+00	3.2E+00	3.2E+00	
				5.0E-05	I				1	0.1		1.4E+09		Methamidophos	10265-92-6					3.9E+00	1.4E+01		3.1E+00	3.1E+00	
				5.0E-01	I	4.0E+00	C		1	0.1		1.4E+09		Methanol	67-56-1					3.9E+04	1.4E+05	5.7E+09	3.1E+04	3.1E+04	
				1.0E-03	I				1	0.1		1.4E+09		Methidathion	950-37-8					7.8E+01	2.8E+02		6.1E+01	6.1E+01	
4.9E-02	C	1.4E-05	C	2.5E-02	I				1	0.1		1.4E+09		Methomyl	16752-77-5					2.0E+03	7.0E+03		1.5E+03	1.5E+03	
				5.0E-03	I				1	0.1		1.4E+09		Methoxy-5-nitroaniline, 2-	99-59-2	1.3E+01	4.1E+01	2.4E+05	9.9E+00	3.9E+02	1.4E+03		3.1E+02	3.1E+02	
									1	0.1		1.4E+09		Methoxychlor	72-43-5					3.9E+02	1.4E+03		3.1E+02	3.1E+02	
				2.0E-03	H	9.0E-02	C		1	0.1		1.4E+09		Methoxyethanol Acetate, 2-	110-49-6					1.6E+02	5.6E+02	1.3E+08	1.2E+02	1.2E+02	
				3.0E-03	P	2.0E-02	I		1	0.1		1.4E+09		Methoxyethanol, 2-	109-86-4					2.3E+02	8.4E+02	2.8E+07	1.8E+02	1.8E+02	
				1.0E+00	H			V	1		2.9E+04	1.4E+09	8.7E+03	Methyl Acetate	79-20-9					7.8E+04			7.8E+04	7.8E+04	
				3.0E-02	H			V	1																

Regional Screening Level (RSL) Resident Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ¹	ke (ug/m ³) ¹	IUR (ug/m ³) ¹	ke (mg/kg-day)	RfD ₀ (mg/m ³)	ke (mg/m ³)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)								
				1.4E+00	7.0E-01	I	V	1	0.1	1.4E+09			Methyl Isocyanate	624-83-9							1.4E+06	1.4E+06	
				2.5E-04	X			1	0.1	1.4E+09			Methyl Methacrylate	80-62-6					1.1E+05		5.0E+03	4.8E+03	
				6.0E-02	I			1	0.1	1.4E+09			Methyl Parathion	298-00-0					2.0E+01	7.0E+01		1.5E+01	
9.9E-02	C	2.8E-05	C	6.0E-03	H	4.0E-02	H	V	1	0.1	3.8E+02	1.4E+09	1.2E+04	Methyl Phosphonic Acid	993-13-5					4.7E+03	1.7E+04		3.7E+03
				1.0E-03	C			1	0.1	1.4E+09			Methyl Styrene (Mixed Isomers)	25013-15-4							5.1E+02	2.5E+02	
				2.4E+03	1.4E+09	6.8E+03							Methyl methanesulfonate	66-27-3	6.5E+00	2.0E+01	1.2E+05	4.9E+00					
1.8E-03	C	2.6E-07	C	3.0E+00	I	V		1	0.1	8.9E+03	1.4E+09	5.3E+03	Methyl tert-Butyl Ether (MTBE)	1634-04-4	3.5E+02		4.9E+01	4.3E+01			1.7E+04	1.7E+04	
3.3E-02	H			1.4E+09				1	0.1	1.4E+09			Methyl-5-Nitroaniline, 2-	99-55-8	1.9E+01	6.1E+01					1.5E+01		
8.3E+00	C	2.4E-03	C	1.4E+09				1	0.1	1.4E+09			Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	7.7E-02	2.4E-01	1.4E+03	5.8E-02					
1.3E-01	C	3.7E-05	C	1.4E+09				1	0.1	1.4E+09			Methylaniline Hydrochloride, 2-	636-21-5	4.9E+00	1.6E+01	8.9E+04	3.7E+00					
2.2E+01	C	6.3E-03	C	1.0E-02	A			1	0.1	1.4E+09			Methylarsonic acid	124-58-3					7.8E+02	2.8E+03		6.1E+02	
				1.4E+09				1	0.1	1.4E+09			Methylcholanthrene, 3-	56-49-5	2.9E-02	9.2E-02	5.3E+02	2.2E-02					
7.5E-03	I	4.7E-07	I	6.0E-02	I	1.0E+00	A	V	1	0.1	3.3E+03	1.4E+09	2.4E+03	Methylene Chloride	75-09-2	8.5E+01		1.2E+01	1.1E+01	4.7E+03		2.6E+03	1.7E+03
1.0E-01	P	4.3E-04	C	2.0E-03	P			M	1	0.1	1.4E+09			Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	1.5E+00	5.1E+00	3.0E+03	1.2E+00	1.6E+02	5.6E+02		1.2E+02
4.6E-02	I	1.3E-05	C	1.4E+09				1	0.1	1.4E+09			Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.4E+01	4.4E+01	2.5E+05	1.1E+01					
1.6E+00	C	4.6E-04	C	2.0E-02	C			1	0.1	1.4E+09			Methylenediphenyl Diisocyanate	101-77-9	4.0E-01	1.3E+00	7.2E+03	3.0E-01			2.8E+07	2.8E+07	
				6.0E-04	I			1	0.1	1.4E+09			Methylstyrene, Alpha-	101-68-8							8.5E+05	8.5E+05	
				7.0E-02	H			V	1	0.1	5.0E+02	1.4E+09	1.4E+04	Metolachlor	51218-45-2					5.5E+03		5.5E+03	
				1.5E-01	I			1	0.1	1.4E+09			Metribuzin	21087-64-9					1.2E+04	4.2E+04		9.2E+03	
				2.5E-02	I			1	0.1	1.4E+09			Midrange Aliphatic Hydrocarbon Streams	NA			7.4E+05	7.4E+05	7.8E+02		1.4E+08	7.8E+02	
				4.5E-06	X	1.0E-01	P	V	1	0.1	1.4E+09			Mineral oils	8012-95-1					2.3E+05	8.4E+05		1.8E+05
1.8E+01	C	5.1E-03	C	3.0E+00	P			1	0.1	1.4E+09			Mirex	2385-85-5	3.5E-02	1.1E-01	6.5E+02	2.7E-02	1.6E+01	5.6E+01		1.2E+01	
				2.0E-03	I			1	0.1	1.4E+09			Molinate	2212-67-1					1.6E+02	5.6E+02		1.2E+02	
				5.0E-03	I			1	0.1	1.4E+09			Molybdenum	7439-98-7					3.9E+02			3.9E+02	
				1.0E-01	I			1	0.1	1.4E+09			Monochloramine	10599-90-3					7.8E+03			7.8E+03	
				2.0E-03	P			1	0.1	1.4E+09			Monomethylaniline	100-61-8					1.6E+02	5.6E+02		1.2E+02	
				3.0E-04	X			1	0.1	1.4E+09			N,N'-Diphenyl-1,4-benzenediamine	74-31-7					2.3E+01	8.4E+01		1.8E+01	
				2.0E-03	I			1	0.1	1.4E+09			Naled	300-76-5					1.6E+02	5.6E+02		1.2E+02	
				3.0E-02	X	1.0E-01	P	V	1	0.1	1.4E+09			Naphtha, High Flash Aromatic (HFAN)	64724-95-6					2.3E+03		1.4E+08	2.3E+03
1.8E+00	C	0.0E+00	C	1.0E-01	I			1	0.1	1.4E+09			Naphthylamine, 2-	91-59-8	3.5E-01	1.1E+00		2.7E-01				6.1E+03	
				5.0E-02	C	5.0E-05	C		0.04	1.4E+09			Napropamide	15299-99-7					7.8E+03	2.8E+04		3.7E+03	
				1.4E+09				0.04	1.4E+09			Nickel Carbonyl	13463-39-3					3.9E+03		7.1E+04		3.8E+03	
				5.0E-02	C	1.0E-04	C		1	1.4E+09			Nickel Oxide	1313-99-1					3.9E+03		1.4E+05	3.8E+03	
				5.0E-02	C	5.0E-05	C		0.04	1.4E+09			Nickel Refinery Dust	NA			1.4E+04	1.4E+04			7.1E+04	3.7E+03	
				2.6E-04	C	2.0E-02	I	9.0E-05	A	0.04	1.4E+09			Nickel Soluble Salts	7440-02-0			1.3E+04	1.3E+04		1.3E+05	1.5E+03	
1.7E+00	C	4.8E-04	I	5.0E-02	C	5.0E-05	C		0.04	1.4E+09			Nickel Subulfide	12035-72-2	3.8E-01		6.9E+03	3.8E-01	3.9E+03		7.1E+04	3.7E+03	
				1.6E+00	I			1	0.1	1.4E+09			Nitrate	14797-55-8					1.3E+05			1.3E+05	
				1.0E-01	I			1	0.1	1.4E+09			Nitrite	14797-65-0					7.8E+03			7.8E+03	
2.0E-02	P			1.0E-02	X	5.0E-05	X		1	0.1	1.4E+09			Nitroaniline, 2-	88-74-4	3.2E+01	1.0E+02		2.4E+01	7.8E+02	2.8E+03	7.1E+04	6.1E+02
				4.0E-03	P	6.0E-03	P		1	0.1	1.4E+09			Nitroaniline, 4-	100-01-6				3.1E+02	1.1E+03	8.5E+06	2.4E+02	
				2.0E-03	I	9.0E-03	I	V	1	0.1	3.1E+03	1.4E+09	7.9E+04	Nitrobenzene	98-95-3			4.8E+00	4.8E+00	1.6E+02	7.4E+02		1.3E+02
				3.0E+03	P			1	0.1	1.4E+09			Nitrocellulose	9004-70-0					2.3E+08	8.4E+08		1.8E+08	
1.3E+00	C	3.7E-04	C	7.0E-02	H			1	0.1	1.4E+09			Nitrofurantoin	67-20-9					5.5E+03	2.0E+04		4.3E+03	
				1.0E-04	P			1	0.1	1.4E+09			Nitrofurazone	59-87-0	4.9E-01	1.6E+00	8.9E+03	3.7E-01					
1.7E-02	P			1.0E-01	I			1	0.1	1.4E+09			Nitroglycerin	55-63-0	3.8E+01	1.2E+02		2.9E+01	7.8E+00	2.8E+01		6.1E+00	
				2.0E-02	P	V		1	0.1	1.8E+04	1.4E+09	1.8E+04	Nitroguanidine	556-88-7					7.8E+03	2.8E+04		6.1E+03	
				1.8E+04	1.4E+09	1.8E+04							Nitromethane	75-52-5			4.9E+00	4.9E+00			3.8E+02	3.8E+02	
2.7E+01	C	7.7E-03	C	2.0E-02	I	V		1	0.1	4.9E+03	1.4E+09	1.4E+04	Nitropropane, 2-	79-46-9				1.3E-02	1.3E-02			2.9E+02	2.9E+02
1.2E+02	C	3.4E-02	C	1.4E+09				1	0.1	1.4E+09			Nitroso-N-ethylurea, N-	759-73-9	2.4E-02	7.5E-02	4.3E+02	1.8E-02					
				7.1E+03	1.4E+09	2.1E+05							Nitroso-N-methylurea, N-	684-93-5	5.3E-03	1.7E-02	9.7E+01	4.0E-03					
5.4E+00	I	1.6E-03	I	1.4E+09				V	1	0.1	7.1E+03	1.4E+09	2.1E+05	Nitroso-di-N-butylamine, N-	924-16-3	1.2E-01		3.2E-01	8.7E-02			8.7E-02	
7.0E+00	I	2.0E-03	C	1.4E+09				1	0.1	1.4E+09			Nitroso-di-N-propylamine, N-	621-64-7	9.1E-02	2.9E-01	1.7E+03	6.9E-02					
2.8E+00	I	8.0E-04	C	1.4E+09				1	0.1	1.4E+09			Nitrosodiethanolamine, N-	1116-54-7	2.3E-01	7.2E-01	4.1E+03	1.7E-01					
1.5E+02	I	4.3E-02	I	1.4E+09				M	1	0.1	1.4E+09			Nitrosodiethylamine, N-	55-18-5	9.9E-04	3.4E-03	3.0E+01	7.7E-04				
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X	M	1	0.1	1.4E+09			Nitrosodimethylamine, N-	62-75-9	2.9E-03	9.9E-03	9.3E+01	2.3E-03	6.3E-01	2.2E+00	5.7E+04	4.9E-01
4.9E-03	I	2.6E-06	C	1.4E+09				1	0.1	1.4E+09			Nitrosodiphenylamine, N-	86-30-6	1.3E+02	4.1E+02	1.3E+06	9.9E+01					
2.2E+01	I	6.3E-03	C	1.4E+09				1	0.1	1.4													

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Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
2.1E+00	I	6.1E-04	I						1	0.1		1.4E+09		Nitrosopyrrolidine, N-	930-55-2	3.0E-01	9.6E-01	5.4E+03	2.3E-01				
2.2E-01	P			1.0E-04 9.0E-04	X P				1	0.1	1.5E+03	1.4E+09	1.5E+05	Nitrotoluene, m- Nitrotoluene, o-	99-08-1 88-72-2	2.9E+00			2.9E+00	7.8E+00 7.0E+01	2.8E+01		6.1E+00 7.0E+01
1.6E-02	P			4.0E-03 3.0E-04 4.0E-02	P X I	2.0E-01	P	V	1	0.1	6.9E+00	1.4E+09	1.1E+03	Nitrotoluene, p- Nonane, n- Norflurazon	99-99-0 111-84-2 27314-13-2	4.0E+01	1.3E+02		3.0E+01	3.1E+02 2.3E+01	1.1E+03	2.3E+02	2.4E+02 2.1E+01
				7.0E-04 3.0E-03 5.0E-02	I I I				1	0.1		1.4E+09		Nustar Octabromodiphenyl Ether Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	85509-19-9 32536-52-0 2691-41-0				5.5E+01 2.3E+02 3.9E+03	2.0E+02 8.4E+02 2.3E+05		4.3E+01 1.8E+02 3.8E+03	
				2.0E-03 5.0E-02 5.0E-03	H I I				1	0.1		1.4E+09		Octamethylpyrophosphoramide Oryzalin Oxadiazon	152-16-9 19044-88-3 19666-30-9				1.6E+02 3.9E+03 3.9E+02	5.6E+02 1.4E+04 1.4E+03		1.2E+02 3.1E+03 3.1E+02	
				2.5E-02 1.3E-02 4.5E-03	I I I				1	0.1		1.4E+09		Oxamyl Paclobutrazol Paraquat Dichloride	23135-22-0 76738-62-0 1910-42-5				2.0E+03 1.0E+03 3.5E+02	7.0E+03 3.6E+03 1.3E+03		1.5E+03 7.9E+02 2.7E+02	
				6.0E-03 5.0E-02 4.0E-02	H H I				1	0.1		1.4E+09		Parathion Pebulate Pendimethalin	56-38-2 1114-71-2 40487-42-1				4.7E+02 3.9E+03 3.1E+03	1.7E+03 1.4E+04 1.1E+04		3.7E+02 3.1E+03 2.4E+03	
				2.0E-03 1.0E-04 8.0E-04	I I I				1	0.1		1.4E+09		Pentabromodiphenyl Ether Pentabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-99) Pentachlorobenzene	32534-81-9 60348-60-9 608-93-5				1.6E+02 7.8E+00 6.3E+01	5.6E+02 2.8E+01 2.2E+02		1.2E+02 6.1E+00 4.9E+01	
9.0E-02	P					1.0E+00	P	V	1	0.1	3.9E+02	1.4E+09	8.4E+02	Pentachloroethane Pentachloronitrobenzene Pentachlorophenol	76-01-7 82-68-8 87-86-5	7.1E+00 2.5E+00 1.6E+00	2.2E+01 7.8E+00 2.0E+00	5.4E+00 1.9E+00 8.9E-01	3.9E+02 2.3E+02 5.6E+02	8.7E+02		8.7E+02 2.3E+02	
2.2E-03	C	6.3E-07	C	7.0E-04 5.0E-02	I I				1	0.1		1.4E+09		Pentane, n- Perchlorate and Perchlorate Salts Permethrin	109-66-0 14797-73-0 52645-53-1				5.5E+01 3.9E+03	1.4E+04		8.7E+02 5.5E+01 3.1E+03	
				2.5E-01 3.0E-01	I I	2.0E-01	C		1	0.1		1.4E+09		Phenacetin Phenmedipham Phenol	62-44-2 13684-63-4 108-95-2	2.9E+02 9.2E+02 5.3E+06		2.2E+02	2.0E+04 2.3E+04	7.0E+04 8.4E+04	2.8E+08	1.5E+04 1.8E+04	
4.7E-02	H			6.0E-03 1.9E-01	I H				1	0.1		1.4E+09		Phenylenediamine, m- Phenylenediamine, o- Phenylenediamine, p-	108-45-2 95-54-5 106-50-3	1.4E+01 4.3E+01		1.0E+01	4.7E+02 1.5E+04	1.7E+03 5.3E+04		3.7E+02 1.2E+04	
1.9E-03	H			2.0E-04 3.0E-04	H I				1	0.1	1.6E+03	1.4E+09	1.1E+03	Phenylphenol, 2- Phorate Phosgene	90-43-7 298-02-2 75-44-5	3.3E+02 1.0E+03		2.5E+02	1.6E+01 5.6E+01		3.3E-01	1.2E+01 3.3E-01	
				2.0E-02 3.0E-04	I I	3.0E-04	I		1	0.1		1.4E+09		Phosmet Phosphine Phosphoric Acid	732-11-6 7803-51-2 7664-38-2				1.6E+03 2.3E+01	5.6E+03	4.3E+05 1.4E+07	1.2E+03 2.3E+01 1.4E+07	
				2.0E-05 1.0E+00 2.0E+00	I H I	2.0E-02	C		1	0.1		1.4E+09		Phosphorus, White Phthalic Acid, P- Phthalic Anhydride	7723-14-0 100-21-0 85-44-9				1.6E+00 7.8E+04 1.6E+05	2.8E+05 5.6E+05	2.8E+07	1.6E+00 6.1E+04 1.2E+05	
				7.0E-02 1.0E-04 1.0E-02	I X I				1	0.1		1.4E+09		Picloram Picramic Acid (2-Amino-4,6-dinitrophenol) Pirimiphos, Methyl	1918-02-1 96-91-3 29232-93-7				5.5E+03 7.8E+00 7.8E+02	2.0E+04 2.8E+01 2.8E+03		4.3E+03 6.1E+00 6.1E+02	
3.0E+01	C	8.6E-03	C	7.0E-06	H				1	0.1		1.4E+09		Polybrominated Biphenyls Polychlorinated Biphenyls (PCBs) ~Aroclor 1016	59536-65-1 12674-11-2	2.1E-02 9.1E+00	6.7E-02 2.1E+01	3.8E+02 1.7E+05	1.6E-02 6.3E+00	5.5E-01 5.5E+00	2.0E+00 1.4E+01		4.3E-01 3.9E+00
2.0E+00	S	5.7E-04	S						1	0.14	7.6E+02	1.4E+09	9.2E+04	~Aroclor 1221	11104-28-2	3.2E-01	7.2E-01	3.9E-01	1.4E-01				
2.0E+00	S	5.7E-04	S						1	0.14	7.3E+01	1.4E+09	9.2E+04	~Aroclor 1232	11141-16-5	3.2E-01	7.2E-01	3.9E-01	1.4E-01				
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1242	53469-21-9	3.2E-01	7.2E-01	5.8E+03	2.2E-01				
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1248	12672-29-6	3.2E-01	7.2E-01	5.8E+03	2.2E-01				
2.0E+00	S	5.7E-04	S	2.0E-05	I				1	0.14		1.4E+09		~Aroclor 1254	11097-69-1	3.2E-01	7.2E-01	5.8E+03	2.2E-01	1.6E+00	4.0E+00		1.1E+00
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1260	11096-82-5	3.2E-01	7.2E-01	5.8E+03	2.2E-01				
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 156)	38380-08-4	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00
3.9E+03	E	1.1E+00	E	3.3E-08	E	1.3E-06	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	1.6E-04	3.7E-04	2.9E+00	1.1E-04	2.6E-03	6.7E-03	1.9E+03	1.9E-03
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Pentachlorobiphenyl, 2',3,4,4',5'- (PCB 123)	65510-44-3	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	v o l u t i l e	m u t a g e n	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)			
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			1	0.14	1.4E+09			~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00			
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			1	0.14	1.4E+09			~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00			
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			1	0.14	1.4E+09			~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	1.6E-01	3.7E-01	2.9E+03	1.1E-01	2.6E+00	6.7E+00	1.9E+06	1.9E+00			
1.3E+04	E	3.8E+00	E	1.0E-08	E	4.0E-07	E			1	0.14	1.4E+09			~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	4.9E-05	1.1E-04	8.7E-01	3.4E-05	7.8E-04	2.0E-03	5.7E+02	5.6E-04			
2.0E+00	I	5.7E-04	I							1	0.14	1.4E+09			~Polychlorinated Biphenyls (high risk)	1336-36-3	3.2E-01	7.2E-01	5.8E+03	2.2E-01							
4.0E-01	I	1.0E-04	I							1	0.14	1.4E+09			~Polychlorinated Biphenyls (low risk)	1336-36-3											
7.0E-02	I	2.0E-05	I							1	0.14	1.4E+09			~Polychlorinated Biphenyls (lowest risk)	1336-36-3											
1.3E+01	E	3.8E-03	E	1.0E-05	E	4.0E-04	E			1	0.14	1.4E+09			~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	4.9E-02	1.1E-01	8.7E+02	3.4E-02	7.8E-01	2.0E+00	5.7E+05	5.6E-01			
3.9E+01	E	1.1E-02	E	3.3E-06	E	1.3E-04	E			1	0.14	1.4E+09			~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	1.6E-02	3.7E-02	2.9E+02	1.1E-02	2.6E-01	6.7E-01	1.9E+05	1.9E-01			
				6.0E-04	I					1	0.1	1.4E+09			Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9							8.5E+05	8.5E+05			
				6.0E-02	I			V		1	0.13	1.4E+09	1.5E+05		Polynuclear Aromatic Hydrocarbons (PAHs)							4.7E+03	1.3E+04	3.4E+03			
				3.0E-01	I			V		1	0.13	1.4E+09	5.6E+05		~Acenaphthene	83-32-9					2.3E+04	6.4E+04		1.7E+04			
7.3E-01	E	1.1E-04	C						M	1	0.13	1.4E+09			~Anthracene	120-12-7	2.0E-01	5.3E-01	1.2E+04	1.5E-01							
1.2E+00	C	1.1E-04	C						M	1	0.13	1.4E+09			~Benz[a]anthracene	56-55-3	5.3E-01	1.3E+00	3.0E+04	3.8E-01							
									M	1	0.13	1.4E+09			~Benzo[j]fluoranthene	205-82-3											
7.3E+00	I	1.1E-03	C						M	1	0.13	1.4E+09			~Benzo[a]pyrene	50-32-8	2.0E-02	5.3E-02	1.2E+03	1.5E-02							
7.3E-01	E	1.1E-04	C						M	1	0.13	1.4E+09			~Benzo[b]fluoranthene	205-99-2	2.0E-01	5.3E-01	1.2E+04	1.5E-01							
7.3E-02	E	1.1E-04	C						M	1	0.13	1.4E+09			~Benzo[k]fluoranthene	207-08-9	2.0E+00	5.3E+00	1.2E+04	1.5E+00							
7.3E-03	E	1.1E-05	C						M	1	0.13	1.4E+09			~Chrysene	218-01-9	2.0E+01	5.3E+01	1.2E+05	1.5E+01							
7.3E+00	E	1.2E-03	C						M	1	0.13	1.4E+09			~Dibenz[a,h]anthracene	53-70-3	2.0E-02	5.3E-02	1.1E+03	1.5E-02							
1.2E+01	C	1.1E-03	C						M	1	0.13	1.4E+09			~Dibenzo[a,e]pyrene	192-65-4	5.3E-02	1.3E-01	3.0E+03	3.8E-02							
2.5E+02	C	7.1E-02	C							1	0.13	1.4E+09			~Dimethylbenz(a)anthracene, 7,12-	57-97-6	2.6E-03	6.2E-03	4.7E+01	1.8E-03							
				4.0E-02	I					1	0.13	1.4E+09			~Fluoranthene	206-44-0					3.1E+03	8.6E+03		2.3E+03			
				4.0E-02	I			V		1	0.13	1.4E+09	3.0E+05		~Fluorene	86-73-7					3.1E+03	8.6E+03		2.3E+03			
7.3E-01	E	1.1E-04	C						M	1	0.13	1.4E+09			~Indeno[1,2,3-cd]pyrene	193-39-5	2.0E-01	5.3E-01	1.2E+04	1.5E-01							
2.9E-02	P			7.0E-02	A			V		1		3.9E+02	1.4E+09	6.3E+04	~Methylnaphthalene, 1-	90-12-0	2.2E+01			2.2E+01	5.5E+03			5.5E+03			
				4.0E-03	I			V		1		3.7E+02	1.4E+09	6.2E+04	~Methylnaphthalene, 2-	91-57-6					3.1E+02			3.1E+02			
1.2E+00	C	3.4E-05	C	2.0E-02	I	3.0E-03	I	V		1	0.13	1.4E+09	5.0E+04		~Naphthalene	91-20-3	5.3E-01	1.3E+00	3.6E+00	3.6E+00	1.6E+03	4.3E+03	1.6E+02	1.4E+02			
				3.0E-02	I			V		1	0.13	1.4E+09	2.6E+06		~Nitropyrene, 4-	57835-92-4			3.0E+04	3.8E-01							
										1	0.13	1.4E+09	2.6E+06		~Pyrene	129-00-0					2.3E+03	6.4E+03		1.7E+03			
1.5E-01	I			7.0E-04	I					1		1.4E+09			Potassium Perchlorate	7778-74-7					5.5E+01			5.5E+01			
				9.0E-03	I					1	0.1	1.4E+09			Prochloraz	67747-09-5	4.3E+00	1.3E+01		3.2E+00	7.0E+02	2.5E+03		5.5E+02			
				6.0E-03	H					1	0.1	1.4E+09			Profuralin	26399-36-0					4.7E+02	1.7E+03		3.7E+02			
				1.5E-02	I					1	0.1	1.4E+09			Prometon	1610-18-0					1.2E+03	4.2E+03		9.2E+02			
				4.0E-03	I					1	0.1	1.4E+09			Prometryn	7287-19-6					3.1E+02	1.1E+03		2.4E+02			
				1.3E-02	I					1	0.1	1.4E+09			Propachlor	1918-16-7					1.0E+03	3.6E+03		7.9E+02			
				5.0E-03	I					1	0.1	1.4E+09			Propanil	709-98-8					3.9E+02	1.4E+03		3.1E+02			
				2.0E-02	I					1	0.1	1.4E+09			Propargite	2312-35-8					1.6E+03	5.6E+03		1.2E+03			
				2.0E-03	I					1	0.1	1.4E+09			Propargyl Alcohol	107-19-7					1.6E+02	5.6E+02		1.2E+02			
				2.0E-02	I					1	0.1	1.4E+09			Propazine	139-40-2					1.6E+03	5.6E+03		1.2E+03			
				2.0E-02	I					1	0.1	1.4E+09			Propham	122-42-9					1.6E+03	5.6E+03		1.2E+03			
				1.3E-02	I					1	0.1	1.4E+09			Propiconazole	60207-90-1					1.0E+03	3.6E+03		7.9E+02			
				8.0E-03	I	V				1		3.3E+04	1.4E+09	9.6E+03	Propionaldehyde	123-38-6							8.0E+01	8.0E+01			
				1.0E-01	X	1.0E+00	X	V		1	0.1	2.6E+02	1.4E+09	7.5E+03	Propyl benzene	103-65-1					7.8E+03	2.8E+04	7.9E+03	3.4E+03			
				3.0E+00	C					1	0.1	1.4E+09			Propylene	115-07-1							4.3E+09	4.3E+09			
				2.0E+01	P					1	0.1	1.4E+09			Propylene Glycol	57-55-6					1.6E+06	5.6E+06		1.2E+06			
				2.7E-04	A	V				1		1.5E+03	1.4E+09	2.0E+05	Propylene Glycol Dinitrate	6423-43-4							5.7E+01	5.7E+01			
				7.0E-01	H					1	0.1	1.4E+09			Propylene Glycol Monoethyl Ether	1569-02-4					5.5E+04	2.0E+05		4.3E+04			
2.4E-01	I	3.7E-06	I	7.0E-01	H	2.0E+00	I	V		1	0.1	1.4E+09			Propylene Glycol Monomethyl Ether	107-98-2					5.5E+04	2.0E+05	2.8E+09	4.3E+04			
				3.0E-02	I	V				1		7.8E+04	1.4E+09	1.0E+04	Propylene Oxide	75-56-9	2.7E+00		6.7E+00	1.9E+00			3.2E+02	3.2E+02			
				2.5E-01	I					1	0.1	1.4E+09			Pursuit	81335-77-5					2.0E+04	7.0E+04		1.5E+04			
				2.5E-02	I					1	0.1	1.4E+09			Pydrin	51630-58-1					2.0E+03	7.0E+03		1.5E+03			
				1.0E-03	I			V		1		5.3E+05	1.4E+09	6.0E+04	Pyridine	110-86-1					7.8E+01			7.8E+01			
				5.0E-04	I					1	0.1	1.4E+09			Quinalphos	13593-03-8					3.9E+01	1.4E+02		3.1E+01			
3.0E+00	I									1																	

Regional Screening Level (RSL) Resident Soil Table November 2010

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1							
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
				2.5E-02	I				1	0.1		1.4E+09		Savay	78587-05-0					2.0E+03	7.0E+03		1.5E+03
				5.0E-03	I				1		1.4E+09			Selenious Acid	7783-00-8					3.9E+02			3.9E+02
				5.0E-03	I	2.0E-02	C		1		1.4E+09			Selenium	7782-49-2					3.9E+02		2.8E+07	3.9E+02
				5.0E-03	C	2.0E-02	C		1		1.4E+09			Selenium Sulfide	7446-34-6					3.9E+02		2.8E+07	3.9E+02
				9.0E-02	I				1	0.1	1.4E+09			Sethoxydim	74051-80-2					7.0E+03	2.5E+04		5.5E+03
						3.0E-03	C		1		1.4E+09			Silica (crystalline, respirable)	7631-86-9							4.3E+06	4.3E+06
1.2E-01	H			5.0E-03	I				0.04		1.4E+09			Silver	7440-22-4					3.9E+02			3.9E+02
				5.0E-03	I				1	0.1	1.4E+09			Simazine	122-34-9	5.3E+00	1.7E+01		4.0E+00	3.9E+02	1.4E+03		3.1E+02
				1.3E-02	I				1	0.1	1.4E+09			Sodium Acifluorfen	62476-59-9					1.0E+03	3.6E+03		7.9E+02
				4.0E-03	I				1		1.4E+09			Sodium Azide	26628-22-8					3.1E+02			3.1E+02
2.7E-01	H			3.0E-02	I				1	0.1	1.4E+09			Sodium Diethyldithiocarbamate	148-18-5	2.4E+00	7.5E+00		1.8E+00	2.3E+03	8.4E+03		1.8E+03
				5.0E-02	A	1.3E-02	C		1		1.4E+09			Sodium Fluoride	7681-49-4					3.9E+03		1.8E+07	3.9E+03
				2.0E-05	I				1	0.1	1.4E+09			Sodium Fluoroacetate	62-74-8					1.6E+00	5.6E+00		1.2E+00
				1.0E-03	H				1		1.4E+09			Sodium Metavanadate	13718-26-8					7.8E+01			7.8E+01
				7.0E-04	I				1		1.4E+09			Sodium Perchlorate	7601-89-0					5.5E+01			5.5E+01
2.4E-02	H			3.0E-02	I				1	0.1	1.4E+09			Stirofos (Tetrachlorovinphos)	961-11-5	2.7E+01	8.4E+01	2.0E+01		2.3E+03	8.4E+03		1.8E+03
				6.0E-01	I				1		1.4E+09			Strontium, Stable	7440-24-6					4.7E+04			4.7E+04
				3.0E-04	I				1	0.1	1.4E+09			Strychnine	57-24-9					2.3E+01	8.4E+01		1.8E+01
				2.0E-01	I	1.0E+00	I	V	1		8.7E+02	1.4E+09	1.0E+04	Styrene	100-42-5					1.6E+04		1.0E+04	6.3E+03
				8.0E-04	P				1	0.1	1.4E+09			Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9					6.3E+01	2.2E+02		4.9E+01
						1.0E-03	C		1		1.4E+09			Sulfuric Acid	7664-93-9							1.4E+06	1.4E+06
				2.5E-02	I				1	0.1	1.4E+09			Systhane	88671-89-0					2.0E+03	7.0E+03		1.5E+03
				3.0E-02	H				1	0.1	1.4E+09			TCMTB	21564-17-0					2.3E+03	8.4E+03		1.8E+03
				7.0E-02	I				1	0.1	1.4E+09			Tebuthiuron	34014-18-1					5.5E+03	2.0E+04		4.3E+03
				2.0E-02	H				1	0.1	1.4E+09			Temephos	3383-96-8					1.6E+03	5.6E+03		1.2E+03
				1.3E-02	I				1	0.1	1.4E+09			Terbacil	5902-51-2					1.0E+03	3.6E+03		7.9E+02
				2.5E-05	H				1	0.1	1.4E+09			Terbufos	13071-79-9					2.0E+00	7.0E+00		1.5E+00
				1.0E-03	I				1	0.1	1.4E+09			Terbutryn	886-50-0					7.8E+01	2.8E+02		6.1E+01
				1.0E-04	I				1	0.1	1.4E+09			Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1					7.8E+00	2.8E+01		6.1E+00
				3.0E-04	I				1	0.1	1.4E+09			Tetrachlorobenzene, 1,2,4,5-	95-94-3					2.3E+01	8.4E+01		1.8E+01
2.6E-02	I	7.4E-06	I	3.0E-02	I			V	1		6.8E+02	1.4E+09	6.1E+03	Tetrachloroethane, 1,1,1,2-	630-20-6	2.5E+01		2.0E+00	1.9E+00	2.3E+03			2.3E+03
2.0E-01	I	5.8E-05	C	2.0E-02	I			V	1		1.9E+03	1.4E+09	1.6E+04	Tetrachloroethane, 1,1,2,2-	79-34-5	3.2E+00		6.8E-01	5.6E-01	1.6E+03			1.6E+03
5.4E-01	C	5.9E-06	C	1.0E-02	I	2.7E-01	A	V	1		1.7E+02	1.4E+09	2.5E+03	Tetrachloroethylene	127-18-4	1.2E+00		1.0E+00	5.5E-01	7.8E+02		7.2E+02	3.7E+02
				3.0E-02	I				1	0.1	1.4E+09			Tetrachlorophenol, 2,3,4,6-	58-90-2					2.3E+03	8.4E+03		1.8E+03
									1	0.1	1.4E+09			Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	3.2E-02	1.0E-01		2.4E-02	3.9E+01	1.4E+02		3.1E+01
				5.0E-04	I				1	0.1	1.4E+09			Tetraethyl Dithiopyrophosphate	3689-24-5								
						8.0E+01	I	V	1		1.1E+03	1.4E+09	1.3E+03	Tetrafluoroethane, 1,1,1,2-	811-97-2							1.1E+05	1.1E+05
				4.0E-03	P				1	0.1	1.4E+09			Tetryl (Trinitrophenylmethylnitramine)	479-45-8					3.1E+02	1.1E+03		2.4E+02
									1		1.4E+09			Thallium (Soluble Salts)	7440-28-0								
				1.0E-02	I				1	0.1	1.4E+09			Thiobencarb	28249-77-6					7.8E+02	2.8E+03		6.1E+02
				7.0E-02	X				1	0.008	1.4E+09			Thiodiglycol	111-48-8					5.5E+03	2.6E+05		5.4E+03
				3.0E-04	H				1	0.1	1.4E+09			Thiofanox	39196-18-4					2.3E+01	8.4E+01		1.8E+01
				8.0E-02	I				1	0.1	1.4E+09			Thiophanate, Methyl	23564-05-8					6.3E+03	2.2E+04		4.9E+03
				5.0E-03	I				1	0.1	1.4E+09			Thiram	137-26-8					3.9E+02	1.4E+03		3.1E+02
				6.0E-01	H				1		1.4E+09			Tin	7440-31-5					4.7E+04			4.7E+04
						1.0E-04	A		1		1.4E+09			Titanium Tetrachloride	7550-45-0							1.4E+05	1.4E+05
1.9E-01	H			8.0E-02	I	5.0E+00	I	V	1		8.2E+02	1.4E+09	4.6E+03	Toluene	108-88-3					6.3E+03		2.4E+04	5.0E+03
									1	0.1	1.4E+09			Toluidine, p-	106-49-0	3.4E+00	1.1E+01		2.6E+00				
1.1E+00	I	3.2E-04	I						1	0.1	1.4E+09			Toxaphene	8001-35-2	5.8E-01	1.8E+00	1.0E+04	4.4E-01				
				7.5E-03	I				1	0.1	1.4E+09			Tralomethrin	66841-25-6					5.9E+02	2.1E+03		4.6E+02
				3.0E-04	A				1	0.1	1.4E+09			Tri-n-butyltin	688-73-3					2.3E+01	8.4E+01		1.8E+01
				1.3E-02	I				1	0.1	1.4E+09			Triallate	2303-17-5					1.0E+03	3.6E+03		7.9E+02
				1.0E-02	I				1	0.1	1.4E+09			Triasulfuron	82097-50-5					7.8E+02	2.8E+03		6.1E+02
				5.0E-03	I				1	0.1	1.4E+09			Tribromobenzene, 1,2,4-	615-54-3					3.9E+02	1.4E+03		3.1E+02
9.2E-03	P			2.0E-01	P				1	0.1	1.4E+09			Tributyl Phosphate	126-73-8	6.9E+01	2.2E+02		5.3E+01	1.6E+04	5.6E+04		1.2E+04
				3.0E-04	P				1	0.1	1.4E+09			Tributyltin Compounds	NA					2.3E+01	8.4E+01		1.8E+01
				3.0E-04	I				1	0.1	1.4E+09			Tributyltin Oxide	56-35-9					2.3E+01	8.4E+01		1.8E+01
				3.0E+01	I	3.0E+01	H	V	1		9.1E+02	1.4E+09	1.4E+03	Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1					2.3E+06		4.3E+04	4.3E+04
									1	0.1	1.4E+09			Trichloroacetic Acid	76-03-9								
2.9E-02	H								1	0.1	1.4E+09			Trichloroaniline HCl, 2,4,6-									

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1									
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)		
3.4E-02	H			8.0E-04	X	2.0E-03	V		1	0.1	1.4E+09			Trichloroaniline, 2,4,6-	634-93-5	1.9E+01	6.0E+01		1.4E+01						
2.9E-02	P			1.0E-02	I	2.0E-03	P	V	1		1.5E+02	1.4E+09	3.5E+04	Trichlorobenzene, 1,2,3-	87-61-6				2.2E+01	6.3E+01	2.2E+02			4.9E+01	
				2.0E+00	I	5.0E+00	V		1		4.0E+02	1.4E+09	3.2E+04	Trichlorobenzene, 1,2,4-	120-82-1	2.2E+01			2.2E+01	7.8E+02	6.7E+01			6.2E+01	
5.7E-02	I	1.6E-05	I	4.0E-03	I		V		1		6.4E+02	1.4E+09	1.8E+03	Trichloroethane, 1,1,1-	71-55-6					1.6E+05		9.3E+03		8.7E+03	
5.9E-03	C	2.0E-06	C				V		1		2.2E+03	1.4E+09	7.8E+03	Trichloroethane, 1,1,2-	79-00-5	1.1E+01		1.2E+00	1.1E+00	3.1E+02				3.1E+02	
				3.0E-01	I	7.0E-01	H	V	1		6.9E+02	1.4E+09	2.4E+03	Trichloroethylene	79-01-6	1.1E+02		2.9E+00	2.8E+00						
1.1E-02	I	3.1E-06	I	1.0E-01	I	1.0E-03	P		1	0.1	1.2E+03	1.4E+09	1.1E+03	Trichlorofluoromethane	75-69-4					2.3E+04		8.1E+02		7.9E+02	
				1.0E-01	I				1	0.1	1.4E+09			Trichlorophenol, 2,4,5-	95-95-4					7.8E+03	2.8E+04			6.1E+03	
				1.0E-02	I				1	0.1	1.4E+09			Trichlorophenol, 2,4,6-	88-06-2	5.8E+01	1.8E+02	1.1E+06	4.4E+01	7.8E+01	2.8E+02			6.1E+01	
				8.0E-03	I				1	0.1	1.4E+09			Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5					7.8E+02	2.8E+03			6.1E+02	
				5.0E-03	I		V		1		1.3E+03	1.4E+09	1.6E+04	Trichlorophenoxypropionic acid, -2,4,5	93-72-1					6.3E+02	2.2E+03			4.9E+02	
				3.0E+01	I	4.0E-03	I	3.0E-04	I	V	M	1	1.4E+03	1.4E+09	1.7E+04	Trichloropropane, 1,2,3-	96-18-4	5.0E-03		5.0E-03	3.1E+02		5.3E+00		5.2E+00
				3.0E-03	X	3.0E-04	P	V	1		4.5E+02	1.4E+09	2.5E+03	Trichloropropene, 1,2,3-	96-19-5					2.3E+02		7.9E-01		7.8E-01	
				3.0E-03	I				1	0.1	1.4E+09			Tridiphane	58138-08-2					2.3E+02	8.4E+02			1.8E+02	
7.7E-03	I			7.0E-03	I	7.0E-03	I	V	1		2.8E+04	1.4E+09	1.7E+04	Triethylamine	121-44-8							1.2E+02		1.2E+02	
3.7E-02	H			7.5E-03	I				1	0.1	1.4E+09			Trifluralin	1582-09-8	8.3E+01	2.6E+02		6.3E+01	5.9E+02	2.1E+03			4.6E+02	
									1	0.1	1.4E+09			Trimethyl Phosphate	512-56-1	1.7E+01	5.5E+01		1.3E+01						
				1.0E-02	X		V		1		2.2E+02	1.4E+09	8.5E+03	Trimethylbenzene, 1,2,4-	95-63-6					7.8E+02		6.2E+01		6.2E+01	
				3.0E-02	I				1	0.019	1.8E+02	1.4E+09	7.1E+03	Trimethylbenzene, 1,3,5-	108-67-8					2.3E+03	4.4E+04			7.8E+02	
3.0E-02	I			5.0E-04	I				1	0.032	1.4E+09			Trinitrotoluene, 2,4,6-	118-96-7	2.1E+01	2.1E+02		1.9E+01	3.9E+01	4.4E+02			3.6E+01	
				2.0E-02	P				1	0.1	1.4E+09			Triphenylphosphine Oxide	791-28-6					1.6E+03	5.6E+03			1.2E+03	
				2.0E-02	A				1	0.1	1.4E+09			Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8					1.6E+03	5.6E+03			1.2E+03	
2.0E-02	P			7.0E-03	P				1	0.1	1.4E+09			Tris(2-chloroethyl)phosphate	115-96-8	3.2E+01	1.0E+02		2.4E+01	5.5E+02	2.0E+03			4.3E+02	
3.2E-03	P			1.0E-01	P				1	0.1	1.4E+09			Tris(2-ethylhexyl)phosphate	78-42-2	2.0E+02	6.3E+02		1.5E+02	7.8E+03	2.8E+04			6.1E+03	
				3.0E-03	I	3.0E-04	A		1		1.4E+09			Uranium (Soluble Salts)	NA					2.3E+02		4.3E+05		2.3E+02	
1.0E+00	C	2.9E-04	C	9.0E-03	I	7.0E-06	P		1	0.1	1.4E+09			Urethane	51-79-6	6.4E-01	2.0E+00	1.1E+04	4.9E-01						
		8.3E-03	P	2.0E-02	H				0.026		1.4E+09			Vanadium Pentoxide	1314-62-1			4.0E+02	4.0E+02	7.0E+02		9.9E+03		6.6E+02	
				5.0E-03	S				1		1.4E+09			Vanadium Sulfate	36907-42-3					1.6E+03				1.6E+03	
				7.0E-05	P	1.0E-04	A		0.026		1.4E+09			Vanadium and Compounds	NA					3.9E+02		1.4E+05		3.9E+02	
				1.0E-03	I				1	0.1	1.4E+09			Vanadium, Metallic	7440-62-2					5.5E+00				5.5E+00	
				2.5E-02	I				1	0.1	1.4E+09			Vernolate	1929-77-7					7.8E+01	2.8E+02			6.1E+01	
				1.0E+00	H	2.0E-01	I	V	1		2.8E+03	1.4E+09	4.7E+03	Vinclozolin	50471-44-8					2.0E+03	7.0E+03			1.5E+03	
				3.2E-05	H	3.0E-03	I	V	1		3.4E+03	1.4E+09	1.5E+03	Vinyl Acetate	108-05-4					7.8E+04		9.9E+02		9.7E+02	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	1	3.9E+03	1.4E+09	1.0E+03	Vinyl Bromide	593-60-2			1.1E-01	1.1E-01		4.6E+00			4.6E+00	
				3.0E-04	I				1	0.1	1.4E+09			Vinyl Chloride	75-01-4	9.3E-02		1.7E-01	6.0E-02	2.3E+02		1.1E+02		7.4E+01	
				2.0E-01	I	1.0E-01	I	V	1		2.6E+02	1.4E+09	6.3E+03	Warfarin	81-81-2					2.3E+01	8.4E+01			1.8E+01	
				2.0E-01	S	7.0E-01	C	V	1		3.9E+02	1.4E+09	6.0E+03	Xylene, Mixture	1330-20-7					1.6E+04		6.5E+02		6.3E+02	
				2.0E-01	S	7.0E-01	C	V	1		3.9E+02	1.4E+09	6.0E+03	Xylene, P-	106-42-3					1.6E+04	4.4E+03			3.4E+03	
				2.0E-01	S	7.0E-01	C	V	1		4.3E+02	1.4E+09	7.0E+03	Xylene, m-	108-38-3					1.6E+04	4.3E+03			3.4E+03	
				2.0E-01	S	7.0E-01	C	V	1		4.3E+02	1.4E+09	7.0E+03	Xylene, o-	95-47-6					1.6E+04	5.1E+03			3.8E+03	
				3.0E-01	I				1		1.4E+09			Zinc (Metallic)	7440-66-6					2.3E+04				2.3E+04	
				3.0E-04	I				1		1.4E+09			Zinc Phosphide	1314-84-7					2.3E+01				2.3E+01	
				5.0E-02	I				1	0.1	1.4E+09			Zineb	12122-67-7					3.9E+03	1.4E+04			3.1E+03	

Regional Screening Level (RSL) Industrial Soil Table November 2010

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Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	ke (ug/m ³) ⁻¹	IUR (ug/m ³) ⁻¹	ke (mg/kg-day)	RfD ₀ (mg/m ³)	ke (mg/m ³)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)								
1.8E-02	C	5.1E-06	C	1.5E-01	I								ALAR	1596-84-5	1.6E+02	2.4E+02	3.3E+06	9.6E+01	1.5E+05	2.3E+05		9.2E+04	
8.7E-03	I	2.2E-06	I	4.0E-03	I								Acephate	30560-19-1	3.3E+02	5.0E+02		2.0E+02	4.1E+03	6.2E+03		2.5E+03	
				9.0E-03	I V								Acetaldehyde	75-07-0			5.2E+01	5.2E+01			3.7E+02	3.7E+02	
				2.0E-02	I								Acetochlor	34256-82-1					2.0E+04	3.1E+04		1.2E+04	
				9.0E-01	I	3.1E+01	A V						Acetone	67-64-1					9.2E+05		2.0E+06	6.3E+05	
				3.0E-03	P	6.0E-02	P V						Acetone Cyanohydrin	75-86-5					3.1E+03		6.7E+03	2.1E+03	
				6.0E-02	I V								Acetonitrile	75-05-8							3.7E+03	3.7E+03	
3.8E+00	C	1.3E-03	C	1.0E-01	I								Acetophenone	98-86-2					1.0E+05			1.0E+05	
				2.5E+03	I	1.4E+09		1.4E+09					Acetylaminofluorene, 2-	53-96-3	7.5E-01	1.1E+00	1.3E+04	4.5E-01					
				1.3E+05	I V	1.4E+09		1.4E+09					Acrolein	107-02-8							6.5E-01	6.5E-01	
5.0E-01	I	1.0E-04	I	2.0E-03	I	6.0E-03	I	M	1	0.1	1.4E+09		Acrylamide	79-06-1	5.7E+00	8.7E+00	1.7E+05	3.4E+00	2.0E+03	3.1E+03	3.6E+07	1.2E+03	
				5.0E-01	I	1.0E-03	I		1	0.1	1.4E+09		Acrylic Acid	79-10-7					5.1E+05	7.7E+05	6.0E+06	2.9E+05	
5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I V		1	0.1	1.4E+09	8.3E+03	Acrylonitrile	107-13-1	5.3E+00		1.5E+00	1.2E+00	4.1E+04		7.2E+01	7.2E+01	
				6.0E-03	P				1	0.1	1.4E+09		Adiponitrile	111-69-3							3.6E+07	3.6E+07	
5.6E-02	C	1.0E-02	C	1.0E-02	I				1	0.1	1.4E+09		Alachlor	15972-60-8	5.1E+01	7.7E+01		3.1E+01	1.0E+04	1.5E+04		6.2E+03	
				1.0E-03	I				1	0.1	1.4E+09		Aldicarb	116-06-3					1.0E+03	1.5E+03		6.2E+02	
1.7E+01	I	4.9E-03	I	3.0E-05	I				1	0.1	1.4E+09		Aldicarb Sulfone	1646-88-4					1.0E+03	1.5E+03		6.2E+02	
				2.5E-01	I				1	0.1	1.4E+09		Aldrin	309-00-2	1.7E-01	2.6E-01	3.4E+03	1.0E-01	3.1E+01	4.6E+01		1.8E+01	
				1.0E-03	I				1	0.1	1.4E+09		Allyl	74223-64-6					2.6E+05	3.9E+05		1.5E+05	
2.1E-02	C	6.0E-06	C	5.0E-03	I V	1.0E-04	X		1	0.1	1.4E+09	1.7E+03	Allyl Alcohol	107-18-6					5.1E+03	7.7E+03	6.0E+05	3.1E+03	
				1.0E-03	I V				1	0.1	1.4E+09		Allyl Chloride	107-05-1	1.4E+02		3.5E+00	3.4E+00			7.5E+00	7.5E+00	
				1.0E+00	P	5.0E-03	P		1		1.4E+09		Aluminum	7429-90-5					1.0E+06		3.0E+07	9.9E+05	
				4.0E-04	I				1		1.4E+09		Aluminum Phosphide	20859-73-8					4.1E+02			4.1E+02	
				3.0E-04	I				1	0.1	1.4E+09		Amdro	67485-29-4					3.1E+02	4.6E+02		1.8E+02	
2.1E+01	C	6.0E-03	C	9.0E-03	I				1	0.1	1.4E+09		Ametryn	834-12-8					9.2E+03	1.4E+04		5.5E+03	
				8.0E-02	P				1	0.1	1.4E+09		Aminobiphenyl, 4-	92-67-1	1.4E-01	2.1E-01	2.8E+03	8.2E-02	8.2E+04	1.2E+05		4.9E+04	
				2.0E-02	P				1	0.1	1.4E+09		Aminophenol, m-	591-27-5					8.2E+04	1.2E+05		4.9E+04	
				2.5E-03	I				1	0.1	1.4E+09		Aminophenol, p-	123-30-8					2.0E+04	3.1E+04		1.2E+04	
				1.0E-01	I				1		1.4E+09		Amित्रaz	33089-61-1					2.6E+03	3.9E+03		1.5E+03	
				7.0E-04	I				1		1.4E+09		Ammonia	7664-41-7					2.6E+03	3.9E+03		1.5E+03	
5.7E-03	I	1.6E-06	C	2.0E-01	I				1		1.4E+09		Ammonium Perchlorate	7790-98-9					7.2E+02			7.2E+02	
				7.0E-03	P	1.0E-03	I		1	0.1	1.4E+09		Ammonium Sulfamate	7773-06-0					2.0E+05			2.0E+05	
				4.0E-04	I				0.15		1.4E+09		Aniline	62-53-3	5.0E+02	7.6E+02	1.0E+07	3.0E+02	7.2E+03	1.1E+04	6.0E+06		4.3E+03
				5.0E-04	H				0.15		1.4E+09		Antimony (metallic)	7440-36-0					4.1E+02			4.1E+02	
				9.0E-04	H				0.15		1.4E+09		Antimony Pentoxide	1314-60-9					5.1E+02			5.1E+02	
				9.0E-04	H				0.15		1.4E+09		Antimony Potassium Tartrate	11071-15-1					9.2E+02			9.2E+02	
				4.0E-04	H				0.15		1.4E+09		Antimony Tetroxide	1332-81-6					4.1E+02			4.1E+02	
				2.0E-04	I				0.15		1.4E+09		Antimony Trioxide	1309-64-4							1.2E+06	1.2E+06	
				1.3E-02	I				1	0.1	1.4E+09		Apollo	74115-24-5					1.3E+04	2.0E+04		8.0E+03	
2.5E-02	I	7.1E-06	I	5.0E-02	H				1	0.1	1.4E+09		Aramite	140-57-8	1.1E+02	1.7E+02	2.3E+06	6.9E+01	5.1E+04	7.7E+04		3.1E+04	
1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C		1	0.03	1.4E+09		Arsenic, Inorganic	7440-38-2	1.9E+00	9.6E+00	3.9E+03	1.6E+00	3.1E+02	1.5E+03	8.9E+04	2.6E+02	
				3.5E-06	C	5.0E-05	I		1		1.4E+09		Arsine	7784-42-1					3.6E+00		3.0E+05	3.6E+00	
				9.0E-03	I				1	0.1	1.4E+09		Assure	76578-14-8					9.2E+03	1.4E+04		5.5E+03	
				5.0E-02	I				1	0.1	1.4E+09		Asulam	3337-71-1					5.1E+04	7.7E+04		3.1E+04	
2.3E-01	C	3.5E-02	C	3.5E-02	I				1	0.1	1.4E+09		Atrazine	1912-24-9	1.2E+01	1.9E+01		7.5E+00	3.6E+04	5.4E+04		2.2E+04	
8.8E-01	C	2.5E-04	C	4.0E-04	I				1	0.1	1.4E+09	5.8E+05	Auramine	492-80-8	3.3E+00	4.9E+00	6.7E+04	2.0E+00	3.6E+04	5.4E+04		2.2E+04	
1.1E-01	I	3.1E-05	I	4.0E-04	I				1	0.1	1.4E+09		Avermectin B1	65195-55-3					4.1E+02	6.2E+02		2.5E+02	
				2.0E-01	I	5.0E-04	H		0.07		1.4E+09		Azobenzene	103-33-3	2.6E+01		2.3E+02	2.3E+01					
				4.0E-03	I				1	0.1	1.4E+09		Barium	7440-39-3					2.0E+05		3.0E+06	1.9E+05	
				3.0E-02	I				1	0.1	1.4E+09		Baygon	114-26-1					4.1E+03	6.2E+03		2.5E+03	
				3.0E-02	I				1	0.1	1.4E+09		Bayleton	43121-43-3					3.1E+04	4.6E+04		1.8E+04	
				2.5E-02	I				1	0.1	1.4E+09		Baythroid	68359-37-5					2.6E+04	3.9E+04		1.5E+04	
				3.0E-01	I				1	0.1	1.4E+09		Benefin	1861-40-1					3.1E+05	4.6E+05		1.8E+05	
				5.0E-02	I				1	0.1	1.4E+09		Benomyl	17804-35-2					5.1E+04	7.7E+04		3.1E+04	
				3.0E-02	I				1	0.1	1.4E+09		Bentazon	25057-89-0					3.1E+04	4.6E+04		1.8E+04	
5.5E-02	I	7.8E-06	I	1.0E-01	I				1		1.2E+03	1.4E+09	2.4E+04	Benzaldehyde	100-52-7	5.2E+01		6.0E+00	5.4E+00	1.0E+05		1.0E+05	
				4.0E-03	I	3.0E-02	I V		1		1.8E+03	1.4E+09	3.8E+03	Benzene	71-43-2				4.1E+03		5.0E+02	4.5E+02	
				1.0E-05	H				1		1.3E+03	1.4E+09	2.1E+04	Benzenethiol	108-98-5				1.0E+01			1.0E+01	
2.3E+02	I	6.7E-02	I	3.0E-03	I				1	0.1	1.4E+09		Benzidine	92-87-5	1.2E-02	1.9E-02	2.5E+02	7.5E-03	3.1E+03	4.6E+03		1.8E+03	

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Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	ke	IUR (ug/m ³) ⁻¹	ke	RfD ₀ (mg/kg-day)	ke	RfC ₀ (ug/m ³)	ke	vo	muta	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
1.3E+01	I							V		1		3.2E+02	1.4E+09	7.3E+04	Benzotrchloride	98-07-7	2.2E-01			2.2E-01					
1.7E-01	I	4.9E-05	C	1.0E-01	P	1.0E-03	P	V		1	0.1	1.4E+09	1.4E+09	2.7E+04	Benzyl Alcohol	100-51-6				4.9E+00	1.0E+05	1.5E+05	1.2E+02		6.2E+04
		2.4E-03	I	2.0E-03	P	2.0E-05	I			1		1.5E+03	1.4E+09	2.7E+04	Benzyl Chloride	100-44-7	1.7E+01		6.9E+00	4.9E+00	2.0E+03	1.5E+05	1.2E+02		1.1E+02
										0.007			1.4E+09		Beryllium and compounds	7440-41-7			6.9E+03	6.9E+03	2.0E+03		1.2E+05		2.0E+03
				1.0E-04	I					1	0.1	1.4E+09	1.4E+09		Bidrin	141-66-2					1.0E+02	1.5E+02			6.2E+01
				9.0E-03	P					1		1.4E+09	1.4E+09		Bifenox	42576-02-3					9.2E+03	1.4E+04			5.5E+03
				1.5E-02	I					1	0.1	1.4E+09	1.4E+09		Biphenthrin	82657-04-3					1.5E+04	2.3E+04			9.2E+03
7.0E-02	H	1.0E-05	H	5.0E-02	I			V		1		2.1E+02	1.4E+09	1.2E+05	Biphenyl, 1,1'-	92-52-4					5.1E+04				5.1E+04
				4.0E-02	I			V		1		1.0E+03	1.4E+09	3.8E+04	Bis(2-chloro-1-methylethyl) ether	108-60-1	4.1E+01		4.6E+01	2.2E+01	4.1E+04				4.1E+04
				3.0E-03	P					1	0.1	1.4E+09	1.4E+09		Bis(2-chloroethoxy)methane	111-91-1					3.1E+03	4.6E+03			1.8E+03
1.1E+00	I	3.3E-04	I					V		1		5.1E+03	1.4E+09	4.6E+04	Bis(2-chloroethyl)ether	111-44-4	2.6E+00		1.7E+00	1.0E+00					5.1E+04
1.4E-02	I	2.4E-06	C	2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Bis(2-ethylhexyl)phthalate	117-81-7	2.0E+02	3.1E+02	6.9E+06	1.2E+02	2.0E+04	3.1E+04			1.2E+04
2.2E+02	I	6.2E-02	I					V		1		4.2E+03	1.4E+09	2.0E+03	Bis(chloromethyl)ether	542-88-1	1.3E-02		4.0E-04	3.9E-04					3.1E+04
				5.0E-02	I					1	0.1	1.4E+09	1.4E+09		Bisphenol A	80-05-7					5.1E+04	7.7E+04			2.0E+05
				2.0E-01	I	2.0E-02	H			1		1.4E+09	1.4E+09		Boron And Borates Only	7440-42-8					2.0E+05		1.2E+08		2.0E+05
7.0E-01	I			4.0E-02	C	1.3E-02	C			1		1.4E+09	1.4E+09		Boron Trifluoride	7637-07-2	4.1E+00			4.1E+00	4.1E+04		7.7E+07		4.1E+04
2.0E+00	X	6.0E-04	X					V		1		2.4E+03	1.4E+09	6.4E+03	Bromate	15541-45-4	1.4E+00			4.1E+00	4.1E+03				4.1E+03
				8.0E-03	I	6.0E-02	I	V		1		6.8E+02	1.4E+09	9.0E+03	Bromo-2-chloroethane, 1-	107-04-0	1.4E+00		1.3E-01	1.2E-01					4.1E+03
6.2E-02	I	3.7E-05	C	2.0E-02	I			V		1		9.3E+02	1.4E+09	4.3E+03	Bromobenzene	108-86-1	4.6E+01		1.4E+00	1.4E+00	8.2E+03		2.4E+03		1.8E+03
7.9E-03	I	1.1E-06	I	2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Bromodichloromethane	75-27-4	3.6E+02	5.5E+02	1.5E+07	2.2E+02	2.0E+04	3.1E+04			2.0E+04
				1.4E-03	I	5.0E-03	I	V		1		3.6E+03	1.4E+09	1.5E+03	Bromofom	75-25-2					2.0E+04	3.1E+04			1.2E+04
				5.0E-03	H					1	0.1	1.4E+09	1.4E+09		Bromomethane	74-83-9					1.4E+03		3.3E+01		3.2E+01
				2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Bromophos	2104-96-3					5.1E+03	7.7E+03			3.1E+03
				2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Bromoxynil	1689-84-5					2.0E+04	3.1E+04			1.2E+04
3.4E+00	C	3.0E-05	I			2.0E-03	I	V		1		6.7E+02	1.4E+09	9.3E+02	Bromoxynil Octanoate	1689-99-2	8.4E-01		3.8E-01	2.6E-01	2.0E+04	3.1E+04			1.2E+04
				1.0E-01	I					1	0.1	1.4E+09	1.4E+09		Butadiene, 1,3-	106-99-0					1.0E+05	1.5E+05	8.2E+00		8.2E+00
1.9E-03	P			2.0E-01	I					1	0.1	1.4E+09	1.4E+09		Butanol, N-	71-36-3	1.5E+03	2.3E+03		9.1E+02					6.2E+04
				2.0E+00	P	3.0E+01	P			1	0.1	1.4E+09	1.4E+09		Butyl Benzyl Phthlate	85-68-7				9.1E+02	2.0E+05	3.1E+05			1.2E+05
				5.0E-02	I					1	0.1	1.4E+09	1.4E+09		Butyl alcohol, sec-	78-92-2					2.0E+06	3.1E+06	1.8E+11		1.2E+06
				2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Butylate	2008-41-5					5.1E+04	7.7E+04			3.1E+04
2.0E-04	C	5.7E-08	C							1	0.1	1.4E+09	1.4E+09		Butylated hydroxyanisole	25013-16-5	1.4E+04	2.2E+04	2.9E+08	8.6E+03					3.1E+04
				1.0E+00	I					1	0.1	1.4E+09	1.4E+09		Butylphthalyl Butylglycolate	85-70-1					1.0E+06	1.5E+06			6.2E+05
				2.0E-02	A					1	0.1	1.4E+09	1.4E+09		Cacodylic Acid	75-60-5					2.0E+04	3.1E+04			1.2E+04
		1.8E-03	I	1.0E-03	I	1.0E-05	A			0.025	0.001	1.4E+09	1.4E+09		Cadmium (Diet)	7440-43-9			9.3E+03	9.3E+03	1.0E+03	3.9E+03	6.0E+04		8.0E+02
		1.8E-03	I	5.0E-04	I	1.0E-05	A			0.05	0.001	1.4E+09	1.4E+09		Cadmium (Water)	7440-43-9					1.0E+03	3.9E+03	6.0E+04		8.0E+02
				5.0E-01	I					1	0.1	1.4E+09	1.4E+09		Caprolactam	105-60-2					5.1E+05	7.7E+05			3.1E+05
1.5E-01	C	4.3E-05	C	2.0E-03	I					1	0.1	1.4E+09	1.4E+09		Captafol	2425-06-1	1.9E+01	2.9E+01	3.9E+05	1.1E+01	2.0E+03	3.1E+03			1.2E+03
2.3E-03	C	6.6E-07	C	1.3E-01	I					1	0.1	1.4E+09	1.4E+09		Captan	133-06-2	1.2E+03	1.9E+03	2.5E+07	7.5E+02	1.3E+05	2.0E+05			8.0E+04
				1.0E-01	I					1	0.1	1.4E+09	1.4E+09		Carbaryl	63-25-2					1.0E+05	1.5E+05			6.2E+04
				5.0E-03	I					1	0.1	1.4E+09	1.4E+09		Carbofuran	1563-66-2					5.1E+03	7.7E+03			3.1E+03
7.0E-02	I	6.0E-06	I	1.0E-01	I	7.0E-01	I	V		1		7.4E+02	1.4E+09	1.3E+03	Carbon Disulfide	75-15-0	4.1E+01		3.3E+00	3.0E+00	1.0E+05		3.9E+03		3.7E+03
				4.0E-03	I	1.0E-01	I	V		1		4.6E+02	1.4E+09	1.6E+03	Carbon Tetrachloride	56-23-5					4.1E+03		7.0E+02		6.0E+02
				1.0E-02	I					1	0.1	1.4E+09	1.4E+09		Carbosulfan	55285-14-8					1.0E+04	1.5E+04			6.2E+03
				1.0E-01	I					1	0.1	1.4E+09	1.4E+09		Carboxin	5234-68-4					1.0E+05	1.5E+05			6.2E+04
						9.0E-04	I			1		1.4E+09	1.4E+09		Ceric oxide	1306-38-3							5.4E+06		5.4E+06
4.0E-01	H			1.0E-01	I					1	0.1	1.4E+09	1.4E+09		Chloral Hydrate	302-17-0					1.0E+05	1.5E+05			6.2E+04
				1.5E-02	I					1	0.1	1.4E+09	1.4E+09		Chloramben	133-90-4					1.5E+04	2.3E+04			9.2E+03
										1	0.1	1.4E+09	1.4E+09		Chloranil	118-75-2	7.1E+00	1.1E+01		4.3E+00					9.2E+03
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I			1	0.04	1.4E+09	1.4E+09		Chlordane	12789-03-6	8.2E+00	3.1E+01	1.7E+05	6.5E+00	5.1E+02	1.9E+03	4.2E+06		4.0E+02
1.0E+01	I	4.6E-03	C	3.0E-04	I					1	0.1	1.4E+09	1.4E+09		Chlordecone (Kepone)	143-50-0	2.9E-01	4.3E-01	3.6E+03	1.7E-01	3.1E+02	4.6E+02			1.8E+02
				7.0E-04	A					1	0.1	1.4E+09	1.4E+09		Chlorfenvinphos	470-90-6					7.2E+02	1.1E+03			4.3E+02
				2.0E-02	I					1	0.1	1.4E+09	1.4E+09		Chlorimuron, Ethyl-	90982-32-4					2.0E+04	3.1E+04			

Regional Screening Level (RSL) Industrial Soil Table November 2010

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1								
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
2.0E-01	P			4.0E-03 2.0E-02	I P V	3.0E-05 5.0E-02	I P		1 1	0.1 0.1	1.4E+09 1.4E+09		6.9E+03	Chloroacetophenone, 2- Chloroaniline, p- Chlorobenzene	532-27-4 106-47-8 108-90-7	1.4E+01 2.2E+01			8.6E+00	4.1E+03 2.0E+04	6.2E+03		1.8E+05 1.5E+03	1.8E+05 2.5E+03 1.4E+03
1.1E-01	C	3.1E-05	C	2.0E-02 3.0E-02 3.0E-03	I X P	2.0E-02 3.0E-01	I P V		1 1 1	0.1 0.1	1.4E+09 1.4E+09 1.2E+02		7.3E+03	Chlorobenzilate Chlorobenzoic Acid, p- Chlorobenzotrifluoride, 4-	510-15-6 74-11-3 98-56-6	2.6E+01 3.9E+01	5.4E+05	1.6E+01	2.0E+04 3.1E+04 3.1E+03	3.1E+04 4.6E+04		9.6E+03	1.2E+04 1.8E+04 2.3E+03	
3.1E-02	C	2.3E-05	I	1.0E-02	I	5.0E+01 9.8E-02	I V A V		1 1		1.7E+03 2.5E+03	1.4E+09 1.4E+09	1.0E+03 2.8E+03	Chlorobutane, 1- Chlorodifluoromethane Chloroform	109-69-3 75-45-6 67-66-3	9.2E+01		1.5E+00	1.5E+00	1.0E+04		2.2E+05 1.2E+03	2.2E+05 1.1E+03	
2.4E+00	C	6.9E-04	C	8.0E-02	I	9.0E-02	I V		1		1.3E+03 2.6E+04 1.8E+02	1.4E+09 1.4E+09	1.3E+03 5.7E+03 8.6E+04	Chloromethane Chloromethyl Methyl Ether Chloronaphthalene, Beta-	74-87-3 107-30-2 91-58-7	1.2E+00		1.0E-01	9.4E-02	8.2E+04		5.0E+02	5.0E+02	
3.0E-01 6.3E-03	P P			3.0E-03 1.0E-03 5.0E-03	P P V	1.0E-05 6.0E-04	X P		1 1	0.1 0.1	1.4E+09 1.4E+09		1.3E+05	Chloronitrobenzene, o- Chloronitrobenzene, p- Chlorophenol, 2-	88-73-3 100-00-5 95-57-8	9.5E+00 4.5E+02	1.4E+01 6.9E+02		5.7E+00 2.7E+02	3.1E+03 1.0E+03 5.1E+03	4.6E+03 1.5E+03	6.0E+04 3.6E+06	1.8E+03 6.2E+02 5.1E+03	
3.1E-03	C	8.9E-07	C	1.5E-02 2.0E-02	I I	4.0E-04	C V		1	0.1	6.2E+02 1.4E+09	1.4E+09	5.0E+03	Chloropicrin Chlorothalonil Chlorotoluene, o-	76-06-2 1897-45-6 95-49-8	9.2E+02	1.4E+03	1.9E+07	5.6E+02	1.5E+04 2.0E+04	2.3E+04	8.8E+00	8.8E+00 9.2E+03 2.0E+04	
2.4E+02	C	6.9E-02	C	7.0E-02 2.0E-01	P I		V		1 1	0.1 0.1	2.5E+02 1.4E+09 1.4E+09	1.4E+09	7.9E+03	Chlorotoluene, p- Chlorozotocin Chlorpropham	106-43-4 54749-90-5 101-21-3	1.2E-02	1.8E-02	2.4E+02	7.2E-03	7.2E+04			7.2E+04 1.2E+05	
5.0E-01	J	8.4E-02	S	8.0E-04 1.5E+00 3.0E-03	H I I	1.0E-04	I		1	0.13 0.025	1.4E+09 1.4E+09	1.4E+09		Chlorpyrifos Chlorpyrifos Methyl Chlorsulfuron Chlorthiophos Chromium(III), Insoluble Salts Chromium(VI)	2921-88-2 5598-13-0 64902-72-3 60238-56-4 16065-83-1 18540-29-9				8.2E+02 1.5E+06 3.1E+03	1.2E+03	6.0E+05	4.9E+02 1.5E+06 3.1E+03		
9.0E-03 6.2E-04	P I			3.0E-04 6.0E-06	P P		P		1 1	0.13 0.1	1.4E+09 1.4E+09			Chromium, Total Cobalt Coke Oven Emissions	7440-47-3 7440-48-4 8007-45-2		1.9E+03	1.9E+03	3.1E+02		3.6E+04	3.0E+02		
				4.0E-02 5.0E-02 5.0E-02	H I I	6.0E-01	C		1 1	0.1 0.1	1.4E+09 1.4E+09			Copper Cresol, m- Cresol, o-	7440-50-8 108-39-4 95-48-7				4.1E+04 5.1E+04 5.1E+04	7.7E+04 7.7E+04	3.6E+09 3.6E+09	4.1E+04 3.1E+04 3.1E+04		
				5.0E-03 1.0E-01 1.0E-01	H X A	6.0E-01	C		1 1	0.1 0.1	1.4E+09 1.4E+09		3.3E+05	Cresol, p- Cresol, p-chloro-m- Cresols	106-44-5 59-50-7 1319-77-3				5.1E+03 1.0E+05 1.0E+05	7.7E+03 1.5E+05	3.6E+09	3.1E+03 6.2E+04 9.1E+04		
1.9E+00	H			1.0E-01	I	4.0E-01	I V		1		1.7E+04 2.7E+02	1.4E+09 1.4E+09	2.0E+04 6.7E+03	Crotonaldehyde, trans- Cumene Cupferron	123-73-9 98-82-8 135-20-6	1.5E+00		1.5E+00	1.0E+05		1.2E+04	1.1E+04		
2.2E-01	C	6.3E-05	C	2.0E-03	H				1	0.1	1.4E+09			Cyanazine Cyanides ~Calcium Cyanide	21725-46-2 592-01-8	3.4E+00 5.2E+00		2.1E+00	2.0E+03 3.1E+03			1.2E+03		
				5.0E-03 2.0E-02 4.0E-02	I I I		V		1 1		1.0E+07 1.5E+03	1.4E+09 1.4E+09	5.0E+04 1.3E+03	~Copper Cyanide ~Cyanide (CN-) ~Cyanogen	544-92-3 57-12-5 460-19-5				5.1E+03 2.0E+04 4.1E+04			5.1E+03 2.0E+04 4.1E+04		
				9.0E-02 5.0E-02 6.0E-04	I I I		V		1 1		1.0E+05 4.3E+03 1.2E+05	1.4E+09 1.4E+09	9.7E+02 2.1E+03 6.1E+03	~Cyanogen Bromide ~Cyanogen Chloride ~Hydrogen Cyanide	506-68-3 506-77-4 74-90-8				9.2E+04 5.1E+04 6.1E+02		2.1E+01	9.2E+04 5.1E+04 2.1E+01		
				5.0E-02 2.0E-01 1.0E-01	I I I		V		1 0.04 0.04		1.4E+09 1.4E+09	1.4E+09		~Potassium Cyanide ~Potassium Silver Cyanide ~Silver Cyanide	151-50-8 506-61-6 506-64-9				5.1E+04 2.0E+05 1.0E+05			5.1E+04 2.0E+05 1.0E+05		
				4.0E-02 2.0E-04 5.0E-02	I P I		V		1 1		1.4E+09 4.6E+03	1.4E+09	7.1E+03	~Sodium Cyanide ~Thiocyanate ~Zinc Cyanide	143-33-9 463-56-9 557-21-1				4.1E+04 2.0E+02 5.1E+04			4.1E+04 2.0E+02 5.1E+04		
2.3E-02	H			6.0E+00	I V				1		1.2E+02	1.4E+09	1.1E+03	Cyclohexane Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro- Cyclohexanone	110-82-7 87-84-3 108-94-1	1.2E+02 1.9E+02		7.5E+01	5.1E+06 7.7E+06			2.9E+04	2.9E+04 3.1E+06	
				2.0E-01 5.0E-03 1.0E-02	I I I				1 1	0.1 0.1	1.4E+09 1.4E+09			Cyclohexylamine Cyhalothrin/karate Cypermethrin	108-91-8 68085-85-8 52315-07-8				2.0E+05 5.1E+03 1.0E+04	3.1E+05 7.7E+03 1.5E+04			1.2E+05 3.1E+03 6.2E+03	

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Toxicity and Chemical-specific Information															Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k _e (ug/m ³) ⁻¹	IUR (ug/m ³) ⁻¹	k _e (mg/kg-day)	RfD ₀ (mg/kg-day)	k _e (mg/m ³)	RfC ₀ (mg/m ³)	k _e (mg/m ³)	muta-gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)		
2.4E-01	I	6.9E-05	C	7.5E-03	I					1	0.1	1.4E+09		66215-27-8					7.7E+03				4.6E+03	
3.4E-01	I	9.7E-05	C							1	0.1	1.4E+09		72-54-8	1.2E+01	1.8E+01	2.4E+05	7.2E+00						
3.4E-01	I	9.7E-05	C							1	0.1	1.4E+09		72-55-9	8.4E+00	1.3E+01	1.7E+05	5.1E+00						
3.4E-01	I	9.7E-05	I	5.0E-04	I					1	0.03	1.4E+09		50-29-3	8.4E+00	4.3E+01	1.7E+05	7.0E+00	5.1E+02	2.6E+03			4.3E+02	
				1.0E-02	I					1	0.1	1.4E+09		1861-32-1					1.0E+04	1.5E+04			6.2E+03	
				3.0E-02	I					1	0.1	1.4E+09		75-99-0					3.1E+04	4.6E+04			1.8E+04	
7.0E-04	I			7.0E-03	I					1	0.1	1.4E+09		1163-19-5	4.1E+03	6.2E+03		2.5E+03	7.2E+03	1.1E+04			4.3E+03	
				4.0E-05	I					1	0.1	1.4E+09		8065-48-3					4.1E+01	6.2E+01			2.5E+01	
1.2E-03	I			6.0E-01	I					1	0.1	1.4E+09		103-23-1	2.4E+03	3.6E+03		1.4E+03	6.1E+05	9.3E+05			3.7E+05	
6.1E-02	H									1	0.1	1.4E+09		2303-16-4	4.7E+01	7.1E+01		2.8E+01						
8.0E-01	P	6.0E-03	P	7.0E-04	A					1	0.1	1.4E+09		333-41-5	3.6E+00		7.0E-02	6.9E-02	7.2E+02	2.0E+02	1.1E+03		4.3E+02	
				2.0E-04	I	V	M			1		9.8E+02	3.4E+04	96-12-8					2.0E+02		3.0E+01		2.6E+01	
				1.0E-02	I					1	0.1	1.4E+09		106-37-6					1.0E+04	1.5E+04			6.2E+03	
8.4E-02	I	2.7E-05	C	2.0E-02	I			V		1	0.1	8.0E+02	1.4E+09	124-48-1	3.4E+01	5.2E+01	3.9E+00	3.3E+00	2.0E+04	2.0E+04	3.1E+04		1.2E+04	
2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		1		1.3E+03	1.4E+09	106-93-4	1.4E+00		1.9E-01	1.7E-01	9.2E+03		3.7E+02		3.5E+02	
				1.0E-02	H	4.0E-03	X	V		1		2.8E+03	1.4E+09	74-95-3					1.0E+04		1.1E+02		1.1E+02	
				1.0E-01	I					1	0.1	1.4E+09		84-74-2					1.0E+05	1.5E+05			6.2E+04	
				3.0E-04	P					1	0.1	1.4E+09		NA					3.1E+02	4.6E+02			1.8E+02	
				3.0E-02	I					1	0.1	1.4E+09		1918-00-9					3.1E+04	4.6E+04			1.8E+04	
		4.2E-03	P					V		1		5.2E+02	1.4E+09	764-41-0			3.3E-02	3.3E-02						
		4.2E-03	P					V		1	0.1	5.2E+02	1.4E+09	1476-11-5			3.5E-02	3.5E-02						
5.0E-02	I	4.2E-03	P					V		1	0.1	7.6E+02	1.4E+09	110-57-6			3.5E-02	3.5E-02						
				4.0E-03	I	2.0E-01	H	V		1	0.1	1.4E+09		79-43-6	5.7E+01	8.7E+01			3.4E+01	4.1E+03	6.2E+03	1.1E+04	2.5E+03	
				9.0E-02	I					1		3.8E+02	1.4E+09	95-50-1					9.2E+04				9.8E+03	
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V		1		1.4E+09	1.1E+04	106-46-7	5.3E+02		1.3E+01	1.2E+01	7.2E+04		3.9E+04		2.5E+04	
4.5E-01	I	3.4E-04	C							1	0.1	1.4E+09		91-94-1	6.4E+00	9.6E+00	4.9E+04	3.8E+00						
				9.0E-03	X					1	0.1	1.4E+09		90-98-2					9.2E+03	1.4E+04			5.5E+03	
				2.0E-01	I	2.0E-01	H	V		1		8.5E+02	1.4E+09	75-71-8					2.0E+05		7.8E+02		7.8E+02	
5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1		1.7E+03	1.4E+09	75-34-3	5.0E+02		1.7E+01	1.7E+01	2.0E+05				2.0E+05	
9.1E-02	I	2.6E-05	I	2.0E-02	P	2.4E+00	A	V		1		3.0E+03	1.4E+09	107-06-2	3.1E+01		2.3E+00	2.2E+00	2.0E+04		5.2E+04		1.5E+04	
				5.0E-02	I	2.0E-01	I	V		1		1.2E+03	1.4E+09	75-35-4					5.1E+04		1.1E+03		1.1E+03	
				9.0E-03	H			V		1		1.3E+03	1.4E+09	540-59-0					9.2E+03				9.2E+03	
				2.0E-03	I			V		1		2.4E+03	1.4E+09	156-59-2					2.0E+03				2.0E+03	
				2.0E-02	I	6.0E-02	P	V		1		1.7E+03	1.4E+09	156-60-5					2.0E+04		7.1E+02		6.9E+02	
				3.0E-03	I					1	0.1	1.4E+09		120-83-2					3.1E+03	4.6E+03			1.8E+03	
				1.0E-02	I					1	0.05	1.4E+09		94-75-7					1.0E+04	3.1E+04			7.7E+03	
3.6E-02	C	1.0E-05	C	9.0E-02	A	4.0E-03	I	V		1		1.4E+03	1.4E+09	94-82-6	7.9E+01		4.7E+00	4.5E+00	8.2E+03	1.2E+04			4.9E+03	
				2.0E-02	P			V		1		1.5E+03	1.4E+09	78-87-5					9.2E+04		6.8E+01		6.8E+01	
				3.0E-03	I					1	0.1	1.4E+09		142-28-9					2.0E+04				2.0E+04	
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V		1		1.6E+03	1.4E+09	616-23-9	2.9E+01		1.1E+01	8.1E+00	3.1E+04	4.6E+03			1.8E+03	
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I			1	0.1	1.4E+09		542-75-6	9.9E+00	1.5E+01	2.0E+05	5.9E+00	5.1E+02	7.7E+02	3.0E+06		3.1E+02	
				8.0E-03	P	7.0E-03	P	V		1		1.3E+02	1.4E+09	62-73-7					5.1E+02	7.7E+02			3.1E+02	
1.6E+01	I	4.6E-03	I	5.0E-05	I					1	0.1	1.4E+09		77-73-6	1.8E-01	2.7E-01	3.6E+03	1.1E-01	8.2E+03		1.2E+02		1.2E+02	
		3.0E-04	C			5.0E-03	I			1	0.1	1.4E+09		60-57-1					5.1E+01	7.7E+01			3.1E+01	
										1		1.4E+09		NA										
				3.0E-03	C					1	0.1	1.4E+09		111-42-2							1.8E+07		1.8E+07	
				8.0E-01	I					1	0.1	1.4E+09		84-66-2					8.2E+05	1.2E+06			4.9E+05	
				3.0E-02	P	1.0E-04	P			1	0.1	1.4E+09		112-34-5					3.1E+04	4.6E+04	6.0E+05		1.8E+04	
				6.0E-02	P	3.0E-04	P			1	0.1	1.4E+09		111-90-0					6.1E+04	9.3E+04	1.8E+06		3.6E+04	
3.5E+02	C	1.0E-01	C	1.0E-03	P					1	0.1	1.4E+09		617-84-5	8.2E-03	1.2E-02	1.7E+02	4.9E-03	1.0E+03	1.5E+03			6.2E+02	
				8.0E-02	I					1	0.1	1.4E+09		56-53-1										
				2.0E-02	I					1	0.1	1.4E+09		43222-48-6					8.2E+04	1.2E+05			4.9E+04	
				4.0E+01	I	V				1		1.4E+03	1.4E+09	35367-38-5					2.0E+04	3.1E+04			1.2E+04	
4.4E-02	C	1.3E-05	C							1	0.1	1.4E+09		75-37-6	6.5E+01	9.9E+01	1.3E+06	3.9E+01					2.2E+05	
				4.0E-01	P	V				1		2.3E+03	1.4E+09	94-58-6							5.8E+03		5.8E+03	
				8.0E-02	I			V		1		5.3E+02	1.4E+09	108-20-3					8.2E+04				8.2E+04	
										1		1.4E+09		1445-75-6										
				2.0E-02	I					1	0.1	1.4E+09		55290-64-7					2.0E+04	3.1E+04			1.2E+04	
1.4E-02	H			2.0E-04	I					1	0.1	1.4E+09		60-51-5					2.0E+02	3.1E+02			1.2E	

Regional Screening Level (RSL) Industrial Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1																							
Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1							
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
1.7E-03	P			6.0E-02	P					1	0.1	1.4E+09		Dimethyl methylphosphonate	756-79-6	1.7E+03	2.6E+03		1.0E+03	6.1E+04	9.3E+04		3.7E+04
4.6E+00	C	1.3E-03	C							1	0.1	1.4E+09		Dimethylamino azobenzene [p-]	60-11-7	6.2E-01	9.4E-01	1.3E+04	3.7E-01				
5.8E-01	H									1	0.1	1.4E+09		Dimethylaniline HCl, 2,4-	21436-96-4	4.9E+00	7.5E+00		3.0E+00				
7.5E-01	H									1	0.1	1.4E+09		Dimethylaniline, 2,4-	95-68-1	3.8E+00	5.8E+00		2.3E+00				
1.1E+01	P			2.0E-03	I		V			1	0.1	8.3E+02	3.4E+04	Dimethylaniline, N,N-Dimethylbenzidine, 3,3'-	121-69-7	2.6E-01	3.9E-01		1.6E-01	2.0E+03			2.0E+03
5.5E+02	C	1.6E-01	C	1.0E-01	P	3.0E-02	I			1	0.1	1.4E+09		Dimethylformamide	68-12-2					1.0E+05	1.5E+05	1.8E+08	6.2E+04
				1.0E-04	X	2.0E-06	X			1	0.1	1.4E+09		Dimethylhydrazine, 1,1-Dimethylhydrazine, 1,2-	57-14-7	5.2E-03	7.9E-03	1.0E+02	3.1E-03	1.0E+02	1.5E+02	1.2E+04	6.1E+01
				2.0E-02	I					1	0.1	1.4E+09		Dimethylphenol, 2,4-Dimethylphenol, 2,6-Dimethylphenol, 3,4-	105-67-9					2.0E+04	3.1E+04		1.2E+04
				6.0E-04	I					1	0.1	1.4E+09			576-26-1					6.1E+02	9.3E+02		3.7E+02
				1.0E-03	I					1	0.1	1.4E+09			95-65-8					1.0E+03	1.5E+03		6.2E+02
4.5E-02	C	1.3E-05	C	1.0E-01	I		V			1	0.1	5.5E+00	2.3E+04	Dimethylterephthalate	120-61-6	6.4E+01	9.6E+01	1.3E+06	3.8E+01	8.2E+01	1.2E+02		4.9E+01
				8.0E-05	X					1	0.1	1.4E+09		Dimethylvinylchloride	513-37-1					2.0E+03	3.1E+03		1.2E+03
				2.0E-03	I					1	0.1	1.4E+09		Dinitro-o-cresol, 4,6-	131-89-5					2.0E+02	1.5E+02		6.2E+01
				1.0E-04	P					1	0.1	1.4E+09		Dinitrobenzene, 1,2-Dinitrobenzene, 1,3-	528-29-0					1.0E+02	1.5E+02		6.2E+01
				1.0E-04	I					1	0.1	1.4E+09			99-65-0					1.0E+02	1.5E+02		6.2E+01
6.8E-01	I			1.0E-04	P					1	0.1	1.4E+09		Dinitrobenzene, 1,4-Dinitrophenol, 2,4-Dinitrotoluene Mixture, 2,4/2,6-	100-25-4	4.2E+00	6.4E+00		2.5E+00	2.0E+03	3.1E+03		1.2E+03
				2.0E-03	I					1	0.1	1.4E+09			51-28-5					2.0E+03	3.1E+03		1.2E+03
3.1E-01	C	8.9E-05	C	2.0E-03	I					1	0.102	1.4E+09		Dinitrotoluene, 2,6-Dinitrotoluene, 2-Amino-4,6-Dinitrotoluene, 4-Amino-2,6-Dinitrotoluene, 4-Amino-2,6-Dinoseb	121-14-2	9.2E+00	1.4E+01	1.9E+05	5.5E+00	2.0E+03	3.0E+03		1.2E+03
				1.0E-03	P					1	0.099	1.4E+09			606-20-2					1.0E+03	1.6E+03		6.2E+02
				2.0E-03	S					1	0.006	1.4E+09			35572-78-2					2.0E+03	5.2E+04		2.0E+03
1.0E-01	I	7.7E-06	C	3.0E-02	I	3.6E+00	A			1	0.1	1.4E+09		Dioxane, 1,4-Dioxins	19406-51-0	2.9E+01	4.3E+01	2.2E+06	1.7E+01	3.1E+04	4.6E+04	2.1E+10	1.8E+04
6.2E+03	I	1.3E+00	I	1.0E-09	A	4.0E-08	C			1	0.03	1.4E+09		~Hexachlorodibenzo-p-dioxin, Mixture	NA	4.6E-04	2.3E-03	1.3E+01	3.9E-04	1.0E-03	5.2E-03	2.4E+02	8.5E-04
1.3E+05	C	3.8E+01	C							1	0.03	1.4E+09		~TCDD, 2,3,7,8-Diphenamid	1746-01-6	2.2E-05	1.1E-04	4.4E-01	1.8E-05				
				3.0E-02	I					1	0.1	1.4E+09		Diphenyl Sulfone	957-51-7					3.1E+04	4.6E+04		1.8E+04
				8.0E-04	X					1	0.1	1.4E+09		Diphenylamine	127-63-9					8.2E+02	1.2E+03		4.9E+02
				2.5E-02	I					1	0.1	1.4E+09			122-39-4					2.6E+04	3.9E+04		1.5E+04
8.0E-01	I	2.2E-04	I							1	0.1	1.4E+09		Diphenylhydrazine, 1,2-Diquat	122-66-7	3.6E+00	5.4E+00	7.6E+04	2.2E+00				
				2.2E-03	I					1	0.1	1.4E+09		Direct Black 38	85-00-7					2.2E+03	3.4E+03		1.4E+03
7.4E+00	C	2.1E-03	C							1	0.1	1.4E+09		Direct Blue 6	1937-37-7	3.9E-01	5.9E-01	7.9E+03	2.3E-01				
7.4E+00	C	2.1E-03	C							1	0.1	1.4E+09		Direct Brown 95	2602-46-2	3.9E-01	5.9E-01	7.9E+03	2.3E-01				
6.7E+00	C	1.9E-03	C							1	0.1	1.4E+09		Disulfoton	16071-86-6	4.3E-01	6.5E-01	8.8E+03	2.6E-01				
				4.0E-05	I					1	0.1	1.4E+09			298-04-4					4.1E+01	6.2E+01		2.5E+01
				1.0E-02	I					1	0.1	1.4E+09		Dithiane, 1,4-Diuron	505-29-3					1.0E+04	1.5E+04		6.2E+03
				2.0E-03	I					1	0.1	1.4E+09		Dodine	330-54-1					2.0E+03	3.1E+03		1.2E+03
				4.0E-03	I					1	0.1	1.4E+09		EPTC	2439-10-3					4.1E+03	6.2E+03		2.5E+03
				2.5E-02	I		V			1		4.1E+02	1.3E+05	Endosulfan	759-94-4					2.6E+04			2.6E+04
				6.0E-03	I					1	0.1	1.4E+09		Endothall	115-29-7					6.1E+03	9.3E+03		3.7E+03
				2.0E-02	I					1	0.1	1.4E+09		Endrin	145-73-3					2.0E+04	3.1E+04		1.2E+04
9.9E-03	I	1.2E-06	I	3.0E-04	I	1.0E-03	I	V		1	0.1	1.4E+09	2.0E+04	Epichlorohydrin	72-20-8	2.9E+02		2.1E+02	1.2E+02	3.1E+02	4.6E+02		1.8E+02
				2.0E-02	I		V			1		1.1E+04	8.2E+03	Epoxybutane, 1,2-Ethephon	106-89-8					6.1E+03		8.9E+01	8.8E+01
				5.0E-03	I					1	0.1	1.4E+09		Ethion	106-88-7					7.2E+02		7.2E+02	7.2E+02
				5.0E-04	I					1	0.1	1.4E+09		Ethoxyethanol Acetate, 2-Ethoxyethanol, 2-	16672-87-0					5.1E+03	7.7E+03		3.1E+03
				3.0E-01	H	3.0E-01	C			1	0.1	1.4E+09			563-12-2					5.1E+02	7.7E+02		3.1E+02
				4.0E-01	H	2.0E-01	I			1	0.1	1.4E+09			111-15-9					3.1E+05	4.6E+05	1.8E+09	1.8E+05
4.8E-02	H			9.0E-01	I					1		1.1E+04	9.3E+03	Ethyl Acetate	110-80-5					4.1E+05	6.2E+05	1.2E+09	2.5E+05
										1		2.5E+03	6.8E+03	Ethyl Acrylate	141-78-6	6.0E+01			6.0E+01	9.2E+05			9.2E+05
				1.0E+01	I		V			1		2.1E+03	1.4E+03	Ethyl Chloride	140-88-5							6.1E+04	6.1E+04
				2.0E-01	I		V			1		1.0E+04	3.4E+03	Ethyl Ether	75-00-3					2.0E+05			2.0E+05
				9.0E-02	H		V			1		1.1E+03	6.2E+03	Ethyl Methacrylate	60-29-7					9.2E+04			9.2E+04
1.1E-02	C	2.5E-06	C	1.0E-05	I	1.0E+00	I	V		1	0.1	1.4E+09	6.1E+03	Ethyl-p-nitrophenyl Phosphonate	2104-64-5	2.6E+02		3.0E+01	2.7E+01	1.0E+01	1.5E+01		6.2E+00
				1.0E-01	I					1		4.8E+02	1.4E+09	Ethylbenzene	100-41-4					1.0E+05		2.7E+04	2.1E+04
				3.0E-02	P					1	0.1	1.4E+09		Ethylene Cyanohydrin	109-78-4					3.1E+04	4.6E+04		1.8E+04

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Toxicity and Chemical-specific Information														Contaminant		Carcinogenic SL				Noncancer Hazard Index (HI) = 1				
SFO	ke	IUR	ke	RfD ₀	ke	RfC ₀	ke	muta-	GIABS	ABS	C _{sat}	PEF	VF	Analyte	CAS No.	Ingestion SL	Dermal SL	Inhalation SL	Carcinogenic SL	Ingestion SL	Dermal SL	Inhalation SL	Noncarcinogenic SL	
(mg/kg-day) ⁻¹	y	(ug/m ³) ⁻¹	y	(mg/kg-day)	y	(mg/m ³)	y	gen			(mg/kg)	(m ³ /kg)	(m ³ /kg)			TR=1.0E-6	TR=1.0E-6	TR=1.0E-6	TR=1.0E-6	HQ=1	HQ=1	HQ=1	HI=1	
																(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	
				9.0E-02	P					1	0.1	1.4E+09		Ethylene Diamine	107-15-3					9.2E+00	9.1E-01	8.3E-01		
				2.0E+00	I	4.0E-01	C			1	0.1	1.4E+09		Ethylene Glycol	107-21-1					6.4E+01	9.6E+01	1.3E+06	3.8E+01	
				1.0E-01	I	1.6E+00	I			1	0.1	1.4E+09		Ethylene Glycol Monobutyl Ether	111-76-2					4.4E-02	6.7E-02	8.8E+02	2.7E-02	
3.1E-01	C	8.8E-05	C			3.0E-02	C V			1		1.2E+05	1.4E+09	6.6E+03	Ethylene Oxide	75-21-8	9.2E+00							
4.5E-02	C	1.3E-05	C	8.0E-05	I					1	0.1	1.4E+09		Ethylene Thiourea	96-45-7	6.4E+01	9.6E+01	1.3E+06	3.8E+01	8.2E+01	1.2E+02	8.6E+02	8.6E+02	
6.5E+01	C	1.9E-02	C							1	0.1	1.4E+09		Ethyleneimine	151-56-4	4.4E-02	6.7E-02	8.8E+02	2.7E-02					4.9E+01
				3.0E+00	I					1	0.1	1.4E+09		Ethylphthalyl Ethyl Glycolate	84-72-0									1.8E+06
				8.0E-03	I					1	0.1	1.4E+09		Express	101200-48-0									4.9E+03
				2.5E-04	I					1	0.1	1.4E+09		Fenamiphos	22224-92-6									1.5E+02
				2.5E-02	I					1	0.1	1.4E+09		Fenpropathrin	39515-41-8									1.5E+04
				1.3E-02	I					1	0.1	1.4E+09		Fluometuron	2164-17-2									8.0E+03
				4.0E-02	C	1.3E-02	C			1		1.4E+09		Fluoride	16984-48-8								7.7E+07	4.1E+04
				6.0E-02	I	1.3E-02	C			1		1.4E+09		Fluorine (Soluble Fluoride)	7782-41-4								7.7E+07	6.1E+04
				8.0E-02	I					1	0.1	1.4E+09		Fluridone	59756-60-4									4.9E+04
				2.0E-02	I					1	0.1	1.4E+09		Flurprimidol	56425-91-3									1.2E+04
				6.0E-02	I					1	0.1	1.4E+09		Flutolanil	66332-96-5									3.7E+04
				1.0E-02	I					1	0.1	1.4E+09		Fluvalinate	69409-94-5									6.2E+03
3.5E-03	I			1.0E-01	I					1	0.1	1.4E+09		Folpet	133-07-3	8.2E+02	1.2E+03		4.9E+02	1.0E+05	1.5E+05			6.2E+04
				2.0E+00	H	3.0E-03	P			1	0.1	1.4E+09		Formic Acid	64-18-6									1.2E+06
				3.0E+00	I					1	0.1	1.4E+09		Fosetyl-AL	39148-24-8									1.8E+06
				1.0E-03	X			V		1		1.7E+02	1.4E+09	2.1E+05	~Dibenzofuran	132-64-9							1.0E+03	1.0E+03
				1.0E-03	I			V		1		6.2E+03	1.4E+09	2.8E+03	~Furan	110-00-9							1.0E+03	1.0E+03
3.8E+00	H									1	0.1	1.4E+09		Furazolidone	67-45-8	7.5E-01	1.1E+00		4.5E-01					
				3.0E-03	I	5.0E-02	H			1	0.1	1.4E+09		Furfural	98-01-1									3.1E+03
1.5E+00	C	4.3E-04	C							1	0.1	1.4E+09		Furium	531-82-8	1.9E+00	2.9E+00	3.9E+04	1.1E+00					4.6E+03
3.0E-02	I	8.6E-06	C							1	0.1	1.4E+09		Furmecyclohex	60568-05-0	9.5E+01	1.4E+02	1.9E+06	5.7E+01					3.0E+08
				4.0E-04	I					1	0.1	1.4E+09		Glufosinate, Ammonium	77182-82-2									2.5E+02
						8.0E-05	C			1	0.1	1.4E+09		Glutaraldehyde	111-30-8								4.8E+05	4.8E+05
				4.0E-04	I	1.0E-03	H			1	0.1	1.4E+09		Glycidyl	765-34-4								6.0E+06	2.5E+02
				1.0E-01	I					1	0.1	1.4E+09		Glyphosate	1071-83-6									6.2E+04
				3.0E-03	I					1	0.1	1.4E+09		Goal	42874-03-3									1.8E+03
				3.0E-03	A	1.0E-02	A			1	0.1	1.4E+09		Guthion	86-50-0									6.0E+07
				5.0E-05	I					1	0.1	1.4E+09		Haloxypol, Methyl	69806-40-2									5.1E+01
				1.3E-02	I					1	0.1	1.4E+09		Harmony	79277-27-3									7.7E+01
4.5E+00	I	1.3E-03	I	5.0E-04	I					1	0.1	1.4E+09		Heptachlor	76-44-8	6.4E-01	9.6E-01	1.3E+04	3.8E-01	5.1E+02	7.7E+02			3.1E+01
9.1E+00	I	2.6E-03	I	1.3E-05	I					1	0.1	1.4E+09		Heptachlor Epoxide	1024-57-3	3.1E-01	4.8E-01	6.4E+03	1.9E-01	1.3E+01	2.0E+01			8.0E+00
				2.0E-03	I					1	0.1	1.4E+09		Hexabromobenzene	87-82-1									3.1E+03
				2.0E-04	I					1	0.1	1.4E+09		Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2									1.2E+02
1.6E+00	I	4.6E-04	I	8.0E-04	I					1	0.1	1.4E+09		Hexachlorobenzene	118-74-1	1.8E+00	2.7E+00	3.6E+04	1.1E+00	8.2E+02	1.2E+03			4.9E+02
7.8E-02	I	2.2E-05	I	1.0E-03	P					1	0.1	1.4E+09		Hexachlorobutadiene	87-68-3	3.7E+01	5.6E+01	7.6E+05	2.2E+01	1.0E+03	1.5E+03			6.2E+02
6.3E+00	I	1.8E-03	I	8.0E-03	A					1	0.1	1.4E+09		Hexachlorocyclohexane, Alpha-	319-84-6	4.5E-01	6.9E-01	9.3E+03	2.7E-01	8.2E+03	1.2E+04			4.9E+03
1.8E+00	I	5.3E-04	I							1	0.1	1.4E+09		Hexachlorocyclohexane, Beta-	319-85-7	1.6E+00	2.4E+00	3.1E+04	9.6E-01					
1.1E+00	C	3.1E-04	C	3.0E-04	I					1	0.04	1.4E+09		Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	2.6E+00	9.9E+00	5.4E+04	2.1E+00	3.1E+02	1.2E+03			2.4E+02
1.8E+00	I	5.1E-04	I							1	0.1	1.4E+09		Hexachlorocyclohexane, Technical	608-73-1	1.6E+00	2.4E+00	3.3E+04	9.6E-01					
				6.0E-03	I	2.0E-04	I			1	0.1	1.4E+09		Hexachlorocyclopentadiene	77-47-4									6.1E+03
1.4E-02	I	4.0E-06	I	1.0E-03	I					1	0.1	1.4E+09		Hexachloroethane	67-72-1	2.0E+02	3.1E+02	4.2E+06	1.2E+02	1.0E+03	1.5E+03			1.2E+06
				3.0E-04	I					1	0.1	1.4E+09		Hexachlorophene	70-30-4									6.2E+02
1.1E-01	I			3.0E-03	I					1	0.015	1.4E+09		Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	2.6E+01	2.6E+02		2.4E+01	3.1E+03	3.1E+04			1.8E+02
						1.0E-05	I V			1		5.2E+03	1.4E+09	3.2E+05	Hexamethylene Diisocyanate, 1,6-	822-06-0								1.4E+01
				6.0E-02	H	7.0E-01	I V			1		1.4E+02	1.4E+09	8.9E+02	Hexane, N-	110-54-3								2.7E+03
				2.0E+00	P					1	0.1	1.4E+09		Hexanedioic Acid	124-04-9									1.2E+06
				5.0E-03	I	3.0E-02	I V			1		3.3E+03	1.4E+09	1.4E+04	Hexanone, 2-	591-78-6								1.4E+03
				3.3E-02	I					1	0.1	1.4E+09		Hexazinone	51235-04-2									2.0E+04
3.0E+00	I	4.9E-03	I			3.0E-05	P			1		1.4E+09		Hydrazine	302-01-2	9.5E-01		3.4E+03	9.5E-01					1.8E+05
3.0E+00	I	4.9E-03	I							1		1.4E+09		Hydrazine Sulfate	10034-93-2	9.5E-01		3.4E+03	9.5E-01					1.8E+05
						2.0E-02	I			1														

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Toxicity and Chemical-specific Information											Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1							
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
6.0E-02	P			4.0E-02	C	1.4E-02	C		1	0.1		1.4E+09		Hydrogen Fluoride	7664-39-3					4.1E+04			8.3E+07	4.1E+04
				2.0E-03	I				1			1.4E+09		Hydrogen Sulfide	7783-06-4							1.2E+07	1.2E+07	
				1.0E-02	A				1			1.4E+09		Hydroquinone	123-31-9	4.8E+01	7.2E+01		2.9E+01	4.1E+04	6.2E+04		2.5E+04	
				1.3E-02	I				1	0.1		1.4E+09		Imazalil	35554-44-0					1.3E+04	2.0E+04		8.0E+03	
				2.5E-01	I				1	0.1		1.4E+09		Imazaquin	81335-37-7					2.6E+05	3.9E+05		1.5E+05	
				1.0E-02	A				1			1.4E+09		Iodine	7553-56-2					1.0E+04			1.0E+04	
				4.0E-02	I				1	0.1		1.4E+09		Iprodione	36734-19-7					4.1E+04	6.2E+04		2.5E+04	
				7.0E-01	P				1			1.4E+09		Iron	7439-89-6					7.2E+05			7.2E+05	
				3.0E-01	I			V	1		1.0E+04	1.4E+09	3.0E+04	Isopropyl Alcohol	78-83-1					3.1E+05			3.1E+05	
9.5E-04	I			2.0E-01	I	2.0E+00	C		1	0.1		1.4E+09		Isophorone	78-59-1	3.0E+03	4.6E+03		1.8E+03	2.0E+05	3.1E+05	1.2E+10	1.2E+05	
				1.5E-02	I				1	0.1		1.4E+09		Isopropalin	33820-53-0					1.5E+04	2.3E+04		9.2E+03	
						7.0E+00	C		1	0.1		1.4E+09		Isopropanol	67-63-0							4.2E+10	4.2E+10	
				1.0E-01	I				1	0.1		1.4E+09		Isopropyl Methyl Phosphonic Acid	1832-54-8					1.0E+05	1.5E+05		6.2E+04	
				5.0E-02	I				1	0.1		1.4E+09		Isoxaben	82558-50-7					5.1E+04	7.7E+04		3.1E+04	
						3.0E-01	A	V	1			1.4E+09		JP-7	NA							1.8E+09	1.8E+09	
				7.5E-02	I				1	0.1		1.4E+09		Kerb	23950-58-5					7.7E+04	1.2E+05		4.6E+04	
				2.0E-03	I				1	0.1		1.4E+09		Lactofen	77501-63-4					2.0E+03	3.1E+03		1.2E+03	
														Lead Compounds										
2.8E-01	C	8.0E-05	C						1	0.1		1.4E+09		~Lead acetate	301-04-2	1.0E+01	1.5E+01	2.1E+05	6.2E+00					
									1			1.4E+09		~Lead and Compounds	7439-92-1									8.0E+02
3.8E-02	C	1.1E-05	C						1	0.1		1.4E+09		~Lead subacetate	1335-32-6	7.5E+01	1.1E+02	1.5E+06	4.5E+01					
				1.0E-07	I				1	0.1		1.4E+09		~Tetraethyl Lead	78-00-2					1.0E-01	1.5E-01		6.2E-02	
				2.0E-03	I				1	0.1		1.4E+09		Linuron	330-55-2					2.0E+03	3.1E+03		1.2E+03	
				2.0E-03	P				1			1.4E+09		Lithium	7439-93-2					2.0E+03			2.0E+03	
				7.0E-04	I				1			1.4E+09		Lithium Perchlorate	7791-03-9					7.2E+02			7.2E+02	
				2.0E-01	I				1	0.1		1.4E+09		Londax	83055-99-6					2.0E+05	3.1E+05		1.2E+05	
				5.0E-04	I				1	0.1		1.4E+09		MCPA	94-74-6					5.1E+02	7.7E+02		3.1E+02	
				1.0E-02	I				1	0.1		1.4E+09		MCPB	94-81-5					1.0E+04	1.5E+04		6.2E+03	
				1.0E-03	I				1	0.1		1.4E+09		MCPD	93-65-2					1.0E+03	1.5E+03		6.2E+02	
				2.0E-02	I				1	0.1		1.4E+09		Malathion	121-75-5					2.0E+04	3.1E+04		1.2E+04	
				1.0E-01	I	7.0E-04	C		1	0.1		1.4E+09		Maleic Anhydride	108-31-6					1.0E+05	1.5E+05	4.2E+06	6.1E+04	
				5.0E-01	I				1	0.1		1.4E+09		Maleic Hydrizide	123-33-1					5.1E+05	7.7E+05		3.1E+05	
				1.0E-04	P				1	0.1		1.4E+09		Malononitrile	109-77-3					1.0E+02	1.5E+02		6.2E+01	
				3.0E-02	H				1	0.1		1.4E+09		Mancozeb	8018-01-7					3.1E+04	4.6E+04		1.8E+04	
				5.0E-03	I				1	0.1		1.4E+09		Maneb	12427-38-2					5.1E+03	7.7E+03		3.1E+03	
				1.4E-01	I	5.0E-05	I		1			1.4E+09		Manganese (Diet)	7439-96-5									
				2.4E-02	S	5.0E-05	I		0.04			1.4E+09		Manganese (Non-diet)	7439-96-5					2.5E+04		3.0E+05	2.3E+04	
				9.0E-05	H				1	0.1		1.4E+09		Mepfosolan	950-10-7					9.2E+01	1.4E+02		5.5E+01	
				3.0E-02	I				1	0.1		1.4E+09		Mepiquat Chloride	24307-26-4					3.1E+04	4.6E+04		1.8E+04	
														Mercury Compounds										
				3.0E-04	I	3.0E-05	C		0.07			1.4E+09		~Mercuric Chloride (and other Mercury salts)	7487-94-7					3.1E+02		1.8E+05	3.1E+02	
				1.6E-04	C	3.0E-04	I	V	1		3.1E+00	1.4E+09	3.2E+04	~Mercury (elemental)	7439-97-6					1.6E+02	4.3E+01		3.4E+01	
				1.0E-04	I				1			1.4E+09		~Methyl Mercury	22967-92-6					1.0E+02			1.0E+02	
				8.0E-05	I				1	0.1		1.4E+09		~Phenylmercuric Acetate	62-38-4					8.2E+01	1.2E+02		4.9E+01	
				3.0E-05	I				1	0.1		1.4E+09		Merphos	150-50-5					3.1E+01	4.6E+01		1.8E+01	
				3.0E-05	I				1	0.1		1.4E+09		Merphos Oxide	78-48-8					3.1E+01	4.6E+01		1.8E+01	
				6.0E-02	I				1	0.1		1.4E+09		Metalaxyl	57837-19-1					6.1E+04	9.3E+04		3.7E+04	
				1.0E-04	I	7.0E-04	H	V	1		4.6E+03	1.4E+09	7.3E+03	Methacrylonitrile	126-98-7					1.0E+02		2.2E+01	1.8E+01	
				5.0E-05	I				1	0.1		1.4E+09		Methamidophos	10265-92-6					5.1E+01	7.7E+01		3.1E+01	
				5.0E-01	I	4.0E+00	C		1	0.1		1.4E+09		Methanol	67-56-1					5.1E+05	7.7E+05	2.4E+10	3.1E+05	
				1.0E-03	I				1	0.1		1.4E+09		Methodathion	950-37-8					1.0E+03	1.5E+03		6.2E+02	
4.9E-02	C	1.4E-05	C	2.5E-02	I				1	0.1		1.4E+09		Methomyl	16752-77-5	5.8E+01	8.8E+01	1.2E+06	3.5E+01	2.6E+04	3.9E+04		1.5E+04	
				5.0E-03	I				1	0.1		1.4E+09		Methoxy-5-nitroaniline, 2-	99-59-2					5.1E+03	7.7E+03		3.1E+03	
									1	0.1		1.4E+09		Methoxychlor	72-43-5									
				2.0E-03	H	9.0E-02	C		1	0.1		1.4E+09		Methoxyethanol Acetate, 2-	110-49-6					2.0E+03	3.1E+03	5.4E+08	1.2E+03	
				3.0E-03	P	2.0E-02	I		1	0.1		1.4E+09		Methoxyethanol, 2-	109-86-4					3.1E+03	4.6E+03	1.2E+08	1.8E+03	
				1.0E+00	H			V	1		2.9E+04	1.4E+09	8.7E+03	Methyl Acetate	79-20-9					1.0E+06			1.0E+06	
				3.0E-02	H			V	1		6.8E+03	1.4E+09	7.5E+03	Methyl Acrylate	96-33-3					3.1E+04			3.1E+04	
				6.0E-01	I	5.0E+00	I	V	1		2.8E+04	1.4E+09	1.3E+04	Methyl Ethyl Ketone (2-Butanone)	78-93-3					6.1E+05		2.9E+05	2.0E+05	
				8.0E-02	H	3.0E+00	I	V	1		3.4E+03	1.4E+09	1.1E+04	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1					8.2E+04		1.5E+05	5.3E+04	

Regional Screening Level (RSL) Industrial Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1																								
Toxicity and Chemical-specific Information												Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1						
SFO (mg/kg-day) ¹	k e y	IUR (ug/m ³) ¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	v o l	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
				1.4E+00	I	7.0E-01	I	V		1	0.1	2.4E+03	1.4E+09	6.8E+03	Methyl Isocyanate	624-83-9							6.0E+06	6.0E+06
				2.5E-04	I					1	0.1	1.4E+09			Methyl Methacrylate	80-62-6					1.4E+06		2.1E+04	2.1E+04
				6.0E-02	X					1	0.1	1.4E+09			Methyl Parathion	298-00-0					2.6E+02	3.9E+02	1.5E+02	1.5E+02
9.9E-02	C	2.8E-05	C	6.0E-03	H	4.0E-02	H	V		1	0.1	3.8E+02	1.4E+09	1.2E+04	Methyl Phosphonic Acid	993-13-5	2.9E+01	4.4E+01	6.0E+05	1.7E+01	6.1E+04	9.3E+04	2.2E+03	3.7E+04
1.8E-03	C	2.6E-07	C	1.0E-03	C					1	0.1	8.9E+03	1.4E+09	5.3E+03	Methyl Styrene (Mixed Isomers)	25013-15-4							6.1E+03	1.6E+03
3.3E-02	H			3.0E+00	I	V				1	0.1	1.4E+09			Methyl tert-Butyl Ether (MTBE)	1634-04-4	1.6E+03	2.5E+02	2.2E+02				6.9E+04	6.9E+04
8.3E+00	C	2.4E-03	C							1	0.1	1.4E+09			Methyl-5-Nitroaniline, 2-	99-55-8	8.7E+01	1.3E+02	5.2E+01					
1.3E-01	C	3.7E-05	C	1.0E-02	A					1	0.1	1.4E+09			Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	3.4E-01	5.2E-01	6.9E+03	2.1E-01				
2.2E+01	C	6.3E-03	C							1	0.1	1.4E+09			Methylaniline Hydrochloride, 2-	636-21-5	2.2E+01	3.3E+01	4.5E+05	1.3E+01				
7.5E-03	I	4.7E-07	I	6.0E-02	I	1.0E+00	A	V		1	0.1	3.3E+03	1.4E+09	2.4E+03	Methylarsonic acid	124-58-3					1.0E+04	1.5E+04	6.2E+03	6.2E+03
1.0E-01	P	4.3E-04	C	2.0E-03	P				M	1	0.1	1.4E+09			Methylcholanthrene, 3-	56-49-5	1.3E-01	2.0E-01	2.6E+03	7.8E-02				
4.6E-02	I	1.3E-05	C							1	0.1	1.4E+09			Methylene Chloride	75-09-2	3.8E+02	6.2E+01	5.3E+01		6.1E+04	1.1E+04	9.2E+03	
1.6E+00	C	4.6E-04	C	2.0E-02	C					1	0.1	1.4E+09			Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.9E+01	4.3E+01	3.9E+04	1.7E+01	2.0E+03	3.1E+03	1.2E+03	1.2E+03
				7.0E-02	H			V		1	0.1	5.0E+02	1.4E+09	1.4E+04	Methylenebisbenzenamine, 4,4'-	101-77-9	1.8E+00	2.7E+00	3.6E+04	1.1E+00			1.2E+08	1.2E+08
				1.5E-01	I					1	0.1	1.4E+09			Methylenediphenyl Diisocyanate	101-68-8							3.6E+06	3.6E+06
				2.5E-02	I					1	0.1	1.4E+09			Metolachlor	51218-45-2					1.5E+05	2.3E+05	9.2E+04	9.2E+04
				4.5E-06	X	1.0E-01	P	V		1	0.1	1.4E+09			Metribuzin	21087-64-9					2.6E+04	3.9E+04	1.5E+04	1.5E+04
				3.0E+00	P					1	0.1	1.4E+09			Midrange Aliphatic Hydrocarbon Streams	NA		3.7E+06	3.7E+06		1.0E+04	6.0E+08	1.0E+04	1.0E+04
1.8E+01	C	5.1E-03	C	2.0E-04	I					1	0.1	1.4E+09			Mineral oils	8012-95-1					3.1E+06	4.6E+06	6.0E+08	1.8E+06
				2.0E-03	I					1	0.1	1.4E+09			Mirex	2385-85-5	1.6E-01	2.4E-01	3.3E+03	9.6E-02	2.0E+02	3.1E+02	1.2E+02	1.2E+02
				5.0E-03	I					1	0.1	1.4E+09			Molinate	2212-67-1					2.0E+03	3.1E+03	1.2E+03	1.2E+03
				1.0E-01	I					1	0.1	1.4E+09			Molybdenum	7439-98-7					5.1E+03			5.1E+03
				2.0E-03	P					1	0.1	1.4E+09			Monochloramine	10599-90-3					1.0E+05			1.0E+05
				3.0E-04	X					1	0.1	1.4E+09			Monomethylaniline	100-61-8					2.0E+03	3.1E+03	1.2E+03	1.2E+03
				2.0E-03	I					1	0.1	1.4E+09			N,N'-Diphenyl-1,4-benzenediamine	74-31-7					3.1E+02	4.6E+02	1.8E+02	1.8E+02
				3.0E-02	X	1.0E-01	P	V		1	0.1	1.4E+09			Naled	300-76-5					2.0E+03	3.1E+03	6.0E+08	3.1E+04
1.8E+00	C	0.0E+00	C	1.0E-01	I					1	0.1	1.4E+09			Naphthylamine, 2-	91-59-8	1.6E+00	2.4E+00	9.6E-01					
				5.0E-02	C	5.0E-05	C			0.04		1.4E+09			Napropamide	15299-99-7					1.0E+05	1.5E+05	3.0E+05	6.2E+04
				5.0E-02	C	1.0E-04	C			1		1.4E+09			Nickel Carbonyl	13463-39-3					5.1E+04		6.0E+05	4.7E+04
				5.0E-02	C	5.0E-05	C			0.04		1.4E+09			Nickel Oxide	1313-99-1					5.1E+04		6.0E+05	4.7E+04
				2.6E-04	C	2.0E-02	I	9.0E-05	A	0.04		1.4E+09			Nickel Refinery Dust	NA		6.9E+04	6.9E+04		5.1E+04		3.0E+05	4.4E+04
1.7E+00	C	4.8E-04	I	5.0E-02	C	5.0E-05	C			0.04		1.4E+09			Nickel Soluble Salts	7440-02-0		6.4E+04	6.4E+04		2.0E+04		5.4E+05	2.0E+04
				1.6E+00	I					1		1.4E+09			Nickel Subulfide	12035-72-2	1.7E+00	3.5E+04	1.7E+00		5.1E+04		3.0E+05	4.4E+04
				1.0E-01	I					1		1.4E+09			Nitrate	14797-55-8					1.6E+06			1.6E+06
				1.0E-01	I					1		1.4E+09			Nitrite	14797-65-0					1.0E+05			1.0E+05
2.0E-02	P			1.0E-02	X	5.0E-05	X			1	0.1	1.4E+09			Nitroaniline, 2-	88-74-4	1.4E+02	2.2E+02			1.0E+04	1.5E+04	3.0E+05	6.0E+03
				4.0E-03	P	6.0E-03	P			1	0.1	1.4E+09			Nitroaniline, 4-	100-01-6			8.6E+01		4.1E+03	6.2E+03	3.6E+07	2.5E+03
				2.0E-03	I	9.0E-03	I	V		1		3.1E+03	1.4E+09	7.9E+04	Nitrobenzene	98-95-3		2.4E+01	2.4E+01		2.0E+03		3.1E+03	1.2E+03
				3.0E+03	P					1	0.1	1.4E+09			Nitrocellulose	9004-70-0					3.1E+09	4.6E+09	1.8E+09	1.8E+09
1.3E+00	C	3.7E-04	C	7.0E-02	H					1	0.1	1.4E+09			Nitrofurantoin	67-20-9					7.2E+04	1.1E+05	4.3E+04	4.3E+04
				1.0E-04	P					1	0.1	1.4E+09			Nitrofurazone	59-87-0	2.2E+00	3.3E+00	4.5E+04	1.3E+00				
1.7E-02	P			1.0E-01	I					1	0.1	1.4E+09			Nitroglycerin	55-63-0	1.7E+02	2.6E+02		1.0E+02	1.0E+02	1.5E+02	6.2E+01	6.2E+01
				2.0E-02	P	V				1		1.8E+04	1.4E+09	1.8E+04	Nitroguanidine	556-88-7					1.0E+05	1.5E+05	1.6E+03	1.6E+03
2.7E+01	C	7.7E-03	C	2.0E-02	I	V				1		4.9E+03	1.4E+09	1.4E+04	Nitromethane	75-52-5			2.5E+01	2.5E+01			1.6E+03	1.6E+03
1.2E+02	C	3.4E-02	C							1	0.1	1.4E+09			Nitropropane, 2-	79-46-9	1.1E-01	1.6E-01	2.2E+03	6.4E-02			1.2E+03	1.2E+03
5.4E+00	I	1.6E-03	I							1		7.1E+03	1.4E+09	2.1E+05	Nitroso-N-ethylurea, N-	759-73-9	2.4E-02	3.6E-02	4.9E+02	1.4E-02				
7.0E+00	I	2.0E-03	C							1	0.1	1.4E+09			Nitroso-N-methylurea, N-	684-93-5	5.3E-01				5.3E-01	1.6E+00	4.0E-01	4.0E-01
2.8E+00	I	8.0E-04	C							1	0.1	1.4E+09			Nitroso-di-N-butylamine, N-	924-16-3	4.1E-01	6.2E-01	8.3E+03	2.5E-01				
1.5E+02	I	4.3E-02	I							1	0.1	1.4E+09			Nitroso-di-N-propylamine, N-	621-64-7	1.0E+00	1.5E+00	2.1E+04	6.2E-01				
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X		M	1	0.1	1.4E+09			Nitrosodiethanolamine, N-	1116-54-7	1.9E-02	2.9E-02	3.9E+02	1.1E-02				
4.9E-03	I	2.6E-06	C							1	0.1	1.4E+09			Nitrosodimethylamine, N-	62-75-9	5.6E-02	8.5E-02	1.2E+03	3.4E-02	8.2E+00	1.2E+01	2.4E+05	4.9E+00
2.2E+01	I	6.3E-03	C							1	0.1	1.4E+09			Nitrosodiphenylamine, N-	86-30-6	5.8E+02	8.8E+02	6.4E+06	3.5E+02				
6.7E+00	C	1.9E-03	C							1	0.1	1.4E+09			Nitrosomethylethylamine, N-	10595-95-6	1.3E-01	2.0E-01	2.6E+03	7.8E-02				
9.4E+00	C	2.7E-03	C							1	0.1</													

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Toxicity and Chemical-specific Information														Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	ke y	IUR (ug/m ³) ⁻¹	ke y	RfD ₀ (mg/kg-day)	ke y	RfC ₀ (mg/m ³)	ke y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
2.1E+00	I	6.1E-04	I						1	0.1		1.4E+09		Nitrosopyrrolidine, N-	930-55-2	1.4E+00	2.1E+00	2.7E+04	8.2E-01					
2.2E-01	P			1.0E-04	X				1	0.1		1.4E+09		Nitrotoluene, m-	99-08-1					1.0E+02	1.5E+02		6.2E+01	
				9.0E-04	P			V	1		1.5E+03	1.4E+09	1.5E+05	Nitrotoluene, o-	88-72-2	1.3E+01			1.3E+01	9.2E+02			9.2E+02	
1.6E-02	P			4.0E-03	P				1	0.1		1.4E+09		Nitrotoluene, p-	99-99-0	1.8E+02	2.7E+02		1.1E+02	4.1E+03	6.2E+03		2.5E+03	
				3.0E-04	X	2.0E-01	P	V	1		6.9E+00	1.4E+09	1.1E+03	Nonane, n-	111-84-2					3.1E+02		9.8E+02	2.3E+02	
				4.0E-02	I				1	0.1		1.4E+09		Norflurazon	27314-13-2					4.1E+04	6.2E+04		2.5E+04	
				7.0E-04	I				1	0.1		1.4E+09		Nustar	85509-19-9					7.2E+02	1.1E+03		4.3E+02	
				3.0E-03	I				1	0.1		1.4E+09		Octabromodiphenyl Ether	32356-52-0					3.1E+03	4.6E+03		1.8E+03	
				5.0E-02	I				1	0.006		1.4E+09		Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	2691-41-0					5.1E+04	1.3E+06		4.9E+04	
				2.0E-03	H				1	0.1		1.4E+09		Octamethylpyrophosphoramide	152-16-9					2.0E+03	3.1E+03		1.2E+03	
				5.0E-02	I				1	0.1		1.4E+09		Oryzalin	19044-88-3					5.1E+04	7.7E+04		3.1E+04	
				5.0E-03	I				1	0.1		1.4E+09		Oxadiazon	19666-30-9					5.1E+03	7.7E+03		3.1E+03	
				2.5E-02	I				1	0.1		1.4E+09		Oxamyl	23135-22-0					2.6E+04	3.9E+04		1.5E+04	
				1.3E-02	I				1	0.1		1.4E+09		Paclitaxel	76738-62-0					1.3E+04	2.0E+04		8.0E+03	
				4.5E-03	I				1	0.1		1.4E+09		Paraquat Dichloride	1910-42-5					4.6E+03	7.0E+03		2.8E+03	
				6.0E-03	H				1	0.1		1.4E+09		Parathion	56-38-2					6.1E+03	9.3E+03		3.7E+03	
				5.0E-02	H				1	0.1		1.4E+09		Pebulate	1114-71-2					5.1E+04	7.7E+04		3.1E+04	
				4.0E-02	I				1	0.1		1.4E+09		Pendimethalin	40487-42-1					4.1E+04	6.2E+04		2.5E+04	
				2.0E-03	I				1	0.1		1.4E+09		Pentabromodiphenyl Ether	32534-81-9					2.0E+03	3.1E+03		1.2E+03	
				1.0E-04	I				1	0.1		1.4E+09		Pentabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-99)	60348-60-9					1.0E+02	1.5E+02		6.2E+01	
				8.0E-04	I				1	0.1		1.4E+09		Pentachlorobenzene	608-93-5					8.2E+02	1.2E+03		4.9E+02	
9.0E-02	P								1	0.1		1.4E+09		Pentachloroethane	76-01-7	3.2E+01	4.8E+01		1.9E+01					
2.6E-01	H			3.0E-03	I				1	0.1		1.4E+09		Pentachloronitrobenzene	82-68-8	1.1E+01	1.7E+01		6.6E+00	3.1E+03	4.6E+03		1.8E+03	
4.0E-01	I	5.1E-06	C	5.0E-03	I				1	0.25		1.4E+09		Pentachlorophenol	87-86-5	7.2E+00	4.3E+00	3.3E+06	2.7E+00	5.1E+03	3.1E+03		1.9E+03	
						1.0E+00	P	V	1		3.9E+02	1.4E+09	8.4E+02	Pentane, n-	109-66-0							3.7E+03	3.7E+03	
				7.0E-04	I				1			1.4E+09		Perchlorate and Perchlorate Salts	14797-73-0					7.2E+02			7.2E+02	
				5.0E-02	I				1	0.1		1.4E+09		Permethrin	52645-53-1					5.1E+04	7.7E+04		3.1E+04	
2.2E-03	C	6.3E-07	C						1	0.1		1.4E+09		Phenacetin	62-44-2	1.3E+03	2.0E+03	2.6E+07	7.8E+02					
				2.5E-01	I				1	0.1		1.4E+09		Phenmedipham	13684-63-4					2.6E+05	3.9E+05		1.5E+05	
				3.0E-01	I	2.0E-01	C		1	0.1		1.4E+09		Phenol	108-95-2					3.1E+05	4.6E+05	1.2E+09	1.8E+05	
				6.0E-03	I				1	0.1		1.4E+09		Phenylenediamine, m-	108-45-2					6.1E+03	9.3E+03		3.7E+03	
				1.9E-01	H				1	0.1		1.4E+09		Phenylenediamine, o-	95-54-5	6.1E+01	9.2E+01		3.7E+01					
									1	0.1		1.4E+09		Phenylenediamine, p-	106-50-3					1.9E+05	2.9E+05		1.2E+05	
1.9E-03	H								1	0.1		1.4E+09		Phenylphenol, 2-	90-43-7	1.5E+03	2.2E+03		8.9E+02					
				2.0E-04	H				1	0.1		1.4E+09		Phorate	298-02-2					2.0E+02	3.1E+02		1.2E+02	
				3.0E-04	I	V			1		1.6E+03	1.4E+09	1.1E+03	Phosgene	75-44-5							1.4E+00	1.4E+00	
				2.0E-02	I				1	0.1		1.4E+09		Phosmet	732-11-6								1.2E+04	
				3.0E-04	I	3.0E-04	I		1			1.4E+09		Phosphine	7803-51-2					3.1E+02		1.8E+06	3.1E+02	
				1.0E-02	I				1			1.4E+09		Phosphoric Acid	7664-38-2							6.0E+07	6.0E+07	
				2.0E-05	I				1			1.4E+09		Phosphorus, White	7723-14-0					2.0E+01			2.0E+01	
				1.0E+00	H				1	0.1		1.4E+09		Phthalic Acid, P-	100-21-0					1.0E+06	1.5E+06		6.2E+05	
				2.0E+00	I	2.0E-02	C		1	0.1		1.4E+09		Phthalic Anhydride	85-44-9					2.0E+06	3.1E+06	1.2E+08	1.2E+06	
				7.0E-02	I				1	0.1		1.4E+09		Picloram	1918-02-1					7.2E+04	1.1E+05		4.3E+04	
				1.0E-04	X				1	0.1		1.4E+09		Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3					1.0E+02	1.5E+02		6.2E+01	
				1.0E-02	I				1	0.1		1.4E+09		Pirimiphos, Methyl	29232-93-7					1.0E+04	1.5E+04		6.2E+03	
3.0E+01	C	8.6E-03	C	7.0E-06	H				1	0.1		1.4E+09		Polybrominated Biphenyls	59536-65-1	9.5E-02	1.4E-01	1.9E+03	5.7E-02	7.2E+00	1.1E+01		4.3E+00	
									1	0.14		1.4E+09		Polychlorinated Biphenyls (PCBs)										
7.0E-02	S	2.0E-05	S	7.0E-05	I				1	0.14		1.4E+09		~Aroclor 1016	12674-11-2	4.1E+01	4.4E+01	8.3E+05	2.1E+01	7.2E+01	7.7E+01		3.7E+01	
2.0E+00	S	5.7E-04	S					V	1	0.14	7.6E+02	1.4E+09	9.2E+04	~Aroclor 1221	11104-28-2	1.4E+00	1.5E+00	2.0E+00	5.4E-01					
2.0E+00	S	5.7E-04	S					V	1	0.14	7.3E+01	1.4E+09	9.2E+04	~Aroclor 1232	11141-16-5	1.4E+00	1.5E+00	2.0E+00	5.4E-01					
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1242	53469-21-9	1.4E+00	1.5E+00	2.9E+04	7.4E-01					
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1248	12672-29-6	1.4E+00	1.5E+00	2.9E+04	7.4E-01					
2.0E+00	S	5.7E-04	S	2.0E-05	I				1	0.14		1.4E+09		~Aroclor 1254	11097-69-1	1.4E+00	1.5E+00	2.9E+04	7.4E-01	2.0E+01	2.2E+01		1.1E+01	
2.0E+00	S	5.7E-04	S						1	0.14		1.4E+09		~Aroclor 1260	11096-82-5	1.4E+00	1.5E+00	2.9E+04	7.4E-01					
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01	
3.9E+00	E	1.1E-03																						

Regional Screening Level (RSL) Industrial Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information													Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1				
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³ -y) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³ -y)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		1	0.14		1.4E+09		~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	7.3E-01	7.9E-01	1.5E+04	3.8E-01	3.4E+01	3.7E+01	7.9E+06	1.8E+01
1.3E+04	E	3.8E+00	E	1.0E-08	E	4.0E-07	E		1	0.14		1.4E+09		~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	2.2E-04	2.4E-04	4.4E+00	1.1E-04	1.0E-02	1.1E-02	2.4E+03	5.3E-03
2.0E+00	I	5.7E-04	I						1	0.14		1.4E+09		~Polychlorinated Biphenyls (high risk)	1336-36-3	1.4E+00	1.5E+00	2.9E+04	7.4E-01				
4.0E-01	I	1.0E-04	I						1	0.14		1.4E+09		~Polychlorinated Biphenyls (low risk)	1336-36-3								
7.0E-02	I	2.0E-05	I						1	0.14		1.4E+09		~Polychlorinated Biphenyls (lowest risk)	1336-36-3								
1.3E+01	E	3.8E-03	E	1.0E-05	E	4.0E-04	E		1	0.14		1.4E+09		~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	2.2E-01	2.4E-01	4.4E+03	1.1E-01	1.0E+01	1.1E+01	2.4E+06	5.3E+00
3.9E+01	E	1.1E-02	E	3.3E-06	E	1.3E-04	E		1	0.14		1.4E+09		~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	7.3E-02	7.9E-02	1.5E+03	3.8E-02	3.4E+00	3.7E+00	7.9E+05	1.8E+00
				6.0E-04	I				1	0.1		1.4E+09		Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9							3.6E+06	3.6E+06
				6.0E-02	I			V	1	0.13		1.4E+09	1.5E+05	Polynuclear Aromatic Hydrocarbons (PAHs)						6.1E+04	7.1E+04		3.3E+04
				3.0E-01	I			V	1	0.13		1.4E+09	5.6E+05	~Anthracene	120-12-7					3.1E+05	3.6E+05		1.7E+05
7.3E-01	E	1.1E-04	C						1	0.13		1.4E+09		~Benz[a]anthracene	56-55-3	3.9E+00	4.6E+00	1.5E+05	2.1E+00				
1.2E+00	C	1.1E-04	C					M	1	0.13		1.4E+09		~Benzo(j)fluoranthene	205-82-3	2.4E+00	2.8E+00	1.5E+05	1.3E+00				
7.3E+00	I	1.1E-03	C					M	1	0.13		1.4E+09		~Benzo[a]pyrene	50-32-8	3.9E-01	4.6E-01	1.5E+04	2.1E-01				
7.3E-01	E	1.1E-04	C					M	1	0.13		1.4E+09		~Benzo[b]fluoranthene	205-99-2	3.9E+00	4.6E+00	1.5E+05	2.1E+00				
7.3E-02	E	1.1E-04	C					M	1	0.13		1.4E+09		~Benzo[k]fluoranthene	207-08-9	3.9E+01	4.6E+01	1.5E+05	2.1E+01				
7.3E-03	E	1.1E-05	C					M	1	0.13		1.4E+09		~Chrysene	218-01-9	3.9E+02	4.6E+02	1.5E+06	2.1E+02				
7.3E+00	E	1.2E-03	C					M	1	0.13		1.4E+09		~Dibenz[a,h]anthracene	53-70-3	3.9E-01	4.6E-01	1.4E+04	2.1E-01				
1.2E+01	C	1.1E-03	C					M	1	0.13		1.4E+09		~Dibenzo(a,e)pyrene	192-65-4	2.4E-01	2.8E-01	1.5E+04	1.3E-01				
2.5E+02	C	7.1E-02	C						1	0.13		1.4E+09		~Dimethylbenz(a)anthracene, 7,12-	57-97-6	1.1E-02	1.3E-02	2.3E+02	6.2E-03				
				4.0E-02	I				1	0.13		1.4E+09		~Fluoranthene	206-44-0					4.1E+04	4.8E+04		2.2E+04
				4.0E-02	I			V	1	0.13		1.4E+09	3.0E+05	~Fluorene	86-73-7					4.1E+04	4.8E+04		2.2E+04
7.3E-01	E	1.1E-04	C					M	1	0.13		1.4E+09		~Indeno[1,2,3-cd]pyrene	193-39-5	3.9E+00	4.6E+00	1.5E+05	2.1E+00				
2.9E-02	P			7.0E-02	A			V	1		3.9E+02	1.4E+09	6.3E+04	~Methylnaphthalene, 1-	90-12-0	9.9E+01			9.9E+01	7.2E+04			7.2E+04
				4.0E-03	I			V	1		3.7E+02	1.4E+09	6.2E+04	~Methylnaphthalene, 2-	91-57-6					4.1E+03			4.1E+03
1.2E+00	C	3.4E-05	C	2.0E-02	I	3.0E-03	I	V	1	0.13		1.4E+09	5.0E+04	~Naphthalene	91-20-3			1.8E+01	1.8E+01	2.0E+04	2.4E+04	6.6E+02	6.2E+02
		1.1E-04	C						1	0.13		1.4E+09		~Nitropyrene, 4-	57835-92-4	2.4E+00	2.8E+00	1.5E+05	1.3E+00				
				3.0E-02	I			V	1	0.13		1.4E+09	2.6E+06	~Pyrene	129-00-0					3.1E+04	3.6E+04		1.7E+04
1.5E-01	I			7.0E-04	I				1			1.4E+09		Potassium Perchlorate	7778-74-7					7.2E+02			7.2E+02
				9.0E-03	I				1	0.1		1.4E+09		Prochloraz	67747-09-5	1.9E+01	2.9E+01		1.1E+01	9.2E+03	1.4E+04		5.5E+03
				6.0E-03	H				1	0.1		1.4E+09		Profluralin	26399-36-0					6.1E+03	9.3E+03		3.7E+03
				1.5E-02	I				1	0.1		1.4E+09		Prometon	1610-18-0					1.5E+04	2.3E+04		9.2E+03
				4.0E-03	I				1	0.1		1.4E+09		Prometryn	7287-19-6					4.1E+03	6.2E+03		2.5E+03
				1.3E-02	I				1	0.1		1.4E+09		Propachlor	1918-16-7					1.3E+04	2.0E+04		8.0E+03
				5.0E-03	I				1	0.1		1.4E+09		Propanil	709-98-8					5.1E+03	7.7E+03		3.1E+03
				2.0E-02	I				1	0.1		1.4E+09		Propargite	2312-35-8					2.0E+04	3.1E+04		1.2E+04
				2.0E-03	I				1	0.1		1.4E+09		Propargyl Alcohol	107-19-7					2.0E+03	3.1E+03		1.2E+03
				2.0E-02	I				1	0.1		1.4E+09		Propazine	139-40-2					2.0E+04	3.1E+04		1.2E+04
				2.0E-02	I				1	0.1		1.4E+09		Propham	122-42-9					2.0E+04	3.1E+04		1.2E+04
				1.3E-02	I				1	0.1		1.4E+09		Propiconazole	60207-90-1					1.3E+04	2.0E+04		8.0E+03
				8.0E-03	I	V			1		3.3E+04	1.4E+09	9.6E+03	Propionaldehyde	123-38-6							3.4E+02	3.4E+02
				1.0E-01	X	1.0E+00	X	V	1	0.1	2.6E+02	1.4E+09	7.5E+03	Propyl benzene	103-65-1					1.0E+05	1.5E+05	3.3E+04	2.1E+04
				3.0E+00	C				1	0.1		1.4E+09		Propylene	115-07-1							1.8E+10	1.8E+10
				2.0E+01	P				1	0.1		1.4E+09		Propylene Glycol	57-55-6					2.0E+07	3.1E+07		1.2E+07
				2.7E-04	A	V			1		1.5E+03	1.4E+09	2.0E+05	Propylene Glycol Dinitrate	6423-43-4							2.4E+02	2.4E+02
				7.0E-01	H				1	0.1		1.4E+09		Propylene Glycol Monoethyl Ether	1569-02-4					7.2E+05	1.1E+06		4.3E+05
2.4E-01	I	3.7E-06	I	7.0E-01	H	2.0E+00	I	V	1	0.1	7.8E+04	1.4E+09	1.0E+04	Propylene Glycol Monomethyl Ether	107-98-2	1.2E+01		3.4E+01	8.8E+00	7.2E+05	1.1E+06	1.2E+10	4.3E+05
				2.5E-01	I				1	0.1		1.4E+09		Propylene Oxide	75-56-9					2.6E+05	3.9E+05		1.5E+05
				2.5E-02	I				1	0.1		1.4E+09		Pursuit	81335-77-5					2.6E+05	3.9E+05		1.5E+05
				1.0E-03	I			V	1		5.3E+05	1.4E+09	6.0E+04	Pydrin	51630-58-1					2.6E+04	3.9E+04		1.5E+04
				5.0E-04	I				1	0.1		1.4E+09		Pyridine	110-86-1					1.0E+03			1.0E+03
									1	0.1		1.4E+09		Quinalphos	13593-03-8					5.1E+02	7.7E+02		3.1E+02
3.0E+00	I								1	0.1		1.4E+09		Quinoline	91-22-5	9.5E-01	1.4E+00		5.7E-01				
				3.0E-02	I	A			1	0.1		1.4E+09		Refractory Ceramic Fibers	NA							1.8E+08	1.8E+08
									1	0.1		1.4E+09		Resmethrin	10453-86-8					3.1E+04			

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1							
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)
				2.5E-02	I				1	0.1		1.4E+09		Savay	78587-05-0					2.6E+04	3.9E+04		1.5E+04
				5.0E-03	I				1		1.4E+09			Selenious Acid	7783-00-8					5.1E+03			5.1E+03
				5.0E-03	I	2.0E-02	C		1		1.4E+09			Selenium	7782-49-2					5.1E+03		1.2E+08	5.1E+03
				5.0E-03	C	2.0E-02	C		1		1.4E+09			Selenium Sulfide	7446-34-6					5.1E+03		1.2E+08	5.1E+03
				9.0E-02	I				1	0.1	1.4E+09			Sethoxydim	74051-80-2					9.2E+04	1.4E+05		5.5E+04
						3.0E-03	C		1		1.4E+09			Silica (crystalline, respirable)	7631-86-9							1.8E+07	1.8E+07
1.2E-01	H			5.0E-03	I				0.04		1.4E+09			Silver	7440-22-4					5.1E+03			5.1E+03
				5.0E-03	I				1	0.1	1.4E+09			Simazine	122-34-9	2.4E+01	3.6E+01		1.4E+01	5.1E+03	7.7E+03		3.1E+03
				1.3E-02	I				1	0.1	1.4E+09			Sodium Acifluorfen	62476-59-9					1.3E+04	2.0E+04		8.0E+03
				4.0E-03	I				1		1.4E+09			Sodium Azide	26628-22-8					4.1E+03			4.1E+03
2.7E-01	H			3.0E-02	I				1	0.1	1.4E+09			Sodium Diethyldithiocarbamate	148-18-5	1.1E+01	1.6E+01		6.4E+00	3.1E+04	4.6E+04		1.8E+04
				5.0E-02	A	1.3E-02	C		1		1.4E+09			Sodium Fluoride	7681-49-4					5.1E+04		7.7E+07	5.1E+04
				2.0E-05	I				1	0.1	1.4E+09			Sodium Fluoroacetate	62-74-8					2.0E+01	3.1E+01		1.2E+01
				1.0E-03	H				1		1.4E+09			Sodium Metavanadate	13718-26-8					1.0E+03			1.0E+03
				7.0E-04	I				1		1.4E+09			Sodium Perchlorate	7601-89-0					7.2E+02			7.2E+02
2.4E-02	H			3.0E-02	I				1	0.1	1.4E+09			Stirofos (Tetrachlorovinphos)	961-11-5	1.2E+02	1.8E+02		7.2E+01	3.1E+04	4.6E+04		1.8E+04
				6.0E-01	I				1		1.4E+09			Strontium, Stable	7440-24-6					6.1E+05			6.1E+05
				3.0E-04	I				1	0.1	1.4E+09			Strychnine	57-24-9					3.1E+02	4.6E+02		1.8E+02
				2.0E-01	I	1.0E+00	I	V	1		8.7E+02	1.4E+09	1.0E+04	Styrene	100-42-5					2.0E+05		4.4E+04	3.6E+04
				8.0E-04	P				1	0.1	1.4E+09			Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9					8.2E+02	1.2E+03		4.9E+02
						1.0E-03	C		1		1.4E+09			Sulfuric Acid	7664-93-9							6.0E+06	6.0E+06
				2.5E-02	I				1	0.1	1.4E+09			Systhane	88671-89-0					2.6E+04	3.9E+04		1.5E+04
				3.0E-02	H				1	0.1	1.4E+09			TCMTB	21564-17-0					3.1E+04	4.6E+04		1.8E+04
				7.0E-02	I				1	0.1	1.4E+09			Tebuthiuron	34014-18-1					7.2E+04	1.1E+05		4.3E+04
				2.0E-02	H				1	0.1	1.4E+09			Temephos	3383-96-8					2.0E+04	3.1E+04		1.2E+04
				1.3E-02	I				1	0.1	1.4E+09			Terbacil	5902-51-2					1.3E+04	2.0E+04		8.0E+03
				2.5E-05	H				1	0.1	1.4E+09			Terbufos	13071-79-9					2.6E+01	3.9E+01		1.5E+01
				1.0E-03	I				1	0.1	1.4E+09			Terbutryn	886-50-0					1.0E+03	1.5E+03		6.2E+02
				1.0E-04	I				1	0.1	1.4E+09			Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1					1.0E+02	1.5E+02		6.2E+01
				3.0E-04	I				1	0.1	1.4E+09			Tetrachlorobenzene, 1,2,4,5-	95-94-3					3.1E+02	4.6E+02		1.8E+02
2.6E-02	I	7.4E-06	I	3.0E-02	I			V	1		6.8E+02	1.4E+09	6.1E+03	Tetrachloroethane, 1,1,1,2-	630-20-6	1.1E+02		1.0E+01	9.3E+00	3.1E+04			3.1E+04
2.0E-01	I	5.8E-05	C	2.0E-02	I			V	1		1.9E+03	1.4E+09	1.6E+04	Tetrachloroethane, 1,1,2,2-	79-34-5	1.4E+01		3.4E+00	2.8E+00	2.0E+04			2.0E+04
5.4E-01	C	5.9E-06	C	1.0E-02	I	2.7E-01	A	V	1		1.7E+02	1.4E+09	2.5E+03	Tetrachloroethylene	127-18-4	5.3E+00		5.3E+00	2.6E+00	1.0E+04		3.0E+03	2.3E+03
				3.0E-02	I				1	0.1	1.4E+09			Tetrachlorophenol, 2,3,4,6-	58-90-2					3.1E+04	4.6E+04		1.8E+04
2.0E+01	H								1	0.1	1.4E+09			Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1	1.4E-01	2.2E-01		8.6E-02	5.1E+02	7.7E+02		3.1E+02
				5.0E-04	I				1	0.1	1.4E+09			Tetraethyl Dithiopyrophosphate	3689-24-5								
						8.0E+01	I	V	1		1.1E+03	1.4E+09	1.3E+03	Tetrafluoroethane, 1,1,1,2-	811-97-2							4.6E+05	4.6E+05
				4.0E-03	P				1	0.1	1.4E+09			Tetryl (Trinitrophenylmethylnitramine)	479-45-8					4.1E+03	6.2E+03		2.5E+03
									1		1.4E+09			Thallium (Soluble Salts)	7440-28-0								
				1.0E-02	I				1	0.1	1.4E+09			Thiobencarb	28249-77-6					1.0E+04	1.5E+04		6.2E+03
				7.0E-02	X				1	0.008	1.4E+09			Thiodiglycol	111-48-8					7.2E+04	1.4E+06		6.8E+04
				3.0E-04	H				1	0.1	1.4E+09			Thiofanox	39196-18-4					3.1E+02	4.6E+02		1.8E+02
				8.0E-02	I				1	0.1	1.4E+09			Thiophanate, Methyl	23564-05-8					8.2E+04	1.2E+05		4.9E+04
				5.0E-03	I				1	0.1	1.4E+09			Thiram	137-26-8					5.1E+03	7.7E+03		3.1E+03
				6.0E-01	H				1		1.4E+09			Tin	7440-31-5					6.1E+05			6.1E+05
						1.0E-04	A		1		1.4E+09			Titanium Tetrachloride	7550-45-0							6.0E+05	6.0E+05
1.9E-01	H			8.0E-02	I	5.0E+00	I	V	1		8.2E+02	1.4E+09	4.6E+03	Toluene	108-88-3					8.2E+04		1.0E+05	4.5E+04
									1	0.1	1.4E+09			Toluidine, p-	106-49-0	1.5E+01	2.3E+01		9.1E+00				
1.1E+00	I	3.2E-04	I						1	0.1	1.4E+09			Toxaphene	8001-35-2	2.6E+00	3.9E+00	5.2E+04	1.6E+00				
				7.5E-03	I				1	0.1	1.4E+09			Tralomethrin	66841-25-6					7.7E+03	1.2E+04		4.6E+03
				3.0E-04	A				1	0.1	1.4E+09			Tri-n-butyltin	688-73-3					3.1E+02	4.6E+02		1.8E+02
				1.3E-02	I				1	0.1	1.4E+09			Triallate	2303-17-5					1.3E+04	2.0E+04		8.0E+03
				1.0E-02	I				1	0.1	1.4E+09			Triasulfuron	82097-50-5					1.0E+04	1.5E+04		6.2E+03
				5.0E-03	I				1	0.1	1.4E+09			Tribromobenzene, 1,2,4-	615-54-3					5.1E+03	7.7E+03		3.1E+03
9.2E-03	P			2.0E-01	P				1	0.1	1.4E+09			Tributyl Phosphate	126-73-8	3.1E+02	4.7E+02		1.9E+02	2.0E+05	3.1E+05		1.2E+05
				3.0E-04	P				1	0.1	1.4E+09			Tributyltin Compounds	NA					3.1E+02	4.6E+02		1.8E+02
				3.0E-04	I				1	0.1	1.4E+09			Tributyltin Oxide	56-35-9					3.1E+02	4.6E+02		1.8E+02
				3.0E+01	I	3.0E+01	H	V	1		9.1E+02	1.4E+09	1.4E+03	Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1					3.1E+07		1.8E+05	1.8E+05
2.9E-02	H								1	0.1	1.4E+09			Trichloroacetic Acid	76-03-9								
									1	0.1	1.4E+09			Trichloroaniline HCl, 2,4,6-	33663-								

Regional Screening Level (RSL) Industrial Soil Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1																								
Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06				Noncancer Hazard Index (HI) = 1								
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD ₀ (mg/kg-day)	k e y	RfC ₀ (mg/m ³)	k e y	muta- gen	GIABS	ABS	C _{sat} (mg/kg)	PEF (m ³ /kg)	VF (m ³ /kg)	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (mg/kg)	Dermal SL TR=1.0E-6 (mg/kg)	Inhalation SL TR=1.0E-6 (mg/kg)	Carcinogenic SL TR=1.0E-6 (mg/kg)	Ingestion SL HQ=1 (mg/kg)	Dermal SL HQ=1 (mg/kg)	Inhalation SL HQ=1 (mg/kg)	Noncarcinogenic SL HI=1 (mg/kg)	
3.4E-02	H			8.0E-04	X	2.0E-03	V		1	0.1	1.4E+09			Trichloroaniline, 2,4,6-	634-93-5	8.4E+01	1.3E+02		5.1E+01					
2.9E-02	P			1.0E-02	I	2.0E-03	P	V	1		1.5E+02	1.4E+09	3.5E+04	Trichlorobenzene, 1,2,3-	87-61-6					8.2E+02	1.2E+03			4.9E+02
				2.0E+00	I	5.0E+00	V		1		4.0E+02	1.4E+09	3.2E+04	Trichlorobenzene, 1,2,4-	120-82-1	9.9E+01			9.9E+01	1.0E+04		2.8E+02		2.7E+02
5.7E-02	I	1.6E-05	I	4.0E-03	I		V		1		6.4E+02	1.4E+09	1.8E+03	Trichloroethane, 1,1,1-	71-55-6					2.0E+06		3.9E+04		3.8E+04
5.9E-03	C	2.0E-06	C				V		1		2.2E+03	1.4E+09	7.8E+03	Trichloroethane, 1,1,2-	79-00-5	5.0E+01		6.0E+00	5.3E+00	4.1E+03				4.1E+03
				3.0E-01	I	7.0E-01	H	V	1		6.9E+02	1.4E+09	2.4E+03	Trichloroethylene	79-01-6	4.9E+02		1.5E+01	1.4E+01					
1.1E-02	I	3.1E-06	I	1.0E-01	I	1.0E-03	P		1	0.1	1.2E+03	1.4E+09	1.1E+03	Trichlorofluoromethane	75-69-4					3.1E+05		3.4E+03		3.4E+03
				1.0E-01	I				1	0.1	1.4E+09			Trichlorophenol, 2,4,5-	95-95-4					1.0E+05	1.5E+05			6.2E+04
				1.0E-02	I				1	0.1	1.4E+09			Trichlorophenol, 2,4,6-	88-06-2	2.6E+02	3.9E+02	5.4E+06	1.6E+02	1.0E+03	1.5E+03			6.2E+02
				8.0E-03	I				1	0.1	1.4E+09			Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5					1.0E+04	1.5E+04			6.2E+03
				5.0E-03	I		V		1		1.3E+03	1.4E+09	1.6E+04	Trichlorophenoxypropionic acid, -2,4,5	93-72-1					8.2E+03	1.2E+04			4.9E+03
				3.0E+01	I	4.0E-03	I	3.0E-04	I	V	M	1	1.4E+03	1.4E+09	1.7E+04	Trichloropropane, 1,2,3-	96-18-4	9.5E-02		9.5E-02	4.1E+03		2.2E+01	2.2E+01
				3.0E-03	X	3.0E-04	P	V	1		4.5E+02	1.4E+09	2.5E+03	Trichloropropene, 1,2,3-	96-19-5					3.1E+03		3.3E+00		3.3E+00
				3.0E-03	I				1	0.1	1.4E+09			Tridiphane	58138-08-2					3.1E+03	4.6E+03			1.8E+03
7.7E-03	I			7.0E-03	I		V		1		2.8E+04	1.4E+09	1.7E+04	Triethylamine	121-44-8							5.2E+02		5.2E+02
3.7E-02	H			7.5E-03	I				1	0.1	1.4E+09			Trifluralin	1582-09-8	3.7E+02	5.6E+02		2.2E+02	7.7E+03	1.2E+04			4.6E+03
									1	0.1	1.4E+09			Trimethyl Phosphate	512-56-1	7.7E+01	1.2E+02		4.7E+01					
				1.0E-02	X		V		1		2.2E+02	1.4E+09	8.5E+03	Trimethylbenzene, 1,2,4-	95-63-6							2.6E+02		2.6E+02
				3.0E-02	I				1	0.019	1.8E+02	1.4E+09	7.1E+03	Trimethylbenzene, 1,3,5-	108-67-8					1.0E+04				1.0E+04
3.0E-02	I			5.0E-04	I				1	0.032	1.4E+09			Trinitrobenzene, 1,3,5-	99-35-4					3.1E+04	2.4E+05			2.7E+04
				2.0E-02	P				1	0.1	1.4E+09			Trinitrotoluene, 2,4,6-	118-96-7	9.5E+01	4.5E+02		7.9E+01	5.1E+02	2.4E+03			4.2E+02
				2.0E-02	A				1	0.1	1.4E+09			Triphenylphosphine Oxide	791-28-6					2.0E+04	3.1E+04			1.2E+04
2.0E-02	P			7.0E-03	P				1	0.1	1.4E+09			Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8					2.0E+04	3.1E+04			1.2E+04
3.2E-03	P			1.0E-01	P				1	0.1	1.4E+09			Tris(2-chloroethyl)phosphate	115-96-8	1.4E+02	2.2E+02		8.6E+01	7.2E+03	1.1E+04			4.3E+03
				3.0E-03	I	3.0E-04	A		1		1.4E+09			Tris(2-ethylhexyl)phosphate	78-42-2	8.9E+02	1.4E+03		5.4E+02	1.0E+05	1.5E+05			6.2E+04
1.0E+00	C	2.9E-04	C	9.0E-03	I	7.0E-06	P		1	0.1	1.4E+09			Uranium (Soluble Salts)	NA	2.9E+00	4.3E+00	5.7E+04	1.7E+00	3.1E+03		1.8E+06		3.1E+03
		8.3E-03	P	2.0E-02	H				0.026		1.4E+09			Urethane	51-79-6									
				5.0E-03	S				1		1.4E+09			Vanadium Pentoxide	1314-62-1			2.0E+03	2.0E+03	9.2E+03		4.2E+04		7.5E+03
				7.0E-05	P	1.0E-04	A		0.026		1.4E+09			Vanadium Sulfate	36907-42-3					2.0E+04				2.0E+04
				1.0E-03	I				1	0.1	1.4E+09			Vanadium and Compounds	NA					5.2E+03				5.2E+03
				2.5E-02	I				1	0.1	1.4E+09			Vanadium, Metallic	7440-62-2					7.2E+01		6.0E+05		7.2E+01
				1.0E+00	H	2.0E-01	I	V	1		2.8E+03	1.4E+09	4.7E+03	Vernolate	1929-77-7					1.0E+03	1.5E+03			6.2E+02
				3.2E-05	H				1		3.4E+03	1.4E+09	1.5E+03	Vincolozin	50471-44-8					2.6E+04	3.9E+04			1.5E+04
				3.0E-04	I	1.0E-01	I	V	1		3.9E+03	1.4E+09	1.0E+03	Vinyl Acetate	108-05-4					1.0E+06		4.1E+03		4.1E+03
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	1	3.9E+03	1.4E+09	1.0E+03	Vinyl Bromide	593-60-2			5.6E-01	5.6E-01			1.9E+01		1.9E+01
				3.0E-04	I				1	0.1	1.4E+09			Vinyl Chloride	75-01-4	4.0E+00		2.9E+00	1.7E+00	3.1E+03		4.5E+02		3.9E+02
				2.0E-01	I	1.0E-01	I	V	1		2.6E+02	1.4E+09	6.3E+03	Warfarin	81-81-2					3.1E+02	4.6E+02			1.8E+02
				2.0E-01	S	7.0E-01	C	V	1		3.9E+02	1.4E+09	6.0E+03	Xylene, Mixture	1330-20-7					2.0E+05		2.7E+03		2.7E+03
				2.0E-01	S	7.0E-01	C	V	1		3.9E+02	1.4E+09	6.0E+03	Xylene, P-	106-42-3					2.0E+05		1.8E+04		1.7E+04
				2.0E-01	S	7.0E-01	C	V	1		4.3E+02	1.4E+09	7.0E+03	Xylene, m-	108-38-3					2.0E+05		1.8E+04		1.7E+04
				3.0E-01	I				1		1.4E+09			Xylene, o-	95-47-6					2.0E+05		2.1E+04		1.9E+04
				3.0E-04	I				1		1.4E+09			Zinc (Metallic)	7440-66-6					3.1E+05				3.1E+05
				5.0E-02	I				1	0.1	1.4E+09			Zinc Phosphide	1314-84-7					3.1E+02				3.1E+02
									1	0.1	1.4E+09			Zineb	12122-67-7					5.1E+04	7.7E+04			3.1E+04

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
5.1E-06	C					ALAR	1596-84-5	4.8E-01	
2.2E-06	I	9.0E-03	I	V		Acephate	30560-19-1	1.1E+00	9.4E+00
						Acetaldehyde	75-07-0		
		3.1E+01	A	V		Acetochlor	34256-82-1		
		6.0E-02	P	V		Acetone	67-64-1		3.2E+04
						Acetone Cyanohydrin	75-86-5		6.3E+01
		6.0E-02	I	V		Acetonitrile	75-05-8		6.3E+01
1.3E-03	C					Acetophenone	98-86-2		
						Acetylaminofluorene, 2-	53-96-3	1.9E-03	
		2.0E-05	I	V		Acrolein	107-02-8		2.1E-02
1.0E-04	I	6.0E-03	I		M	Acrylamide	79-06-1	9.6E-03	6.3E+00
		1.0E-03	I			Acrylic Acid	79-10-7		1.0E+00
6.8E-05	I	2.0E-03	I	V		Acrylonitrile	107-13-1	3.6E-02	2.1E+00
		6.0E-03	P			Adiponitrile	111-69-3		6.3E+00
						Alachlor	15972-60-8		
4.9E-03	I					Aldicarb	116-06-3		
						Aldicarb Sulfone	1646-88-4		
						Aldrin	309-00-2	5.0E-04	
		1.0E-04	X			Allyl	74223-64-6		
6.0E-06	C	1.0E-03	I	V		Allyl Alcohol	107-18-6		1.0E-01
						Allyl Chloride	107-05-1	4.1E-01	1.0E+00
		5.0E-03	P			Aluminum	7429-90-5		5.2E+00
						Aluminum Phosphide	20859-73-8		
						Amdro	67485-29-4		
6.0E-03	C					Ametryn	834-12-8	4.1E-04	
						Aminobiphenyl, 4-	92-67-1		
						Aminophenol, m-	591-27-5		
		1.0E-01	I			Aminophenol, p-	123-30-8		
						Amitraz	33089-61-1		1.0E+02
						Ammonia	7664-41-7		
1.6E-06	C	1.0E-03	I			Ammonium Perchlorate	7790-98-9		
						Ammonium Sulfamate	7773-06-0		
						Aniline	62-53-3	1.5E+00	1.0E+00
						Antimony (metallic)	7440-36-0		
						Antimony Pentoxide	1314-60-9		
						Antimony Potassium Tartrate	11071-15-1		
		2.0E-04	I			Antimony Tetroxide	1332-81-6		2.1E-01
						Antimony Trioxide	1309-64-4		
						Apollo	74115-24-5		
7.1E-06	I					Aramite	140-57-8	3.4E-01	
4.3E-03	I	1.5E-05	C			Arsenic, Inorganic	7440-38-2	5.7E-04	1.6E-02
		5.0E-05	I			Arsine	7784-42-1		5.2E-02
						Assure	76578-14-8		
						Asulam	3337-71-1		
						Atrazine	1912-24-9		
2.5E-04	C					Auramine	492-80-8	9.7E-03	
3.1E-05	I			V		Avermectin B1	65195-55-3	7.8E-02	
		5.0E-04	H			Azobenzene	103-33-3		
						Barium	7440-39-3		5.2E-01
						Baygon	114-26-1		
						Bayleton	43121-43-3		
						Baythroid	68359-37-5		
						Benefin	1861-40-1		
						Benomyl	17804-35-2		
7.8E-06	I	3.0E-02	I	V		Bentazon	25057-89-0		
						Benzaldehyde	100-52-7		
						Benzene	71-43-2	3.1E-01	3.1E+01
6.7E-02	I				M	Benzenethiol	108-98-5	1.4E-05	
						Benidine	92-87-5		
						Benzoic Acid	65-85-0		
						Benzotrithloride	98-07-7		
4.9E-05	C	1.0E-03	P	V		Benzyl Alcohol	100-51-6	5.0E-02	1.0E+00
						Benzyl Chloride	100-44-7		

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
2.4E-03	I	2.0E-05	I			Beryllium and compounds Bidrin Bifenox	7440-41-7 141-66-2 42576-02-3	1.0E-03	2.1E-02
1.0E-05	H			V		Biphenothrin Biphenyl, 1,1'- Bis(2-chloro-1-methylethyl) ether	82657-04-3 92-52-4 108-60-1	2.4E-01	
3.3E-04 2.4E-06	I C			V		Bis(2-chloroethoxy)methane Bis(2-chloroethyl)ether Bis(2-ethylhexyl)phthalate	111-91-1 111-44-4 117-81-7	7.4E-03 1.0E+00	
6.2E-02	I			V		Bis(chloromethyl)ether Bisphenol A Boron And Borates Only	542-88-1 80-05-7 7440-42-8	3.9E-05	2.1E+01
		2.0E-02	H						
		1.3E-02	C			Boron Trifluoride Bromate Bromo-2-chloroethane, 1-	7637-07-2 15541-45-4 107-04-0	4.1E-03	1.4E+01
6.0E-04	X			V					
		6.0E-02	I	V		Bromobenzene Bromodichloromethane Bromoform	108-86-1 75-27-4 75-25-2	6.6E-02 2.2E+00	6.3E+01
3.7E-05 1.1E-06	C I			V					
		5.0E-03	I	V		Bromomethane Bromophos Bromoxynil	74-83-9 2104-96-3 1689-84-5		5.2E+00
3.0E-05	I	2.0E-03	I	V		Bromoxynil Octanoate Butadiene, 1,3- Butanol, N-	1689-99-2 106-99-0 71-36-3	8.1E-02	2.1E+00
		3.0E+01	P			Butyl Benzyl Phthlate Butyl alcohol, sec- Butylate	85-68-7 78-92-2 2008-41-5		3.1E+04
5.7E-08	C					Butylated hydroxyanisole Butylphthalyl Butylglycolate Cacodylic Acid	25013-16-5 85-70-1 75-60-5	4.3E+01	
1.8E-03 1.8E-03	I I	1.0E-05 1.0E-05	A A			Cadmium (Diet) Cadmium (Water) Caprolactam	7440-43-9 7440-43-9 105-60-2	1.4E-03	1.0E-02
4.3E-05 6.6E-07	C C					Captafol Captan Carbaryl	2425-06-1 133-06-2 63-25-2	5.7E-02 3.7E+00	
		7.0E-01	I	V		Carbofuran Carbon Disulfide Carbon Tetrachloride	1563-66-2 75-15-0 56-23-5		7.3E+02 1.0E+02
6.0E-06	I	1.0E-01	I	V				4.1E-01	
		9.0E-04	I			Carbosulfan Carboxin Ceric oxide	55285-14-8 5234-68-4 1306-38-3		9.4E-01
						Chloral Hydrate Chloramben Chloranil	302-17-0 133-90-4 118-75-2		
1.0E-04 4.6E-03	I C	7.0E-04	I			Chlordane Chlordecone (Kepone) Chlorfenvinphos	12789-03-6 143-50-0 470-90-6	2.4E-02 5.3E-04	7.3E-01
		1.5E-04 2.0E-04	A I			Chlorimuron, Ethyl- Chlorine Chlorine Dioxide	90982-32-4 7782-50-5 10049-04-4		1.5E-01 2.1E-01
		5.0E+01	I	V		Chlorite (Sodium Salt) Chloro-1,1-difluoroethane, 1- Chloro-1,3-butadiene, 2-	7758-19-2 75-68-3 126-99-8	8.1E-03	5.2E+04 2.1E+01
3.0E-04	I	2.0E-02	I	V					
						Chloro-2-methylaniline HCl, 4- Chloroacetaldehyde, 2- Chloroacetic Acid	3165-93-3 107-20-0 79-11-8		
		3.0E-05	I			Chloroacetophenone, 2- Chloroaniline, p- Chlorobenzene	532-27-4 106-47-8 108-90-7		3.1E-02 5.2E+01
3.1E-05	C					Chlorobenzilate Chlorobenzoic Acid, p- Chlorobenzotrifluoride, 4-	510-15-6 74-11-3 98-56-6	7.8E-02	3.1E+02

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
2.3E-05	I	5.0E+01	I	V	A	Chlorobutane, 1-	109-69-3	1.1E-01	5.2E+04
						Chlorodifluoromethane	75-45-6		
						Chloroform	67-66-3		
6.9E-04	C	9.0E-02	I	V	A	Chloromethane	74-87-3	3.5E-03	9.4E+01
						Chloromethyl Methyl Ether	107-30-2		
						Chloronaphthalene, Beta-	91-58-7		
6.0E-04	P	1.0E-05	X	V	A	Chloronitrobenzene, o-	88-73-3	1.0E-02	6.3E-01
						Chloronitrobenzene, p-	100-00-5		
						Chlorophenol, 2-	95-57-8		
8.9E-07	C	4.0E-04	C	V	M	Chloropicrin	76-06-2	2.7E+00	4.2E-01
						Chloroethalonil	1897-45-6		
						Chlorotoluene, o-	95-49-8		
6.9E-02	C	V	V	V	M	Chlorotoluene, p-	106-43-4	3.5E-05	
						Chlorozotocin	54749-90-5		
						Chlorpropham	101-21-3		
8.4E-02	S	1.0E-04	I	M	M	Chlorpyrifos	2921-88-2	1.1E-05	1.0E-01
						Chlorpyrifos Methyl	5598-13-0		
						Chlorsulfuron	64902-72-3		
9.0E-03	P	6.0E-06	P	M	M	Chlorthiophos	60238-56-4	2.7E-04	6.3E-03
						Chromium(III), Insoluble Salts	16065-83-1		
						Chromium(VI)	18540-29-9		
6.2E-04	I	6.0E-01	C	C	M	Cobalt	7440-48-4	1.5E-03	
						Coke Oven Emissions	8007-45-2		
						Copper	7440-50-8		
6.0E-01	C	6.0E-01	C	C	M	Cresol, m-	108-39-4	6.3E+02	6.3E+02
						Cresol, o-	95-48-7		
						Cresol, p-	106-44-5		
6.0E-01	C	6.0E-01	C	V	M	Cresol, p-chloro-m-	59-50-7	6.3E+02	6.3E+02
						Cresols	1319-77-3		
						Crotonaldehyde, trans-	123-73-9		
6.3E-05	C	4.0E-01	I	V	M	Cumene	98-82-8	3.9E-02	4.2E+02
						Cupferron	135-20-6		
						Cyanazine	21725-46-2		
8.0E-04	I	V	V	V	M	~Calcium Cyanide	592-01-8	8.3E-01	
						~Copper Cyanide	544-92-3		
						~Cyanide (CN-)	57-12-5		
8.0E-04	I	V	V	V	M	~Cyanogen	460-19-5	8.3E-01	
						~Cyanogen Bromide	506-68-3		
						~Cyanogen Chloride	506-77-4		
6.0E+00	I	V	V	V	M	~Hydrogen Cyanide	74-90-8	6.3E+03	
						~Potassium Cyanide	151-50-8		
						~Potassium Silver Cyanide	506-61-6		
6.9E-05	C	9.7E-05	I	V	M	~Silver Cyanide	506-64-9	3.5E-02	2.5E-02
						~Sodium Cyanide	143-33-9		
						~Thiocyanate	463-56-9		
9.7E-05	I	V	V	V	M	~Zinc Cyanide	557-21-1	2.5E-02	
						Cyclohexane	110-82-7		
						Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3		
9.7E-05	I	V	V	V	M	Cyclohexanone	108-94-1	2.5E-02	
						Cyclohexylamine	108-91-8		
						Cyhalothrin/karate	68085-85-8		
9.7E-05	I	V	V	V	M	Cypermethrin	52315-07-8	2.5E-02	
						Cyromazine	66215-27-8		
						DDD	72-54-8		
9.7E-05	I	V	V	V	M	DDE, p,p'-	72-55-9	2.5E-02	
						DDT	50-29-3		
						Dacthal	1861-32-1		
9.7E-05	I	V	V	V	M	Dalapon	75-99-0	2.5E-02	
						Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5		
						Demeton	8065-48-3		
9.7E-05	I	V	V	V	M	Di(2-ethylhexyl)adipate	103-23-1	2.5E-02	

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Toxicity and Chemical-specific Information						Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
6.0E-03	P	2.0E-04	I	V	M	Diallate	2303-16-4		
						Diazinon	333-41-5		
						Dibromo-3-chloropropane, 1,2-	96-12-8	1.6E-04	2.1E-01
2.7E-05	C			V		Dibromobenzene, 1,4-	106-37-6		
6.0E-04	I	9.0E-03	I	V		Dibromochloromethane	124-48-1	9.0E-02	
						Dibromoethane, 1,2-	106-93-4	4.1E-03	9.4E+00
		4.0E-03	X	V		Dibromomethane (Methylene Bromide)	74-95-3		4.2E+00
						Dibutyl Phthalate	84-74-2		
						Dibutyltin Compounds	NA		
4.2E-03	P			V		Dicamba	1918-00-9		
4.2E-03	P			V		Dichloro-2-butene, 1,4-	764-41-0	5.8E-04	
4.2E-03	P			V		Dichloro-2-butene, cis-1,4-	1476-11-5	5.8E-04	
						Dichloro-2-butene, trans-1,4-	110-57-6	5.8E-04	
		2.0E-01	H	V		Dichloroacetic Acid	79-43-6		
1.1E-05	C	8.0E-01	I	V		Dichlorobenzene, 1,2-	95-50-1		2.1E+02
3.4E-04	C					Dichlorobenzene, 1,4-	106-46-7	2.2E-01	8.3E+02
						Dichlorobenzidine, 3,3'-	91-94-1	7.2E-03	
						Dichlorobenzophenone, 4,4'-	90-98-2		
1.6E-06	C	2.0E-01	H	V		Dichlorodifluoromethane	75-71-8		2.1E+02
2.6E-05	I	2.4E+00	A	V		Dichloroethane, 1,1-	75-34-3	1.5E+00	
						Dichloroethane, 1,2-	107-06-2	9.4E-02	2.5E+03
		2.0E-01	I	V		Dichloroethylene, 1,1-	75-35-4		2.1E+02
						Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0		
						Dichloroethylene, 1,2-cis-	156-59-2		
		6.0E-02	P	V		Dichloroethylene, 1,2-trans-	156-60-5		6.3E+01
						Dichlorophenol, 2,4-	120-83-2		
						Dichlorophenoxy Acetic Acid, 2,4-	94-75-7		
1.0E-05	C	4.0E-03	I	V		Dichlorophenoxybutyric Acid, 4-(2,4-	94-82-6		
						Dichloropropane, 1,2-	78-87-5	2.4E-01	4.2E+00
						Dichloropropane, 1,3-	142-28-9		
4.0E-06	I	2.0E-02	I	V		Dichloropropanol, 2,3-	616-23-9	6.1E-01	2.1E+01
8.3E-05	C	5.0E-04	I			Dichloropropene, 1,3-	542-75-6	2.9E-02	5.2E-01
						Dichlorvos	62-73-7		
4.6E-03	I	7.0E-03	P	V		Dicyclopentadiene	77-73-6		7.3E+00
3.0E-04	C	5.0E-03	I			Dieldrin	60-57-1	5.3E-04	
						Diesel Engine Exhaust	NA	8.1E-03	5.2E+00
		3.0E-03	C			Diethanolamine	111-42-2		3.1E+00
						Diethyl Phthalate	84-66-2		
		1.0E-04	P			Diethylene Glycol Monobutyl Ether	112-34-5		1.0E-01
		3.0E-04	P			Diethylene Glycol Monoethyl Ether	111-90-0		3.1E-01
1.0E-01	C					Diethylformamide	617-84-5		
						Diethylstilbestrol	56-53-1	2.4E-05	
		4.0E+01	I	V		Difenzoquat	43222-48-6		
						Difflubenzuron	35367-38-5		
1.3E-05	C					Difluoroethane, 1,1-	75-37-6		4.2E+04
		4.0E-01	P	V		Dihydrosafrole	94-58-6	1.9E-01	
						Diisopropyl Ether	108-20-3		4.2E+02
						Diisopropyl Methylphosphonate	1445-75-6		
						Dimethipin	55290-64-7		
						Dimethoate	60-51-5		
						Dimethoxybenzidine, 3,3'-	119-90-4		
1.3E-03	C					Dimethyl methylphosphonate	756-79-6		
						Dimethylamino azobenzene [p-]	60-11-7	1.9E-03	
						Dimethylaniline HCl, 2,4-	21436-96-4		
						Dimethylaniline, 2,4-	95-68-1		
						Dimethylaniline, N,N-	121-69-7		
						Dimethylbenzidine, 3,3'-	119-93-7		
		3.0E-02	I			Dimethylformamide	68-12-2		3.1E+01
1.6E-01	C	2.0E-06	X			Dimethylhydrazine, 1,1-	57-14-7		2.1E-03
						Dimethylhydrazine, 1,2-	540-73-8	1.5E-05	
						Dimethylphenol, 2,4-	105-67-9		
						Dimethylphenol, 2,6-	576-26-1		
						Dimethylphenol, 3,4-	95-65-8		

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
1.3E-05	C			V		Dimethylterephthalate	120-61-6	1.9E-01	
						Dimethylvinylchloride	513-37-1		
						Dinitro-o-cresol, 4,6-	534-52-1		
						Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5		
						Dinitrobenzene, 1,2-	528-29-0		
						Dinitrobenzene, 1,3-	99-65-0		
						Dinitrobenzene, 1,4-	100-25-4		
						Dinitrophenol, 2,4-	51-28-5		
						Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6		
8.9E-05	C					Dinitrotoluene, 2,4-	121-14-2	2.7E-02	
						Dinitrotoluene, 2,6-	606-20-2		
						Dinitrotoluene, 2-Amino-4,6-	35572-78-2		
7.7E-06	C	3.6E+00	A			Dinitrotoluene, 4-Amino-2,6-	19406-51-0	3.2E-01	3.8E+03
						Dinoseb	88-85-7		
						Dioxane, 1,4-	123-91-1		
1.3E+00	I					Dioxins		1.9E-06	
3.8E+01	C	4.0E-08	C			~Hexachlorodibenzo-p-dioxin, Mixture	NA		
						~TCDD, 2,3,7,8-	1746-01-6	6.4E-08	4.2E-05
						Diphenamid	957-51-7		
						Diphenyl Sulfone	127-63-9		
						Diphenylamine	122-39-4		
2.2E-04	I					Diphenylhydrazine, 1,2-	122-66-7	1.1E-02	
2.1E-03	C					Diquat	85-00-7		
2.1E-03	C					Direct Black 38	1937-37-7	1.2E-03	
1.9E-03	C					Direct Blue 6	2602-46-2	1.2E-03	
						Direct Brown 95	16071-86-6	1.3E-03	
						Disulfoton	298-04-4		
						Dithiane, 1,4-	505-29-3		
						Diuron	330-54-1		
						Dodine	2439-10-3		
				V		EPTC	759-94-4		
						Endosulfan	115-29-7		
						Endothall	145-73-3		
1.2E-06	I	1.0E-03	I	V		Endrin	72-20-8		
		2.0E-02	I	V		Epichlorohydrin	106-89-8		
						Epoxybutane, 1,2-	106-88-7	2.0E+00	1.0E+00
						Ethephon	16672-87-0		
						Ethion	563-12-2		
		3.0E-01	C			Ethoxyethanol Acetate, 2-	111-15-9		
		2.0E-01	I			Ethoxyethanol, 2-	110-80-5		2.1E+02
				V		Ethyl Acetate	141-78-6		
				V		Ethyl Acrylate	140-88-5		
		1.0E+01	I	V		Ethyl Chloride	75-00-3		1.0E+04
				V		Ethyl Ether	60-29-7		
				V		Ethyl Methacrylate	97-63-2		
2.5E-06	C	1.0E+00	I	V		Ethyl-p-nitrophenyl Phosphonate	2104-64-5	9.7E-01	1.0E+03
						Ethylbenzene	100-41-4		
						Ethylene Cyanohydrin	109-78-4		
		4.0E-01	C			Ethylene Diamine	107-15-3		4.2E+02
		1.6E+00	I			Ethylene Glycol	107-21-1		
						Ethylene Glycol Monobutyl Ether	111-76-2		
8.8E-05	C	3.0E-02	C	V		Ethylene Oxide	75-21-8	2.8E-02	3.1E+01
1.3E-05	C					Ethylene Thiourea	96-45-7	1.9E-01	
1.9E-02	C					Ethyleneimine	151-56-4	1.3E-04	
						Ethylphthalyl Ethyl Glycolate	84-72-0		
						Express	101200-48-0		
						Fenamiphos	22224-92-6		
						Fenpropathrin	39515-41-8		1.4E+01
1.3E-02	C					Fluometuron	2164-17-2		
						Fluoride	16984-48-8		
1.3E-02	C					Fluorine (Soluble Fluoride)	7782-41-4	1.4E+01	
						Fluridone	59756-60-4		
						Flurprimidol	56425-91-3		

Regional Screening Level (RSL) Resident Air Supporting Table November 2010

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
						Flutolanil	66332-96-5		
						Fluvalinate	69409-94-5		
						Folpet	133-07-3		
1.3E-05	I	9.8E-03	A			Fomesafen	72178-02-0		
						Fonofos	944-22-9		
		3.0E-03	P			Formaldehyde	50-00-0	1.9E-01	1.0E+01
						Formic Acid	64-18-6		3.1E+00
						Fosetyl-AL	39148-24-8		
						Furans			
					V	~Dibenzofuran	132-64-9		
					V	~Furan	110-00-9		
						Furazolidone	67-45-8		
4.3E-04	C	5.0E-02	H			Furfural	98-01-1		5.2E+01
8.6E-06	C					Furium	531-82-8	5.7E-03	
						Furmecyclox	60568-05-0	2.8E-01	
		8.0E-05	C			Glufosinate, Ammonium	77182-82-2		
		1.0E-03	H			Glutaraldehyde	111-30-8		8.3E-02
						Glycidyl	765-34-4		1.0E+00
						Glyphosate	1071-83-6		
						Goal	42874-03-3		
		1.0E-02	A			Guthion	86-50-0		1.0E+01
1.3E-03	I					Haloxypop, Methyl	69806-40-2		
						Harmony	79277-27-3		
						Heptachlor	76-44-8	1.9E-03	
2.6E-03	I					Heptachlor Epoxide	1024-57-3	9.4E-04	
						Hexabromobenzene	87-82-1		
						Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2		
4.6E-04	I					Hexachlorobenzene	118-74-1	5.3E-03	
2.2E-05	I					Hexachlorobutadiene	87-68-3	1.1E-01	
1.8E-03	I					Hexachlorocyclohexane, Alpha-	319-84-6	1.4E-03	
5.3E-04	I					Hexachlorocyclohexane, Beta-	319-85-7	4.6E-03	
3.1E-04	C					Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	7.8E-03	
5.1E-04	I					Hexachlorocyclohexane, Technical	608-73-1	4.8E-03	
2.0E-04	I					Hexachlorocyclopentadiene	77-47-4		2.1E-01
4.0E-06	I					Hexachloroethane	67-72-1	6.1E-01	
						Hexachlorophene	70-30-4		
		1.0E-05	I	V		Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4		1.0E-02
		7.0E-01	I	V		Hexamethylene Diisocyanate, 1,6-	822-06-0		7.3E+02
						Hexane, N-	110-54-3		
		3.0E-02	I	V		Hexanedioic Acid	124-04-9		3.1E+01
						Hexanone, 2-	591-78-6		
						Hexazinone	51235-04-2		
4.9E-03	I	3.0E-05	P			Hydrazine	302-01-2	5.0E-04	3.1E-02
4.9E-03	I					Hydrazine Sulfate	10034-93-2	5.0E-04	
		2.0E-02	I			Hydrogen Chloride	7647-01-0		2.1E+01
		1.4E-02	C			Hydrogen Fluoride	7664-39-3		1.5E+01
		2.0E-03	I			Hydrogen Sulfide	7783-06-4		2.1E+00
						Hydroquinone	123-31-9		
						Imazalil	35554-44-0		
						Imazaquin	81335-37-7		
						Iodine	7553-56-2		
						Iprodione	36734-19-7		
					V	Iron	7439-89-6		
						Isobutyl Alcohol	78-83-1		
		2.0E+00	C			Isophorone	78-59-1		2.1E+03
		7.0E+00	C			Isopropalin	33820-53-0		7.3E+03
						Isopropanol	67-63-0		
		3.0E-01	A	V		Isopropyl Methyl Phosphonic Acid	1832-54-8		
						Isoxaben	82558-50-7		
						JP-7	NA		3.1E+02
						Kerb	23950-58-5		
						Lactofen	77501-63-4		
						Lead Compounds			

Regional Screening Level (RSL) Resident Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
8.0E-05	C					~Lead acetate	301-04-2	3.0E-02		
1.1E-05	C					~Lead and Compounds	7439-92-1			
						~Lead subacetate	1335-32-6	2.2E-01		
						~Tetraethyl Lead	78-00-2			
						Linuron	330-55-2			
						Lithium	7439-93-2			
						Lithium Perchlorate	7791-03-9			
						Londax	83055-99-6			
						MCPA	94-74-6			
						MCPB	94-81-5			
						MCPP	93-65-2			
						Malathion	121-75-5			
7.0E-04	C					Maleic Anhydride	108-31-6		7.3E-01	
						Maleic Hydrazide	123-33-1			
						Malononitrile	109-77-3			
						Mancozeb	8018-01-7			
5.0E-05	I					Maneb	12427-38-2			
						Manganese (Diet)	7439-96-5			
5.0E-05	I					Manganese (Non-diet)	7439-96-5		5.2E-02	
						Mephosfolan	950-10-7			
						Mepiquat Chloride	24307-26-4			
3.0E-05	C					Mercury Compounds				
3.0E-04	I V					~Mercuric Chloride (and other Mercury salts)	7487-94-7		3.1E-02	
						~Mercury (elemental)	7439-97-6		3.1E-01	
						~Methyl Mercury	22967-92-6			
						~Phenylmercuric Acetate	62-38-4			
						Merphos	150-50-5			
						Merphos Oxide	78-48-8			
7.0E-04	H V					Metalaxyl	57837-19-1		7.3E-01	
						Methacrylonitrile	126-98-7			
4.0E+00	C					Methamidophos	10265-92-6		4.2E+03	
						Methanol	67-56-1			
						Methidathion	950-37-8			
1.4E-05	C					Methomyl	16752-77-5	1.7E-01		
						Methoxy-5-nitroaniline, 2-	99-59-2			
						Methoxychlor	72-43-5			
9.0E-02	C					Methoxyethanol Acetate, 2-	110-49-6		9.4E+01	
2.0E-02	I					Methoxyethanol, 2-	109-86-4		2.1E+01	
						Methyl Acetate	79-20-9			
						Methyl Acrylate	96-33-3			
5.0E+00	I V					Methyl Ethyl Ketone (2-Butanone)	78-93-3		5.2E+03	
3.0E+00	I V					Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1		3.1E+03	
1.0E-03	C					Methyl Isocyanate	624-83-9		1.0E+00	
7.0E-01	I V					Methyl Methacrylate	80-62-6		7.3E+02	
						Methyl Parathion	298-00-0			
						Methyl Phosphonic Acid	993-13-5			
2.8E-05	C	4.0E-02	H V			Methyl Styrene (Mixed Isomers)	25013-15-4		4.2E+01	
						Methyl methanesulfonate	66-27-3	8.7E-02		
2.6E-07	C	3.0E+00	I V			Methyl tert-Butyl Ether (MTBE)	1634-04-4	9.4E+00	3.1E+03	
						Methyl-5-Nitroaniline, 2-	99-55-8			
2.4E-03	C					Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	1.0E-03		
3.7E-05	C					Methylaniline Hydrochloride, 2-	636-21-5	6.6E-02		
						Methylarsonic acid	124-58-3			
6.3E-03	C					Methylcholanthrene, 3-	56-49-5	3.9E-04		
4.7E-07	I	1.0E+00	A V			Methylene Chloride	75-09-2	5.2E+00	1.1E+03	
4.3E-04	C				M	Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.2E-03		
1.3E-05	C					Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.9E-01		
4.6E-04	C	2.0E-02	C			Methylenebisbenzenamine, 4,4'-	101-77-9	5.3E-03	2.1E+01	
		6.0E-04	I			Methylenediphenyl Diisocyanate	101-68-8		6.3E-01	
						Methylstyrene, Alpha-	98-83-9			
						Metolachlor	51218-45-2			
						Metribuzin	21087-64-9			
4.5E-06	X	1.0E-01	P V			Midrange Aliphatic Hydrocarbon Streams	NA	5.4E-01	1.0E+02	

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IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
5.1E-03	C					Mineral oils Mirex Molinate	8012-95-1 2385-85-5 2212-67-1	4.8E-04		
						Molybdenum Monochloramine Monomethylaniline	7439-98-7 10599-90-3 100-61-8			
		1.0E-01	P	V		N,N'-Diphenyl-1,4-benzenediamine Naled Naphtha, High Flash Aromatic (HFAN)	74-31-7 300-76-5 64724-95-6		1.0E+02	
0.0E+00	C					Naphthylamine, 2- Napropamide Nickel Carbonyl	91-59-8 15299-99-7 13463-39-3		5.2E-02	
		1.0E-04	C			Nickel Oxide	1313-99-1		1.0E-01	
2.4E-04	I	5.0E-05	C			Nickel Refinery Dust	NA	1.0E-02	5.2E-02	
2.6E-04	C	9.0E-05	A			Nickel Soluble Salts	7440-02-0	9.4E-03	9.4E-02	
4.8E-04	I	5.0E-05	C			Nickel Subsulfide Nitrate Nitrite	12035-72-2 14797-55-8 14797-65-0	5.1E-03	5.2E-02	
		5.0E-05	X			Nitroaniline, 2-	88-74-4		5.2E-02	
4.0E-05	I	6.0E-03	P			Nitroaniline, 4-	100-01-6		6.3E+00	
		9.0E-03	I	V		Nitrobenzene	98-95-3	6.1E-02	9.4E+00	
3.7E-04	C					Nitrocellulose Nitrofurantoin Nitrofurazone	9004-70-0 67-20-9 59-87-0	6.6E-03		
		2.0E-02	P	V		Nitroglycerin Nitroguanidine Nitromethane	55-63-0 556-88-7 75-52-5	2.7E-01	2.1E+01	
2.7E-03	H	2.0E-02	I	V		Nitropropane, 2-	79-46-9	9.0E-04	2.1E+01	
7.7E-03	C					Nitroso-N-ethylurea, N-	759-73-9	3.2E-04		
3.4E-02	C					Nitroso-N-methylurea, N-	684-93-5	7.2E-05		
1.6E-03	I			V		Nitroso-di-N-butylamine, N-	924-16-3	1.5E-03		
2.0E-03	C					Nitroso-di-N-propylamine, N-	621-64-7	1.2E-03		
8.0E-04	C					Nitrosodiethanolamine, N-	1116-54-7	3.0E-03		
4.3E-02	I				M	Nitrosodiethylamine, N-	55-18-5	2.2E-05		
1.4E-02	I	4.0E-05	X		M	Nitrosodimethylamine, N-	62-75-9	6.9E-05	4.2E-02	
2.6E-06	C					Nitrosodiphenylamine, N-	86-30-6	9.4E-01		
6.3E-03	C					Nitrosomethylethylamine, N-	10595-95-6	3.9E-04		
1.9E-03	C					Nitrosomorpholine [N-]	59-89-2	1.3E-03		
2.7E-03	C					Nitrosopiperidine [N-]	100-75-4	9.0E-04		
6.1E-04	I					Nitrosopyrrolidine, N- Nitrotoluene, m- Nitrotoluene, o-	930-55-2 99-08-1 88-72-2	4.0E-03		
		2.0E-01	P	V		Nitrotoluene, p- Nonane, n- Norflurazon	99-99-0 111-84-2 27314-13-2		2.1E+02	
						Nustar Octabromodiphenyl Ether Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	85509-19-9 32536-52-0 2691-41-0			
						Octamethylpyrophosphoramide Oryzalin Oxadiazon	152-16-9 19044-88-3 19666-30-9			
						Oxamyl Paclobutrazol Paraquat Dichloride	23135-22-0 76738-62-0 1910-42-5			
						Parathion Pebulate Pendimethalin	56-38-2 1114-71-2 40487-42-1			
						Pentabromodiphenyl Ether Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99) Pentachlorobenzene	32534-81-9 60348-60-9 608-93-5			
5.1E-06	C					Pentachloroethane Pentachloronitrobenzene Pentachlorophenol	76-01-7 82-68-8 87-86-5	4.8E-01		

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IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
1.0E+00	P	V				Pentane, n- Perchlorate and Perchlorate Salts Permethrin	109-66-0 14797-73-0 52645-53-1		1.0E+03	
6.3E-07	C					Phenacetin Phenmedipham Phenol	62-44-2 13684-63-4 108-95-2	3.9E+00	2.1E+02	
2.0E-01	C					Phenylenediamine, m- Phenylenediamine, o- Phenylenediamine, p-	108-45-2 95-54-5 106-50-3			
3.0E-04	I	V				Phenylphenol, 2- Phorate Phosgene	90-43-7 298-02-2 75-44-5		3.1E-01	
3.0E-04	I					Phosmet Phosphine Phosphoric Acid	732-11-6 7803-51-2 7664-38-2		3.1E-01 1.0E+01	
1.0E-02	I					Phosphorus, White Phthalic Acid, P- Phthalic Anhydride	7723-14-0 100-21-0 85-44-9		2.1E+01	
2.0E-02	C					Picloram Picramic Acid (2-Amino-4,6-dinitrophenol) Pirimiphos, Methyl	1918-02-1 96-91-3 29232-93-7			
8.6E-03	C					Polybrominated Biphenyls Polychlorinated Biphenyls (PCBs)	59536-65-1	2.8E-04		
2.0E-05	S					~Aroclor 1016	12674-11-2	1.2E-01		
5.7E-04	S			V		~Aroclor 1221	11104-28-2	4.3E-03		
5.7E-04	S			V		~Aroclor 1232	11141-16-5	4.3E-03		
5.7E-04	S					~Aroclor 1242	53469-21-9	4.3E-03		
5.7E-04	S					~Aroclor 1248	12672-29-6	4.3E-03		
5.7E-04	S					~Aroclor 1254	11097-69-1	4.3E-03		
5.7E-04	S					~Aroclor 1260	11096-82-5	4.3E-03		
1.1E-03	E	1.3E-03	E			~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 157)	69782-90-7	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 156)	38380-08-4	2.1E-03	1.4E+00	
1.1E+00	E	1.3E-06	E			~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	2.1E-06	1.4E-03	
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	2.1E-03	1.4E+00	
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	2.1E-03	1.4E+00	
3.8E+00	E	4.0E-07	E			~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	6.4E-07	4.2E-04	
5.7E-04	I					~Polychlorinated Biphenyls (high risk)	1336-36-3	4.3E-03		
1.0E-04	I					~Polychlorinated Biphenyls (low risk)	1336-36-3	2.4E-02		
2.0E-05	I					~Polychlorinated Biphenyls (lowest risk)	1336-36-3	1.2E-01		
3.8E-03	E	4.0E-04	E			~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	6.4E-04	4.2E-01	
1.1E-02	E	1.3E-04	E			~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	2.1E-04	1.4E-01	
6.0E-04	I					Polymeric Methylene Diphenyl Diisocyanate (PMDI) Polynuclear Aromatic Hydrocarbons (PAHs)	9016-87-9		6.3E-01	
				V		~Acenaphthene	83-32-9			
				V		~Anthracene	120-12-7			
1.1E-04	C				M	~Benz[a]anthracene	56-55-3	8.7E-03		
1.1E-04	C					~Benzo[j]fluoranthene	205-82-3	2.2E-02		
1.1E-03	C				M	~Benzo[a]pyrene	50-32-8	8.7E-04		
1.1E-04	C				M	~Benzo[b]fluoranthene	205-99-2	8.7E-03		
1.1E-04	C				M	~Benzo[k]fluoranthene	207-08-9	8.7E-03		
1.1E-05	C				M	~Chrysene	218-01-9	8.7E-02		
1.2E-03	C				M	~Dibenz[a,h]anthracene	53-70-3	8.0E-04		
1.1E-03	C					~Dibenzo[a,e]pyrene	192-65-4	2.2E-03		
7.1E-02	C					~Dimethylbenz(a)anthracene, 7,12- ~Fluoranthene ~Fluorene	57-97-6 206-44-0 86-73-7	3.4E-05		
1.1E-04	C				M	~Indeno[1,2,3-cd]pyrene	193-39-5	8.7E-03		
				V		~Methylnaphthalene, 1-	90-12-0			
				V		~Methylnaphthalene, 2-	91-57-6			

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
3.4E-05 1.1E-04	C C	3.0E-03	I V			~Naphthalene ~Nitropyrene, 4- ~Pyrene	91-20-3 57835-92-4 129-00-0	7.2E-02 2.2E-02	3.1E+00
						Potassium Perchlorate Prochloraz Profluralin	7778-74-7 67747-09-5 26399-36-0		
						Prometon Prometryn Propachlor	1610-18-0 7287-19-6 1918-16-7		
						Propanil Propargite Propargyl Alcohol	709-98-8 2312-35-8 107-19-7		
						Propazine Propham Propiconazole	139-40-2 122-42-9 60207-90-1		
		8.0E-03 1.0E+00 3.0E+00	I X C	V V		Propionaldehyde Propyl benzene Propylene	123-38-6 103-65-1 115-07-1		8.3E+00 1.0E+03 3.1E+03
		2.7E-04	A	V		Propylene Glycol Propylene Glycol Dinitrate Propylene Glycol Monoethyl Ether	57-55-6 6423-43-4 1569-02-4		2.8E-01
3.7E-06	I	2.0E+00 3.0E-02	I I	V V		Propylene Glycol Monomethyl Ether Propylene Oxide Pursuit	107-98-2 75-56-9 81335-77-5	6.6E-01	2.1E+03 3.1E+01
					V	Pydrin Pyridine Quinalphos	51630-58-1 110-86-1 13593-03-8		
		3.0E-02	A			Quinoline Refractory Ceramic Fibers Resmethrin	91-22-5 NA 10453-86-8		3.1E+01
6.3E-05	C					Ronnel Rotenone Safrole	299-84-3 83-79-4 94-59-7	3.9E-02	
		2.0E-02	C			Savey Selenious Acid Selenium	78587-05-0 7783-00-8 7782-49-2		2.1E+01
		2.0E-02	C			Selenium Sulfide Sethoxydim	7446-34-6 74051-80-2		2.1E+01
		3.0E-03	C			Silica (crystalline, respirable)	7631-86-9		3.1E+00
						Silver Simazine Sodium Acifluorfen	7440-22-4 122-34-9 62476-59-9		
		1.3E-02	C			Sodium Azide Sodium Diethyldithiocarbamate Sodium Fluoride	26628-22-8 148-18-5 7681-49-4		1.4E+01
						Sodium Fluoroacetate Sodium Metavanadate Sodium Perchlorate	62-74-8 13718-26-8 7601-89-0		
						Stirofos (Tetrachlorovinphos) Strontium, Stable Strychnine	961-11-5 7440-24-6 57-24-9		
		1.0E+00 1.0E-03	I C	V		Styrene Sulfonylbis(4-chlorobenzene), 1,1'- Sulfuric Acid	100-42-5 80-07-9 7664-93-9		1.0E+03 1.0E+00
						Systhane TCMTB Tebuthiuron	88671-89-0 21564-17-0 34014-18-1		
						Temephos Terbacil Terbufos	3383-96-8 5902-51-2 13071-79-9		
						Terbutryn Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47) Tetrachlorobenzene, 1,2,4,5-	886-50-0 5436-43-1 95-94-3		

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
7.4E-06	I				V	Tetrachloroethane, 1,1,1,2-	630-20-6	3.3E-01	
5.8E-05	C				V	Tetrachloroethane, 1,1,2,2-	79-34-5	4.2E-02	
5.9E-06	C	2.7E-01	A	V		Tetrachloroethylene	127-18-4	4.1E-01	2.8E+02
						Tetrachlorophenol, 2,3,4,6-	58-90-2		
						Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1		
						Tetraethyl Dithiopyrophosphate	3689-24-5		
8.0E+01	I		V			Tetrafluoroethane, 1,1,1,2-	811-97-2		8.3E+04
						Tetryl (Trinitrophenylmethylnitramine)	479-45-8		
						Thallium (Soluble Salts)	7440-28-0		
						Thiobencarb	28249-77-6		
						Thiodiglycol	111-48-8		
						Thiofanox	39196-18-4		
						Thiophanate, Methyl	23564-05-8		
						Thiram	137-26-8		
						Tin	7440-31-5		
1.0E-04	A					Titanium Tetrachloride	7550-45-0		1.0E-01
5.0E+00	I		V			Toluene	108-88-3		5.2E+03
						Toluidine, p-	106-49-0		
3.2E-04	I					Toxaphene	8001-35-2	7.6E-03	
						Tralomethrin	66841-25-6		
						Tri-n-butyltin	688-73-3		
						Triallate	2303-17-5		
						Triasulfuron	82097-50-5		
						Tribromobenzene, 1,2,4-	615-54-3		
						Tributyl Phosphate	126-73-8		
						Tributyltin Compounds	NA		
						Tributyltin Oxide	56-35-9		
3.0E+01	H		V			Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1		3.1E+04
						Trichloroacetic Acid	76-03-9		
						Trichloroaniline HCl, 2,4,6-	33663-50-2		
					V	Trichloroaniline, 2,4,6-	634-93-5		
2.0E-03	P		V			Trichlorobenzene, 1,2,3-	87-61-6		2.1E+00
						Trichlorobenzene, 1,2,4-	120-82-1		
5.0E+00	I		V			Trichloroethane, 1,1,1-	71-55-6		5.2E+03
1.6E-05	I				V	Trichloroethane, 1,1,2-	79-00-5	1.5E-01	
2.0E-06	C				V	Trichloroethylene	79-01-6	1.2E+00	
7.0E-01	H		V			Trichlorofluoromethane	75-69-4		7.3E+02
						Trichlorophenol, 2,4,5-	95-95-4		
3.1E-06	I					Trichlorophenol, 2,4,6-	88-06-2	7.8E-01	
						Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5		
						Trichlorophenoxypropionic acid, -2,4,5	93-72-1		
					V	Trichloropropane, 1,1,2-	598-77-6		
3.0E-04	I		V		M	Trichloropropane, 1,2,3-	96-18-4		3.1E-01
3.0E-04	P		V			Trichloropropene, 1,2,3-	96-19-5		3.1E-01
						Tridiphane	58138-08-2		
7.0E-03	I		V			Triethylamine	121-44-8		7.3E+00
						Trifluralin	1582-09-8		
						Trimethyl Phosphate	512-56-1		
7.0E-03	P		V		V	Trimethylbenzene, 1,2,4-	95-63-6		7.3E+00
						Trimethylbenzene, 1,3,5-	108-67-8		
						Trinitrobenzene, 1,3,5-	99-35-4		
						Trinitrotoluene, 2,4,6-	118-96-7		
						Triphenylphosphine Oxide	791-28-6		
						Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8		
						Tris(2-chloroethyl)phosphate	115-96-8		
						Tris(2-ethylhexyl)phosphate	78-42-2		
3.0E-04	A					Uranium (Soluble Salts)	NA		3.1E-01
2.9E-04	C					Urethane	51-79-6	8.4E-03	
8.3E-03	P	7.0E-06			P	Vanadium Pentoxide	1314-62-1	2.9E-04	7.3E-03
						Vanadium Sulfate	36907-42-3		
						Vanadium and Compounds	NA		
1.0E-04	A					Vanadium, Metallic	7440-62-2		1.0E-01
						Vernolate	1929-77-7		

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
3.2E-05	H	3.0E-03	I	V		Vinclozolin	50471-44-8	7.6E-02	3.1E+00
						Vinyl Acetate	108-05-4		
						Vinyl Bromide	593-60-2		
4.4E-06	I	1.0E-01	I	V	M	Vinyl Chloride	75-01-4	1.6E-01	1.0E+02
						Warfarin	81-81-2		
						Xylene, Mixture	1330-20-7		
7.0E-01	C	V				Xylene, p-	106-42-3		7.3E+02
						Xylene, m-	108-38-3		
						Xylene, o-	95-47-6		
						Zinc (Metallic)	7440-66-6		
						Zinc Phosphide	1314-84-7		
						Zineb	12122-67-7		

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
5.1E-06	C					ALAR	1596-84-5	2.4E+00		
2.2E-06	I	9.0E-03	I	V		Acephate	30560-19-1	5.6E+00	3.9E+01	
						Acetaldehyde	75-07-0			
		3.1E+01	A	V		Acetochlor	34256-82-1			
		6.0E-02	P	V		Acetone	67-64-1		1.4E+05	
						Acetone Cyanohydrin	75-86-5		2.6E+02	
		6.0E-02	I	V		Acetonitrile	75-05-8		2.6E+02	
1.3E-03	C			V		Acetophenone	98-86-2			
						Acetylaminofluorene, 2-	53-96-3	9.4E-03		
		2.0E-05	I	V		Acrolein	107-02-8		8.8E-02	
1.0E-04	I	6.0E-03	I		M	Acrylamide	79-06-1	1.2E-01	2.6E+01	
		1.0E-03	I			Acrylic Acid	79-10-7		4.4E+00	
6.8E-05	I	2.0E-03	I	V		Acrylonitrile	107-13-1	1.8E-01	8.8E+00	
		6.0E-03	P			Adiponitrile	111-69-3		2.6E+01	
						Alachlor	15972-60-8			
4.9E-03	I					Aldicarb	116-06-3			
						Aldicarb Sulfone	1646-88-4			
						Aldrin	309-00-2	2.5E-03		
6.0E-06	C	1.0E-04	X			Allyl	74223-64-6		4.4E-01	
		1.0E-03	I	V		Allyl Alcohol	107-18-6	2.0E+00	4.4E+00	
						Allyl Chloride	107-05-1			
		5.0E-03	P			Aluminum	7429-90-5		2.2E+01	
						Aluminum Phosphide	20859-73-8			
						Amdro	67485-29-4			
6.0E-03	C					Ametryn	834-12-8	2.0E-03		
						Aminobiphenyl, 4-	92-67-1			
						Aminophenol, m-	591-27-5			
		1.0E-01	I			Aminophenol, p-	123-30-8			
						Amitraz	33089-61-1		4.4E+02	
						Ammonia	7664-41-7			
1.6E-06	C	1.0E-03	I			Ammonium Perchlorate	7790-98-9	7.7E+00	4.4E+00	
						Ammonium Sulfamate	7773-06-0			
						Aniline	62-53-3			
						Antimony (metallic)	7440-36-0			
						Antimony Pentoxide	1314-60-9			
						Antimony Potassium Tartrate	11071-15-1			
		2.0E-04	I			Antimony Tetroxide	1332-81-6		8.8E-01	
						Antimony Trioxide	1309-64-4			
						Apollo	74115-24-5			
7.1E-06	I					Aramite	140-57-8	1.7E+00		
4.3E-03	I	1.5E-05	C			Arsenic, Inorganic	7440-38-2	2.9E-03	6.6E-02	
		5.0E-05	I			Arsine	7784-42-1		2.2E-01	
						Assure	76578-14-8			
						Asulam	3337-71-1			
						Atrazine	1912-24-9			
2.5E-04	C					Auramine	492-80-8	4.9E-02		
3.1E-05	I			V		Avermectin B1	65195-55-3	4.0E-01		
		5.0E-04	H			Azobenzene	103-33-3			
						Barium	7440-39-3		2.2E+00	
						Baygon	114-26-1			
						Bayleton	43121-43-3			
						Baythroid	68359-37-5			
						Benefin	1861-40-1			
						Benomyl	17804-35-2			
				V		Bentazon	25057-89-0			
7.8E-06	I	3.0E-02	I	V		Benzaldehyde	100-52-7	1.6E+00	1.3E+02	
				V		Benzene	71-43-2			
6.7E-02	I				M	Benzenethiol	108-98-5	1.8E-04		
						Benzydine	92-87-5			
						Benzoic Acid	65-85-0			
				V		Benzotrithloride	98-07-7			
4.9E-05	C	1.0E-03	P	V		Benzyl Alcohol	100-51-6	2.5E-01	4.4E+00	
						Benzyl Chloride	100-44-7			

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IUR (ug/m ³ -1)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
2.4E-03	I	2.0E-05	I			Beryllium and compounds	7440-41-7	5.1E-03	8.8E-02	
						Bidrin	141-66-2			
						Bifenox	42576-02-3			
1.0E-05	H			V		Biphenthrin	82657-04-3	1.2E+00		
				V		Biphenyl, 1,1'-	92-52-4			
						Bis(2-chloro-1-methylethyl) ether	108-60-1			
3.3E-04	I			V		Bis(2-chloroethoxy)methane	111-91-1	3.7E-02	5.1E+00	
2.4E-06	C					Bis(2-chloroethyl)ether	111-44-4			
						Bis(2-ethylhexyl)phthalate	117-81-7			
6.2E-02	I			V		Bis(chloromethyl)ether	542-88-1	2.0E-04		
						Bisphenol A	80-05-7			
		2.0E-02	H			Boron And Borates Only	7440-42-8			
		1.3E-02	C			Boron Trifluoride	7637-07-2	2.0E-02	8.8E+01	
6.0E-04	X			V		Bromate	15541-45-4			
						Bromo-2-chloroethane, 1-	107-04-0			
3.7E-05	C	6.0E-02	I	V		Bromobenzene	108-86-1	3.3E-01	2.6E+02	
1.1E-06	I			V		Bromodichloromethane	75-27-4			
						Bromoform	75-25-2	1.1E+01		
		5.0E-03	I	V		Bromomethane	74-83-9	2.2E+01		
						Bromophos	2104-96-3			
						Bromoxynil	1689-84-5			
3.0E-05	I	2.0E-03	I	V		Bromoxynil Octanoate	1689-99-2	4.1E-01	8.8E+00	
						Butadiene, 1,3-	106-99-0			
						Butanol, N-	71-36-3			
		3.0E+01	P			Butyl Benzyl Phthlate	85-68-7	1.3E+05		
						Butyl alcohol, sec-	78-92-2			
						Butylate	2008-41-5			
5.7E-08	C					Butylated hydroxyanisole	25013-16-5	2.2E+02		
						Butylphthalyl Butylglycolate	85-70-1			
						Cacodylic Acid	75-60-5			
1.8E-03	I	1.0E-05	A			Cadmium (Diet)	7440-43-9	6.8E-03	4.4E-02	
1.8E-03	I	1.0E-05	A			Cadmium (Water)	7440-43-9			
						Caprolactam	105-60-2			
4.3E-05	C					Captafol	2425-06-1	2.9E-01	1.9E+01	
6.6E-07	C					Captan	133-06-2			
						Carbaryl	63-25-2			
		7.0E-01	I	V		Carbofuran	1563-66-2	2.0E+00	3.1E+03	
6.0E-06	I	1.0E-01	I	V		Carbon Disulfide	75-15-0			
						Carbon Tetrachloride	56-23-5			
		9.0E-04	I			Carbosulfan	55285-14-8	3.9E+00		
						Carboxin	5234-68-4			
						Ceric oxide	1306-38-3			
						Chloral Hydrate	302-17-0	1.2E-01	3.1E+00	
1.0E-04	I	7.0E-04	I			Chloramben	133-90-4			
4.6E-03	C					Chloranil	118-75-2			
						Chlordane	12789-03-6	2.7E-03		
						Chlordecone (Kepone)	143-50-0			
						Chlorfenvinphos	470-90-6			
		1.5E-04	A			Chlorimuron, Ethyl-	90982-32-4	6.4E-01	8.8E-01	
		2.0E-04	I			Chlorine	7782-50-5			
						Chlorine Dioxide	10049-04-4			
3.0E-04	I	5.0E+01	I	V		Chlorite (Sodium Salt)	7758-19-2	4.1E-02	2.2E+05	
		2.0E-02	I	V		Chloro-1,1-difluoroethane, 1-	75-68-3			
						Chloro-1,3-butadiene, 2-	126-99-8			
						Chloro-2-methylaniline HCl, 4-	3165-93-3	1.3E-01	2.2E+02	
						Chloroacetaldehyde, 2-	107-20-0			
						Chloroacetic Acid	79-11-8			
		3.0E-05	I			Chloroacetophenone, 2-	532-27-4	2.2E+02		
		5.0E-02	P	V		Chloroaniline, p-	106-47-8			
						Chlorobenzene	108-90-7			
3.1E-05	C					Chlorobenzilate	510-15-6	4.0E-01	1.3E+03	
						Chlorobenzoic Acid, p-	74-11-3			
		3.0E-01	P	V		Chlorobenzotrifluoride, 4-	98-56-6			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -y ⁻¹)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
2.3E-05	I	5.0E+01	I	V	V	Chlorobutane, 1-	109-69-3	5.3E-01	2.2E+05	
						Chlorodifluoromethane	75-45-6			
						Chloroform	67-66-3			
6.9E-04	C	9.0E-02	I	V	V	Chloromethane	74-87-3	1.8E-02	3.9E+02	
						Chloromethyl Methyl Ether	107-30-2			
						Chloronaphthalene, Beta-	91-58-7			
8.9E-07	C	1.0E-05	X	V	V	Chloronitrobenzene, o-	88-73-3	1.4E+01	1.8E+00	
						Chloronitrobenzene, p-	100-00-5			
						Chlorophenol, 2-	95-57-8			
6.9E-02	C	4.0E-04	C	V	V	Chloropicrin	76-06-2	1.8E-04	4.4E-02	
						Chloroethalonil	1897-45-6			
						Chlorotoluene, o-	95-49-8			
8.4E-02	S	1.0E-04	I	M	M	Chlorotoluene, p-	106-43-4	1.5E-04	4.4E-01	
						Chlorozotocin	54749-90-5			
						Chlorpropham	101-21-3			
9.0E-03	P	6.0E-06	P	M	M	Chlorpyrifos	2921-88-2	1.4E-03	2.6E-02	
						Chlorpyrifos Methyl	5598-13-0			
						Chlorsulfuron	64902-72-3			
6.2E-04	I	6.0E-06	P	M	M	Chlorthiophos	60238-56-4	2.0E-02	2.6E+03	
						Chromium(III), Insoluble Salts	16065-83-1			
						Chromium(VI)	18540-29-9			
6.0E-01	C	6.0E-01	C	C	C	Chromium, Total	7440-47-3	2.6E+03	2.6E+03	
						Cobalt	7440-48-4			
						Coke Oven Emissions	8007-45-2			
6.0E-01	C	6.0E-01	C	C	C	Copper	7440-50-8	2.6E+03	2.6E+03	
						Cresol, m-	108-39-4			
						Cresol, o-	95-48-7			
6.0E-01	C	6.0E-01	C	C	C	Cresol, p-	106-44-5	2.6E+03	2.6E+03	
						Cresol, p-chloro-m-	59-50-7			
						Cresols	1319-77-3			
6.3E-05	C	4.0E-01	I	V	V	Crotonaldehyde, trans-	123-73-9	1.9E-01	1.8E+03	
						Cumene	98-82-8			
						Cupferron	135-20-6			
8.0E-04	I	8.0E-04	I	V	V	Cyanazine	21725-46-2	3.5E+00	2.6E+04	
						Cyanides				
						~Calcium Cyanide	592-01-8			
6.0E+00	I	6.0E+00	I	V	V	~Copper Cyanide	544-92-3	3.5E+00	2.6E+04	
						~Cyanide (CN-)	57-12-5			
						~Cyanogen	460-19-5			
6.0E+00	I	6.0E+00	I	V	V	~Cyanogen Bromide	506-68-3	3.5E+00	2.6E+04	
						~Cyanogen Chloride	506-77-4			
						~Hydrogen Cyanide	74-90-8			
6.0E+00	I	6.0E+00	I	V	V	~Potassium Cyanide	151-50-8	3.5E+00	2.6E+04	
						~Potassium Silver Cyanide	506-61-6			
						~Silver Cyanide	506-64-9			
6.0E+00	I	6.0E+00	I	V	V	~Sodium Cyanide	143-33-9	3.5E+00	2.6E+04	
						~Thiocyanate	463-56-9			
						~Zinc Cyanide	557-21-1			
6.9E-05	C	6.0E+00	I	V	V	Cyclohexane	110-82-7	1.8E-01	2.6E+04	
						Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3			
						Cyclohexanone	108-94-1			
9.7E-05	C	6.0E+00	I	V	V	Cyclohexylamine	108-91-8	1.3E-01	2.6E+04	
						Cyhalothrin/karate	68085-85-8			
						Cypermethrin	52315-07-8			
9.7E-05	I	6.0E+00	I	V	V	Cyromazine	66215-27-8	1.3E-01	2.6E+04	
						DDD	72-54-8			
						DDE, p,p'-	72-55-9			
9.7E-05	I	6.0E+00	I	V	V	DDT	50-29-3	1.3E-01	2.6E+04	
						Dacthal	1861-32-1			
						Dalapon	75-99-0			
9.7E-05	I	6.0E+00	I	V	V	Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	1.3E-01	2.6E+04	
						Demeton	8065-48-3			
						Di(2-ethylhexyl)adipate	103-23-1			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -y)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
6.0E-03	P	2.0E-04	I	V	M	Diallate Diazinon Dibromo-3-chloropropane, 1,2-	2303-16-4 333-41-5 96-12-8	2.0E-03	8.8E-01	
2.7E-05	C			V		Dibromobenzene, 1,4- Dibromochloromethane Dibromoethane, 1,2-	106-37-6 124-48-1 106-93-4	4.5E-01 2.0E-02	3.9E+01	
		4.0E-03	X	V		Dibromomethane (Methylene Bromide) Dibutyl Phthalate Dibutyltin Compounds	74-95-3 84-74-2 NA		1.8E+01	
4.2E-03	P			V		Dicamba Dichloro-2-butene, 1,4- Dichloro-2-butene, cis-1,4-	1918-00-9 764-41-0 1476-11-5	2.9E-03 2.9E-03		
4.2E-03	P			V		Dichloro-2-butene, trans-1,4- Dichloroacetic Acid Dichlorobenzene, 1,2-	110-57-6 79-43-6 95-50-1	2.9E-03	8.8E+02	
1.1E-05	C	8.0E-01	I	V		Dichlorobenzene, 1,4- Dichlorobenzidine, 3,3'- Dichlorobenzophenone, 4,4'-	106-46-7 91-94-1 90-98-2	1.1E+00 3.6E-02	3.5E+03	
		2.0E-01	H	V		Dichlorodifluoromethane Dichloroethane, 1,1- Dichloroethane, 1,2-	75-71-8 75-34-3 107-06-2	7.7E+00 4.7E-01	8.8E+02 1.1E+04	
1.6E-06	C			V		Dichloroethylene, 1,1- Dichloroethylene, 1,2- (Mixed Isomers) Dichloroethylene, 1,2-cis-	75-35-4 540-59-0 156-59-2		8.8E+02	
2.6E-05	I	2.4E+00	A	V		Dichloroethylene, 1,2-trans- Dichlorophenol, 2,4- Dichlorophenoxy Acetic Acid, 2,4-	156-60-5 120-83-2 94-75-7		2.6E+02	
1.0E-05	C	4.0E-03	I	V	V	Dichlorophenoxybutyric Acid, 4-(2,4- Dichloropropane, 1,2- Dichloropropane, 1,3-	94-82-6 78-87-5 142-28-9	1.2E+00	1.8E+01	
4.0E-06	I	2.0E-02	I	V		Dichloropropanol, 2,3- Dichloropropene, 1,3- Dichlorvos	616-23-9 542-75-6 62-73-7	3.1E+00 1.5E-01	8.8E+01 2.2E+00	
8.3E-05	C	5.0E-04	I			Dicyclopentadiene Dieldrin Diesel Engine Exhaust	77-73-6 60-57-1 NA	2.7E-03 4.1E-02	3.1E+01 2.2E+01	
4.6E-03	I	7.0E-03	P	V		Diethanolamine Diethyl Phthalate Diethylene Glycol Monobutyl Ether	111-42-2 84-66-2 112-34-5		1.3E+01 4.4E-01	
3.0E-04	C	5.0E-03	I			Diethylene Glycol Monoethyl Ether Diethylformamide Diethylstilbestrol	111-90-0 617-84-5 56-53-1		1.3E+00 1.2E-04	
1.0E-01	C					Difenzoquat Diflubenzuron Difluoroethane, 1,1-	43222-48-6 35367-38-5 75-37-6		1.8E+05	
1.3E-05	C	4.0E-01	P	V	V	Dihydrosafrole Diisopropyl Ether Diisopropyl Methylphosphonate	94-58-6 108-20-3 1445-75-6	9.4E-01	1.8E+03	
						Dimethipin Dimethoate Dimethoxybenzidine, 3,3'-	55290-64-7 60-51-5 119-90-4			
1.3E-03	C					Dimethyl methylphosphonate Dimethylamino azobenzene [p-] Dimethylaniline HCl, 2,4-	756-79-6 60-11-7 21436-96-4	9.4E-03		
				V		Dimethylaniline, 2,4- Dimethylaniline, N,N- Dimethylbenzidine, 3,3'-	95-68-1 121-69-7 119-93-7			
3.0E-02	I					Dimethylformamide Dimethylhydrazine, 1,1- Dimethylhydrazine, 1,2-	68-12-2 57-14-7 540-73-8		1.3E+02 8.8E-03	
1.6E-01	C	2.0E-06	X			Dimethylphenol, 2,4- Dimethylphenol, 2,6- Dimethylphenol, 3,4-	105-67-9 576-26-1 95-65-8	7.7E-05		

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -1	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
1.3E-05	C			V		Dimethylterephthalate	120-61-6	9.4E-01		
						Dimethylvinylchloride	513-37-1			
						Dinitro-o-cresol, 4,6-	534-52-1			
						Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5			
						Dinitrobenzene, 1,2-	528-29-0			
						Dinitrobenzene, 1,3-	99-65-0			
						Dinitrobenzene, 1,4-	100-25-4			
						Dinitrophenol, 2,4-	51-28-5			
						Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6			
8.9E-05	C					Dinitrotoluene, 2,4-	121-14-2	1.4E-01		
						Dinitrotoluene, 2,6-	606-20-2			
						Dinitrotoluene, 2-Amino-4,6-	35572-78-2			
						Dinitrotoluene, 4-Amino-2,6-	19406-51-0			
7.7E-06	C	3.6E+00	A			Dinoseb	88-85-7	1.6E+00	1.6E+04	
						Dioxane, 1,4-	123-91-1			
1.3E+00	I					Dioxins				
3.8E+01	C	4.0E-08	C			~Hexachlorodibenzo-p-dioxin, Mixture	NA	9.4E-06		
						~TCDD, 2,3,7,8-	1746-01-6	3.2E-07	1.8E-04	
						Diphenamid	957-51-7			
						Diphenyl Sulfone	127-63-9			
						Diphenylamine	122-39-4			
2.2E-04	I					Diphenylhydrazine, 1,2-	122-66-7	5.6E-02		
						Diquat	85-00-7			
2.1E-03	C					Direct Black 38	1937-37-7	5.8E-03		
2.1E-03	C					Direct Blue 6	2602-46-2	5.8E-03		
1.9E-03	C					Direct Brown 95	16071-86-6	6.5E-03		
						Disulfoton	298-04-4			
						Dithiane, 1,4-	505-29-3			
						Diuron	330-54-1			
						Dodine	2439-10-3			
				V		EPTC	759-94-4			
						Endosulfan	115-29-7			
						Endothall	145-73-3			
1.2E-06	I	1.0E-03	I	V		Endrin	72-20-8	1.0E+01	4.4E+00	
		2.0E-02	I	V		Epichlorohydrin	106-89-8			
						Epoxybutane, 1,2-	106-88-7			
						Ethephon	16672-87-0			
						Ethion	563-12-2			
		3.0E-01	C			Ethoxyethanol Acetate, 2-	111-15-9		1.3E+03	
						Ethoxyethanol, 2-	110-80-5		8.8E+02	
				V		Ethyl Acetate	141-78-6			
				V		Ethyl Acrylate	140-88-5			
		1.0E+01	I	V		Ethyl Chloride	75-00-3		4.4E+04	
				V		Ethyl Ether	60-29-7			
				V		Ethyl Methacrylate	97-63-2			
2.5E-06	C	1.0E+00	I	V		Ethyl-p-nitrophenyl Phosphonate	2104-64-5	4.9E+00	4.4E+03	
						Ethylbenzene	100-41-4			
						Ethylene Cyanohydrin	109-78-4			
						Ethylene Diamine	107-15-3			
		4.0E-01	C			Ethylene Glycol	107-21-1		1.8E+03	
		1.6E+00	I			Ethylene Glycol Monobutyl Ether	111-76-2		7.0E+03	
8.8E-05	C	3.0E-02	C	V		Ethylene Oxide	75-21-8	1.4E-01	1.3E+02	
1.3E-05	C					Ethylene Thiourea	96-45-7	9.4E-01		
1.9E-02	C					Ethyleneimine	151-56-4	6.5E-04		
						Ethylphthalyl Ethyl Glycolate	84-72-0			
						Express	101200-48-0			
						Fenamiphos	22224-92-6			
						Fenpropathrin	39515-41-8			
						Fluometuron	2164-17-2			
1.3E-02	C					Fluoride	16984-48-8		5.7E+01	
1.3E-02	C					Fluorine (Soluble Fluoride)	7782-41-4		5.7E+01	
						Fluridone	59756-60-4			
						Flurprimidol	56425-91-3			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -y ⁻¹)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
						Flutolanil	66332-96-5			
						Fluvalinate	69409-94-5			
						Folpet	133-07-3			
1.3E-05	I	9.8E-03	A			Fomesafen	72178-02-0			
						Fonofos	944-22-9			
						Formaldehyde	50-00-0	9.4E-01	4.3E+01	
		3.0E-03	P			Formic Acid	64-18-6		1.3E+01	
						Fosetyl-AL	39148-24-8			
						Furans				
				V		~Dibenzofuran	132-64-9			
				V		~Furan	110-00-9			
						Furazolidone	67-45-8			
4.3E-04	C	5.0E-02	H			Furfural	98-01-1		2.2E+02	
8.6E-06	C					Furium	531-82-8	2.9E-02		
						Furmecycloz	60568-05-0	1.4E+00		
		8.0E-05	C			Glufosinate, Ammonium	77182-82-2			
		1.0E-03	H			Glutaraldehyde	111-30-8		3.5E-01	
						Glycidyl	765-34-4		4.4E+00	
		1.0E-02	A			Glyphosate	1071-83-6			
						Goal	42874-03-3			
						Guthion	86-50-0		4.4E+01	
1.3E-03	I					Haloxypop, Methyl	69806-40-2			
						Harmony	79277-27-3			
						Heptachlor	76-44-8	9.4E-03		
2.6E-03	I					Heptachlor Epoxide	1024-57-3		4.7E-03	
						Hexabromobenzene	87-82-1			
						Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2			
4.6E-04	I					Hexachlorobenzene	118-74-1	2.7E-02		
2.2E-05	I					Hexachlorobutadiene	87-68-3	5.6E-01		
1.8E-03	I					Hexachlorocyclohexane, Alpha-	319-84-6	6.8E-03		
5.3E-04	I					Hexachlorocyclohexane, Beta-	319-85-7	2.3E-02		
3.1E-04	C					Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	4.0E-02		
5.1E-04	I					Hexachlorocyclohexane, Technical	608-73-1	2.4E-02		
4.0E-06	I	2.0E-04	I			Hexachlorocyclopentadiene	77-47-4		8.8E-01	
						Hexachloroethane	67-72-1	3.1E+00		
						Hexachlorophene	70-30-4			
		1.0E-05	I	V		Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4			
		7.0E-01	I	V		Hexamethylene Diisocyanate, 1,6-	822-06-0		4.4E-02	
						Hexane, N-	110-54-3		3.1E+03	
		3.0E-02	I	V		Hexanedioic Acid	124-04-9			
						Hexanone, 2-	591-78-6		1.3E+02	
						Hexazinone	51235-04-2			
4.9E-03	I	3.0E-05	P			Hydrazine	302-01-2	2.5E-03	1.3E-01	
4.9E-03	I					Hydrazine Sulfate	10034-93-2	2.5E-03		
		2.0E-02	I			Hydrogen Chloride	7647-01-0		8.8E+01	
		1.4E-02	C			Hydrogen Fluoride	7664-39-3		6.1E+01	
		2.0E-03	I			Hydrogen Sulfide	7783-06-4		8.8E+00	
						Hydroquinone	123-31-9			
						Imazalil	35554-44-0			
						Imazaquin	81335-37-7			
						Iodine	7553-56-2			
						Iprodione	36734-19-7			
						Iron	7439-89-6			
				V		Isobutyl Alcohol	78-83-1			
		2.0E+00	C			Isophorone	78-59-1		8.8E+03	
		7.0E+00	C			Isopropalin	33820-53-0			
						Isopropanol	67-63-0		3.1E+04	
		3.0E-01	A	V		Isopropyl Methyl Phosphonic Acid	1832-54-8			
						Isoxaben	82558-50-7			
						JP-7	NA		1.3E+03	
						Kerb	23950-58-5			
						Lactofen	77501-63-4			
						Lead Compounds				

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
8.0E-05	C					~Lead acetate	301-04-2	1.5E-01		
1.1E-05	C					~Lead and Compounds	7439-92-1	1.1E+00		
						~Lead subacetate	1335-32-6			
						~Tetraethyl Lead	78-00-2			
						Linuron	330-55-2			
						Lithium	7439-93-2			
						Lithium Perchlorate	7791-03-9			
						Londax	83055-99-6			
						MCPA	94-74-6			
						MCPB	94-81-5			
						MCPB	93-65-2			
						Malathion	121-75-5			
7.0E-04	C					Maleic Anhydride	108-31-6		3.1E+00	
						Maleic Hydrazide	123-33-1			
						Malononitrile	109-77-3			
						Mancozeb	8018-01-7			
5.0E-05	I					Maneb	12427-38-2			
						Manganese (Diet)	7439-96-5			
5.0E-05	I					Manganese (Non-diet)	7439-96-5		2.2E-01	
						Mephosfolan	950-10-7			
						Mepiquat Chloride	24307-26-4			
3.0E-05	C					Mercury Compounds				
3.0E-04	I V					~Mercuric Chloride (and other Mercury salts)	7487-94-7		1.3E-01	
						~Mercury (elemental)	7439-97-6		1.3E+00	
						~Methyl Mercury	22967-92-6			
						~Phenylmercuric Acetate	62-38-4			
						Merphos	150-50-5			
						Merphos Oxide	78-48-8			
7.0E-04	H V					Metalaxyl	57837-19-1		3.1E+00	
						Methacrylonitrile	126-98-7			
4.0E+00	C					Methamidophos	10265-92-6		1.8E+04	
						Methanol	67-56-1			
						Methidathion	950-37-8			
1.4E-05	C					Methomyl	16752-77-5	8.8E-01		
						Methoxy-5-nitroaniline, 2-	99-59-2			
						Methoxychlor	72-43-5			
9.0E-02	C					Methoxyethanol Acetate, 2-	110-49-6		3.9E+02	
2.0E-02	I					Methoxyethanol, 2-	109-86-4		8.8E+01	
						Methyl Acetate	79-20-9			
						Methyl Acrylate	96-33-3			
5.0E+00	I V					Methyl Ethyl Ketone (2-Butanone)	78-93-3		2.2E+04	
3.0E+00	I V					Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1		1.3E+04	
1.0E-03	C					Methyl Isocyanate	624-83-9		4.4E+00	
7.0E-01	I V					Methyl Methacrylate	80-62-6		3.1E+03	
						Methyl Parathion	298-00-0			
4.0E-02	H V					Methyl Phosphonic Acid	993-13-5			
2.8E-05	C					Methyl Styrene (Mixed Isomers)	25013-15-4	4.4E-01	1.8E+02	
						Methyl methanesulfonate	66-27-3			
2.6E-07	C	3.0E+00	I	V		Methyl tert-Butyl Ether (MTBE)	1634-04-4	4.7E+01	1.3E+04	
2.4E-03	C					Methyl-5-Nitroaniline, 2-	99-55-8	5.1E-03		
3.7E-05	C					Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	3.3E-01		
6.3E-03	C					Methylaniline Hydrochloride, 2-	636-21-5	1.9E-03		
						Methylarsonic acid	124-58-3			
						Methylcholanthrene, 3-	56-49-5			
4.7E-07	I	1.0E+00	A	V		Methylene Chloride	75-09-2	2.6E+01	4.6E+03	
4.3E-04	C				M	Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.9E-02		
1.3E-05	C					Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	9.4E-01		
4.6E-04	C	2.0E-02	C			Methylenebisbenzenamine, 4,4'-	101-77-9	2.7E-02	8.8E+01	
		6.0E-04	I			Methylenediphenyl Diisocyanate	101-68-8	2.6E+00		
						Methylstyrene, Alpha-	98-83-9			
4.5E-06	X	1.0E-01	P	V		Metolachlor	51218-45-2	2.7E+00	4.4E+02	
						Metribuzin	21087-64-9			
						Midrange Aliphatic Hydrocarbon Streams	NA			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -y ⁻¹)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
5.1E-03	C					Mineral oils Mirex Molinate	8012-95-1 2385-85-5 2212-67-1	2.4E-03		
						Molybdenum Monochloramine Monomethylaniline	7439-98-7 10599-90-3 100-61-8			
						N,N'-Diphenyl-1,4-benzenediamine Naled Naphtha, High Flash Aromatic (HFAN)	74-31-7 300-76-5 64724-95-6		4.4E+02	
0.0E+00	C					Naphthylamine, 2- Napropamide Nickel Carbonyl	91-59-8 15299-99-7 13463-39-3		2.2E-01	
						Nickel Oxide Nickel Refinery Dust Nickel Soluble Salts	1313-99-1 NA 7440-02-0	5.1E-02 4.7E-02	4.4E-01 2.2E-01 3.9E-01	
						Nickel Subsulfide Nitrate Nitrite	12035-72-2 14797-55-8 14797-65-0	2.6E-02	2.2E-01	
						Nitroaniline, 2- Nitroaniline, 4- Nitrobenzene	88-74-4 100-01-6 98-95-3	3.1E-01	2.2E-01 2.6E+01 3.9E+01	
						Nitrocellulose Nitrofurantoin Nitrofurazone	9004-70-0 67-20-9 59-87-0	3.3E-02		
						Nitroglycerin Nitroguanidine Nitromethane	55-63-0 556-88-7 75-52-5	1.4E+00	8.8E+01	
						Nitropropane, 2- Nitroso-N-ethylurea, N- Nitroso-N-methylurea, N-	79-46-9 759-73-9 684-93-5	4.5E-03 1.6E-03 3.6E-04	8.8E+01	
						Nitroso-di-N-butylamine, N- Nitroso-di-N-propylamine, N- Nitrosodiethanolamine, N-	924-16-3 621-64-7 1116-54-7	7.7E-03 6.1E-03 1.5E-02		
						Nitrosodiethylamine, N- Nitrosodimethylamine, N- Nitrosodiphenylamine, N-	55-18-5 62-75-9 86-30-6	2.9E-04 8.8E-04 4.7E+00	1.8E-01	
						Nitrosomethylethylamine, N- Nitrosomorpholine [N-] Nitrosopiperidine [N-]	10595-95-6 59-89-2 100-75-4	1.9E-03 6.5E-03 4.5E-03		
						Nitrosopyrrolidine, N- Nitrotoluene, m- Nitrotoluene, o-	930-55-2 99-08-1 88-72-2	2.0E-02		
						Nitrotoluene, p- Nonane, n- Norflurazon	99-99-0 111-84-2 27314-13-2		8.8E+02	
						Nustar Octabromodiphenyl Ether Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	85509-19-9 32536-52-0 2691-41-0			
						Octamethylpyrophosphoramidate Oryzalin Oxadiazon	152-16-9 19044-88-3 19666-30-9			
						Oxamyl Paclobutrazol Paraquat Dichloride	23135-22-0 76738-62-0 1910-42-5			
						Parathion Pebulate Pendimethalin	56-38-2 1114-71-2 40487-42-1			
						Pentabromodiphenyl Ether Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99) Pentachlorobenzene	32534-81-9 60348-60-9 608-93-5			
5.1E-06	C					Pentachloroethane Pentachloronitrobenzene Pentachlorophenol	76-01-7 82-68-8 87-86-5	2.4E+00		

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information						Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³ -y)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
1.0E+00	P		V			Pentane, n- Perchlorate and Perchlorate Salts Permethrin	109-66-0 14797-73-0 52645-53-1		4.4E+03
6.3E-07	C					Phenacetin Phenmedipham Phenol	62-44-2 13684-63-4 108-95-2	1.9E+01	
2.0E-01	C					Phenylenediamine, m- Phenylenediamine, o- Phenylenediamine, p-	108-45-2 95-54-5 106-50-3		8.8E+02
3.0E-04	I		V			Phenylphenol, 2- Phorate Phosgene	90-43-7 298-02-2 75-44-5		1.3E+00
3.0E-04	I					Phosmet Phosphine Phosphoric Acid	732-11-6 7803-51-2 7664-38-2		1.3E+00 4.4E+01
1.0E-02	I					Phosphorus, White Phthalic Acid, P- Phthalic Anhydride	7723-14-0 100-21-0 85-44-9		8.8E+01
2.0E-02	C					Picloram Picramic Acid (2-Amino-4,6-dinitrophenol) Pirimiphos, Methyl	1918-02-1 96-91-3 29232-93-7		
8.6E-03	C					Polybrominated Biphenyls Polychlorinated Biphenyls (PCBs)	59536-65-1	1.4E-03	
2.0E-05	S					~Aroclor 1016	12674-11-2	6.1E-01	
5.7E-04	S			V		~Aroclor 1221	11104-28-2	2.1E-02	
5.7E-04	S			V		~Aroclor 1232	11141-16-5	2.1E-02	
5.7E-04	S					~Aroclor 1242	53469-21-9	2.1E-02	
5.7E-04	S					~Aroclor 1248	12672-29-6	2.1E-02	
5.7E-04	S					~Aroclor 1254	11097-69-1	2.1E-02	
5.7E-04	S					~Aroclor 1260	11096-82-5	2.1E-02	
1.1E-03	E	1.3E-03	E			~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)	38380-08-4	1.1E-02	5.8E+00
1.1E+00	E	1.3E-06	E			~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	1.1E-05	5.8E-03
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	1.1E-02	5.8E+00
1.1E-03	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	1.1E-02	5.8E+00
3.8E+00	E	4.0E-07	E			~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	3.2E-06	1.8E-03
5.7E-04	I					~Polychlorinated Biphenyls (high risk)	1336-36-3	2.1E-02	
1.0E-04	I					~Polychlorinated Biphenyls (low risk)	1336-36-3	1.2E-01	
2.0E-05	I					~Polychlorinated Biphenyls (lowest risk)	1336-36-3	6.1E-01	
3.8E-03	E	4.0E-04	E			~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	3.2E-03	1.8E+00
1.1E-02	E	1.3E-04	E			~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	1.1E-03	5.8E-01
6.0E-04	I					Polymeric Methylene Diphenyl Diisocyanate (PMDI) Polynuclear Aromatic Hydrocarbons (PAHs)	9016-87-9		2.6E+00
				V		~Acenaphthene	83-32-9		
				V		~Anthracene	120-12-7		
1.1E-04	C				M	~Benz[a]anthracene	56-55-3	1.1E-01	
1.1E-04	C					~Benzo[j]fluoranthene	205-82-3	1.1E-01	
1.1E-03	C				M	~Benzo[a]pyrene	50-32-8	1.1E-02	
1.1E-04	C				M	~Benzo[b]fluoranthene	205-99-2	1.1E-01	
1.1E-04	C				M	~Benzo[k]fluoranthene	207-08-9	1.1E-01	
1.1E-05	C				M	~Chrysene	218-01-9	1.1E+00	
1.2E-03	C				M	~Dibenz[a,h]anthracene	53-70-3	1.0E-02	
1.1E-03	C					~Dibenzo[a,e]pyrene	192-65-4	1.1E-02	
7.1E-02	C					~Dimethylbenz(a)anthracene, 7,12- ~Fluoranthene ~Fluorene	57-97-6 206-44-0 86-73-7	1.7E-04	
1.1E-04	C				M	~Indeno[1,2,3-cd]pyrene ~Methylnaphthalene, 1- ~Methylnaphthalene, 2-	193-39-5 90-12-0 91-57-6	1.1E-01	

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
3.4E-05 1.1E-04	C C	3.0E-03	I V	V		~Naphthalene ~Nitropyrene, 4- ~Pyrene	91-20-3 57835-92-4 129-00-0	3.6E-01 1.1E-01	1.3E+01	
						Potassium Perchlorate Prochloraz Profluralin	7778-74-7 67747-09-5 26399-36-0			
						Prometon Prometryn Propachlor	1610-18-0 7287-19-6 1918-16-7			
						Propanil Propargite Propargyl Alcohol	709-98-8 2312-35-8 107-19-7			
						Propazine Propham Propiconazole	139-40-2 122-42-9 60207-90-1			
		8.0E-03 1.0E+00 3.0E+00	I X C	V V		Propionaldehyde Propyl benzene Propylene	123-38-6 103-65-1 115-07-1		3.5E+01 4.4E+03 1.3E+04	
		2.7E-04	A	V		Propylene Glycol Propylene Glycol Dinitrate Propylene Glycol Monoethyl Ether	57-55-6 6423-43-4 1569-02-4		1.2E+00	
3.7E-06	I	2.0E+00 3.0E-02	I	V		Propylene Glycol Monomethyl Ether Propylene Oxide Pursuit	107-98-2 75-56-9 81335-77-5	3.3E+00	8.8E+03 1.3E+02	
				V		Pydrin Pyridine Quinalphos	51630-58-1 110-86-1 13593-03-8			
		3.0E-02	A			Quinoline Refractory Ceramic Fibers Resmethrin	91-22-5 NA 10453-86-8		1.3E+02	
6.3E-05	C					Ronnel Rotenone Safrole	299-84-3 83-79-4 94-59-7	1.9E-01		
		2.0E-02	C			Savey Selenious Acid Selenium	78587-05-0 7783-00-8 7782-49-2		8.8E+01	
		2.0E-02	C			Selenium Sulfide Sethoxydim	7446-34-6 74051-80-2		8.8E+01	
		3.0E-03	C			Silica (crystalline, respirable)	7631-86-9		1.3E+01	
						Silver Simazine Sodium Acifluorfen	7440-22-4 122-34-9 62476-59-9			
		1.3E-02	C			Sodium Azide Sodium Diethyldithiocarbamate Sodium Fluoride	26628-22-8 148-18-5 7681-49-4		5.7E+01	
						Sodium Fluoroacetate Sodium Metavanadate Sodium Perchlorate	62-74-8 13718-26-8 7601-89-0			
						Stirofos (Tetrachlorovinphos) Strontium, Stable Strychnine	961-11-5 7440-24-6 57-24-9			
		1.0E+00 1.0E-03	I C	V		Styrene Sulfonylbis(4-chlorobenzene), 1,1'- Sulfuric Acid	100-42-5 80-07-9 7664-93-9		4.4E+03 4.4E+00	
						Systhane TCMTB Tebuthiuron	88671-89-0 21564-17-0 34014-18-1			
						Temephos Terbacil Terbufos	3383-96-8 5902-51-2 13071-79-9			
						Terbutryn Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47) Tetrachlorobenzene, 1,2,4,5-	886-50-0 5436-43-1 95-94-3			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1
IUR (ug/m ³) ⁻¹	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)	
7.4E-06	I			V		Tetrachloroethane, 1,1,1,2-	630-20-6	1.7E+00		
5.8E-05	C			V		Tetrachloroethane, 1,1,2,2-	79-34-5	2.1E-01		
5.9E-06	C	2.7E-01	A	V		Tetrachloroethylene	127-18-4	2.1E+00	1.2E+03	
						Tetrachlorophenol, 2,3,4,6-	58-90-2			
						Tetrachlorotoluene, p- alpha, alpha, alpha-	5216-25-1			
						Tetraethyl Dithiopyrophosphate	3689-24-5			
8.0E+01	I			V		Tetrafluoroethane, 1,1,1,2-	811-97-2		3.5E+05	
						Tetryl (Trinitrophenylmethylnitramine)	479-45-8			
						Thallium (Soluble Salts)	7440-28-0			
						Thiobencarb	28249-77-6			
						Thiodiglycol	111-48-8			
						Thiofanox	39196-18-4			
						Thiophanate, Methyl	23564-05-8			
						Thiram	137-26-8			
						Tin	7440-31-5			
1.0E-04	A					Titanium Tetrachloride	7550-45-0		4.4E-01	
5.0E+00	I			V		Toluene	108-88-3		2.2E+04	
						Toluidine, p-	106-49-0			
3.2E-04	I					Toxaphene	8001-35-2	3.8E-02		
						Tralomethrin	66841-25-6			
						Tri-n-butyltin	688-73-3			
						Triallate	2303-17-5			
						Triasulfuron	82097-50-5			
						Tribromobenzene, 1,2,4-	615-54-3			
						Tributyl Phosphate	126-73-8			
						Tributyltin Compounds	NA			
						Tributyltin Oxide	56-35-9			
3.0E+01	H			V		Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1		1.3E+05	
						Trichloroacetic Acid	76-03-9			
						Trichloroaniline HCl, 2,4,6-	33663-50-2			
						Trichloroaniline, 2,4,6-	634-93-5			
						Trichlorobenzene, 1,2,3-	87-61-6			
2.0E-03	P			V		Trichlorobenzene, 1,2,4-	120-82-1		8.8E+00	
5.0E+00	I			V		Trichloroethane, 1,1,1-	71-55-6		2.2E+04	
1.6E-05	I			V		Trichloroethane, 1,1,2-	79-00-5	7.7E-01		
2.0E-06	C			V		Trichloroethylene	79-01-6	6.1E+00		
7.0E-01	H			V		Trichlorofluoromethane	75-69-4		3.1E+03	
						Trichlorophenol, 2,4,5-	95-95-4			
3.1E-06	I					Trichlorophenol, 2,4,6-	88-06-2	4.0E+00		
						Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5			
						Trichlorophenoxypropionic acid, -2,4,5	93-72-1			
						Trichloropropane, 1,1,2-	598-77-6			
3.0E-04	I			V	M	Trichloropropane, 1,2,3-	96-18-4		1.3E+00	
3.0E-04	P			V		Trichloropropene, 1,2,3-	96-19-5		1.3E+00	
						Tridiphane	58138-08-2			
7.0E-03	I			V		Triethylamine	121-44-8		3.1E+01	
						Trifluralin	1582-09-8			
						Trimethyl Phosphate	512-56-1			
7.0E-03	P			V		Trimethylbenzene, 1,2,4-	95-63-6		3.1E+01	
						Trimethylbenzene, 1,3,5-	108-67-8			
						Trinitrobenzene, 1,3,5-	99-35-4			
						Trinitrotoluene, 2,4,6-	118-96-7			
						Triphenylphosphine Oxide	791-28-6			
						Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8			
						Tris(2-chloroethyl)phosphate	115-96-8			
						Tris(2-ethylhexyl)phosphate	78-42-2			
3.0E-04	A					Uranium (Soluble Salts)	NA		1.3E+00	
2.9E-04	C					Urethane	51-79-6	4.2E-02		
8.3E-03	P	7.0E-06		P		Vanadium Pentoxide	1314-62-1	1.5E-03	3.1E-02	
						Vanadium Sulfate	36907-42-3			
						Vanadium and Compounds	NA			
1.0E-04	A					Vanadium, Metallic	7440-62-2		4.4E-01	
						Vernolate	1929-77-7			

Regional Screening Level (RSL) Industrial Air Supporting Table November 2010

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Toxicity and Chemical-specific Information					Contaminant		Carcinogenic Target Risk (TR) = 1E-06	Noncancer Hazard Index (HI) = 1	
IUR (ug/m ³ -y)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Inhalation (ug/m ³)	Inhalation (ug/m ³)
3.2E-05	H	2.0E-01	I	V		Vinclozolin	50471-44-8	3.8E-01	8.8E+02
		3.0E-03				Vinyl Acetate	108-05-4		
						Vinyl Bromide	593-60-2		
4.4E-06	I	1.0E-01	I	V	M	Vinyl Chloride	75-01-4	2.8E+00	4.4E+02
						Warfarin	81-81-2		
		1.0E-01				Xylene, Mixture	1330-20-7		
		7.0E-01	C	V		Xylene, p-	106-42-3		3.1E+03
		7.0E-01	C	V		Xylene, m-	108-38-3		3.1E+03
		7.0E-01	C	V		Xylene, o-	95-47-6		3.1E+03
						Zinc (Metallic)	7440-66-6		
						Zinc Phosphide	1314-84-7		
						Zineb	12122-67-7		

Regional Screening Level (RSL) Tapwater Supporting Table November 2010

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
1.8E-02	C	5.1E-06	C	1.5E-01	I					ALAR	1596-84-5	3.7E+00		3.7E+00	5.5E+03		5.5E+03	
8.7E-03	I			4.0E-03	I					Acephate	30560-19-1	7.7E+00		7.7E+00	1.5E+02		1.5E+02	
		2.2E-06	I			9.0E-03	I	V		Acetaldehyde	75-07-0		2.2E+00	2.2E+00		1.9E+01	1.9E+01	
				2.0E-02	I					Acetochlor	34256-82-1				7.3E+02		7.3E+02	
				9.0E-01	I	3.1E+01	A	V		Acetone	67-64-1				3.3E+04	6.4E+04	2.2E+04	
				3.0E-03	P	6.0E-02	P	V		Acetone Cyanohydrin	75-86-5				1.1E+02	1.3E+02	5.8E+01	
						6.0E-02	I	V		Acetonitrile	75-05-8					1.3E+02	1.3E+02	
3.8E+00	C	1.3E-03	C	1.0E-01	I					Acetophenone	98-86-2				3.7E+03		3.7E+03	
										Acetylaminofluorene, 2-	53-96-3	1.8E-02		1.8E-02				
				5.0E-04	I	2.0E-05	I	V		Acrolein	107-02-8				1.8E+01	4.2E-02	4.2E-02	
5.0E-01	I	1.0E-04	I	2.0E-03	I	6.0E-03	I		M	Acrylamide	79-06-1	4.3E-02		4.3E-02	7.3E+01		7.3E+01	
				5.0E-01	I	1.0E-03	I			Acrylic Acid	79-10-7				1.8E+04		1.8E+04	
5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I	V		Acrylonitrile	107-13-1	1.2E-01	7.2E-02	4.5E-02	1.5E+03	4.2E+00	4.2E+00	
						6.0E-03	P			Adiponitrile	111-69-3							
5.6E-02	C			1.0E-02	I					Alachlor	15972-60-8	1.2E+00		1.2E+00	3.7E+02		3.7E+02	2.0E+00
				1.0E-03	I					Aldicarb	116-06-3				3.7E+01		3.7E+01	
				1.0E-03	I					Aldicarb Sulfone	1646-88-4				3.7E+01		3.7E+01	
1.7E+01	I	4.9E-03	I	3.0E-05	I					Aldrin	309-00-2	4.0E-03		4.0E-03	1.1E+00		1.1E+00	
				2.5E-01	I					Allyl	74223-64-6				9.1E+03		9.1E+03	
2.1E-02	C	6.0E-06	C	5.0E-03	I	1.0E-04	X			Allyl Alcohol	107-18-6				1.8E+02		1.8E+02	
						1.0E-03	I	V		Allyl Chloride	107-05-1	3.2E+00	8.1E-01	6.5E-01		2.1E+00	2.1E+00	
				1.0E+00	P	5.0E-03	P			Aluminum	7429-90-5				3.7E+04		3.7E+04	
				4.0E-04	I					Aluminum Phosphide	20859-73-8				1.5E+01		1.5E+01	
				3.0E-04	I					Amdro	67485-29-4				1.1E+01		1.1E+01	
2.1E+01	C	6.0E-03	C	9.0E-03	I					Ametryn	834-12-8				3.3E+02		3.3E+02	
				8.0E-02	P					Aminobiphenyl, 4-	92-67-1	3.2E-03		3.2E-03				
										Aminophenol, m-	591-27-5				2.9E+03		2.9E+03	
				2.0E-02	P					Aminophenol, p-	123-30-8				7.3E+02		7.3E+02	
				2.5E-03	I					Amitraz	33089-61-1				9.1E+01		9.1E+01	
						1.0E-01	I			Ammonia	7664-41-7							
				7.0E-04	I					Ammonium Perchlorate	7790-98-9				2.6E+01		2.6E+01	
5.7E-03	I	1.6E-06	C	2.0E-01	I					Ammonium Sulfamate	7773-06-0				7.3E+03		7.3E+03	
				7.0E-03	P	1.0E-03	I			Aniline	62-53-3	1.2E+01		1.2E+01	2.6E+02		2.6E+02	
				4.0E-04	I					Antimony (metallic)	7440-36-0				1.5E+01		1.5E+01	6.0E+00
				5.0E-04	H					Antimony Pentoxide	1314-60-9				1.8E+01		1.8E+01	
				9.0E-04	H					Antimony Potassium Tartrate	11071-15-1				3.3E+01		3.3E+01	
				4.0E-04	H					Antimony Tetroxide	1332-81-6				1.5E+01		1.5E+01	
						2.0E-04	I			Antimony Trioxide	1309-64-4							
				1.3E-02	I					Apollo	74115-24-5				4.7E+02		4.7E+02	
2.5E-02	I	7.1E-06	I	5.0E-02	H					Aramite	140-57-8	2.7E+00		2.7E+00	1.8E+03		1.8E+03	
1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C			Arsenic, Inorganic	7440-38-2	4.5E-02		4.5E-02	1.1E+01		1.1E+01	1.0E+01
				3.5E-06	C	5.0E-05	I			Arsine	7784-42-1				1.3E-01		1.3E-01	
				9.0E-03	I					Assure	76578-14-8				3.3E+02		3.3E+02	
				5.0E-02	I					Asulam	3337-71-1				1.8E+03		1.8E+03	
2.3E-01	C			3.5E-02	I					Atrazine	1912-24-9	2.9E-01		2.9E-01	1.3E+03		1.3E+03	3.0E+00
8.8E-01	C	2.5E-04	C	4.0E-04	I					Auramine	492-80-8	7.6E-02		7.6E-02				
1.1E-01	I	3.1E-05	I						V	Avermectin B1	65195-55-3	6.1E-01	1.6E-01	1.2E-01	1.5E+01		1.5E+01	
										Azobenzene	103-33-3							
				2.0E-01	I	5.0E-04	H			Barium	7440-39-3				7.3E+03		7.3E+03	2.0E+03

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	m u t a g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				4.0E-03	I					Baygon	114-26-1				1.5E+02		1.5E+02	
				3.0E-02	I					Bayleton	43121-43-3				1.1E+03		1.1E+03	
				2.5E-02	I					Baythroid	68359-37-5				9.1E+02		9.1E+02	
				3.0E-01	I					Benefin	1861-40-1				1.1E+04		1.1E+04	
				5.0E-02	I					Benomyl	17804-35-2				1.8E+03		1.8E+03	
				3.0E-02	I					Bentazon	25057-89-0				1.1E+03		1.1E+03	
5.5E-02	I	7.8E-06	I	1.0E-01	I				V	Benzaldehyde	100-52-7				3.7E+03		3.7E+03	
				4.0E-03	I	3.0E-02	I	V		Benzene	71-43-2	1.2E+00	6.2E-01	4.1E-01	1.5E+02	6.3E+01	4.4E+01	5.0E+00
				1.0E-05	H				V	Benzenethiol	108-98-5				3.7E-01		3.7E-01	
2.3E+02	I	6.7E-02	I	3.0E-03	I				M	Benzidine	92-87-5	9.4E-05		9.4E-05	1.1E+02		1.1E+02	
				4.0E+00	I					Benzoic Acid	65-85-0				1.5E+05		1.5E+05	
1.3E+01	I								V	Benzotrichloride	98-07-7	5.2E-03		5.2E-03				
				1.0E-01	P					Benzyl Alcohol	100-51-6				3.7E+03		3.7E+03	
1.7E-01	I	4.9E-05	C	2.0E-03	P	1.0E-03	P	V		Benzyl Chloride	100-44-7	4.0E-01	9.9E-02	7.9E-02	7.3E+01	2.1E+00	2.0E+00	
		2.4E-03	I	2.0E-03	I	2.0E-05	I			Beryllium and compounds	7440-41-7				7.3E+01		7.3E+01	4.0E+00
				1.0E-04	I					Bidrin	141-66-2				3.7E+00		3.7E+00	
				9.0E-03	P					Bifenox	42576-02-3				3.3E+02		3.3E+02	
				1.5E-02	I					Biphenthrin	82657-04-3				5.5E+02		5.5E+02	
7.0E-02	H	1.0E-05	H	5.0E-02	I				V	Biphenyl, 1,1'-	92-52-4				1.8E+03		1.8E+03	
				4.0E-02	I				V	Bis(2-chloro-1-methylethyl) ether	108-60-1	9.6E-01	4.9E-01	3.2E-01	1.5E+03		1.5E+03	
				3.0E-03	P					Bis(2-chloroethoxy)methane	111-91-1				1.1E+02		1.1E+02	
1.1E+00	I	3.3E-04	I						V	Bis(2-chloroethyl)ether	111-44-4	6.1E-02	1.5E-02	1.2E-02				
1.4E-02	I	2.4E-06	C	2.0E-02	I					Bis(2-ethylhexyl)phthalate	117-81-7	4.8E+00		4.8E+00	7.3E+02		7.3E+02	6.0E+00
2.2E+02	I	6.2E-02	I						V	Bis(chloromethyl)ether	542-88-1	3.1E-04	7.8E-05	6.2E-05				
				5.0E-02	I					Bisphenol A	80-05-7				1.8E+03		1.8E+03	
				2.0E-01	I	2.0E-02	H			Boron And Borates Only	7440-42-8				7.3E+03		7.3E+03	
7.0E-01	I			4.0E-02	C	1.3E-02	C			Boron Trifluoride	7637-07-2				1.5E+03		1.5E+03	
2.0E+00	X	6.0E-04	X	4.0E-03	I				V	Bromate	15541-45-4	9.6E-02		9.6E-02	1.5E+02		1.5E+02	1.0E+01
				8.0E-03	I	6.0E-02	I	V		Bromobenzene	108-86-1				2.9E+02	1.3E+02	8.8E+01	
6.2E-02	I	3.7E-05	C	2.0E-02	I				V	Bromodichloromethane	75-27-4	1.1E+00	1.3E-01	1.2E-01	7.3E+02		7.3E+02	8.0E+01
7.9E-03	I	1.1E-06	I	2.0E-02	I					Bromoform	75-25-2	8.5E+00		8.5E+00	7.3E+02		7.3E+02	8.0E+01
				1.4E-03	I	5.0E-03	I	V		Bromomethane	74-83-9				5.1E+01	1.0E+01	8.7E+00	
				5.0E-03	H					Bromophos	2104-96-3				1.8E+02		1.8E+02	
				2.0E-02	I					Bromoxynil	1689-84-5				7.3E+02		7.3E+02	
3.4E+00	C	3.0E-05	I	2.0E-02	I	2.0E-03	I	V		Bromoxynil Octanoate	1689-99-2				7.3E+02		7.3E+02	
				1.0E-01	I					Butadiene, 1,3-	106-99-0	2.0E-02	1.6E-01	1.8E-02		4.2E+00	4.2E+00	
				2.0E-01	I					Butanol, N-	71-36-3				3.7E+03		3.7E+03	
1.9E-03	P			2.0E-01	I					Butyl Benzyl Phthlate	85-68-7	3.5E+01		3.5E+01	7.3E+03		7.3E+03	
				2.0E+00	P	3.0E+01	P			Butyl alcohol, sec-	78-92-2				7.3E+04		7.3E+04	
				5.0E-02	I					Butylate	2008-41-5				1.8E+03		1.8E+03	
2.0E-04	C	5.7E-08	C	1.0E+00	I					Butylated hydroxyanisole	25013-16-5	3.4E+02		3.4E+02				
				2.0E-02	A					Butylphthalyl Butylglycolate	85-70-1				3.7E+04		3.7E+04	
				1.8E-03	I	1.0E-03	I	1.0E-05	A	Cacodylic Acid	75-60-5				7.3E+02		7.3E+02	
		1.8E-03	I	1.0E-04	I	1.0E-05	A			Cadmium (Diet)	7440-43-9				1.8E+01		1.8E+01	5.0E+00
				5.0E-01	I					Cadmium (Water)	7440-43-9				1.8E+04		1.8E+04	
				5.0E-01	I					Caprolactam	105-60-2							
1.5E-01	C	4.3E-05	C	2.0E-03	I					Captafol	2425-06-1	4.5E-01		4.5E-01	7.3E+01		7.3E+01	
2.3E-03	C	6.6E-07	C	1.3E-01	I					Captan	133-06-2	2.9E+01		2.9E+01	4.7E+03		4.7E+03	

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				1.0E-01	I					Carbaryl	63-25-2				3.7E+03		3.7E+03	
				5.0E-03	I					Carbofuran	1563-66-2				1.8E+02		1.8E+02	4.0E+01
7.0E-02	I	6.0E-06	I	1.0E-01	I	7.0E-01	I	V		Carbon Disulfide	75-15-0				3.7E+03	1.5E+03	1.0E+03	
				4.0E-03	I	1.0E-01	I	V		Carbon Tetrachloride	56-23-5	9.6E-01	8.1E-01	4.4E-01	1.5E+02	2.1E+02	8.6E+01	5.0E+00
				1.0E-02	I					Carbosulfan	55285-14-8				3.7E+02		3.7E+02	
				1.0E-01	I					Carboxin	5234-68-4				3.7E+03		3.7E+03	
				9.0E-04	I					Ceric oxide	1306-38-3							
4.0E-01	H			1.0E-01	I					Chloral Hydrate	302-17-0				3.7E+03		3.7E+03	
				1.5E-02	I					Chloramben	133-90-4				5.5E+02		5.5E+02	
										Chloranil	118-75-2	1.7E-01		1.7E-01				
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I			Chlordane	12789-03-6	1.9E-01		1.9E-01	1.8E+01		1.8E+01	2.0E+00
1.0E+01	I	4.6E-03	C	3.0E-04	I					Chlordecone (Kepone)	143-50-0	6.7E-03		6.7E-03	1.1E+01		1.1E+01	
				7.0E-04	A					Chlorfenvinphos	470-90-6				2.6E+01		2.6E+01	
				2.0E-02	I					Chlorimuron, Ethyl-	90982-32-4				7.3E+02		7.3E+02	
				1.0E-01	I	1.5E-04	A			Chlorine	7782-50-5				3.7E+03		3.7E+03	
				3.0E-02	I	2.0E-04	I			Chlorine Dioxide	10049-04-4				1.1E+03		1.1E+03	
				3.0E-02	I	5.0E+01	I	V		Chlorite (Sodium Salt)	7758-19-2				1.1E+03		1.1E+03	1.0E+03
4.6E-01	H			3.0E-04	I	2.0E-02	H	2.0E-02	I	V	Chloro-1,1-difluoroethane, 1-	75-68-3				1.0E+05		1.0E+05
2.7E-01	X									Chloro-1,3-butadiene, 2-	126-99-8		1.6E-02	1.6E-02	7.3E+02	4.2E+01	3.9E+01	
				2.0E-03	H					Chloro-2-methylaniline HCl, 4-	3165-93-3	1.5E-01		1.5E-01				
										Chloroacetaldehyde, 2-	107-20-0	2.5E-01		2.5E-01				
										Chloroacetic Acid	79-11-8				7.3E+01		7.3E+01	6.0E+01
2.0E-01	P			3.0E-05	I					Chloroacetophenone, 2-	532-27-4				1.5E+02		1.5E+02	
				4.0E-03	I					Chloroaniline, p-	106-47-8	3.4E-01		3.4E-01	7.3E+02	1.0E+02	9.1E+01	1.0E+02
				2.0E-02	I	5.0E-02	P	V		Chlorobenzene	108-90-7				7.3E+02		7.3E+02	
1.1E-01	C	3.1E-05	C	2.0E-02	I					Chlorobenzilate	510-15-6	6.1E-01		6.1E-01	7.3E+02		7.3E+02	
				3.0E-02	X					Chlorobenzoic Acid, p-	74-11-3				1.1E+03		1.1E+03	
				3.0E-03	P	3.0E-01	P	V		Chlorobenzotrifluoride, 4-	98-56-6				1.1E+02	6.3E+02	9.3E+01	
				4.0E-02	P			V		Chlorobutane, 1-	109-69-3				1.5E+03		1.5E+03	
3.1E-02	C	2.3E-05	I	5.0E+01	I	V				Chlorodifluoromethane	75-45-6					1.0E+05	1.0E+05	
				1.0E-02	I	9.8E-02	A	V		Chloroform	67-66-3	2.2E+00	2.1E-01	1.9E-01	3.7E+02	2.0E+02	1.3E+02	8.0E+01
				9.0E-02	I	V				Chloromethane	74-87-3					1.9E+02	1.9E+02	
2.4E+00	C	6.9E-04	C					V		Chloromethyl Methyl Ether	107-30-2	2.8E-02	7.1E-03	5.6E-03				
				8.0E-02	I			V		Chloronaphthalene, Beta-	91-58-7				2.9E+03		2.9E+03	
3.0E-01	P			3.0E-03	P	1.0E-05	X			Chloronitrobenzene, o-	88-73-3	2.2E-01		2.2E-01	1.1E+02		1.1E+02	
6.3E-03	P			1.0E-03	P	6.0E-04	P			Chloronitrobenzene, p-	100-00-5	1.1E+01		1.1E+01	3.7E+01		3.7E+01	
				5.0E-03	I			V		Chlorophenol, 2-	95-57-8				1.8E+02		1.8E+02	
				4.0E-04	C	V				Chloropicrin	76-06-2					8.3E-01	8.3E-01	
3.1E-03	C	8.9E-07	C	1.5E-02	I					Chlorothalonil	1897-45-6	2.2E+01		2.2E+01	5.5E+02		5.5E+02	
				2.0E-02	I			V		Chlorotoluene, o-	95-49-8				7.3E+02		7.3E+02	
2.4E+02	C	6.9E-02	C	7.0E-02	P			V		Chlorotoluene, p-	106-43-4				2.6E+03		2.6E+03	
				2.0E-01	I					Chlorozotocin	54749-90-5	2.8E-04		2.8E-04				
										Chlorpropham	101-21-3				7.3E+03		7.3E+03	
				3.0E-03	I					Chlorpyrifos	2921-88-2				1.1E+02		1.1E+02	
				1.0E-02	H					Chlorpyrifos Methyl	5598-13-0				3.7E+02		3.7E+02	
				5.0E-02	I					Chlorsulfuron	64902-72-3				1.8E+03		1.8E+03	
5.0E-01	J	8.4E-02	S	8.0E-04	H					Chlorthiophos	60238-56-4				2.9E+01		2.9E+01	
				1.5E+00	I					Chromium(III), Insoluble Salts	16065-83-1				5.5E+04		5.5E+04	
				3.0E-03	I	1.0E-04	I	M		Chromium(VI)	18540-29-9	4.3E-02		4.3E-02	1.1E+02		1.1E+02	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
		9.0E-03 6.2E-04	P I	3.0E-04	P	6.0E-06	P			Chromium, Total Cobalt Coke Oven Emissions	7440-47-3 7440-48-4 8007-45-2				1.1E+01		1.1E+01	1.0E+02
				4.0E-02 5.0E-02 5.0E-02	H I I	6.0E-01 6.0E-01 6.0E-01	C C C			Copper Cresol, m- Cresol, o-	7440-50-8 108-39-4 95-48-7				1.5E+03 1.8E+03 1.8E+03		1.5E+03 1.8E+03 1.8E+03	1.3E+03
				5.0E-03 1.0E-01 1.0E-01	H X A	6.0E-01 X 6.0E-01	C C C			Cresol, p- Cresol, p-chloro-m- Cresols	106-44-5 59-50-7 1319-77-3				1.8E+02 3.7E+03 3.7E+03		1.8E+02 3.7E+03 9.3E+02	
1.9E+00 2.2E-01	H C	6.3E-05	C	1.0E-01	I	4.0E-01	I	V		Crotonaldehyde, trans- Cumene Cupferron	123-73-9 98-82-8 135-20-6	3.5E-02 3.1E-01		3.5E-02 3.1E-01	3.7E+03	8.3E+02	6.8E+02	
8.4E-01	H			2.0E-03	H					Cyanazine Cyanides ~Calcium Cyanide	21725-46-2 592-01-8	8.0E-02		8.0E-02	7.3E+01		7.3E+01	
				4.0E-02 5.0E-03 2.0E-02 4.0E-02	I I I I			V		~Copper Cyanide ~Cyanide (CN-) ~Cyanogen	544-92-3 57-12-5 460-19-5				1.5E+03 1.8E+02 7.3E+02 1.5E+03		1.5E+03 1.8E+02 7.3E+02 1.5E+03	2.0E+02
				9.0E-02 5.0E-02 6.0E-04	I I I			V		~Cyanogen Bromide ~Cyanogen Chloride ~Hydrogen Cyanide	506-68-3 506-77-4 74-90-8				3.3E+03 1.8E+03 2.2E+01	1.7E+00	3.3E+03 1.8E+03 1.6E+00	
				5.0E-02 2.0E-01 1.0E-01	I I I					~Potassium Cyanide ~Potassium Silver Cyanide ~Silver Cyanide	151-50-8 506-61-6 506-64-9				1.8E+03 7.3E+03 3.7E+03		1.8E+03 7.3E+03 3.7E+03	
				4.0E-02 2.0E-04 5.0E-02	I P I			V		~Sodium Cyanide ~Thiocyanate ~Zinc Cyanide	143-33-9 463-56-9 557-21-1				1.5E+03 7.3E+00 1.8E+03		1.5E+03 7.3E+00 1.8E+03	2.0E+02
2.3E-02	H			6.0E+00	I			V		Cyclohexane Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro- Cyclohexanone	110-82-7 87-84-3 108-94-1	2.9E+00		2.9E+00		1.3E+04	1.3E+04	
				2.0E-01 5.0E-03 1.0E-02	I I I					Cyclohexylamine Cyhalothrin/karate Cypermethrin	108-91-8 68085-85-8 52315-07-8				7.3E+03 1.8E+02 3.7E+02		7.3E+03 1.8E+02 3.7E+02	
2.4E-01 3.4E-01	I I	6.9E-05 9.7E-05	C C	7.5E-03	I					Cyromazine DDD DDE, p,p'-	66215-27-8 72-54-8 72-55-9	2.8E-01 2.0E-01		2.8E-01 2.0E-01	2.7E+02		2.7E+02	
3.4E-01	I	9.7E-05	I	5.0E-04 1.0E-02 3.0E-02	I I I					DDT Dacthal Dalapon	50-29-3 1861-32-1 75-99-0	2.0E-01		2.0E-01	1.8E+01 3.7E+02 1.1E+03		1.8E+01 3.7E+02 1.1E+03	2.0E+02
7.0E-04 1.2E-03	I I			7.0E-03 4.0E-05 6.0E-01	I I I					Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209) Demeton Di(2-ethylhexyl)adipate	1163-19-5 8065-48-3 103-23-1	9.6E+01 5.6E+01		9.6E+01 5.6E+01	2.6E+02 1.5E+00 2.2E+04		2.6E+02 1.5E+00 2.2E+04	4.0E+02
6.1E-02 8.0E-01	H P	6.0E-03	P	7.0E-04 2.0E-04	A P	2.0E-04	I	V	M	Diallate Diazinon Dibromo-3-chloropropane, 1,2-	2303-16-4 333-41-5 96-12-8	1.1E+00 2.7E-02		1.1E+00 3.2E-04 3.2E-04	2.6E+01 7.3E+00	4.2E-01	2.6E+01 3.9E-01	2.0E-01
8.4E-02 2.0E+00	I I	2.7E-05 6.0E-04	C I	1.0E-02 2.0E-02 9.0E-03	I I I			V		Dibromobenzene, 1,4- Dibromochloromethane Dibromoethane, 1,2-	106-37-6 124-48-1 106-93-4	8.0E-01 3.4E-02	1.8E-01 8.1E-03	1.5E-01 6.5E-03	3.7E+02 7.3E+02 3.3E+02	1.9E+01	3.7E+02 7.3E+02 1.8E+01	8.0E+01 5.0E-02
				1.0E-02	H	4.0E-03	X	V		Dibromomethane (Methylene Bromide)	74-95-3				3.7E+02	8.3E+00	8.2E+00	

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1						
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				1.0E-01 3.0E-04	I P					Dibutyl Phthalate Dibutyltin Compounds	84-74-2 NA				3.7E+03 1.1E+01		3.7E+03 1.1E+01	
				3.0E-02	I					Dicamba	1918-00-9				1.1E+03		1.1E+03	
		4.2E-03 4.2E-03	P P					V V		Dichloro-2-butene, 1,4- Dichloro-2-butene, cis-1,4-	764-41-0 1476-11-5		1.2E-03 1.2E-03	1.2E-03 1.2E-03				
5.0E-02	I	4.2E-03	P	4.0E-03 9.0E-02	I	2.0E-01	H	V		Dichloro-2-butene, trans-1,4- Dichloroacetic Acid Dichlorobenzene, 1,2-	110-57-6 79-43-6 95-50-1	1.3E+00	1.2E-03	1.2E-03	1.5E+02 3.3E+03	4.2E+02	1.5E+02 3.7E+02	6.0E+01 6.0E+02
5.4E-03 4.5E-01	C I	1.1E-05 3.4E-04	C C	7.0E-02 9.0E-03	A	8.0E-01	I	V		Dichlorobenzene, 1,4- Dichlorobenzidine, 3,3'- Dichlorobenzophenone, 4,4'-	106-46-7 91-94-1 90-98-2	1.2E+01 1.5E-01	4.4E-01	4.3E-01 1.5E-01	2.6E+03 3.3E+02	1.7E+03	1.0E+03 3.3E+02	7.5E+01
5.7E-03 9.1E-02	C I	1.6E-06 2.6E-05	C I	2.0E-01 2.0E-02	I P	2.0E-01	H A	V V		Dichlorodifluoromethane Dichloroethane, 1,1- Dichloroethane, 1,2-	75-71-8 75-34-3 107-06-2	1.2E+01 7.4E-01	3.0E+00 1.9E-01	2.4E+00 1.5E-01	7.3E+03 7.3E+02	4.2E+02 5.1E+03	3.9E+02 6.4E+02	5.0E+00
				5.0E-02 9.0E-03 2.0E-03	I H I	2.0E-01	I	V V V		Dichloroethylene, 1,1- Dichloroethylene, 1,2- (Mixed Isomers) Dichloroethylene, 1,2-cis-	75-35-4 540-59-0 156-59-2				1.8E+03 3.3E+02 7.3E+01	4.2E+02	3.4E+02 3.3E+02 7.3E+01	7.0E+00 7.0E+01
				2.0E-02 3.0E-03 1.0E-02	I I I	6.0E-02	P	V V V		Dichloroethylene, 1,2-trans- Dichlorophenol, 2,4- Dichlorophenoxy Acetic Acid, 2,4-	156-60-5 120-83-2 94-75-7				7.3E+02 1.1E+02 3.7E+02	1.3E+02	1.1E+02 1.1E+02 3.7E+02	1.0E+02 7.0E+01
3.6E-02	C	1.0E-05	C	8.0E-03 9.0E-02 2.0E-02	I A P	4.0E-03	I	V V		Dichlorophenoxybutyric Acid, 4-(2,4- Dichloropropane, 1,2- Dichloropropane, 1,3-	94-82-6 78-87-5 142-28-9	1.9E+00	4.9E-01	3.9E-01	2.9E+02 3.3E+03 7.3E+02	8.3E+00	2.9E+02 8.3E+00 7.3E+02	5.0E+00
1.0E-01 2.9E-01	I I	4.0E-06 8.3E-05	I C	3.0E-03 3.0E-02 5.0E-04	I I I	2.0E-02	I	V V		Dichloropropanol, 2,3- Dichloropropene, 1,3- Dichlorvos	616-23-9 542-75-6 62-73-7	6.7E-01 2.3E-01	1.2E+00	4.3E-01	1.1E+03 1.8E+01	4.2E+01	4.0E+01 1.8E+01	
1.6E+01	I	4.6E-03 3.0E-04	I C	8.0E-03 5.0E-05 5.0E-03	P I I	7.0E-03	P	V V		Dicyclopentadiene Dieldrin Diesel Engine Exhaust	77-73-6 60-57-1 NA	4.2E-03		4.2E-03	2.9E+02 1.8E+00	1.5E+01	1.4E+01 1.8E+00	
				8.0E-01 3.0E-02	I P	1.0E-04	P			Diethanolamine Diethyl Phthalate Diethylene Glycol Monobutyl Ether	111-42-2 84-66-2 112-34-5				2.9E+04 1.1E+03		2.9E+04 1.1E+03	
3.5E+02	C	1.0E-01	C	6.0E-02 1.0E-03	P P	3.0E-04	P			Diethylene Glycol Monoethyl Ether Diethylformamide Diethylstilbestrol	111-90-0 617-84-5 56-53-1	1.9E-04		1.9E-04	2.2E+03 3.7E+01		2.2E+03 3.7E+01	
				8.0E-02 2.0E-02	I I					Difenzoquat Diflubenzuron Difluoroethane, 1,1-	43222-48-6 35367-38-5 75-37-6				2.9E+03 7.3E+02	8.3E+04	2.9E+03 7.3E+02 8.3E+04	
4.4E-02	C	1.3E-05	C			4.0E-01	P	V		Dihydrosafrole Diisopropyl Ether Diisopropyl Methylphosphonate	94-58-6 108-20-3 1445-75-6	1.5E+00		1.5E+00		8.3E+02	8.3E+02	
				8.0E-02	I			V		Dimethipin	55290-64-7				2.9E+03		2.9E+03	
1.4E-02	H			2.0E-02 2.0E-04	I I					Dimethoate Dimethoxybenzidine, 3,3'-	60-51-5 119-90-4	4.8E+00		4.8E+00	7.3E+02 7.3E+00		7.3E+02 7.3E+00	
1.7E-03 4.6E+00 5.8E-01	P C H	1.3E-03	C	6.0E-02	P					Dimethyl methylphosphonate Dimethylamino azobenzene [p-] Dimethylaniline HCl, 2,4-	756-79-6 60-11-7 21436-96-4	4.0E+01 1.5E-02 1.2E-01		4.0E+01 1.5E-02 1.2E-01	2.2E+03		2.2E+03	
7.5E-01	H			2.0E-03	I			V		Dimethylaniline, 2,4- Dimethylaniline, N,N-	95-68-1 121-69-7	9.0E-02		9.0E-02	7.3E+01		7.3E+01	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
1.1E+01	P									Dimethylbenzidine, 3,3'-	119-93-7	6.1E-03		6.1E-03				
				1.0E-01	P	3.0E-02	I			Dimethylformamide	68-12-2				3.7E+03		3.7E+03	
5.5E+02	C	1.6E-01	C	1.0E-04	X	2.0E-06	X			Dimethylhydrazine, 1,1-	57-14-7				3.7E+00		3.7E+00	
										Dimethylhydrazine, 1,2-	540-73-8	1.2E-04		1.2E-04				
				2.0E-02	I					Dimethylphenol, 2,4-	105-67-9				7.3E+02		7.3E+02	
				6.0E-04	I					Dimethylphenol, 2,6-	576-26-1				2.2E+01		2.2E+01	
				1.0E-03	I					Dimethylphenol, 3,4-	95-65-8				3.7E+01		3.7E+01	
4.5E-02	C	1.3E-05	C	1.0E-01	I			V		Dimethylterephthalate	120-61-6				3.7E+03		3.7E+03	
										Dimethylvinylchloride	513-37-1	1.5E+00		1.5E+00				
				8.0E-05	X					Dinitro-o-cresol, 4,6-	534-52-1				2.9E+00		2.9E+00	
				2.0E-03	I					Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5				7.3E+01		7.3E+01	
				1.0E-04	P					Dinitrobenzene, 1,2-	528-29-0				3.7E+00		3.7E+00	
				1.0E-04	I					Dinitrobenzene, 1,3-	99-65-0				3.7E+00		3.7E+00	
				1.0E-04	P					Dinitrobenzene, 1,4-	100-25-4				3.7E+00		3.7E+00	
6.8E-01	I			2.0E-03	I					Dinitrophenol, 2,4-	51-28-5				7.3E+01		7.3E+01	
										Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	9.9E-02		9.9E-02				
3.1E-01	C	8.9E-05	C	2.0E-03	I					Dinitrotoluene, 2,4-	121-14-2	2.2E-01		2.2E-01	7.3E+01		7.3E+01	
				1.0E-03	P					Dinitrotoluene, 2,6-	606-20-2				3.7E+01		3.7E+01	
				2.0E-03	S					Dinitrotoluene, 2-Amino-4,6-	35572-78-2				7.3E+01		7.3E+01	
				2.0E-03	S					Dinitrotoluene, 4-Amino-2,6-	19406-51-0				7.3E+01		7.3E+01	
1.0E-01	I	7.7E-06	C	1.0E-03	I	3.6E+00	A			Dinoseb	88-85-7				3.7E+01		3.7E+01	7.0E+00
				3.0E-02	I					Dioxane, 1,4-	123-91-1	6.7E-01		6.7E-01	1.1E+03		1.1E+03	
										Dioxins								
6.2E+03	I	1.3E+00	I							~Hexachlorodibenzo-p-dioxin, Mixture	NA	1.1E-05		1.1E-05				
1.3E+05	C	3.8E+01	C	1.0E-09	A	4.0E-08	C			~TCDD, 2,3,7,8-	1746-01-6	5.2E-07		5.2E-07	3.7E-05		3.7E-05	3.0E-05
				3.0E-02	I					Diphenamid	957-51-7				1.1E+03		1.1E+03	
				8.0E-04	X					Diphenyl Sulfone	127-63-9				2.9E+01		2.9E+01	
				2.5E-02	I					Diphenylamine	122-39-4				9.1E+02		9.1E+02	
8.0E-01	I	2.2E-04	I							Diphenylhydrazine, 1,2-	122-66-7	8.4E-02		8.4E-02				
				2.2E-03	I					Diquat	85-00-7				8.0E+01		8.0E+01	2.0E+01
7.4E+00	C	2.1E-03	C							Direct Black 38	1937-37-7	9.1E-03		9.1E-03				
7.4E+00	C	2.1E-03	C							Direct Blue 6	2602-46-2	9.1E-03		9.1E-03				
6.7E+00	C	1.9E-03	C							Direct Brown 95	16071-86-6	1.0E-02		1.0E-02				
				4.0E-05	I					Disulfoton	298-04-4				1.5E+00		1.5E+00	
				1.0E-02	I					Dithiane, 1,4-	505-29-3				3.7E+02		3.7E+02	
				2.0E-03	I					Diuron	330-54-1				7.3E+01		7.3E+01	
				4.0E-03	I					Dodine	2439-10-3				1.5E+02		1.5E+02	
				2.5E-02	I			V		EPTC	759-94-4				9.1E+02		9.1E+02	
				6.0E-03	I					Endosulfan	115-29-7				2.2E+02		2.2E+02	
				2.0E-02	I					Endothall	145-73-3				7.3E+02		7.3E+02	1.0E+02
				3.0E-04	I					Endrin	72-20-8				1.1E+01		1.1E+01	2.0E+00
9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V		Epichlorohydrin	106-89-8	6.8E+00	4.1E+00	2.5E+00	2.2E+02	2.1E+00	2.1E+00	2.1E+00
				2.0E-02	I			V		Epoxybutane, 1,2-	106-88-7				4.2E+01		4.2E+01	
				5.0E-03	I					Ethephon	16672-87-0				1.8E+02		1.8E+02	
				5.0E-04	I					Ethion	563-12-2				1.8E+01		1.8E+01	
				3.0E-01	H	3.0E-01	C			Ethoxyethanol Acetate, 2-	111-15-9				1.1E+04		1.1E+04	
				4.0E-01	H	2.0E-01	I			Ethoxyethanol, 2-	110-80-5				1.5E+04		1.5E+04	
4.8E-02	H			9.0E-01	I			V		Ethyl Acetate	141-78-6				3.3E+04		3.3E+04	
								V		Ethyl Acrylate	140-88-5	1.4E+00		1.4E+00				

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Toxicity and Chemical-specific Information						Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1							
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				1.0E+01	I	1.0E+01		V		Ethyl Chloride	75-00-3					2.1E+04	2.1E+04	
				2.0E-01	I			V		Ethyl Ether	60-29-7				7.3E+03		7.3E+03	
				9.0E-02	H			V		Ethyl Methacrylate	97-63-2				3.3E+03		3.3E+03	
1.1E-02	C	2.5E-06	C	1.0E-05	I	1.0E+00	I	V		Ethyl-p-nitrophenyl Phosphonate	2104-64-5	6.1E+00	1.9E+00	1.5E+00	3.7E-01	2.1E+03	1.3E+03	7.0E+02
				1.0E-01	I	1.0E+00	I	V		Ethylbenzene	100-41-4				3.7E+03		1.3E+03	
				3.0E-02	P					Ethylene Cyanohydrin	109-78-4				1.1E+03		1.1E+03	
				9.0E-02	P					Ethylene Diamine	107-15-3				3.3E+03		3.3E+03	
				2.0E+00	I	4.0E-01	C			Ethylene Glycol	107-21-1				7.3E+04		7.3E+04	
				1.0E-01	I	1.6E+00	I			Ethylene Glycol Monobutyl Ether	111-76-2				3.7E+03		3.7E+03	
3.1E-01	C	8.8E-05	C			3.0E-02	C	V		Ethylene Oxide	75-21-8	2.2E-01	5.5E-02	4.4E-02		6.3E+01	6.3E+01	
4.5E-02	C	1.3E-05	C	8.0E-05	I					Ethylene Thiourea	96-45-7	1.5E+00		1.5E+00	2.9E+00		2.9E+00	
6.5E+01	C	1.9E-02	C							Ethyleneimine	151-56-4	1.0E-03		1.0E-03				
				3.0E+00	I					Ethylphthalyl Ethyl Glycolate	84-72-0				1.1E+05		1.1E+05	
				8.0E-03	I					Express	101200-48-0				2.9E+02		2.9E+02	
				2.5E-04	I					Fenamiphos	22224-92-6				9.1E+00		9.1E+00	
				2.5E-02	I					Fenprothrin	39515-41-8				9.1E+02		9.1E+02	
				1.3E-02	I					Fluometuron	2164-17-2				4.7E+02		4.7E+02	
				4.0E-02	C	1.3E-02	C			Fluoride	16984-48-8				1.5E+03		1.5E+03	
				6.0E-02	I	1.3E-02	C			Fluorine (Soluble Fluoride)	7782-41-4				2.2E+03		2.2E+03	4.0E+03
				8.0E-02	I					Fluridone	59756-60-4				2.9E+03		2.9E+03	
				2.0E-02	I					Flurprimidol	56425-91-3				7.3E+02		7.3E+02	
				6.0E-02	I					Flutolanil	66332-96-5				2.2E+03		2.2E+03	
3.5E-03	I			1.0E-02	I					Fluvalinate	69409-94-5				3.7E+02		3.7E+02	
				1.0E-01	I					Folpet	133-07-3	1.9E+01		1.9E+01	3.7E+03		3.7E+03	
1.9E-01	I									Fomesafen	72178-02-0	3.5E-01		3.5E-01				
				2.0E-03	I					Fonofos	944-22-9				7.3E+01		7.3E+01	
		1.3E-05	I	2.0E-01	I	9.8E-03	A			Formaldehyde	50-00-0				7.3E+03		7.3E+03	
				2.0E+00	H	3.0E-03	P			Formic Acid	64-18-6				7.3E+04		7.3E+04	
				3.0E+00	I					Fosetyl-AL	39148-24-8				1.1E+05		1.1E+05	
										Furans								
				1.0E-03	X			V		~Dibenzofuran	132-64-9				3.7E+01		3.7E+01	
3.8E+00	H			1.0E-03	I			V		~Furan	110-00-9				3.7E+01		3.7E+01	
				3.0E-03	I	5.0E-02	H			Furazolidone	67-45-8	1.8E-02		1.8E-02				
1.5E+00	C	4.3E-04	C							Furfural	98-01-1				1.1E+02		1.1E+02	
3.0E-02	I	8.6E-06	C							Furium	531-82-8	4.5E-02		4.5E-02				
										Furmecyclox	60568-05-0	2.2E+00		2.2E+00				
				4.0E-04	I					Glufosinate, Ammonium	77182-82-2				1.5E+01		1.5E+01	
						8.0E-05	C			Glutaraldehyde	111-30-8							
				4.0E-04	I	1.0E-03	H			Glycidyl	765-34-4				1.5E+01		1.5E+01	
				1.0E-01	I					Glyphosate	1071-83-6				3.7E+03		3.7E+03	7.0E+02
				3.0E-03	I					Goal	42874-03-3				1.1E+02		1.1E+02	
				3.0E-03	A	1.0E-02	A			Guthion	86-50-0				1.1E+02		1.1E+02	
				5.0E-05	I					Haloxyfop, Methyl	69806-40-2				1.8E+00		1.8E+00	
4.5E+00	I	1.3E-03	I	1.3E-02	I					Harmony	79277-27-3				4.7E+02		4.7E+02	
				5.0E-04	I					Heptachlor	76-44-8	1.5E-02		1.5E-02	1.8E+01		1.8E+01	4.0E-01
9.1E+00	I	2.6E-03	I	1.3E-05	I					Heptachlor Epoxide	1024-57-3	7.4E-03		7.4E-03	4.7E-01		4.7E-01	2.0E-01
				2.0E-03	I					Hexabromobenzene	87-82-1				7.3E+01		7.3E+01	
				2.0E-04	I					Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2				7.3E+00		7.3E+00	
1.6E+00	I	4.6E-04	I	8.0E-04	I					Hexachlorobenzene	118-74-1	4.2E-02		4.2E-02	2.9E+01		2.9E+01	1.0E+00

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1						
SFO (mg/kg-day) ⁻¹	k _e y	IUR (ug/m ³) ⁻¹	k _e y	RfD _o (mg/kg-day)	k _e y	RfC _i (mg/m ³)	k _e y	v o	muta- g	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
7.8E-02	I	2.2E-05	I	1.0E-03	P					Hexachlorobutadiene	87-68-3	8.6E-01		8.6E-01	3.7E+01		3.7E+01	
6.3E+00	I	1.8E-03	I	8.0E-03	A					Hexachlorocyclohexane, Alpha-	319-84-6	1.1E-02		1.1E-02	2.9E+02		2.9E+02	
1.8E+00	I	5.3E-04	I							Hexachlorocyclohexane, Beta-	319-85-7	3.7E-02		3.7E-02				
1.1E+00	C	3.1E-04	C	3.0E-04	I					Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	6.1E-02		6.1E-02	1.1E+01		1.1E+01	2.0E-01
1.8E+00	I	5.1E-04	I							Hexachlorocyclohexane, Technical	608-73-1	3.7E-02		3.7E-02				
1.4E-02	I	4.0E-06	I	6.0E-03	I	2.0E-04	I			Hexachlorocyclopentadiene	77-47-4				2.2E+02		2.2E+02	5.0E+01
				1.0E-03	I					Hexachloroethane	67-72-1	4.8E+00		4.8E+00	3.7E+01		3.7E+01	
				3.0E-04	I					Hexachlorophene	70-30-4				1.1E+01		1.1E+01	
1.1E-01	I			3.0E-03	I					Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	6.1E-01		6.1E-01	1.1E+02		1.1E+02	
						1.0E-05	I	V		Hexamethylene Diisocyanate, 1,6-	822-06-0					2.1E-02	2.1E-02	
				6.0E-02	H	7.0E-01	I	V		Hexane, N-	110-54-3				2.2E+03	1.5E+03	8.8E+02	
				2.0E+00	P					Hexanedioic Acid	124-04-9				7.3E+04		7.3E+04	
				5.0E-03	I	3.0E-02	I	V		Hexanone, 2-	591-78-6				1.8E+02	6.3E+01	4.7E+01	
				3.3E-02	I					Hexazinone	51235-04-2				1.2E+03		1.2E+03	
3.0E+00	I	4.9E-03	I			3.0E-05	P			Hydrazine	302-01-2	2.2E-02		2.2E-02				
3.0E+00	I	4.9E-03	I							Hydrazine Sulfate	10034-93-2	2.2E-02		2.2E-02				
						2.0E-02	I			Hydrogen Chloride	7647-01-0							
				4.0E-02	C	1.4E-02	C			Hydrogen Fluoride	7664-39-3				1.5E+03		1.5E+03	
						2.0E-03	I			Hydrogen Sulfide	7783-06-4							
6.0E-02	P			4.0E-02	P					Hydroquinone	123-31-9	1.1E+00		1.1E+00	1.5E+03		1.5E+03	
				1.3E-02	I					Imazalil	35554-44-0				4.7E+02		4.7E+02	
				2.5E-01	I					Imazaquin	81335-37-7				9.1E+03		9.1E+03	
				1.0E-02	A					Iodine	7553-56-2				3.7E+02		3.7E+02	
				4.0E-02	I					Iprodione	36734-19-7				1.5E+03		1.5E+03	
				7.0E-01	P					Iron	7439-89-6				2.6E+04		2.6E+04	
				3.0E-01	I			V		Isobutyl Alcohol	78-83-1				1.1E+04		1.1E+04	
9.5E-04	I			2.0E-01	I	2.0E+00	C			Isophorone	78-59-1	7.1E+01		7.1E+01	7.3E+03		7.3E+03	
				1.5E-02	I					Isopropalin	33820-53-0				5.5E+02		5.5E+02	
						7.0E+00	C			Isopropanol	67-63-0							
				1.0E-01	I					Isopropyl Methyl Phosphonic Acid	1832-54-8				3.7E+03		3.7E+03	
				5.0E-02	I					Isoxaben	82558-50-7				1.8E+03		1.8E+03	
						3.0E-01	A	V		JP-7	NA					6.3E+02	6.3E+02	
				7.5E-02	I					Kerb	23950-58-5				2.7E+03		2.7E+03	
				2.0E-03	I					Lactofen	77501-63-4				7.3E+01		7.3E+01	
										Lead Compounds								
2.8E-01	C	8.0E-05	C							~Lead acetate	301-04-2	2.4E-01		2.4E-01				
										~Lead and Compounds	7439-92-1							1.5E+01
3.8E-02	C	1.1E-05	C							~Lead subacetate	1335-32-6	1.8E+00		1.8E+00				
				1.0E-07	I					~Tetraethyl Lead	78-00-2				3.7E-03		3.7E-03	
				2.0E-03	I					Linuron	330-55-2				7.3E+01		7.3E+01	
				2.0E-03	P					Lithium	7439-93-2				7.3E+01		7.3E+01	
				7.0E-04	I					Lithium Perchlorate	7791-03-9				2.6E+01		2.6E+01	
				2.0E-01	I					Londax	83055-99-6				7.3E+03		7.3E+03	
				5.0E-04	I					MCPA	94-74-6				1.8E+01		1.8E+01	
				1.0E-02	I					MCPB	94-81-5				3.7E+02		3.7E+02	
				1.0E-03	I					MCPB	93-65-2				3.7E+01		3.7E+01	
				2.0E-02	I					Malathion	121-75-5				7.3E+02		7.3E+02	
				1.0E-01	I	7.0E-04	C			Maleic Anhydride	108-31-6				3.7E+03		3.7E+03	
				5.0E-01	I					Maleic Hydrazide	123-33-1				1.8E+04		1.8E+04	

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				1.0E-04						Malononitrile	109-77-3				3.7E+00		3.7E+00	
				3.0E-02						Mancozeb	8018-01-7				1.1E+03		1.1E+03	
				5.0E-03						Maneb	12427-38-2				1.8E+02		1.8E+02	
				1.4E-01		5.0E-05		I		Manganese (Diet)	7439-96-5							
				2.4E-02		5.0E-05		I		Manganese (Non-diet)	7439-96-5				8.8E+02		8.8E+02	
				9.0E-05						Mepfosfolan	950-10-7				3.3E+00		3.3E+00	
				3.0E-02						Mepiquat Chloride	24307-26-4				1.1E+03		1.1E+03	
				3.0E-04		3.0E-05				Mercury Compounds								
				1.6E-04		3.0E-04		I	V	~Mercuric Chloride (and other Mercury salts)	7487-94-7				1.1E+01		1.1E+01	2.0E+00
										~Mercury (elemental)	7439-97-6				5.8E+00	6.3E-01	5.7E-01	2.0E+00
				1.0E-04						~Methyl Mercury	22967-92-6				3.7E+00		3.7E+00	
				8.0E-05						~Phenylmercuric Acetate	62-38-4				2.9E+00		2.9E+00	
				3.0E-05						Merphos	150-50-5				1.1E+00		1.1E+00	
				3.0E-05						Merphos Oxide	78-48-8				1.1E+00		1.1E+00	
				6.0E-02						Metalaxyl	57837-19-1				2.2E+03		2.2E+03	
				1.0E-04		7.0E-04		H	V	Methacrylonitrile	126-98-7				3.7E+00	1.5E+00	1.0E+00	
				5.0E-05						Methamidophos	10265-92-6				1.8E+00		1.8E+00	
				5.0E-01		4.0E+00				Methanol	67-56-1				1.8E+04		1.8E+04	
				1.0E-03						Methidathion	950-37-8				3.7E+01		3.7E+01	
4.9E-02	C	1.4E-05	C	2.5E-02						Methomyl	16752-77-5	1.4E+00		1.4E+00	9.1E+02		9.1E+02	
				5.0E-03						Methoxy-5-nitroaniline, 2-	99-59-2				1.8E+02		1.8E+02	4.0E+01
										Methoxychlor	72-43-5							
				2.0E-03		9.0E-02				Methoxyethanol Acetate, 2-	110-49-6				7.3E+01		7.3E+01	
				3.0E-03		2.0E-02				Methoxyethanol, 2-	109-86-4				1.1E+02		1.1E+02	
				1.0E+00						Methyl Acetate	79-20-9				3.7E+04		3.7E+04	
				3.0E-02						Methyl Acrylate	96-33-3				1.1E+03		1.1E+03	
				6.0E-01		5.0E+00		I	V	Methyl Ethyl Ketone (2-Butanone)	78-93-3				2.2E+04	1.0E+04	7.1E+03	
				8.0E-02		3.0E+00		I	V	Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1				2.9E+03	6.3E+03	2.0E+03	
										Methyl Isocyanate	624-83-9							
				1.4E+00		7.0E-01		I	V	Methyl Methacrylate	80-62-6				5.1E+04	1.5E+03	1.4E+03	
				2.5E-04						Methyl Parathion	298-00-0				9.1E+00		9.1E+00	
				6.0E-02						Methyl Phosphonic Acid	993-13-5				2.2E+03		2.2E+03	
				6.0E-03		4.0E-02		H	V	Methyl Styrene (Mixed Isomers)	25013-15-4				2.2E+02	8.3E+01	6.0E+01	
9.9E-02	C	2.8E-05	C							Methyl methanesulfonate	66-27-3	6.8E-01		6.8E-01				
1.8E-03	C	2.6E-07	C			3.0E+00		I	V	Methyl tert-Butyl Ether (MTBE)	1634-04-4	3.7E+01	1.9E+01	1.2E+01		6.3E+03	6.3E+03	
3.3E-02	H									Methyl-5-Nitroaniline, 2-	99-55-8	2.0E+00		2.0E+00				
8.3E+00	C	2.4E-03	C							Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	8.1E-03		8.1E-03				
1.3E-01	C	3.7E-05	C							Methylaniline Hydrochloride, 2-	636-21-5	5.2E-01		5.2E-01				
2.2E+01	C	6.3E-03	C	1.0E-02		A				Methylarsonic acid	124-58-3				3.7E+02		3.7E+02	
										Methylcholanthrene, 3-	56-49-5	3.1E-03		3.1E-03				
7.5E-03	I	4.7E-07	I	6.0E-02		1.0E+00		A	V	Methylene Chloride	75-09-2	9.0E+00	1.0E+01	4.8E+00	2.2E+03	2.2E+03	1.1E+03	5.0E+00
1.0E-01	P	4.3E-04	C	2.0E-03					M	Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	2.2E-01		2.2E-01	7.3E+01		7.3E+01	
4.6E-02	I	1.3E-05	C							Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	1.5E+00		1.5E+00				
1.6E+00	C	4.6E-04	C			2.0E-02				Methylenebisbenzenamine, 4,4'-	101-77-9	4.2E-02		4.2E-02				
						6.0E-04		I		Methylenediphenyl Diisocyanate	101-68-8							
				7.0E-02						Methylstyrene, Alpha-	98-83-9				2.6E+03		2.6E+03	
				1.5E-01						Metolachlor	51218-45-2				5.5E+03		5.5E+03	
				2.5E-02						Metribuzin	21087-64-9				9.1E+02		9.1E+02	
		4.5E-06	X	1.0E-02	X	1.0E-01		P	V	Midrange Aliphatic Hydrocarbon Streams	NA		1.1E+00	1.1E+00	3.7E+02	2.1E+02	1.3E+02	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
1.8E+01	C	5.1E-03	C	3.0E+00 2.0E-04 2.0E-03	P I I					Mineral oils Mirex Molinate	8012-95-1 2385-85-5 2212-67-1	3.7E-03		3.7E-03	1.1E+05 7.3E+00 7.3E+01		1.1E+05 7.3E+00 7.3E+01	
				5.0E-03 1.0E-01 2.0E-03	I I P					Molybdenum Monochloramine Monomethylaniline	7439-98-7 10599-90-3 100-61-8				1.8E+02 3.7E+03 7.3E+01		1.8E+02 3.7E+03 7.3E+01	
				3.0E-04 2.0E-03 3.0E-02	X I X					N,N'-Diphenyl-1,4-benzenediamine Naled Naphtha, High Flash Aromatic (HFAN)	74-31-7 300-76-5 64724-95-6				1.1E+01 7.3E+01 1.1E+03	2.1E+02	1.1E+01 7.3E+01 1.8E+02	
1.8E+00	C	0.0E+00	C	1.0E-01 5.0E-02	I C	5.0E-05				Naphthylamine, 2- Napropamide Nickel Carbonyl	91-59-8 15299-99-7 13463-39-3	3.7E-02		3.7E-02	3.7E+03 1.8E+03		3.7E+03 1.8E+03	
		2.4E-04 2.6E-04	I C	5.0E-02 5.0E-02	C C	1.0E-04 5.0E-05	C C			Nickel Oxide Nickel Refinery Dust Nickel Soluble Salts	1313-99-1 NA 7440-02-0				1.8E+03 1.8E+03 7.3E+02		1.8E+03 1.8E+03 7.3E+02	
1.7E+00	C	4.8E-04	I	5.0E-02 1.6E+00 1.0E-01	C I I	5.0E-02	C	5.0E-05		Nickel Subsulfide Nitrate Nitrite	12035-72-2 14797-55-8 14797-65-0	4.0E-02		4.0E-02	1.8E+03 5.8E+04 3.7E+03		1.8E+03 5.8E+04 3.7E+03	1.0E+04 1.0E+03
2.0E-02	P	4.0E-05	I	1.0E-02 4.0E-03 2.0E-03	X P I	5.0E-05 6.0E-03 9.0E-03	X P I		V	Nitroaniline, 2- Nitroaniline, 4- Nitrobenzene	88-74-4 100-01-6 98-95-3	3.4E+00	1.2E-01	3.4E+00 1.2E-01	3.7E+02 1.5E+02 7.3E+01	1.9E+01	3.7E+02 1.5E+02 1.5E+01	
1.3E+00	C	3.7E-04	C	3.0E+03 7.0E-02	P H					Nitrocellulose Nitrofurantoin Nitrofurazone	9004-70-0 67-20-9 59-87-0	5.2E-02		5.2E-02	1.1E+08 2.6E+03		1.1E+08 2.6E+03	
1.7E-02	P	9.0E-06	P	1.0E-04 1.0E-01	P I			2.0E-02	P V	Nitroglycerin Nitroguanidine Nitromethane	55-63-0 556-88-7 75-52-5	4.0E+00		4.0E+00	3.7E+00 3.7E+03		3.7E+00 3.7E+03	4.2E+01 4.2E+01
2.7E+01	C	7.7E-03	C	2.7E-03 7.7E-03	H C	2.0E-02			I V	Nitropropane, 2- Nitroso-N-ethylurea, N- Nitroso-N-methylurea, N-	79-46-9 759-73-9 684-93-5	2.5E-03 5.6E-04	1.8E-03	1.8E-03	2.5E-03 5.6E-04	4.2E+01	4.2E+01 4.2E+01	
5.4E+00	I	1.6E-03	I						V	Nitroso-di-N-butylamine, N- Nitroso-di-N-propylamine, N- Nitrosodiethanolamine, N-	924-16-3 621-64-7 1116-54-7	1.2E-02 9.6E-03 2.4E-02	3.0E-03	2.4E-03	9.6E-03		2.4E-02	
1.5E+02	I	4.3E-02	I							Nitrosodiethylamine, N- Nitrosodimethylamine, N- Nitrosodiphenylamine, N-	55-18-5 62-75-9 86-30-6	1.4E-04 4.2E-04 1.4E+01		1.4E-04	2.9E-01		2.9E-01	
2.2E+01	I	6.3E-03	C							Nitrosomethylethylamine, N- Nitrosomorpholine [N-] Nitrosopiperidine [N-]	10595-95-6 59-89-2 100-75-4	3.1E-03 1.0E-02 7.2E-03		3.1E-03	1.0E-02		7.2E-03	
2.1E+00	I	6.1E-04	I							Nitrosopyrrolidine, N- Nitrotoluene, m- Nitrotoluene, o-	930-55-2 99-08-1 88-72-2	3.2E-02		3.2E-02	3.7E+00 3.3E+01		3.7E+00 3.3E+01	
2.2E-01	P		P	1.0E-04 9.0E-04	X P				V	Nitrotoluene, p- Nonane, n- Norflurazon	99-99-0 111-84-2 27314-13-2	4.2E+00		4.2E+00	1.5E+02 1.1E+01 1.5E+03	4.2E+02	1.5E+02 1.1E+01 1.5E+03	
				7.0E-04 3.0E-03 5.0E-02	I I I					Nustar Octabromodiphenyl Ether Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	85509-19-9 32536-52-0 2691-41-0				2.6E+01 1.1E+02 1.8E+03		2.6E+01 1.1E+02 1.8E+03	
				2.0E-03	H					Octamethylpyrophosphoramidate	152-16-9				7.3E+01		7.3E+01	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				5.0E-02	I					Oryzalin	19044-88-3				1.8E+03		1.8E+03	
				5.0E-03	I					Oxadiazon	19666-30-9				1.8E+02		1.8E+02	
				2.5E-02	I					Oxamyl	23135-22-0				9.1E+02		9.1E+02	2.0E+02
				1.3E-02	I					Paclotrazol	76738-62-0				4.7E+02		4.7E+02	
				4.5E-03	I					Paraquat Dichloride	1910-42-5				1.6E+02		1.6E+02	
				6.0E-03	H					Parathion	56-38-2				2.2E+02		2.2E+02	
				5.0E-02	H					Pebulate	1114-71-2				1.8E+03		1.8E+03	
				4.0E-02	I					Pendimethalin	40487-42-1				1.5E+03		1.5E+03	
				2.0E-03	I					Pentabromodiphenyl Ether	32534-81-9				7.3E+01		7.3E+01	
				1.0E-04	I					Pentabromodiphenyl ether, 2,2',4,4',5'- (BDE-99)	60348-60-9				3.7E+00		3.7E+00	
				8.0E-04	I					Pentachlorobenzene	608-93-5				2.9E+01		2.9E+01	
9.0E-02	P									Pentachloroethane	76-01-7	7.5E-01		7.5E-01				
2.6E-01	H			3.0E-03	I					Pentachloronitrobenzene	82-68-8	2.6E-01		2.6E-01	1.1E+02		1.1E+02	
4.0E-01	I	5.1E-06	C	5.0E-03	I					Pentachlorophenol	87-86-5	1.7E-01		1.7E-01	1.8E+02		1.8E+02	1.0E+00
						1.0E+00	P	V		Pentane, n-	109-66-0					2.1E+03	2.1E+03	
				7.0E-04	I					Perchlorate and Perchlorate Salts	14797-73-0				2.6E+01		2.6E+01	1.5E+01(F)
				5.0E-02	I					Permethrin	52645-53-1				1.8E+03		1.8E+03	
2.2E-03	C	6.3E-07	C							Phenacetin	62-44-2	3.1E+01		3.1E+01				
				2.5E-01	I					Phenmedipham	13684-63-4				9.1E+03		9.1E+03	
				3.0E-01	I	2.0E-01	C			Phenol	108-95-2				1.1E+04		1.1E+04	
				6.0E-03	I					Phenylenediamine, m-	108-45-2				2.2E+02		2.2E+02	
4.7E-02	H			1.9E-01	H					Phenylenediamine, o-	95-54-5	1.4E+00		1.4E+00	6.9E+03		6.9E+03	
										Phenylenediamine, p-	106-50-3							
1.9E-03	H			2.0E-04	H					Phenylphenol, 2-	90-43-7	3.5E+01		3.5E+01				
						3.0E-04	I	V		Phorate	298-02-2				7.3E+00		7.3E+00	
										Phosgene	75-44-5							
				2.0E-02	I					Phosmet	732-11-6				7.3E+02		7.3E+02	
				3.0E-04	I	3.0E-04	I			Phosphine	7803-51-2				1.1E+01		1.1E+01	
						1.0E-02	I			Phosphoric Acid	7664-38-2							
				2.0E-05	I					Phosphorus, White	7723-14-0				7.3E-01		7.3E-01	
				1.0E+00	H					Phthalic Acid, P-	100-21-0				3.7E+04		3.7E+04	
				2.0E+00	I	2.0E-02	C			Phthalic Anhydride	85-44-9				7.3E+04		7.3E+04	
				7.0E-02	I					Picloram	1918-02-1				2.6E+03		2.6E+03	5.0E+02
				1.0E-04	X					Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3				3.7E+00		3.7E+00	
				1.0E-02	I					Pirimiphos, Methyl	29232-93-7				3.7E+02		3.7E+02	
3.0E+01	C	8.6E-03	C	7.0E-06	H					Polybrominated Biphenyls	59536-65-1	2.2E-03		2.2E-03	2.6E-01		2.6E-01	
										Polychlorinated Biphenyls (PCBs)								
7.0E-02	S	2.0E-05	S	7.0E-05	I					~Aroclor 1016	12674-11-2	9.6E-01		9.6E-01	2.6E+00		2.6E+00	
2.0E+00	S	5.7E-04	S					V		~Aroclor 1221	11104-28-2	3.4E-02	8.5E-03	6.8E-03				
2.0E+00	S	5.7E-04	S					V		~Aroclor 1232	11141-16-5	3.4E-02	8.5E-03	6.8E-03				
2.0E+00	S	5.7E-04	S							~Aroclor 1242	53469-21-9	3.4E-02		3.4E-02				
2.0E+00	S	5.7E-04	S							~Aroclor 1248	12672-29-6	3.4E-02		3.4E-02				
2.0E+00	S	5.7E-04	S	2.0E-05	I					~Aroclor 1254	11097-69-1	3.4E-02		3.4E-02	7.3E-01		7.3E-01	
2.0E+00	S	5.7E-04	S							~Aroclor 1260	11096-82-5	3.4E-02		3.4E-02				
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 156)	38380-08-4	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+03	E	1.1E+00	E	3.3E-08	E	1.3E-06	E			~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	1.7E-05		1.7E-05	1.2E-03		1.2E-03	

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1					
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t a g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E		~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	1.7E-02		1.7E-02	1.2E+00		1.2E+00	
1.3E+04	E	3.8E+00	E	1.0E-08	E	4.0E-07	E		~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	5.2E-06		5.2E-06	3.7E-04		3.7E-04	
2.0E+00	I	5.7E-04	I						~Polychlorinated Biphenyls (high risk)	1336-36-3							
4.0E-01	I	1.0E-04	I						~Polychlorinated Biphenyls (low risk)	1336-36-3	1.7E-01		1.7E-01				5.0E-01
7.0E-02	I	2.0E-05	I						~Polychlorinated Biphenyls (lowest risk)	1336-36-3							
1.3E+01	E	3.8E-03	E	1.0E-05	E	4.0E-04	E		~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	5.2E-03		5.2E-03	3.7E-01		3.7E-01	
3.9E+01	E	1.1E-02	E	3.3E-06	E	1.3E-04	E		~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	1.7E-03		1.7E-03	1.2E-01		1.2E-01	
				6.0E-04	I				Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9							
				6.0E-02	I			V	Polynuclear Aromatic Hydrocarbons (PAHs)								
				3.0E-01	I			V	~Acenaphthene	83-32-9				2.2E+03		2.2E+03	
7.3E-01	E	1.1E-04	C						~Anthracene	120-12-7				1.1E+04		1.1E+04	
1.2E+00	C	1.1E-04	C					M	~Benz[a]anthracene	56-55-3	2.9E-02		2.9E-02				
									~Benzo[j]fluoranthene	205-82-3	5.6E-02		5.6E-02				
7.3E+00	I	1.1E-03	C					M	~Benzo[a]pyrene	50-32-8	2.9E-03		2.9E-03				2.0E-01
7.3E-01	E	1.1E-04	C					M	~Benzo[b]fluoranthene	205-99-2	2.9E-02		2.9E-02				
7.3E-02	E	1.1E-04	C					M	~Benzo[k]fluoranthene	207-08-9	2.9E-01		2.9E-01				
7.3E-03	E	1.1E-05	C					M	~Chrysene	218-01-9	2.9E+00		2.9E+00				
7.3E+00	E	1.2E-03	C					M	~Dibenz[a,h]anthracene	53-70-3	2.9E-03		2.9E-03				
1.2E+01	C	1.1E-03	C						~Dibenzo[a,e]pyrene	192-65-4	5.6E-03		5.6E-03				
2.5E+02	C	7.1E-02	C						~Dimethylbenz(a)anthracene, 7,12-	57-97-6	2.7E-04		2.7E-04				
				4.0E-02	I				~Fluoranthene	206-44-0				1.5E+03		1.5E+03	
				4.0E-02	I			V	~Fluorene	86-73-7				1.5E+03		1.5E+03	
7.3E-01	E	1.1E-04	C					M	~Indeno[1,2,3-cd]pyrene	193-39-5	2.9E-02		2.9E-02				
2.9E-02	P			7.0E-02	A			V	~Methylnaphthalene, 1-	90-12-0	2.3E+00		2.3E+00	2.6E+03		2.6E+03	
				4.0E-03	I			V	~Methylnaphthalene, 2-	91-57-6				1.5E+02		1.5E+02	
		3.4E-05	C	2.0E-02	I	3.0E-03	I	V	~Naphthalene	91-20-3		1.4E-01	1.4E-01	7.3E+02	6.3E+00	6.2E+00	
1.2E+00	C	1.1E-04	C					V	~Nitropyrene, 4-	57835-92-4	5.6E-02		5.6E-02			1.1E+03	1.1E+03
				3.0E-02	I			V	~Pyrene	129-00-0						1.1E+03	
1.5E-01	I			7.0E-04	I				Potassium Perchlorate	7778-74-7				2.6E+01		2.6E+01	
				9.0E-03	I				Prochloraz	67747-09-5	4.5E-01		4.5E-01	3.3E+02		3.3E+02	
				6.0E-03	H				Propylparalol	26399-36-0				2.2E+02		2.2E+02	
				1.5E-02	I				Prometon	1610-18-0				5.5E+02		5.5E+02	
				4.0E-03	I				Prometryn	7287-19-6				1.5E+02		1.5E+02	
				1.3E-02	I				Propachlor	1918-16-7				4.7E+02		4.7E+02	
				5.0E-03	I				Propanil	709-98-8				1.8E+02		1.8E+02	
				2.0E-02	I				Propargite	2312-35-8				7.3E+02		7.3E+02	
				2.0E-03	I				Propargyl Alcohol	107-19-7				7.3E+01		7.3E+01	
				2.0E-02	I				Propazine	139-40-2				7.3E+02		7.3E+02	
				2.0E-02	I				Propam	122-42-9				7.3E+02		7.3E+02	
				1.3E-02	I				Propiconazole	60207-90-1				4.7E+02		4.7E+02	
						8.0E-03	I	V	Propionaldehyde	123-38-6					1.7E+01	1.7E+01	
				1.0E-01	X	1.0E+00	X	V	Propyl benzene	103-65-1				3.7E+03	2.1E+03	1.3E+03	
						3.0E+00	C		Propylene	115-07-1							
				2.0E+01	P				Propylene Glycol	57-55-6				7.3E+05		7.3E+05	
						2.7E-04	A	V	Propylene Glycol Dinitrate	6423-43-4					5.7E-01	5.7E-01	
				7.0E-01	H				Propylene Glycol Monoethyl Ether	1569-02-4				2.6E+04		2.6E+04	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
2.4E-01	I	3.7E-06	I	7.0E-01	H	2.0E+00	I			Propylene Glycol Monomethyl Ether	107-98-2				2.6E+04		2.6E+04	
				2.5E-01	I	3.0E-02	I	V		Propylene Oxide	75-56-9	2.8E-01	1.3E+00	2.3E-01	9.1E+03	6.3E+01	6.3E+01	9.1E+03
										Pursuit	81335-77-5							
										Pydrin	51630-58-1				9.1E+02		9.1E+02	
									V	Pyridine	110-86-1				3.7E+01		3.7E+01	
										Quinalphos	13593-03-8				1.8E+01		1.8E+01	
3.0E+00	I					3.0E-02	A			Quinoline	91-22-5	2.2E-02		2.2E-02				
										Refractory Ceramic Fibers	NA							
										Resmethrin	10453-86-8				1.1E+03		1.1E+03	
										Ronnel	299-84-3				1.8E+03		1.8E+03	
2.2E-01	C	6.3E-05	C							Rotenone	83-79-4				1.5E+02		1.5E+02	
										Safrole	94-59-7	3.1E-01		3.1E-01				
										Savey	78587-05-0				9.1E+02		9.1E+02	
										Selenious Acid	7783-00-8				1.8E+02		1.8E+02	
										Selenium	7782-49-2				1.8E+02		1.8E+02	5.0E+01
										Selenium Sulfide	7446-34-6				1.8E+02		1.8E+02	
										Sethoxydim	74051-80-2				3.3E+03		3.3E+03	
										Silica (crystalline, respirable)	7631-86-9							
										Silver	7440-22-4				1.8E+02		1.8E+02	
1.2E-01	H									Simazine	122-34-9	5.6E-01		5.6E-01	1.8E+02		1.8E+02	4.0E+00
										Sodium Acifluorfen	62476-59-9				4.7E+02		4.7E+02	
										Sodium Azide	26628-22-8				1.5E+02		1.5E+02	
										Sodium Diethyldithiocarbamate	148-18-5	2.5E-01		2.5E-01	1.1E+03		1.1E+03	
										Sodium Fluoride	7681-49-4				1.8E+03		1.8E+03	
										Sodium Fluoroacetate	62-74-8				7.3E-01		7.3E-01	
										Sodium Metavanadate	13718-26-8				3.7E+01		3.7E+01	
										Sodium Perchlorate	7601-89-0				2.6E+01		2.6E+01	
2.4E-02	H									Stirofos (Tetrachlorovinphos)	961-11-5	2.8E+00		2.8E+00	1.1E+03		1.1E+03	
										Strontium, Stable	7440-24-6				2.2E+04		2.2E+04	
										Strychnine	57-24-9				1.1E+01		1.1E+01	
										Styrene	100-42-5				7.3E+03	2.1E+03	1.6E+03	1.0E+02
										Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9				2.9E+01		2.9E+01	
										Sulfuric Acid	7664-93-9							
										Systhane	88671-89-0				9.1E+02		9.1E+02	
										TCMTB	21564-17-0				1.1E+03		1.1E+03	
										Tebuthiuron	34014-18-1				2.6E+03		2.6E+03	
										Temephos	3383-96-8				7.3E+02		7.3E+02	
										Terbacil	5902-51-2				4.7E+02		4.7E+02	
										Terbufos	13071-79-9				9.1E-01		9.1E-01	
										Terbutryn	886-50-0				3.7E+01		3.7E+01	
										Tetrabromodiphenyl ether, 2,2',4,4'-(BDE-47)	5436-43-1				3.7E+00		3.7E+00	
										Tetrachlorobenzene, 1,2,4,5-	95-94-3				1.1E+01		1.1E+01	
2.6E-02	I	7.4E-06	I							Tetrachloroethane, 1,1,1,2-	630-20-6	2.6E+00	6.6E-01	5.2E-01	1.1E+03		1.1E+03	
2.0E-01	I	5.8E-05	C							Tetrachloroethane, 1,1,2,2-	79-34-5	3.4E-01	8.4E-02	6.7E-02	7.3E+02		7.3E+02	
5.4E-01	C	5.9E-06	C							Tetrachloroethylene	127-18-4	1.2E-01	8.2E-01	1.1E-01	3.7E+02	5.7E+02	2.2E+02	5.0E+00
										Tetrachlorophenol, 2,3,4,6-	58-90-2				1.1E+03		1.1E+03	
2.0E+01	H									Tetrachlorotoluene, p- alpha, alpha-	5216-25-1	3.4E-03		3.4E-03				
										Tetraethyl Dithiopyrophosphate	3689-24-5				1.8E+01		1.8E+01	
										Tetrafluoroethane, 1,1,1,2-	811-97-2					1.7E+05	1.7E+05	

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1						
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				4.0E-03						Tetryl (Trinitrophenylmethylnitramine)	479-45-8				1.5E+02		1.5E+02	
										Thallium (Soluble Salts)	7440-28-0							2.0E+00
				1.0E-02						Thiobencarb	28249-77-6				3.7E+02		3.7E+02	
				7.0E-02						Thiodiglycol	111-48-8				2.6E+03		2.6E+03	
				3.0E-04						Thiofanox	39196-18-4				1.1E+01		1.1E+01	
				8.0E-02						Thiophanate, Methyl	23564-05-8				2.9E+03		2.9E+03	
				5.0E-03						Thiram	137-26-8				1.8E+02		1.8E+02	
				6.0E-01						Tin	7440-31-5				2.2E+04		2.2E+04	
						1.0E-04				Titanium Tetrachloride	7550-45-0							
1.9E-01				8.0E-02		5.0E+00				Toluene	108-88-3				2.9E+03	1.0E+04	2.3E+03	1.0E+03
										Toluidine, p-	106-49-0	3.5E-01		3.5E-01				
1.1E+00										Toxaphene	8001-35-2	6.1E-02		6.1E-02				3.0E+00
				7.5E-03						Tralomethrin	66841-25-6				2.7E+02		2.7E+02	
				3.0E-04						Tri-n-butyltin	688-73-3				1.1E+01		1.1E+01	
				1.3E-02						Triallate	2303-17-5				4.7E+02		4.7E+02	
				1.0E-02						Triasulfuron	82097-50-5				3.7E+02		3.7E+02	
				5.0E-03						Tribromobenzene, 1,2,4-	615-54-3				1.8E+02		1.8E+02	
9.2E-03				2.0E-01						Tributyl Phosphate	126-73-8	7.3E+00		7.3E+00	7.3E+03		7.3E+03	
				3.0E-04						Tributyltin Compounds	NA				1.1E+01		1.1E+01	
				3.0E-04						Tributyltin Oxide	56-35-9				1.1E+01		1.1E+01	
				3.0E+01		3.0E+01				Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1				1.1E+06	6.3E+04	5.9E+04	
2.9E-02										Trichloroacetic Acid	76-03-9							6.0E+01
										Trichloroaniline HCl, 2,4,6-	33663-50-2	2.3E+00		2.3E+00				
3.4E-02										Trichloroaniline, 2,4,6-	634-93-5	2.0E+00		2.0E+00				
				8.0E-04						Trichlorobenzene, 1,2,3-	87-61-6				2.9E+01		2.9E+01	
2.9E-02				1.0E-02		2.0E-03				Trichlorobenzene, 1,2,4-	120-82-1	2.3E+00		2.3E+00	3.7E+02	4.2E+00	4.1E+00	7.0E+01
				2.0E+00		5.0E+00				Trichloroethane, 1,1,1-	71-55-6				7.3E+04	1.0E+04	9.1E+03	2.0E+02
5.7E-02				4.0E-03						Trichloroethane, 1,1,2-	79-00-5	1.2E+00	3.0E-01	2.4E-01	1.5E+02		1.5E+02	5.0E+00
5.9E-03										Trichloroethylene	79-01-6	1.1E+01	2.4E+00	2.0E+00				5.0E+00
				3.0E-01		7.0E-01				Trichlorofluoromethane	75-69-4				1.1E+04	1.5E+03	1.3E+03	
1.1E-02				1.0E-01						Trichlorophenol, 2,4,5-	95-95-4				3.7E+03		3.7E+03	
				1.0E-03						Trichlorophenol, 2,4,6-	88-06-2	6.1E+00		6.1E+00	3.7E+01		3.7E+01	
				1.0E-02						Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5				3.7E+02		3.7E+02	
				8.0E-03						Trichlorophenoxypropionic acid, -2,4,5	93-72-1				2.9E+02		2.9E+02	
				5.0E-03						Trichloropropane, 1,1,2-	598-77-6				1.8E+02		1.8E+02	5.0E+01
3.0E+01				4.0E-03		3.0E-04				Trichloropropane, 1,2,3-	96-18-4	7.2E-04		7.2E-04	1.5E+02	6.3E-01	6.2E-01	
				3.0E-03		3.0E-04				Trichloropropene, 1,2,3-	96-19-5				1.1E+02	6.3E-01	6.2E-01	
				3.0E-03						Tridiphane	58138-08-2				1.1E+02		1.1E+02	
7.7E-03						7.0E-03				Triethylamine	121-44-8					1.5E+01	1.5E+01	
3.7E-02										Trifluralin	1582-09-8	8.7E+00		8.7E+00	2.7E+02		2.7E+02	
										Trimethyl Phosphate	512-56-1	1.8E+00		1.8E+00				
										Trimethylbenzene, 1,2,4-	95-63-6					1.5E+01	1.5E+01	
				1.0E-02						Trimethylbenzene, 1,3,5-	108-67-8				3.7E+02		3.7E+02	
				3.0E-02						Trinitrobenzene, 1,3,5-	99-35-4				1.1E+03		1.1E+03	
3.0E-02				5.0E-04						Trinitrotoluene, 2,4,6-	118-96-7	2.2E+00		2.2E+00	1.8E+01		1.8E+01	
				2.0E-02						Triphenylphosphine Oxide	791-28-6				7.3E+02		7.3E+02	
				2.0E-02						Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8				7.3E+02		7.3E+02	
2.0E-02				7.0E-03						Tris(2-chloroethyl)phosphate	115-96-8	3.4E+00		3.4E+00	2.6E+02		2.6E+02	
3.2E-03				1.0E-01						Tris(2-ethylhexyl)phosphate	78-42-2	2.1E+01		2.1E+01	3.7E+03		3.7E+03	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk (TR) = 1E-06			Noncancer Hazard Index (HI) = 1			
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	m u t a g e n	Analyte	CAS No.	Ingestion SL TR=1.0E-6 (ug/L)	Inhalation SL TR=1.0E-6 (ug/L)	Carcinogenic SL TR=1.0E-6 (ug/L)	Ingestion SL HQ=1 (ug/L)	Inhalation SL HQ=1 (ug/L)	Noncarcinogenic SL HI=1 (ug/L)	MCL (ug/L)
				3.0E-03	I	3.0E-04	A			Uranium (Soluble Salts)	NA				1.1E+02		1.1E+02	3.0E+01
1.0E+00	C	2.9E-04	C							Urethane	51-79-6	6.7E-02		6.7E-02				
		8.3E-03	P	9.0E-03	I	7.0E-06	P			Vanadium Pentoxide	1314-62-1				3.3E+02		3.3E+02	
				2.0E-02	H					Vanadium Sulfate	36907-42-3				7.3E+02		7.3E+02	
				5.0E-03	S					Vanadium and Compounds	NA				1.8E+02		1.8E+02	
				7.0E-05	P	1.0E-04	A			Vanadium, Metallic	7440-62-2				2.6E+00		2.6E+00	
				1.0E-03	I					Vernolate	1929-77-7				3.7E+01		3.7E+01	
				2.5E-02	I					Vinclozolin	50471-44-8				9.1E+02		9.1E+02	
				1.0E+00	H	2.0E-01	I V			Vinyl Acetate	108-05-4				3.7E+04	4.2E+02	4.1E+02	
		3.2E-05	H			3.0E-03	I V			Vinyl Bromide	593-60-2		1.5E-01	1.5E-01		6.3E+00	6.3E+00	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I V M			Vinyl Chloride	75-01-4	1.7E-02	3.2E-01	1.6E-02	1.1E+02	2.1E+02	7.2E+01	2.0E+00
				3.0E-04	I					Warfarin	81-81-2				1.1E+01		1.1E+01	
				2.0E-01	I	1.0E-01	I V			Xylene, Mixture	1330-20-7				7.3E+03	2.1E+02	2.0E+02	1.0E+04
				2.0E-01	S	7.0E-01	C V			Xylene, p-	106-42-3				7.3E+03	1.5E+03	1.2E+03	
				2.0E-01	S	7.0E-01	C V			Xylene, m-	108-38-3				7.3E+03	1.5E+03	1.2E+03	
				2.0E-01	S	7.0E-01	C V			Xylene, o-	95-47-6				7.3E+03	1.5E+03	1.2E+03	
				3.0E-01	I					Zinc (Metallic)	7440-66-6				1.1E+04		1.1E+04	
				3.0E-04	I					Zinc Phosphide	1314-84-7				1.1E+01		1.1E+01	
				5.0E-02	I					Zineb	12122-67-7				1.8E+03		1.8E+03	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
1.8E-02	C	5.1E-06	C	1.5E-01	I					ALAR	1596-84-5	3.7E+00		3.7E+00	5.5E+03		5.5E+03		8.2E-04	
8.7E-03	I			4.0E-03	I					Acephate	30560-19-1	7.7E+00		7.7E+00	1.5E+02		1.5E+02		1.7E-03	
		2.2E-06	I			9.0E-03	I	V		Acetaldehyde	75-07-0		2.2E+00	2.2E+00		1.9E+01	1.9E+01		4.5E-04	
				2.0E-02	I					Acetochlor	34256-82-1				7.3E+02		7.3E+02		5.8E-01	
				9.0E-01	I	3.1E+01	A	V		Acetone	67-64-1				3.3E+04	6.4E+04	2.2E+04		4.5E+00	
				3.0E-03	P	6.0E-02	P	V		Acetone Cyanohydrin	75-86-5				1.1E+02	1.3E+02	5.8E+01		1.2E-02	
						6.0E-02	I	V		Acetonitrile	75-05-8					1.3E+02	1.3E+02		2.6E-02	
3.8E+00	C	1.3E-03	C	1.0E-01	I			V		Acetophenone	98-86-2				3.7E+03		3.7E+03		1.1E+00	
										Acetylaminofluorene, 2-	53-96-3	1.8E-02		1.8E-02					8.2E-05	
				5.0E-04	I	2.0E-05	I	V		Acrolein	107-02-8				1.8E+01	4.2E-02	4.2E-02		8.4E-06	
5.0E-01	I	1.0E-04	I	2.0E-03	I	6.0E-03	I		M	Acrylamide	79-06-1	4.3E-02		4.3E-02	7.3E+01		7.3E+01		9.1E-06	
				5.0E-01	I	1.0E-03	I			Acrylic Acid	79-10-7				1.8E+04		1.8E+04		3.7E+00	
5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I	V		Acrylonitrile	107-13-1	1.2E-01	7.2E-02	4.5E-02	1.5E+03	4.2E+00	4.2E+00		9.9E-06	
5.6E-02	C			1.0E-02	I	6.0E-03	P			Adiponitrile	111-69-3							2.0E+00		1.6E-03
										Alachlor	15972-60-8	1.2E+00		1.2E+00	3.7E+02		3.7E+02		9.9E-04	
				1.0E-03	I					Aldicarb	116-06-3				3.7E+01		3.7E+01		9.1E-03	
1.7E+01	I	4.9E-03	I	1.0E-03	I					Aldicarb Sulfone	1646-88-4				3.7E+01		3.7E+01		8.0E-03	
				3.0E-05	I					Aldrin	309-00-2	4.0E-03		4.0E-03	1.1E+00		1.1E+00		6.5E-04	
				2.5E-01	I					Allyl	74223-64-6				9.1E+03		9.1E+03		3.5E+00	
2.1E-02	C	6.0E-06	C	5.0E-03	I	1.0E-04	X			Allyl Alcohol	107-18-6				1.8E+02		1.8E+02		3.7E-02	
						1.0E-03	I	V		Allyl Chloride	107-05-1	3.2E+00	8.1E-01	6.5E-01		2.1E+00	2.1E+00		2.1E-04	
				1.0E+00	P	5.0E-03	P			Aluminum	7429-90-5				3.7E+04		3.7E+04		5.5E+04	
				4.0E-04	I					Aluminum Phosphide	20859-73-8				1.5E+01		1.5E+01			
				3.0E-04	I					Amdro	67485-29-4				1.1E+01		1.1E+01		3.9E+03	
2.1E+01	C	6.0E-03	C	9.0E-03	I					Ametryn	834-12-8				3.3E+02		3.3E+02		3.5E-01	
				8.0E-02	P					Aminobiphenyl, 4-	92-67-1	3.2E-03		3.2E-03					1.6E-05	
										Aminophenol, m-	591-27-5				2.9E+03		2.9E+03		1.1E+00	
				2.0E-02	P					Aminophenol, p-	123-30-8				7.3E+02		7.3E+02		2.8E-01	
				2.5E-03	I					Amitraz	33089-61-1				9.1E+01		9.1E+01		4.7E+01	
						1.0E-01	I			Ammonia	7664-41-7									
5.7E-03	I	1.6E-06	C	7.0E-03	P	1.0E-03	I			Ammonium Perchlorate	7790-98-9				2.6E+01		2.6E+01			
				2.0E-01	I					Ammonium Sulfamate	7773-06-0				7.3E+03		7.3E+03			
				7.0E-03	P	1.0E-03	I			Aniline	62-53-3	1.2E+01		1.2E+01	2.6E+02		2.6E+02		4.0E-03	
				4.0E-04	I					Antimony (metallic)	7440-36-0				1.5E+01		1.5E+01	6.0E+00	6.6E-01	2.7E-01
				5.0E-04	H					Antimony Pentoxide	1314-60-9				1.8E+01		1.8E+01			
				9.0E-04	H					Antimony Potassium Tartrate	11071-15-1				3.3E+01		3.3E+01			
				4.0E-04	H					Antimony Tetroxide	1332-81-6				1.5E+01		1.5E+01			
						2.0E-04	I			Antimony Trioxide	1309-64-4									
				1.3E-02	I					Apollo	74115-24-5				4.7E+02		4.7E+02		2.9E+01	
2.5E-02	I	7.1E-06	I	5.0E-02	H					Aramite	140-57-8	2.7E+00		2.7E+00	1.8E+03		1.8E+03		3.0E-02	
1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C			Arsenic, Inorganic	7440-38-2	4.5E-02		4.5E-02	1.1E+01		1.1E+01	1.0E+01	1.3E-03	2.9E-01
				3.5E-06	C	5.0E-05	I			Arsine	7784-42-1				1.3E-01		1.3E-01			
				9.0E-03	I					Assure	76578-14-8				3.3E+02		3.3E+02		5.1E+00	
				5.0E-02	I					Asulam	3337-71-1				1.8E+03		1.8E+03		4.7E-01	
2.3E-01	C			3.5E-02	I					Atrazine	1912-24-9	2.9E-01		2.9E-01	1.3E+03		1.3E+03	3.0E+00	1.9E-04	1.9E-03
8.8E-01	C	2.5E-04	C							Auramine	492-80-8	7.6E-02		7.6E-02					7.0E-04	
				4.0E-04	I					Avermectin B1	65195-55-3				1.5E+01		1.5E+01		2.6E+01	
1.1E-01	I	3.1E-05	I					V		Azobenzene	103-33-3	6.1E-01	1.6E-01	1.2E-01					9.6E-04	
				2.0E-01	I	5.0E-04	H			Barium	7440-39-3				7.3E+03		7.3E+03	2.0E+03	3.0E+02	8.2E+01
				4.0E-03	I					Baygon	114-26-1				1.5E+02		1.5E+02		4.7E-02	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				3.0E-02	I					Bayleton	43121-43-3				1.1E+03	1.1E+03			8.7E-01	
				2.5E-02	I					Baythroid	68359-37-5				9.1E+02	9.1E+02			2.4E+02	
				3.0E-01	I					Benefin	1861-40-1				1.1E+04	1.1E+04			3.6E+02	
				5.0E-02	I					Benomyl	17804-35-2				1.8E+03	1.8E+03			1.6E+00	
				3.0E-02	I					Bentazon	25057-89-0				1.1E+03	1.1E+03			2.4E-01	
5.5E-02	I	7.8E-06	I	1.0E-01	I				V	Benzaldehyde	100-52-7				3.7E+03	3.7E+03		5.0E+00	8.1E-01	
				4.0E-03	I	3.0E-02	I	V		Benzene	71-43-2	1.2E+00	6.2E-01	4.1E-01	1.5E+02	6.3E+01	4.4E+01		2.1E-04	2.6E-03
2.3E+02	I	6.7E-02	I	1.0E-05	H				V	Benzenethiol	108-98-5				3.7E-01	3.7E-01			2.4E-04	
				3.0E-03	I				M	Benzidine	92-87-5	9.4E-05		9.4E-05	1.1E+02	1.1E+02			2.4E-07	
				4.0E+00	I					Benzoic Acid	65-85-0				1.5E+05	1.5E+05			3.4E+01	
1.3E+01	I								V	Benzotrifluoride	98-07-7	5.2E-03		5.2E-03					1.1E-05	
1.7E-01	I	4.9E-05	C	1.0E-01	P	2.0E-03	P	1.0E-03	P	Benzyl Alcohol	100-51-6				3.7E+03	3.7E+03			8.9E-01	
				2.0E-03	P	1.0E-03	P	V		Benzyl Chloride	100-44-7	4.0E-01	9.9E-02	7.9E-02	7.3E+01	2.1E+00	2.0E+00		8.7E-05	
		2.4E-03	I	2.0E-03	I	2.0E-05	I			Beryllium and compounds	7440-41-7				7.3E+01	7.3E+01	4.0E+00		5.8E+01	3.2E+00
				1.0E-04	I					Bidrin	141-66-2				3.7E+00	3.7E+00			8.5E-04	
				9.0E-03	P					BifenoX	42576-02-3				3.3E+02	3.3E+02			2.5E+00	
				1.5E-02	I					Biphenthrin	82657-04-3				5.5E+02	5.5E+02			2.5E+03	
7.0E-02	H	1.0E-05	H	5.0E-02	I				V	Biphenyl, 1,1'-	92-52-4				1.8E+03	1.8E+03			1.9E+01	
				4.0E-02	I				V	Bis(2-chloro-1-methylethyl) ether	108-60-1	9.6E-01	4.9E-01	3.2E-01	1.5E+03	1.5E+03			1.2E-04	
1.1E+00	I	3.3E-04	I	3.0E-03	P				V	Bis(2-chloroethoxy)methane	111-91-1				1.1E+02	1.1E+02			2.5E-02	
1.4E-02	I	2.4E-06	C	2.0E-02	I					Bis(2-chloroethyl)ether	111-44-4	6.1E-02	1.5E-02	1.2E-02					3.1E-06	
				2.0E-02	I					Bis(2-ethylhexyl)phthalate	117-81-7	4.8E+00		4.8E+00	7.3E+02	7.3E+02	6.0E+00		1.1E+00	1.4E+00
2.2E+02	I	6.2E-02	I						V	Bis(chloromethyl)ether	542-88-1	3.1E-04	7.8E-05	6.2E-05					1.5E-08	
				5.0E-02	I					Bisphenol A	80-05-7				1.8E+03	1.8E+03			1.4E+02	
				2.0E-01	I	2.0E-02	H			Boron And Borates Only	7440-42-8				7.3E+03	7.3E+03			2.3E+01	
7.0E-01	I			4.0E-02	C	1.3E-02	C			Boron Trifluoride	7637-07-2				1.5E+03	1.5E+03				
2.0E+00	X	6.0E-04	X	4.0E-03	I				V	Bromate	15541-45-4	9.6E-02		9.6E-02	1.5E+02	1.5E+02		1.0E+01	7.4E-04	7.7E-02
										Bromo-2-chloroethane, 1-	107-04-0	3.4E-02	8.1E-03	6.5E-03					1.8E-06	
6.2E-02	I	3.7E-05	C	8.0E-03	I	6.0E-02	I	V		Bromobenzene	108-86-1				2.9E+02	1.3E+02	8.8E+01		5.9E-02	
7.9E-03	I	1.1E-06	I	2.0E-02	I				V	Bromodichloromethane	75-27-4	1.1E+00	1.3E-01	1.2E-01	7.3E+02	7.3E+02	8.0E+01		3.2E-05	2.2E-02
				2.0E-02	I					Bromoform	75-25-2	8.5E+00		8.5E+00	7.3E+02	7.3E+02	8.0E+01		2.3E-03	2.1E-02
				1.4E-03	I	5.0E-03	I	V		Bromomethane	74-83-9				5.1E+01	1.0E+01	8.7E+00		2.2E-03	
				5.0E-03	H					Bromophos	2104-96-3				1.8E+02	1.8E+02			7.7E-01	
				2.0E-02	I					Bromoxynil	1689-84-5				7.3E+02	7.3E+02			6.3E-01	
3.4E+00	C	3.0E-05	I	2.0E-02	I	2.0E-03	I	V		Bromoxynil Octanoate	1689-99-2				7.3E+02	7.3E+02			6.4E+00	
				1.0E-01	I					Butadiene, 1,3-	106-99-0	2.0E-02	1.6E-01	1.8E-02		4.2E+00	4.2E+00		9.7E-06	
										Butanol, N-	71-36-3				3.7E+03	3.7E+03			7.6E-01	
1.9E-03	P			2.0E-01	I					Butyl Benzyl Phthlate	85-68-7	3.5E+01		3.5E+01	7.3E+03	7.3E+03			5.1E-01	
				2.0E+00	P	3.0E+01	P			Butyl alcohol, sec-	78-92-2				7.3E+04	7.3E+04			1.5E+01	
				5.0E-02	I					Butylate	2008-41-5				1.8E+03	1.8E+03			1.8E+00	
2.0E-04	C	5.7E-08	C	1.0E+00	I					Butylated hydroxyanisole	25013-16-5	3.4E+02		3.4E+02					6.3E-01	
				2.0E-02	A					Butylphthalyl Butylglycolate	85-70-1				3.7E+04	3.7E+04			8.3E+02	
		1.8E-03	I	1.0E-03	I	1.0E-05	A			Cadmiun (Diet)	7440-43-9				1.8E+01	1.8E+01	5.0E+00		1.4E+00	3.8E-01
		1.8E-03	I	5.0E-04	I	1.0E-05	A			Cadmiun (Water)	7440-43-9				1.8E+04	1.8E+04			4.5E+00	
				5.0E-01	I					Caprolactam	105-60-2									
1.5E-01	C	4.3E-05	C	2.0E-03	I					Captafol	2425-06-1	4.5E-01		4.5E-01	7.3E+01	7.3E+01			7.9E-04	
2.3E-03	C	6.6E-07	C	1.3E-01	I					Captan	133-06-2	2.9E+01		2.9E+01	4.7E+03	4.7E+03			2.1E-02	
				1.0E-01	I					Carbaryl	63-25-2				3.7E+03	3.7E+03			3.3E+00	
				5.0E-03	I					Carbofuran	1563-66-2				1.8E+02	1.8E+02	4.0E+01		7.1E-02	1.6E-02

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Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; X = PPRTV Appendix; H = HEAST; J = New Jersey; E = Environmental Criteria and Assessment Office; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #29; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User Guide); s = Concentration may exceed Csat (See User Guide); SSL values are based on DAF=1

Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs					
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
7.0E-02	I	6.0E-06	I	1.0E-01 4.0E-03	I	7.0E-01 1.0E-01	I	V	V	Carbon Disulfide Carbon Tetrachloride	75-15-0 56-23-5	9.6E-01	8.1E-01	4.4E-01	3.7E+03 1.5E+02	1.5E+03 2.1E+02	1.0E+03 8.6E+01	5.0E+00	3.1E-01 1.7E-04	1.9E-03
				1.0E-02 1.0E-01	I					Carbosulfan Carboxin Ceric oxide	55285-14-8 5234-68-4 1306-38-3				3.7E+02 3.7E+03	3.7E+02 3.7E+03		8.8E+00 2.0E+00		
4.0E-01	H			1.0E-01 1.5E-02	I					Chloral Hydrate Chloramben Chloranil	302-17-0 133-90-4 118-75-2	1.7E-01		1.7E-01	3.7E+03 5.5E+02	3.7E+03 5.5E+02		7.4E-01 1.3E-01 1.4E-04		
3.5E-01 1.0E+01	I I	1.0E-04 4.6E-03	I C	5.0E-04 3.0E-04 7.0E-04	I I A	7.0E-04	I			Chlordane Chlordecone (Kepone) Chlorfenvinphos	12789-03-6 143-50-0 470-90-6	1.9E-01 6.7E-03		1.9E-01 6.7E-03	1.8E+01 1.1E+01 2.6E+01	1.8E+01 1.1E+01 2.6E+01	2.0E+00	1.3E-02 2.4E-04 7.0E-02	1.4E-01	
				2.0E-02 1.0E-01 3.0E-02	I I I					Chlorimuron, Ethyl- Chlorine Chlorine Dioxide	90982-32-4 7782-50-5 10049-04-4				7.3E+02 3.7E+03 1.1E+03	7.3E+02 3.7E+03 1.1E+03		2.5E-01 1.8E+00		
				3.0E-02	I					Chlorite (Sodium Salt)	7758-19-2				1.1E+03	1.1E+03	1.0E+03		5.2E+01	
4.6E-01 2.7E-01	H X			3.0E-04 2.0E-03	I H	5.0E+01 2.0E-02	I I	V V		Chloro-1,1-difluoroethane, 1- Chloro-1,3-butadiene, 2-	75-68-3 126-99-8	1.5E-01 2.5E-01		1.5E-01 2.5E-01	7.3E+01 7.3E+01	1.0E+05 1.0E+05	6.0E+01	8.3E-05 5.0E-05 1.5E-02	1.2E-02	
2.0E-01	P			4.0E-03 2.0E-02	I I	3.0E-05 5.0E-02	I	P V		Chloroacetophenone, 2- Chloroaniline, p- Chlorobenzene	532-27-4 106-47-8 108-90-7	3.4E-01		3.4E-01	1.5E+02 7.3E+02	1.5E+02 1.0E+02	1.0E+02	1.4E-04 6.2E-02	6.8E-02	
1.1E-01	C	3.1E-05	C	2.0E-02 3.0E-02 3.0E-03	I X P					Chlorobenzilate Chlorobenzoic Acid, p- Chlorobenzotrifluoride, 4-	510-15-6 74-11-3 98-56-6	6.1E-01		6.1E-01	7.3E+02 1.1E+03 1.1E+02	7.3E+02 1.1E+03 6.3E+02	9.3E+01	2.0E-03 2.8E-01 3.3E-01		
3.1E-02	C	2.3E-05	I	4.0E-02 1.0E-02	P I	5.0E+01 9.8E-02	I A	V V		Chlorobutane, 1- Chlorodifluoromethane Chloroform	109-69-3 75-45-6 67-66-3	2.2E+00	2.1E-01	1.9E-01	3.7E+02	2.0E+02	1.3E+02	8.0E+01	5.9E-01 4.3E+01 5.3E-05	2.2E-02
2.4E+00	C	6.9E-04	C	9.0E-02 8.0E-02	I I					Chloromethane Chloromethyl Methyl Ether Chloronaphthalene, Beta-	74-87-3 107-30-2 91-58-7	2.8E-02	7.1E-03	5.6E-03	1.9E+02	1.9E+02		4.9E-02 1.2E-06 1.5E+01		
3.0E-01 6.3E-03	P P			3.0E-03 1.0E-03 5.0E-03	P P I	1.0E-05 6.0E-04	X P			Chloronitrobenzene, o- Chloronitrobenzene, p- Chlorophenol, 2-	88-73-3 100-00-5 95-57-8	2.2E-01 1.1E+01		2.2E-01 1.1E+01	1.1E+02 3.7E+01 1.8E+02	1.1E+02 3.7E+01 1.8E+02		2.1E-04 9.9E-03 1.5E-01		
3.1E-03	C	8.9E-07	C	1.5E-02 2.0E-02	I I	4.0E-04	C	V		Chloropicrin Chlorothalonil Chlorotoluene, o-	76-06-2 1897-45-6 95-49-8	2.2E+01		2.2E+01	5.5E+02 7.3E+02	5.5E+02 7.3E+02	8.3E-01 8.3E-01	2.5E-04 4.9E-02 7.1E-01		
2.4E+02	C	6.9E-02	C	7.0E-02 2.0E-01	P I					Chlorotoluene, p- Chlorozotocin Chlorpropham	106-43-4 54749-90-5 101-21-3	2.8E-04		2.8E-04	2.6E+03	2.6E+03		2.5E+00 6.2E-08 6.6E+00		
				3.0E-03 1.0E-02 5.0E-02	I H I					Chlorpyrifos Chlorpyrifos Methyl Chlorsulfuron	2921-88-2 5598-13-0 64902-72-3				1.1E+02 3.7E+02 1.8E+03	1.1E+02 3.7E+02 1.8E+03		1.6E+00 1.7E+00 1.5E+00		
5.0E-01	J	8.4E-02	S	8.0E-04 1.5E+00 3.0E-03	H I I					Chlorthiophos Chromium(III), Insoluble Salts Chromium(VI)	60238-56-4 16065-83-1 18540-29-9	4.3E-02		4.3E-02	2.9E+01 5.5E+04 1.1E+02	2.9E+01 5.5E+04 1.1E+02		7.5E-01 9.9E+07 8.3E-04		
		9.0E-03 6.2E-04	P I	3.0E-04	P	6.0E-06	P		M	Chromium, Total Cobalt Coke Oven Emissions	7440-47-3 7440-48-4 8007-45-2				1.1E+01 1.1E+01		1.0E+02	4.9E-01	1.8E+05	

Regional Screening Level (RSL) Soil to Groundwater Supporting Table November 2010

Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				4.0E-02	H					Copper	7440-50-8				1.5E+03	1.5E+03	1.3E+03	5.1E+01	4.6E+01	
				5.0E-02	I	6.0E-01	C			Cresol, m-	108-39-4				1.8E+03	1.8E+03		1.5E+00		
				5.0E-02	I	6.0E-01	C			Cresol, o-	95-48-7				1.8E+03	1.8E+03		1.5E+00		
				5.0E-03	H	6.0E-01	C			Cresol, p-	106-44-5				1.8E+02	1.8E+02		1.5E-01		
				1.0E-01	X					Cresol, p-chloro-m-	59-50-7				3.7E+03	3.7E+03		4.3E+00		
				1.0E-01	A	6.0E-01	C	V		Cresols	1319-77-3				3.7E+03	1.3E+03	9.3E+02	7.6E-01		
1.9E+00	H			1.0E-01	I	4.0E-01	I	V		Crotonaldehyde, trans-	123-73-9	3.5E-02		3.5E-02					7.2E-06	
										Cumene	98-82-8				3.7E+03	8.3E+02	6.8E+02	1.1E+00		
2.2E-01	C	6.3E-05	C							Cupferron	135-20-6	3.1E-01		3.1E-01				5.3E-04		
8.4E-01	H			2.0E-03	H					Cyanazine	21725-46-2	8.0E-02		8.0E-02	7.3E+01	7.3E+01			3.7E-05	
				4.0E-02	I					Cyanides										
										~Calcium Cyanide	592-01-8				1.5E+03	1.5E+03				
				5.0E-03	I					~Copper Cyanide	544-92-3				1.8E+02	1.8E+02				
				2.0E-02	I			V		~Cyanide (CN-)	57-12-5				7.3E+02	7.3E+02	2.0E+02	7.4E+00	2.0E+00	
				4.0E-02	I			V		~Cyanogen	460-19-5				1.5E+03	1.5E+03		3.3E-01		
				9.0E-02	I			V		~Cyanogen Bromide	506-68-3				3.3E+03	3.3E+03		9.8E-01		
				5.0E-02	I			V		~Cyanogen Chloride	506-77-4				1.8E+03	1.8E+03		3.9E-01		
				6.0E-04	I	8.0E-04	I	V		~Hydrogen Cyanide	74-90-8				2.2E+01	1.7E+00	1.6E+00	3.2E-04		
				5.0E-02	I					~Potassium Cyanide	151-50-8				1.8E+03	1.8E+03				
				2.0E-01	I					~Potassium Silver Cyanide	506-61-6				7.3E+03	7.3E+03				
				1.0E-01	I					~Silver Cyanide	506-64-9				3.7E+03	3.7E+03				
				4.0E-02	I					~Sodium Cyanide	143-33-9				1.5E+03	1.5E+03	2.0E+02			
				2.0E-04	P			V		~Thiocyanate	463-56-9				7.3E+00	7.3E+00		1.5E-03		
				5.0E-02	I					~Zinc Cyanide	557-21-1				1.8E+03	1.8E+03				
				6.0E+00	I	V				Cyclohexane	110-82-7				1.3E+04	1.3E+04		1.3E+01		
2.3E-02	H			5.0E+00	I					Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	2.9E+00		2.9E+00				1.7E-02		
										Cyclohexanone	108-94-1				1.8E+05	1.8E+05		4.3E+01		
				2.0E-01	I					Cyclohexylamine	108-91-8				7.3E+03	7.3E+03		1.9E+00		
				5.0E-03	I					Cyhalothrin/karate	68085-85-8				1.8E+02	1.8E+02		1.2E+02		
				1.0E-02	I					Cypermethrin	52315-07-8				3.7E+02	3.7E+02		5.8E+01		
				7.5E-03	I					Cyromazine	66215-27-8				2.7E+02	2.7E+02		7.0E-02		
2.4E-01	I	6.9E-05	C							DDD	72-54-8	2.8E-01		2.8E-01				6.6E-02		
3.4E-01	I	9.7E-05	C							DDE, p,p'-	72-55-9	2.0E-01		2.0E-01				4.7E-02		
3.4E-01	I	9.7E-05	I	5.0E-04	I					DDT	50-29-3	2.0E-01		2.0E-01	1.8E+01	1.8E+01		6.7E-02		
				1.0E-02	I					Dacthal	1861-32-1				3.7E+02	3.7E+02		4.5E-01		
				3.0E-02	I					Dalapon	75-99-0				1.1E+03	1.1E+03	2.0E+02	2.3E-01	4.1E-02	
7.0E-04	I			7.0E-03	I					Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'-(BDE-209)	1163-19-5	9.6E+01		9.6E+01	2.6E+02	2.6E+02		5.3E+01		
				4.0E-05	I					Demeton	8065-48-3				1.5E+00	1.5E+00				
1.2E-03	I			6.0E-01	I					Di(2-ethylhexyl)adipate	103-23-1	5.6E+01		5.6E+01	2.2E+04	2.2E+04	4.0E+02	4.0E+00	2.9E+01	
6.1E-02	H			7.0E-04	A					Diallate	2303-16-4	1.1E+00		1.1E+00				1.6E-03		
				2.0E-04	P	2.0E-04	I	V	M	Diazinon	333-41-5				2.6E+01	2.6E+01		1.6E-01		
8.0E-01	P	6.0E-03	P							Dibromo-3-chloropropane, 1,2-	96-12-8	2.7E-02	3.2E-04	3.2E-04	7.3E+00	4.2E-01	3.9E-01	2.0E-01	1.4E-07	8.6E-05
				1.0E-02	I					Dibromobenzene, 1,4-	106-37-6				3.7E+02	3.7E+02		3.5E-01		
8.4E-02	I	2.7E-05	C	2.0E-02	I			V		Dibromochloromethane	124-48-1	8.0E-01	1.8E-01	1.5E-01	7.3E+02	7.3E+02	8.0E+01	3.9E-05	2.1E-02	
2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		Dibromoethane, 1,2-	106-93-4	3.4E-02	8.1E-03	6.5E-03	3.3E+02	1.9E+01	1.8E+01	5.0E-02	1.8E-06	1.4E-05
				1.0E-02	H	4.0E-03	X	V		Dibromomethane (Methylene Bromide)	74-95-3				3.7E+02	8.3E+00	8.2E+00	2.0E-03		
				1.0E-01	I					Dibutyl Phthalate	84-74-2				3.7E+03	3.7E+03		9.2E+00		
				3.0E-04	P					Dibutyltin Compounds	NA				1.1E+01	1.1E+01				
				3.0E-02	I					Dicamba	1918-00-9				1.1E+03	1.1E+03		2.8E-01		
4.2E-03	P							V		Dichloro-2-butene, 1,4-	764-41-0		1.2E-03	1.2E-03				5.4E-07		

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs				
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
		4.2E-03	P					V	Dichloro-2-butene, cis-1,4-	1476-11-5			1.2E-03	1.2E-03					5.4E-07
		4.2E-03	P					V	Dichloro-2-butene, trans-1,4-	110-57-6			1.2E-03	1.2E-03					5.4E-07
5.0E-02	I			4.0E-03	I				Dichloroacetic Acid	79-43-6	1.3E+00		1.3E+00	1.5E+02		1.5E+02	6.0E+01	2.8E-04	1.2E-02
				9.0E-02	I	2.0E-01	H	V	Dichlorobenzene, 1,2-	95-50-1				3.3E+03	4.2E+02	3.7E+02	6.0E+02	3.6E-01	5.8E-01
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V	Dichlorobenzene, 1,4-	106-46-7	1.2E+01	4.4E-01	4.3E-01	2.6E+03	1.7E+03	1.0E+03	7.5E+01	4.1E-04	7.2E-02
4.5E-01	I	3.4E-04	C						Dichlorobenzidine, 3,3'-	91-94-1	1.5E-01		1.5E-01					9.8E-04	
				9.0E-03	X				Dichlorobenzophenone, 4,4'-	90-98-2				3.3E+02		3.3E+02		2.0E+00	
				2.0E-01	I	2.0E-01	H	V	Dichlorodifluoromethane	75-71-8				7.3E+03	4.2E+02	3.9E+02		6.1E-01	
5.7E-03	C	1.6E-06	C	2.0E-01	P			V	Dichloroethane, 1,1-	75-34-3	1.2E+01	3.0E+00	2.4E+00	7.3E+03		7.3E+03		6.9E-04	
9.1E-02	I	2.6E-05	I	2.0E-02	P	2.4E+00	A	V	Dichloroethane, 1,2-	107-06-2	7.4E-01	1.9E-01	1.5E-01	7.3E+02	5.1E+03	6.4E+02	5.0E+00	4.2E-05	1.4E-03
				5.0E-02	I	2.0E-01	I	V	Dichloroethylene, 1,1-	75-35-4				1.8E+03	4.2E+02	3.4E+02	7.0E+00	1.2E-01	2.5E-03
				9.0E-03	H			V	Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0				3.3E+02		3.3E+02		9.7E-02	
				2.0E-03	I			V	Dichloroethylene, 1,2-cis-	156-59-2				7.3E+01	7.3E+01	7.0E+01		2.1E-02	2.1E-02
				2.0E-02	I	6.0E-02	P	V	Dichloroethylene, 1,2-trans-	156-60-5				7.3E+02	1.3E+02	1.1E+02	1.0E+02	3.1E-02	2.9E-02
				3.0E-03	I				Dichlorophenol, 2,4-	120-83-2				1.1E+02		1.1E+02		1.3E-01	
				1.0E-02	I				Dichlorophenoxy Acetic Acid, 2,4-	94-75-7				3.7E+02		3.7E+02	7.0E+01	9.5E-02	1.8E-02
				8.0E-03	I				Dichlorophenoxybutyric Acid, 4-(2,4-	94-82-6				2.9E+02		2.9E+02		1.2E-01	
3.6E-02	C	1.0E-05	C	9.0E-02	A	4.0E-03	I	V	Dichloropropane, 1,2-	78-87-5	1.9E+00	4.9E-01	3.9E-01	3.3E+03	8.3E+00	8.3E+00	5.0E+00	1.3E-04	1.7E-03
				2.0E-02	P			V	Dichloropropane, 1,3-	142-28-9				7.3E+02		7.3E+02		2.5E-01	
				3.0E-03	I				Dichloropropanol, 2,3-	616-23-9				1.1E+02		1.1E+02		2.3E-02	
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V	Dichloropropene, 1,3-	542-75-6	6.7E-01	1.2E+00	4.3E-01	1.1E+03	4.2E+01	4.0E+01		1.5E-04	
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I		Dichlorvos	62-73-7	2.3E-01		2.3E-01	1.8E+01		1.8E+01		7.1E-05	
1.6E+01	I	4.6E-03	I	5.0E-05	P	7.0E-03	P	V	Dicyclopentadiene	77-73-6				2.9E+02	1.5E+01	1.4E+01		4.8E-02	
		3.0E-04	C			5.0E-03	I		Dieldrin	60-57-1	4.2E-03		4.2E-03	1.8E+00		1.8E+00		1.7E-04	
									Diesel Engine Exhaust	NA									
				8.0E-01	I				Diethanolamine	111-42-2									
				3.0E-02	P	1.0E-04	P		Diethyl Phthalate	84-66-2				2.9E+04		2.9E+04		1.2E+01	
				6.0E-02	P	3.0E-04	P		Diethylene Glycol Monobutyl Ether	112-34-5				1.1E+03		1.1E+03		2.4E-01	
3.5E+02	C	1.0E-01	C	1.0E-03	P				Diethylene Glycol Monoethyl Ether	111-90-0				2.2E+03		2.2E+03		4.4E-01	
									Diethylformamide	617-84-5				3.7E+01		3.7E+01		7.5E-03	
									Diethylstilbestrol	56-53-1	1.9E-04		1.9E-04					1.1E-04	
				8.0E-02	I				Difenzoquat	43222-48-6				2.9E+03		2.9E+03			
				2.0E-02	I				Diffubenzuron	35367-38-5				7.3E+02		7.3E+02		8.2E-01	
4.4E-02	C	1.3E-05	C			4.0E+01	I	V	Difluoroethane, 1,1-	75-37-6				8.3E+04	8.3E+04			2.8E+01	
									Dihydrosafrole	94-58-6	1.5E+00		1.5E+00					1.9E-03	
						4.0E-01	P	V	Diisopropyl Ether	108-20-3				8.3E+02	8.3E+02			2.1E-01	
				8.0E-02	I			V	Diisopropyl Methylphosphonate	1445-75-6				2.9E+03		2.9E+03		8.3E-01	
				2.0E-02	I				Dimethipin	55290-64-7				7.3E+02		7.3E+02		1.6E-01	
1.4E-02	H			2.0E-04	I				Dimethoate	60-51-5				7.3E+00		7.3E+00		1.6E-03	
									Dimethoxybenzidine, 3,3'-	119-90-4	4.8E+00		4.8E+00					5.8E-03	
1.7E-03	P			6.0E-02	P				Dimethyl methylphosphonate	756-79-6	4.0E+01		4.0E+01	2.2E+03		2.2E+03		8.3E-03	
4.6E+00	C	1.3E-03	C						Dimethylamino azobenzene [p-]	60-11-7	1.5E-02		1.5E-02					6.2E-05	
5.8E-01	H								Dimethylaniline HCl, 2,4-	21436-96-4	1.2E-01		1.2E-01					6.6E-05	
7.5E-01	H								Dimethylaniline, 2,4-	95-68-1	9.0E-02		9.0E-02					5.1E-05	
				2.0E-03	I			V	Dimethylaniline, N,N-	121-69-7				7.3E+01		7.3E+01		2.6E-02	
1.1E+01	P								Dimethylbenzidine, 3,3'-	119-93-7	6.1E-03		6.1E-03					4.0E-05	
				1.0E-01	P	3.0E-02	I		Dimethylformamide	68-12-2				3.7E+03		3.7E+03		7.4E-01	
				1.0E-04	X	2.0E-06	X		Dimethylhydrazine, 1,1-	57-14-7				3.7E+00		3.7E+00		8.2E-04	
5.5E+02	C	1.6E-01	C						Dimethylhydrazine, 1,2-	540-73-8	1.2E-04		1.2E-04					2.8E-08	
				2.0E-02	I				Dimethylphenol, 2,4-	105-67-9				7.3E+02		7.3E+02		8.6E-01	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k _e y	IUR (ug/m ³) ⁻¹	k _e y	RfD _o (mg/kg-day)	k _e y	RfC _i (mg/m ³)	k _e y	v	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				6.0E-04	I					Dimethylphenol, 2,6-	576-26-1				2.2E+01		2.2E+01		2.6E-02	
				1.0E-03	I					Dimethylphenol, 3,4-	95-65-8				3.7E+01		3.7E+01		4.3E-02	
4.5E-02	C	1.3E-05	C	1.0E-01	I				V	Dimethylterephthalate	120-61-6	1.5E+00		1.5E+00	3.7E+03		3.7E+03		9.6E-01	
				8.0E-05	X					Dimethylvinylchloride	513-37-1								9.2E-04	
										Dinitro-o-cresol, 4,6-	534-52-1				2.9E+00		2.9E+00		5.0E-03	
				2.0E-03	I					Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5				7.3E+01		7.3E+01		2.4E+00	
				1.0E-04	P					Dinitrobenzene, 1,2-	528-29-0				3.7E+00		3.7E+00		3.3E-03	
				1.0E-04	I					Dinitrobenzene, 1,3-	99-65-0				3.7E+00		3.7E+00		3.3E-03	
6.8E-01	I			1.0E-04	P					Dinitrobenzene, 1,4-	100-25-4				3.7E+00		3.7E+00		3.3E-03	
				2.0E-03	I					Dinitrophenol, 2,4-	51-28-5				7.3E+01		7.3E+01		8.2E-02	
										Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	9.9E-02		9.9E-02					1.4E-04	
3.1E-01	C	8.9E-05	C	2.0E-03	I					Dinitrotoluene, 2,4-	121-14-2	2.2E-01		2.2E-01	7.3E+01		7.3E+01		2.9E-04	
				1.0E-03	P					Dinitrotoluene, 2,6-	606-20-2				3.7E+01		3.7E+01		5.0E-02	
				2.0E-03	S					Dinitrotoluene, 2-Amino-4,6-	35572-78-2				7.3E+01		7.3E+01		5.6E-02	
				2.0E-03	S					Dinitrotoluene, 4-Amino-2,6-	19406-51-0				7.3E+01		7.3E+01	7.0E+00	5.6E-02	
1.0E-01	I	7.7E-06	C	3.0E-02	I	3.6E+00	A			Dinoseb	88-85-7				3.7E+01		3.7E+01		3.2E-01	6.2E-02
										Dioxane, 1,4-	123-91-1	6.7E-01		6.7E-01	1.1E+03		1.1E+03		1.4E-04	
6.2E+03	I	1.3E+00	I							Dioxins										
1.3E+05	C	3.8E+01	C	1.0E-09	A	4.0E-08	C			~Hexachlorodibenzo-p-dioxin, Mixture	NA	1.1E-05		1.1E-05					9.0E-06	
										~TCDD, 2,3,7,8-	1746-01-6	5.2E-07		5.2E-07	3.7E-05		3.7E-05	3.0E-05	2.6E-07	1.5E-05
				3.0E-02	I					Diphenamid	957-51-7				1.1E+03		1.1E+03		1.1E+01	
				8.0E-04	X					Diphenyl Sulfone	127-63-9				2.9E+01		2.9E+01		7.1E-02	
				2.5E-02	I					Diphenylamine	122-39-4				9.1E+02		9.1E+02		1.7E+00	
8.0E-01	I	2.2E-04	I							Diphenylhydrazine, 1,2-	122-66-7	8.4E-02		8.4E-02					2.7E-04	
				2.2E-03	I					Diquat	85-00-7				8.0E+01		8.0E+01	2.0E+01	1.5E+00	3.7E-01
7.4E+00	C	2.1E-03	C							Direct Black 38	1937-37-7	9.1E-03		9.1E-03					4.4E+00	
7.4E+00	C	2.1E-03	C							Direct Blue 6	2602-46-2	9.1E-03		9.1E-03					1.4E+01	
6.7E+00	C	1.9E-03	C							Direct Brown 95	16071-86-6	1.0E-02		1.0E-02						
				4.0E-05	I					Disulfoton	298-04-4				1.5E+00		1.5E+00		2.7E-03	
				1.0E-02	I					Dithiane, 1,4-	505-29-3				3.7E+02		3.7E+02		1.8E-01	
				2.0E-03	I					Diuron	330-54-1				7.3E+01		7.3E+01		3.1E-02	
				4.0E-03	I					Dodine	2439-10-3				1.5E+02		1.5E+02		7.5E-01	
				2.5E-02	I				V	EPTC	759-94-4				9.1E+02		9.1E+02		4.8E-01	
				6.0E-03	I					Endosulfan	115-29-7				2.2E+02		2.2E+02		3.0E+00	
				2.0E-02	I					Endothall	145-73-3				7.3E+02		7.3E+02	1.0E+02	1.7E-01	2.4E-02
				3.0E-04	I					Endrin	72-20-8				1.1E+01		1.1E+01	2.0E+00	4.4E-01	8.1E-02
9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V		Epichlorohydrin	106-89-8	6.8E+00	4.1E+00	2.5E+00	2.2E+02	2.1E+00	2.1E+00		4.5E-04	
				2.0E-02	I	V				Epoxybutane, 1,2-	106-88-7				4.2E+01	4.2E+01		9.2E-03		
				5.0E-03	I					Ethephon	16672-87-0				1.8E+02		1.8E+02		3.8E-02	
				5.0E-04	I					Ethion	563-12-2				1.8E+01		1.8E+01		3.6E-02	
				3.0E-01	H	3.0E-01	C			Ethoxyethanol Acetate, 2-	111-15-9				1.1E+04		1.1E+04		2.3E+00	
				4.0E-01	H	2.0E-01	I			Ethoxyethanol, 2-	110-80-5				1.5E+04		1.5E+04		2.9E+00	
4.8E-02	H			9.0E-01	I				V	Ethyl Acetate	141-78-6	1.4E+00		1.4E+00	3.3E+04		3.3E+04		7.0E+00	
									V	Ethyl Acrylate	140-88-5								3.1E-04	
						1.0E+01	I	V		Ethyl Chloride	75-00-3				2.1E+04	2.1E+04			5.9E+00	
				2.0E-01	I				V	Ethyl Ether	60-29-7				7.3E+03		7.3E+03		1.6E+00	
				9.0E-02	H				V	Ethyl Methacrylate	97-63-2				3.3E+03		3.3E+03		7.7E-01	
1.1E-02	C	2.5E-06	C	1.0E-05	I					Ethyl-p-nitrophenyl Phosphonate	2104-64-5				3.7E-01		3.7E-01	7.0E+02	1.1E-02	
				1.0E-01	I	1.0E+00	I	V		Ethylbenzene	100-41-4	6.1E+00	1.9E+00	1.5E+00	3.7E+03	2.1E+03	1.3E+03		1.7E-03	7.8E-01
				3.0E-02	P					Ethylene Cyanohydrin	109-78-4				1.1E+03		1.1E+03		2.2E-01	

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
				9.0E-02		P			Ethylene Diamine	107-15-3				3.3E+03		3.3E+03		7.5E-01		
				2.0E+00	I	4.0E-01		C	Ethylene Glycol	107-21-1				7.3E+04		7.3E+04		1.5E+01		
				1.0E-01	I	1.6E+00		I	Ethylene Glycol Monobutyl Ether	111-76-2				3.7E+03		3.7E+03		7.5E-01		
3.1E-01	C	8.8E-05	C			3.0E-02		C V	Ethylene Oxide	75-21-8	2.2E-01	5.5E-02	4.4E-02		6.3E+01	6.3E+01		9.1E-06		
4.5E-02	C	1.3E-05	C	8.0E-05		I			Ethylene Thiourea	96-45-7	1.5E+00		1.5E+00	2.9E+00		2.9E+00		3.4E-04		
6.5E+01	C	1.9E-02	C						Ethyleneimine	151-56-4	1.0E-03		1.0E-03					2.3E-07		
				3.0E+00		I			Ethylphthalyl Ethyl Glycolate	84-72-0				1.1E+05		1.1E+05		2.5E+02		
				8.0E-03		I			Express	101200-48-0				2.9E+02		2.9E+02		1.1E-01		
				2.5E-04		I			Fenamiphos	22224-92-6				9.1E+00		9.1E+00		9.1E-03		
				2.5E-02		I			Fenpropathrin	39515-41-8				9.1E+02		9.1E+02		4.1E+01		
				1.3E-02		I			Fluometuron	2164-17-2				4.7E+02		4.7E+02		3.7E-01		
				4.0E-02	C	1.3E-02		C	Fluoride	16984-48-8				1.5E+03		1.5E+03				
				6.0E-02		I	1.3E-02	C	Fluorine (Soluble Fluoride)	7782-41-4				2.2E+03		2.2E+03	4.0E+03	3.3E+02	6.0E+02	
				8.0E-02		I			Fluridone	59756-60-4				2.9E+03		2.9E+03		3.3E+02		
				2.0E-02		I			Flurprimidol	56425-91-3				7.3E+02		7.3E+02		3.3E+00		
				6.0E-02		I			Flutolanil	66332-96-5				2.2E+03		2.2E+03		1.2E+01		
3.5E-03	I			1.0E-02		I			Fluvalinate	69409-94-5				3.7E+02		3.7E+02		5.3E+02		
				1.0E-01		I			Folpet	133-07-3	1.9E+01		1.9E+01	3.7E+03		3.7E+03		4.5E-03		
1.9E-01	I			2.0E-03		I			Fomesafen	72178-02-0	3.5E-01		3.5E-01					1.2E-03		
				1.3E-05	I	2.0E-01	I	9.8E-03	A	Fonofos	944-22-9				7.3E+01		7.3E+01		1.4E-01	
				2.0E+00	H	3.0E-03		P	Formaldehyde	50-00-0				7.3E+03		7.3E+03		1.5E+00		
				3.0E+00		I			Formic Acid	64-18-6				7.3E+04		7.3E+04		1.5E+01		
									Fosetyl-AL	39148-24-8				1.1E+05		1.1E+05				
									Furans											
				1.0E-03	X			V	~Dibenzofuran	132-64-9				3.7E+01		3.7E+01		6.8E-01		
3.8E+00	H			1.0E-03		I		V	~Furan	110-00-9				3.7E+01		3.7E+01		1.4E-02		
									Furazolidone	67-45-8	1.8E-02		1.8E-02					3.4E-05		
				3.0E-03		I	5.0E-02	H	Furfural	98-01-1				1.1E+02		1.1E+02		2.3E-02		
1.5E+00	C	4.3E-04	C						Furium	531-82-8	4.5E-02		4.5E-02					6.1E-05		
3.0E-02	I	8.6E-06	C						Furmecyclox	60568-05-0	2.2E+00		2.2E+00					2.4E-03		
				4.0E-04		I			Glufosinate, Ammonium	77182-82-2				1.5E+01		1.5E+01		3.2E-03		
							8.0E-05	C	Glutaraldehyde	111-30-8										
				4.0E-04		I	1.0E-03	H	Glycidyl	765-34-4				1.5E+01		1.5E+01		2.9E-03		
				1.0E-01		I			Glyphosate	1071-83-6				3.7E+03		3.7E+03	7.0E+02	7.4E-01	1.4E-01	
				3.0E-03		I			Goal	42874-03-3				1.1E+02		1.1E+02		8.8E+00		
				3.0E-03	A	1.0E-02		A	Guthion	86-50-0				1.1E+02		1.1E+02		3.3E-02		
				5.0E-05		I			Haloxyfop, Methyl	69806-40-2				1.8E+00		1.8E+00		2.0E-02		
4.5E+00	I	1.3E-03	I	1.3E-02		I			Harmony	79277-27-3				4.7E+02		4.7E+02		1.4E-01		
				5.0E-04		I			Heptachlor	76-44-8	1.5E-02		1.5E-02	1.8E+01		1.8E+01	4.0E-01	1.2E-03	3.3E-02	
9.1E+00	I	2.6E-03	I	1.3E-05		I			Heptachlor Epoxide	1024-57-3	7.4E-03		7.4E-03	4.7E-01		4.7E-01	2.0E-01	1.5E-04	4.1E-03	
				2.0E-03		I			Hexabromobenzene	87-82-1				7.3E+01		7.3E+01		4.2E-01		
				2.0E-04		I			Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2				7.3E+00		7.3E+00				
1.6E+00	I	4.6E-04	I	8.0E-04		I			Hexachlorobenzene	118-74-1	4.2E-02		4.2E-02	2.9E+01		2.9E+01	1.0E+00	5.3E-04	1.3E-02	
7.8E-02	I	2.2E-05	I	1.0E-03		P			Hexachlorobutadiene	87-68-3	8.6E-01		8.6E-01	3.7E+01		3.7E+01		1.7E-03		
6.3E+00	I	1.8E-03	I	8.0E-03		A			Hexachlorocyclohexane, Alpha-	319-84-6	1.1E-02		1.1E-02	2.9E+02		2.9E+02		6.2E-05		
1.8E+00	I	5.3E-04	I						Hexachlorocyclohexane, Beta-	319-85-7	3.7E-02		3.7E-02					2.2E-04		
1.1E+00	C	3.1E-04	C	3.0E-04		I			Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	6.1E-02		6.1E-02	1.1E+01		1.1E+01	2.0E-01	3.6E-04	1.2E-03	
1.8E+00	I	5.1E-04	I						Hexachlorocyclohexane, Technical	608-73-1	3.7E-02		3.7E-02					2.2E-04		
				6.0E-03		I	2.0E-04	I	Hexachlorocyclopentadiene	77-47-4				2.2E+02		2.2E+02	5.0E+01	6.8E-01	1.6E-01	
1.4E-02	I	4.0E-06	I	1.0E-03		I			Hexachloroethane	67-72-1	4.8E+00		4.8E+00	3.7E+01		3.7E+01		2.9E-03		

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	m u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				3.0E-04	I					Hexachlorophene	70-30-4				1.1E+01	1.1E+01			1.5E+01	
1.1E-01	I			3.0E-03	I					Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	6.1E-01		6.1E-01	1.1E+02	1.1E+02			2.3E-04	
				6.0E-02	H	1.0E-05	I	V		Hexamethylene Diisocyanate, 1,6-	822-06-0				2.1E-02	2.1E-02			2.1E-04	
				6.0E-02	H	7.0E-01	I	V		Hexane, N-	110-54-3				2.2E+03	1.5E+03	8.8E+02		6.2E+00	
				2.0E+00	P					Hexanedioic Acid	124-04-9				7.3E+04	7.3E+04			1.8E+01	
				5.0E-03	I	3.0E-02	I	V		Hexanone, 2-	591-78-6				1.8E+02	6.3E+01	4.7E+01		1.1E-02	
				3.3E-02	I					Hexazinone	51235-04-2				1.2E+03	1.2E+03			5.5E-01	
3.0E+00	I	4.9E-03	I			3.0E-05	P			Hydrazine	302-01-2	2.2E-02		2.2E-02						
3.0E+00	I	4.9E-03	I							Hydrazine Sulfate	10034-93-2	2.2E-02		2.2E-02						
						2.0E-02	I			Hydrogen Chloride	7647-01-0									
				4.0E-02	C	1.4E-02	C			Hydrogen Fluoride	7664-39-3				1.5E+03	1.5E+03				
6.0E-02	P			4.0E-02	P	2.0E-03	I			Hydrogen Sulfide	7783-06-4									
				4.0E-02	P					Hydroquinone	123-31-9	1.1E+00		1.1E+00	1.5E+03	1.5E+03			7.6E-04	
				1.3E-02	I					Imazalil	35554-44-0				4.7E+02	4.7E+02			8.2E+00	
				2.5E-01	I					Imazaquin	81335-37-7				9.1E+03	9.1E+03			4.5E+01	
				1.0E-02	A					Iodine	7553-56-2				3.7E+02	3.7E+02				
				4.0E-02	I					Iprodione	36734-19-7				1.5E+03	1.5E+03			4.5E-01	
				7.0E-01	P					Iron	7439-89-6				2.6E+04	2.6E+04			6.4E+02	
				3.0E-01	I			V		Isobutyl Alcohol	78-83-1				1.1E+04	1.1E+04			2.3E+00	
9.5E-04	I			2.0E-01	I	2.0E+00	C			Isophorone	78-59-1	7.1E+01		7.1E+01	7.3E+03	7.3E+03			2.3E-02	
				1.5E-02	I					Isopropalin	33820-53-0				5.5E+02	5.5E+02			1.3E+01	
						7.0E+00	C			Isopropanol	67-63-0									
				1.0E-01	I					Isopropyl Methyl Phosphonic Acid	1832-54-8				3.7E+03	3.7E+03			7.9E-01	
				5.0E-02	I					Isoxaben	82558-50-7				1.8E+03	1.8E+03			5.0E+00	
						3.0E-01	A	V		JP-7	NA				6.3E+02	6.3E+02				
				7.5E-02	I					Kerb	23950-58-5				2.7E+03	2.7E+03			2.8E+00	
				2.0E-03	I					Lactofen	77501-63-4				7.3E+01	7.3E+01			3.4E+00	
										Lead Compounds										
2.8E-01	C	8.0E-05	C							~Lead acetate	301-04-2	2.4E-01		2.4E-01						
3.8E-02	C	1.1E-05	C							~Lead and Compounds	7439-92-1							1.5E+01	1.4E+01	
										~Lead subacetate	1335-32-6	1.8E+00		1.8E+00						
				1.0E-07	I					~Tetraethyl Lead	78-00-2				3.7E-03	3.7E-03			1.3E-05	
				2.0E-03	I					Linuron	330-55-2				7.3E+01	7.3E+01			6.4E-02	
				2.0E-03	P					Lithium	7439-93-2				7.3E+01	7.3E+01			2.2E+01	
				7.0E-04	I					Lithium Perchlorate	7791-03-9				2.6E+01	2.6E+01				
				2.0E-01	I					Londax	83055-99-6				7.3E+03	7.3E+03			1.9E+00	
				5.0E-04	I					MCPA	94-74-6				1.8E+01	1.8E+01			4.7E-03	
				1.0E-02	I					MCPB	94-81-5				3.7E+02	3.7E+02			1.4E-01	
				1.0E-03	I					MCPP	93-65-2				3.7E+01	3.7E+01			1.1E-02	
				2.0E-02	I					Malathion	121-75-5				7.3E+02	7.3E+02			1.9E-01	
				1.0E-01	I	7.0E-04	C			Maleic Anhydride	108-31-6				3.7E+03	3.7E+03			7.4E-01	
				5.0E-01	I					Maleic Hydrazide	123-33-1				1.8E+04	1.8E+04			3.8E+00	
				1.0E-04	P					Malononitrile	109-77-3				3.7E+00	3.7E+00			7.5E-04	
				3.0E-02	H					Mancozeb	8018-01-7				1.1E+03	1.1E+03			1.5E+00	
				5.0E-03	I					Maneb	12427-38-2				1.8E+02	1.8E+02			2.6E-01	
				1.4E-01	I	5.0E-05	I			Manganese (Diet)	7439-96-5									
				2.4E-02	S	5.0E-05	I			Manganese (Non-diet)	7439-96-5				8.8E+02	8.8E+02			5.7E+01	
				9.0E-05	H					Mephosfolan	950-10-7				3.3E+00	3.3E+00			4.8E-03	
				3.0E-02	I					Mepiquat Chloride	24307-26-4				1.1E+03	1.1E+03			3.6E-01	
										Mercury Compounds										

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Toxicity and Chemical-specific Information						Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs						
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l a t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				3.0E-04 1.6E-04	I C	3.0E-05 3.0E-04	C I			~Mercuric Chloride (and other Mercury salts) ~Mercury (elemental)	7487-94-7 7439-97-6				1.1E+01 5.8E+00	1.1E+01 6.3E-01	2.0E+00 5.7E-01	2.0E+00	3.0E-02	1.0E-01
				1.0E-04 8.0E-05 3.0E-05	I I I					~Methyl Mercury ~Phenylmercuric Acetate Merphos	22967-92-6 62-38-4 150-50-5				3.7E+00 2.9E+00 1.1E+00	3.7E+00 2.9E+00 1.1E+00		9.1E-04 1.1E-01		
				3.0E-05 6.0E-02 1.0E-04	I I I					Merphos Oxide Metalaxyl Methacrylonitrile	78-48-8 57837-19-1 126-98-7				1.1E+00 2.2E+03 3.7E+00	1.1E+00 2.2E+03 1.5E+00	1.1E+00	5.4E-03 6.1E-01 2.4E-04		
				5.0E-05 5.0E-01 1.0E-03	I I I		4.0E+00	C		Methamidophos Methanol Methidathion	10265-92-6 67-56-1 950-37-8				1.8E+00 1.8E+04 3.7E+01	1.8E+00 1.8E+04 3.7E+01		3.8E-04 3.7E+00 8.9E-03		
4.9E-02	C	1.4E-05	C	2.5E-02 5.0E-03	I I					Methomyl Methoxy-5-nitroaniline, 2- Methoxychlor	16752-77-5 99-59-2 72-43-5	1.4E+00		1.4E+00	9.1E+02 1.8E+02	9.1E+02 1.8E+02	4.0E+01	2.0E-01 4.7E-04 9.9E+00	2.2E+00	
				2.0E-03 3.0E-03 1.0E+00	H P H	9.0E-02 2.0E-02	C I			Methoxyethanol Acetate, 2- Methoxyethanol, 2- Methyl Acetate	110-49-6 109-86-4 79-20-9				7.3E+01 1.1E+02 3.7E+04	7.3E+01 1.1E+02 3.7E+04		1.5E-02 2.2E-02 7.5E+00		
				3.0E-02 6.0E-01 8.0E-02	H I H		5.0E+00 3.0E+00	V I V		Methyl Acrylate Methyl Ethyl Ketone (2-Butanone) Methyl Isobutyl Ketone (4-methyl-2-pentanone)	96-33-3 78-93-3 108-10-1				1.1E+03 2.2E+04 2.9E+03	1.1E+03 1.0E+04 6.3E+03	1.1E+03 7.1E+03 2.0E+03	2.3E-01 1.5E+00 4.5E-01		
				1.4E+00 2.5E-04	I I	1.0E-03 7.0E-01	C I V			Methyl Isocyanate Methyl Methacrylate Methyl Parathion	624-83-9 80-62-6 298-00-0				5.1E+04 9.1E+00	1.5E+03 9.1E+00	1.4E+03 9.1E+00		3.1E-01 1.5E-02	
9.9E-02	C	2.8E-05	C	6.0E-02 6.0E-03	X H		4.0E-02	H V		Methyl Phosphonic Acid Methyl Styrene (Mixed Isomers) Methyl methanesulfonate	993-13-5 25013-15-4 66-27-3	6.8E-01		6.8E-01	2.2E+03 2.2E+02	2.2E+03 8.3E+01	2.2E+03 6.0E+01	4.4E-01 9.7E-02 1.4E-04		
1.8E-03 3.3E-02 8.3E+00	C H C	2.6E-07 2.4E-03	C C			3.0E+00	I V			Methyl tert-Butyl Ether (MTBE) Methyl-5-Nitroaniline, 2- Methyl-N-nitro-N-nitrosoguanidine, N-	1634-04-4 99-55-8 70-25-7	3.7E+01 2.0E+00 8.1E-03	1.9E+01 2.0E+00 8.1E-03		6.3E+03 2.0E+00 8.1E-03	6.3E+03	2.8E-03 1.1E-03 2.8E-06			
1.3E-01 2.2E+01	C C	3.7E-05 6.3E-03	C C	1.0E-02	A					Methylaniline Hydrochloride, 2- Methylarsonic acid Methylcholanthrene, 3-	636-21-5 124-58-3 56-49-5	5.2E-01 3.1E-03		5.2E-01 3.1E-03	3.7E+02 3.7E+02		2.2E-04 5.9E-03			
7.5E-03 1.0E-01 4.6E-02	I P I	4.7E-07 4.3E-04 1.3E-05	I C C	6.0E-02 2.0E-03	I P	1.0E+00	A V M			Methylene Chloride Methylene-bis(2-chloroaniline), 4,4'- Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	75-09-2 101-14-4 101-61-1	9.0E+00 2.2E-01 1.5E+00	1.0E+01 2.2E-01 1.5E+00	4.8E+00 7.3E+01 1.5E+00	2.2E+03 7.3E+01 7.3E+01	2.2E+03 7.3E+01 7.3E+01	1.1E+03 7.3E+01 7.3E+01	5.0E+00	1.2E-03 2.5E-03 8.1E-03	1.3E-03
1.6E+00	C	4.6E-04	C			2.0E-02 6.0E-04	C I			Methylenediphenyl Diisocyanate Methylstyrene, Alpha-	101-77-9 101-68-8 98-83-9	4.2E-02		4.2E-02			2.6E+03 2.6E+03		1.9E-04 4.1E+00	
				1.5E-01 2.5E-02 4.5E-06	I I X					Metolachlor Metribuzin Midrange Aliphatic Hydrocarbon Streams	51218-45-2 21087-64-9 NA				5.5E+03 9.1E+02 1.1E+00	5.5E+03 9.1E+02 1.1E+00	3.7E+02 2.1E+02 1.3E+02	6.4E+00 2.8E-01		
1.8E+01	C	5.1E-03	C	3.0E+00 2.0E-04 2.0E-03	P I I					Mineral oils Mirex Molinate	8012-95-1 2385-85-5 2212-67-1	3.7E-03		3.7E-03	1.1E+05 7.3E+00 7.3E+01	1.1E+05 7.3E+00 7.3E+01	1.1E+05 7.3E+00 7.3E+01	4.3E+03 2.7E-03 4.1E-02		
				5.0E-03 1.0E-01 2.0E-03	I I P					Molybdenum Monochloramine Monomethylaniline	7439-98-7 10599-90-3 100-61-8				1.8E+02 3.7E+03 7.3E+01	1.8E+02 3.7E+03 7.3E+01		3.7E+00 2.7E-02		
				3.0E-04 2.0E-03 3.0E-02	X I X					N,N'-Diphenyl-1,4-benzenediamine Naled Naphtha, High Flash Aromatic (HFAN)	74-31-7 300-76-5 64724-95-6				1.1E+01 7.3E+01 1.1E+03	1.1E+01 7.3E+01 2.1E+02	1.8E+02	1.1E+00 3.3E-02		

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1.8E+00	C	0.0E+00	C	1.0E-01	I	5.0E-02	C	5.0E-05	C	Naphthylamine, 2-	91-59-8	3.7E-02		3.7E-02					1.9E-04	
				5.0E-02	C	5.0E-05	C			Napropamide	15299-99-7				3.7E+03		3.7E+03		2.4E+01	
				5.0E-02	C	1.0E-04	C			Nickel Carbonyl	13463-39-3				1.8E+03		1.8E+03			
		2.4E-04	I	5.0E-02	C	5.0E-05	C			Nickel Oxide	1313-99-1				1.8E+03		1.8E+03			
		2.6E-04	C	2.0E-02	I	9.0E-05	A			Nickel Refinery Dust	NA				1.8E+03		1.8E+03			
				2.0E-02	I	9.0E-05	A			Nickel Soluble Salts	7440-02-0				7.3E+02		7.3E+02		4.8E+01	
1.7E+00	C	4.8E-04	I	5.0E-02	C	5.0E-05	C			Nickel Subsulfide	12035-72-2	4.0E-02		4.0E-02	1.8E+03		1.8E+03			
				1.6E+00	I					Nitrate	14797-55-8				5.8E+04		5.8E+04	1.0E+04		
				1.0E-01	I					Nitrite	14797-65-0				3.7E+03		3.7E+03	1.0E+03		
2.0E-02	P			1.0E-02	X	5.0E-05	X			Nitroaniline, 2-	88-74-4				3.7E+02		3.7E+02		1.5E-01	
		4.0E-05	I	4.0E-03	P	6.0E-03	P			Nitroaniline, 4-	100-01-6	3.4E+00		3.4E+00	1.5E+02		1.5E+02		1.4E-03	
				2.0E-03	I	9.0E-03	I	V		Nitrobenzene	98-95-3		1.2E-01	1.2E-01	7.3E+01	1.9E+01	1.5E+01		7.9E-05	
				3.0E+03	P					Nitrocellulose	9004-70-0				1.1E+08		1.1E+08		2.4E+04	
1.3E+00	C	3.7E-04	C	7.0E-02	H					Nitrofurantoin	67-20-9				2.6E+03		2.6E+03		1.1E+00	
				1.0E-04	P					Nitrofurazone	59-87-0	5.2E-02		5.2E-02					4.7E-05	
1.7E-02	P			1.0E-01	I					Nitroglycerin	55-63-0	4.0E+00		4.0E+00	3.7E+00		3.7E+00		1.6E-03	
		9.0E-06	P	2.0E-02	P	V				Nitroguanidine	556-88-7				3.7E+03		3.7E+03		8.8E-01	
				2.0E-02	I	V				Nitromethane	75-52-5		5.4E-01	5.4E-01	4.2E+01	4.2E+01			1.2E-04	
2.7E+01	C	7.7E-03	C							Nitropropane, 2-	79-46-9		1.8E-03	1.8E-03	4.2E+01	4.2E+01			4.7E-07	
1.2E+02	C	3.4E-02	C							Nitroso-N-ethylurea, N-	759-73-9	2.5E-03		2.5E-03					6.0E-07	
										Nitroso-N-methylurea, N-	684-93-5	5.6E-04		5.6E-04					1.2E-07	
5.4E+00	I	1.6E-03	I					V		Nitroso-di-N-butylamine, N-	924-16-3	1.2E-02	3.0E-03	2.4E-03					5.0E-06	
7.0E+00	I	2.0E-03	C							Nitroso-di-N-propylamine, N-	621-64-7	9.6E-03		9.6E-03					7.2E-06	
2.8E+00	I	8.0E-04	C							Nitrosodiethanolamine, N-	1116-54-7	2.4E-02		2.4E-02					4.9E-06	
1.5E+02	I	4.3E-02	I						M	Nitrosodiethylamine, N-	55-18-5	1.4E-04		1.4E-04					5.3E-08	
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X		M	Nitrosodimethylamine, N-	62-75-9	4.2E-04		4.2E-04	2.9E-01		2.9E-01		1.0E-07	
4.9E-03	I	2.6E-06	C							Nitrosodiphenylamine, N-	86-30-6	1.4E+01		1.4E+01					7.5E-02	
2.2E+01	I	6.3E-03	C							Nitrosomethylethylamine, N-	10595-95-6	3.1E-03		3.1E-03					8.8E-07	
6.7E+00	C	1.9E-03	C							Nitrosomorpholine [N-]	59-89-2	1.0E-02		1.0E-02					2.5E-06	
9.4E+00	C	2.7E-03	C							Nitrosopiperidine [N-]	100-75-4	7.2E-03		7.2E-03					3.8E-06	
2.1E+00	I	6.1E-04	I							Nitrosopyrrolidine, N-	930-55-2	3.2E-02		3.2E-02					1.2E-05	
				1.0E-04	X					Nitrotoluene, m-	99-08-1				3.7E+00		3.7E+00		3.4E-03	
2.2E-01	P			9.0E-04	P			V		Nitrotoluene, o-	88-72-2	3.1E-01		3.1E-01	3.3E+01		3.3E+01		2.9E-04	
1.6E-02	P			4.0E-03	P					Nitrotoluene, p-	99-99-0	4.2E+00		4.2E+00	1.5E+02		1.5E+02		3.9E-03	
				3.0E-04	X	2.0E-01	P	V		Nonane, n-	111-84-2				1.1E+01	4.2E+02	1.1E+01		1.5E-01	
				4.0E-02	I					Norflurazon	27314-13-2				1.5E+03		1.5E+03		9.4E+00	
				7.0E-04	I					Nustar	85509-19-9				2.6E+01		2.6E+01		4.1E+00	
				3.0E-03	I					Octabromodiphenyl Ether	32536-52-0				1.1E+02		1.1E+02		2.2E+01	
				5.0E-02	I					Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	2691-41-0				1.8E+03		1.8E+03		2.3E+00	
				2.0E-03	H					Octamethylpyrophosphoramidate	152-16-9				7.3E+01		7.3E+01		1.8E-02	
				5.0E-02	I					Oryzalin	19044-88-3				1.8E+03		1.8E+03		3.4E+00	
				5.0E-03	I					Oxadiazon	19666-30-9				1.8E+02		1.8E+02		1.9E+00	
				2.5E-02	I					Oxamyl	23135-22-0				9.1E+02		9.1E+02	2.0E+02	2.0E-01	4.4E-02
				1.3E-02	I					Paclitaxel	76738-62-0				4.7E+02		4.7E+02		9.7E-01	
				4.5E-03	I					Paraquat Dichloride	1910-42-5				1.6E+02		1.6E+02		2.3E+00	
				6.0E-03	H					Parathion	56-38-2				2.2E+02		2.2E+02		1.1E+00	
				5.0E-02	H					Pebutate	1114-71-2				1.8E+03		1.8E+03		1.5E+00	
				4.0E-02	I					Pendimethalin	40487-42-1				1.5E+03		1.5E+03		1.7E+01	
				2.0E-03	I					Pentabromodiphenyl Ether	32534-81-9				7.3E+01		7.3E+01		3.2E+00	
				1.0E-04	I					Pentabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-99)	60348-60-9				3.7E+00		3.7E+00		1.6E-01	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				8.0E-04	I					Pentachlorobenzene	608-93-5				2.9E+01	2.9E+01			2.2E-01	
9.0E-02	P									Pentachloroethane	76-01-7	7.5E-01		7.5E-01					3.6E-04	
2.6E-01	H			3.0E-03	I					Pentachloronitrobenzene	82-68-8	2.6E-01		2.6E-01	1.1E+02	1.1E+02			3.2E-03	
4.0E-01	I	5.1E-06	C	5.0E-03	I					Pentachlorophenol	87-86-5	1.7E-01		1.7E-01	1.8E+02	1.8E+02	1.0E+00		1.7E-03	1.0E-02
						1.0E+00	P	V		Pentane, n-	109-66-0				2.1E+03	2.1E+03			1.0E+01	
				7.0E-04	I					Perchlorate and Perchlorate Salts	14797-73-0				2.6E+01	2.6E+01	1.5E+01(F)			
				5.0E-02	I					Permethrin	52645-53-1				1.8E+03	1.8E+03			4.3E+02	
2.2E-03	C	6.3E-07	C							Phenacetin	62-44-2	3.1E+01		3.1E+01					8.6E-03	
				2.5E-01	I					Phenmedipham	13684-63-4				9.1E+03	9.1E+03			4.9E+01	
				3.0E-01	I	2.0E-01	C			Phenol	108-95-2				1.1E+04	1.1E+04			6.3E+00	
4.7E-02	H			6.0E-03	I					Phenylenediamine, m-	108-45-2				2.2E+02	2.2E+02			5.9E-02	
				1.9E-01	H					Phenylenediamine, o-	95-54-5	1.4E+00		1.4E+00					3.8E-04	
										Phenylenediamine, p-	106-50-3				6.9E+03	6.9E+03			1.9E+00	
1.9E-03	H			2.0E-04	H					Phenylphenol, 2-	90-43-7	3.5E+01		3.5E+01					4.7E-01	
						3.0E-04	I	V		Phorate	298-02-2				7.3E+00	7.3E+00			8.2E-03	
				2.0E-02	I					Phosgene	75-44-5									
				3.0E-04	I	3.0E-04	I			Phosmet	732-11-6				7.3E+02	7.3E+02			1.6E-01	
				1.0E-02	I					Phosphine	7803-51-2				1.1E+01	1.1E+01				
				1.0E-02	I					Phosphoric Acid	7664-38-2									
				2.0E-05	I					Phosphorus, White	7723-14-0				7.3E-01	7.3E-01			2.7E-03	
				1.0E+00	H					Phthalic Acid, P-	100-21-0				3.7E+04	3.7E+04			1.3E+01	
				2.0E+00	I	2.0E-02	C			Phthalic Anhydride	85-44-9				7.3E+04	7.3E+04			1.6E+01	
				7.0E-02	I					Picloram	1918-02-1				2.6E+03	2.6E+03	5.0E+02		7.1E-01	1.4E-01
				1.0E-04	X					Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3				3.7E+00	3.7E+00			2.4E-03	
				1.0E-02	I					Pirimiphos, Methyl	29232-93-7				3.7E+02	3.7E+02			3.5E-01	
3.0E+01	C	8.6E-03	C	7.0E-06	H					Polybrominated Biphenyls	59536-65-1	2.2E-03		2.2E-03	2.6E-01	2.6E-01				
										Polychlorinated Biphenyls (PCBs)										
7.0E-02	S	2.0E-05	S	7.0E-05	I					~Aroclor 1016	12674-11-2	9.6E-01		9.6E-01	2.6E+00	2.6E+00			9.2E-02	
2.0E+00	S	5.7E-04	S						V	~Aroclor 1221	11104-28-2	3.4E-02	8.5E-03	6.8E-03					1.2E-04	
2.0E+00	S	5.7E-04	S						V	~Aroclor 1232	11141-16-5	3.4E-02	8.5E-03	6.8E-03					1.2E-04	
2.0E+00	S	5.7E-04	S							~Aroclor 1242	53469-21-9	3.4E-02		3.4E-02					5.3E-03	
2.0E+00	S	5.7E-04	S							~Aroclor 1248	12672-29-6	3.4E-02		3.4E-02					5.2E-03	
2.0E+00	S	5.7E-04	S	2.0E-05	I					~Aroclor 1254	11097-69-1	3.4E-02		3.4E-02	7.3E-01	7.3E-01			8.8E-03	
2.0E+00	S	5.7E-04	S							~Aroclor 1260	11096-82-5	3.4E-02		3.4E-02					2.4E-02	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Heptachlorobiphenyl, 2,3,3',4,4',5,5'-(PCB 189)	39635-31-9	1.7E-02		1.7E-02	1.2E+00	1.2E+00			1.2E-02	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3',4,4',5,5'-(PCB 167)	52663-72-6	1.7E-02		1.7E-02	1.2E+00	1.2E+00			7.2E-03	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5'-(PCB 157)	69782-90-7	1.7E-02		1.7E-02	1.2E+00	1.2E+00			7.4E-03	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Hexachlorobiphenyl, 2,3,3',4,4',5'-(PCB 156)	38380-08-4	1.7E-02		1.7E-02	1.2E+00	1.2E+00			7.4E-03	
3.9E+03	E	1.1E+00	E	3.3E-08	E	1.3E-06	E			~Hexachlorobiphenyl, 3,3',4,4',5,5'-(PCB 169)	32774-16-6	1.7E-05		1.7E-05	1.2E-03	1.2E-03			7.2E-06	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Pentachlorobiphenyl, 2',3,4,4',5'-(PCB 123)	65510-44-3	1.7E-02		1.7E-02	1.2E+00	1.2E+00			4.5E-03	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3',4,4',5'-(PCB 118)	31508-00-6	1.7E-02		1.7E-02	1.2E+00	1.2E+00			4.4E-03	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,3',4,4'-(PCB 105)	32598-14-4	1.7E-02		1.7E-02	1.2E+00	1.2E+00			4.5E-03	
3.9E+00	E	1.1E-03	E	3.3E-05	E	1.3E-03	E			~Pentachlorobiphenyl, 2,3,4,4',5'-(PCB 114)	74472-37-0	1.7E-02		1.7E-02	1.2E+00	1.2E+00			4.5E-03	
1.3E+04	E	3.8E+00	E	1.0E-08	E	4.0E-07	E			~Pentachlorobiphenyl, 3,3',4,4',5'-(PCB 126)	57465-28-8	5.2E-06		5.2E-06	3.7E-04	3.7E-04			1.3E-06	
2.0E+00	I	5.7E-04	I							~Polychlorinated Biphenyls (high risk)	1336-36-3									
4.0E-01	I	1.0E-04	I							~Polychlorinated Biphenyls (low risk)	1336-36-3	1.7E-01		1.7E-01				5.0E-01	2.6E-02	7.8E-02
7.0E-02	I	2.0E-05	I							~Polychlorinated Biphenyls (lowest risk)	1336-36-3									
1.3E+01	E	3.8E-03	E	1.0E-05	E	4.0E-04	E			~Tetrachlorobiphenyl, 3,3',4,4'-(PCB 77)	32598-13-3	5.2E-03		5.2E-03	3.7E-01	3.7E-01			8.1E-04	
3.9E+01	E	1.1E-02	E	3.3E-06	E	1.3E-04	E			~Tetrachlorobiphenyl, 3,4,4',5'-(PCB 81)	70362-50-4	1.7E-03		1.7E-03	1.2E-01	1.2E-01			2.7E-04	
				6.0E-04	I					Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9									

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs						
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)	
Polynuclear Aromatic Hydrocarbons (PAHs)																					
				6.0E-02	I				V	~Acenaphthene	83-32-9				2.2E+03	2.2E+03			2.2E+01		
				3.0E-01	I				V	~Anthracene	120-12-7				1.1E+04	1.1E+04			3.6E+02		
7.3E-01	E	1.1E-04	C							M	~Benz[a]anthracene	56-55-3	2.9E-02		2.9E-02				1.0E-02		
1.2E+00	C	1.1E-04	C								~Benzo[j]fluoranthene	205-82-3	5.6E-02		5.6E-02				6.7E-02		
7.3E+00	I	1.1E-03	C							M	~Benzo[a]pyrene	50-32-8	2.9E-03		2.9E-03			2.0E-01	3.5E-03	2.4E-01	
7.3E-01	E	1.1E-04	C							M	~Benzo[b]fluoranthene	205-99-2	2.9E-02		2.9E-02				3.5E-02		
7.3E-02	E	1.1E-04	C							M	~Benzo[k]fluoranthene	207-08-9	2.9E-01		2.9E-01				3.5E-01		
7.3E-03	E	1.1E-05	C							M	~Chrysene	218-01-9	2.9E+00		2.9E+00				1.1E+00		
7.3E+00	E	1.2E-03	C							M	~Dibenz[a,h]anthracene	53-70-3	2.9E-03		2.9E-03				1.1E-02		
1.2E+01	C	1.1E-03	C								~Dibenzo(a,e)pyrene	192-65-4	5.6E-03		5.6E-03				7.3E-02		
2.5E+02	C	7.1E-02	C								~Dimethylbenz(a)anthracene, 7,12-	57-97-6	2.7E-04		2.7E-04				2.7E-04		
				4.0E-02	I						~Fluoranthene	206-44-0				1.5E+03	1.5E+03		1.6E+02		
				4.0E-02	I				V		~Fluorene	86-73-7				1.5E+03	1.5E+03		2.7E+01		
7.3E-01	E	1.1E-04	C							M	~Indeno[1,2,3-cd]pyrene	193-39-5	2.9E-02		2.9E-02				1.2E-01		
2.9E-02	P			7.0E-02	A				V		~Methylnaphthalene, 1-	90-12-0	2.3E+00		2.3E+00	2.6E+03	2.6E+03		1.2E-02		
				4.0E-03	I				V		~Methylnaphthalene, 2-	91-57-6				1.5E+02	1.5E+02		7.5E-01		
1.2E+00	C	3.4E-05	C	2.0E-02	I	3.0E-03	I	V			~Naphthalene	91-20-3		1.4E-01	1.4E-01	7.3E+02	6.3E+00	6.2E+00	4.7E-04		
				3.0E-02	I			V			~Nitropyrene, 4-	57835-92-4	5.6E-02		5.6E-02				9.7E-03		
											~Pyrene	129-00-0				1.1E+03	1.1E+03		1.2E+02		
1.5E-01	I			7.0E-04	I						Potassium Perchlorate	7778-74-7				2.6E+01	2.6E+01		2.3E-03		
				9.0E-03	I						Prochloraz	67747-09-5	4.5E-01		4.5E-01	3.3E+02	3.3E+02		1.3E+01		
				6.0E-03	H						Profluralin	26399-36-0				2.2E+02	2.2E+02		1.3E+01		
				1.5E-02	I						Prometon	1610-18-0				5.5E+02	5.5E+02		2.6E-01		
				4.0E-03	I						Prometryn	7287-19-6				1.5E+02	1.5E+02		2.2E-01		
				1.3E-02	I						Propachlor	1918-16-7				4.7E+02	4.7E+02		2.9E-01		
				5.0E-03	I						Propanil	709-98-8				1.8E+02	1.8E+02		1.0E-01		
				2.0E-02	I						Propargite	2312-35-8				7.3E+02	7.3E+02		5.4E+01		
				2.0E-03	I						Propargyl Alcohol	107-19-7				7.3E+01	7.3E+01		1.5E-02		
				2.0E-02	I						Propazine	139-40-2				7.3E+02	7.3E+02		6.5E-01		
				2.0E-02	I						Propham	122-42-9				7.3E+02	7.3E+02		4.7E-01		
				1.3E-02	I						Propiconazole	60207-90-1				4.7E+02	4.7E+02		1.6E+00		
						8.0E-03	I	V			Propionaldehyde	123-38-6				1.7E+01	1.7E+01		3.4E-03		
				1.0E-01	X	1.0E+00	X	V			Propyl benzene	103-65-1				3.7E+03	2.1E+03	1.3E+03	2.5E+00		
				3.0E+00	C						Propylene	115-07-1									
				2.0E+01	P						Propylene Glycol	57-55-6				7.3E+05	7.3E+05		1.5E+02		
						2.7E-04	A	V			Propylene Glycol Dinitrate	6423-43-4				5.7E-01	5.7E-01		1.8E-04		
				7.0E-01	H						Propylene Glycol Monoethyl Ether	1569-02-4				2.6E+04	2.6E+04		5.2E+00		
2.4E-01	I	3.7E-06	I	7.0E-01	H	2.0E+00	I				Propylene Glycol Monomethyl Ether	107-98-2				2.6E+04	2.6E+04		5.2E+00		
				3.0E-02	I	V					Propylene Oxide	75-56-9	2.8E-01	1.3E+00	2.3E-01		6.3E+01	6.3E+01		4.9E-05	
				2.5E-01	I						Pursuit	81335-77-5				9.1E+03	9.1E+03		8.0E+00		
				2.5E-02	I						Pydrin	51630-58-1				9.1E+02	9.1E+02		5.8E+02		
				1.0E-03	I				V		Pyridine	110-86-1				3.7E+01	3.7E+01		1.3E-02		
				5.0E-04	I						Quinalphos	13593-03-8				1.8E+01	1.8E+01		1.6E-01		
3.0E+00	I					3.0E-02	A				Quinoline	91-22-5	2.2E-02		2.2E-02				7.4E-05		
				3.0E-02	I						Refractory Ceramic Fibers	NA									
				5.0E-02	H						Resmethrin	10453-86-8				1.1E+03	1.1E+03		6.8E+02		
2.2E-01	C	6.3E-05	C	4.0E-03	I						Ronnel	299-84-3				1.8E+03	1.8E+03		1.7E+01		
											Rotenone	83-79-4				1.5E+02	1.5E+02		7.6E+01		
											Safrole	94-59-7	3.1E-01		3.1E-01				1.9E-04		

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SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t i l e	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				2.5E-02	I					Savey	78587-05-0				9.1E+02		9.1E+02		4.1E+00	
				5.0E-03	I					Selenious Acid	7783-00-8				1.8E+02		1.8E+02			
				5.0E-03	I	2.0E-02	C			Selenium	7782-49-2				1.8E+02		1.8E+02	5.0E+01	9.5E-01	2.6E-01
				5.0E-03	C	2.0E-02	C			Selenium Sulfide	7446-34-6				1.8E+02		1.8E+02			
				9.0E-02	I					Sethoxydim	74051-80-2				3.3E+03		3.3E+03		2.9E+01	
						3.0E-03	C			Silica (crystalline, respirable)	7631-86-9									
1.2E-01	H			5.0E-03	I					Silver	7440-22-4				1.8E+02		1.8E+02		1.6E+00	
				5.0E-03	I					Simazine	122-34-9	5.6E-01		5.6E-01	1.8E+02		1.8E+02	4.0E+00	2.8E-04	2.0E-03
				1.3E-02	I					Sodium Acifluorfen	62476-59-9				4.7E+02		4.7E+02		3.8E+00	
				4.0E-03	I					Sodium Azide	26628-22-8				1.5E+02		1.5E+02			
2.7E-01	H			3.0E-02	I					Sodium Diethyldithiocarbamate	148-18-5	2.5E-01		2.5E-01	1.1E+03		1.1E+03			
				5.0E-02	A	1.3E-02	C			Sodium Fluoride	7681-49-4				1.8E+03		1.8E+03			
				2.0E-05	I					Sodium Fluoroacetate	62-74-8				7.3E-01		7.3E-01		1.5E-04	
				1.0E-03	H					Sodium Metavanadate	13718-26-8				3.7E+01		3.7E+01			
				7.0E-04	I					Sodium Perchlorate	7601-89-0				2.6E+01		2.6E+01			
2.4E-02	H			3.0E-02	I					Stirofos (Tetrachlorovinphos)	961-11-5	2.8E+00		2.8E+00	1.1E+03		1.1E+03		8.3E-03	
				6.0E-01	I					Strontium, Stable	7440-24-6				2.2E+04		2.2E+04		7.7E+02	
				3.0E-04	I					Strychnine	57-24-9				1.1E+01		1.1E+01		1.2E-01	
				2.0E-01	I	1.0E+00	I	V		Styrene	100-42-5				7.3E+03	2.1E+03	1.6E+03	1.0E+02	1.8E+00	1.1E-01
				8.0E-04	P					Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9				2.9E+01		2.9E+01		1.7E-01	
						1.0E-03	C			Sulfuric Acid	7664-93-9									
				2.5E-02	I					Sythane	88671-89-0				9.1E+02		9.1E+02		1.1E+01	
				3.0E-02	H					TCMTB	21564-17-0				1.1E+03		1.1E+03		7.6E+00	
				7.0E-02	I					Tebuthiuron	34014-18-1				2.6E+03		2.6E+03		7.3E-01	
				2.0E-02	H					Temephos	3383-96-8				7.3E+02		7.3E+02		1.4E+02	
				1.3E-02	I					Terbacil	5902-51-2				4.7E+02		4.7E+02		1.4E-01	
				2.5E-05	H					Terbufos	13071-79-9				9.1E-01		9.1E-01		2.0E-03	
				1.0E-03	I					Terbutryn	886-50-0				3.7E+01		3.7E+01		5.2E-02	
				1.0E-04	I					Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1				3.7E+00		3.7E+00		9.7E-02	
				3.0E-04	I					Tetrachlorobenzene, 1,2,4,5-	95-94-3				1.1E+01		1.1E+01		5.1E-02	
2.6E-02	I	7.4E-06	I	3.0E-02	I					Tetrachloroethane, 1,1,1,2-	630-20-6	2.6E+00	6.6E-01	5.2E-01	1.1E+03		1.1E+03		2.0E-04	
2.0E-01	I	5.8E-05	C	2.0E-02	I					Tetrachloroethane, 1,1,2,2-	79-34-5	3.4E-01	8.4E-02	6.7E-02	7.3E+02		7.3E+02		2.6E-05	
5.4E-01	C	5.9E-06	C	1.0E-02	I	2.7E-01	A	V		Tetrachloroethylene	127-18-4	1.2E-01	8.2E-01	1.1E-01	3.7E+02	5.7E+02	2.2E+02	5.0E+00	4.9E-05	2.3E-03
				3.0E-02	I					Tetrachlorophenol, 2,3,4,6-	58-90-2				1.1E+03		1.1E+03		6.7E+00	
2.0E+01	H			5.0E-04	I					Tetrachlorotoluene, p- alpha, alpha- Tetraethyl Dithiopyrophosphate	5216-25-1 3689-24-5	3.4E-03		3.4E-03	1.8E+01		1.8E+01		1.1E-05 1.3E-02	
						8.0E+01	I	V		Tetrafluoroethane, 1,1,1,2-	811-97-2				1.7E+05		1.7E+05		9.3E+01	
				4.0E-03	P					Tetryl (Trinitrophenylmethylnitramine)	479-45-8				1.5E+02		1.5E+02		1.4E+00	
										Thallium (Soluble Salts)	7440-28-0							2.0E+00		1.4E-01
				1.0E-02	I					Thiobencarb	28249-77-6				3.7E+02		3.7E+02		1.3E+00	
				7.0E-02	X					Thiodiglycol	111-48-8				2.6E+03		2.6E+03		5.2E-01	
				3.0E-04	H					Thiofanox	39196-18-4				1.1E+01		1.1E+01		3.8E-03	
				8.0E-02	I					Thiophanate, Methyl	23564-05-8				2.9E+03		2.9E+03		2.5E+00	
				5.0E-03	I					Thiram	137-26-8				1.8E+02		1.8E+02		2.6E-01	
				6.0E-01	H					Tin	7440-31-5				2.2E+04		2.2E+04		5.5E+03	
						1.0E-04	A			Titanium Tetrachloride	7550-45-0				2.9E+03	1.0E+04	2.3E+03	1.0E+03	1.6E+00	6.9E-01
1.9E-01	H			8.0E-02	I	5.0E+00	I	V		Toluene	108-88-3								1.5E-04	
										Toluidine, p-	106-49-0	3.5E-01		3.5E-01						
1.1E+00	I	3.2E-04	I							Toxaphene	8001-35-2	6.1E-02		6.1E-02				3.0E+00	9.4E-03	4.6E-01
				7.5E-03	I					Tralometrin	66841-25-6				2.7E+02		2.7E+02		1.0E+02	

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Toxicity and Chemical-specific Information										Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs		
SFO (mg/kg-day) ⁻¹	k _e y	IUR (ug/m ³) ⁻¹	k _e y	RfD _o (mg/kg-day)	k _e y	RfC _i (mg/m ³)	k _e y	v	muta- gen	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				3.0E-04	A					Tri-n-butyltin	688-73-3				1.1E+01	1.1E+01			2.4E-01	
				1.3E-02	I					Triallate	2303-17-5				4.7E+02	4.7E+02			1.1E+00	
				1.0E-02	I					Triasulfuron	82097-50-5				3.7E+02	3.7E+02			3.8E-01	
				5.0E-03	I					Tribromobenzene, 1,2,4-	615-54-3				1.8E+02	1.8E+02			2.6E-01	
9.2E-03	P			2.0E-01	P					Tributyl Phosphate	126-73-8	7.3E+00		7.3E+00	7.3E+03	7.3E+03			3.6E-02	
				3.0E-04	P					Tributyltin Compounds	NA				1.1E+01	1.1E+01				
				3.0E-04	I					Tributyltin Oxide	56-35-9				1.1E+01	1.1E+01			5.7E+02	
				3.0E+01	I	3.0E+01	H	V		Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1				1.1E+06	6.3E+04	5.9E+04		1.5E+02	
2.9E-02	H									Trichloroacetic Acid	76-03-9							6.0E+01		1.2E-02
										Trichloroaniline HCl, 2,4,6-	33663-50-2	2.3E+00		2.3E+00					6.4E-03	
										Trichloroaniline, 2,4,6-	634-93-5	2.0E+00		2.0E+00					1.8E-02	
				8.0E-04	X				V	Trichlorobenzene, 1,2,3-	87-61-6				2.9E+01	2.9E+01			8.7E-02	
2.9E-02	P			1.0E-02	I	2.0E-03	P	V		Trichlorobenzene, 1,2,4-	120-82-1	2.3E+00		2.3E+00	3.7E+02	4.2E+00	4.1E+00	7.0E+01	6.8E-03	2.0E-01
				2.0E+00	I	5.0E+00	I	V		Trichloroethane, 1,1,1-	71-55-6				7.3E+04	1.0E+04	9.1E+03	2.0E+02	3.2E+00	7.0E-02
5.7E-02	I	1.6E-05	I	4.0E-03	I				V	Trichloroethane, 1,1,2-	79-00-5	1.2E+00	3.0E-01	2.4E-01	1.5E+02	1.5E+02		5.0E+00	7.8E-05	1.6E-03
5.9E-03	C	2.0E-06	C						V	Trichloroethylene	79-01-6	1.1E+01	2.4E+00	2.0E+00				5.0E+00	7.2E-04	1.8E-03
				3.0E-01	I	7.0E-01	H	V		Trichlorofluoromethane	75-69-4				1.1E+04	1.5E+03	1.3E+03		8.3E-01	
1.1E-02	I	3.1E-06	I	1.0E-01	I					Trichlorophenol, 2,4,5-	95-95-4				3.7E+03	3.7E+03			1.4E+01	
				1.0E-03	P					Trichlorophenol, 2,4,6-	88-06-2	6.1E+00		6.1E+00	3.7E+01	3.7E+01			2.3E-02	
				1.0E-02	I					Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5				3.7E+02	3.7E+02			1.5E-01	
				8.0E-03	I				V	Trichlorophenoxypropionic acid, -2,4,5	93-72-1				2.9E+02	2.9E+02	5.0E+01		1.6E-01	2.8E-02
				5.0E-03	I				V	Trichloropropane, 1,1,2-	598-77-6				1.8E+02	1.8E+02			7.1E-02	
3.0E+01	I			4.0E-03	I	3.0E-04	I	V	M	Trichloropropane, 1,2,3-	96-18-4	7.2E-04		7.2E-04	1.5E+02	6.3E-01	6.2E-01		3.1E-07	
				3.0E-03	X	3.0E-04	P	V		Trichloropropene, 1,2,3-	96-19-5				1.1E+02	6.3E-01	6.2E-01		3.1E-04	
				3.0E-03	I					Tridiphane	58138-08-2				1.1E+02	1.1E+02			7.8E-01	
						7.0E-03	I	V		Triethylamine	121-44-8				1.5E+01	1.5E+01			4.4E-03	
7.7E-03	I									Trifluralin	1582-09-8	8.7E+00		8.7E+00	2.7E+02				2.9E-01	
3.7E-02	H									Trimethyl Phosphate	512-56-1	1.8E+00		1.8E+00					4.0E-04	
						7.0E-03	P	V		Trimethylbenzene, 1,2,4-	95-63-6				1.5E+01	1.5E+01			2.1E-02	
				1.0E-02	X				V	Trimethylbenzene, 1,3,5-	108-67-8				3.7E+02	3.7E+02			5.2E-01	
				3.0E-02	I					Trinitrobenzene, 1,3,5-	99-35-4				1.1E+03	1.1E+03			3.9E+00	
3.0E-02	I			5.0E-04	I					Trinitrotoluene, 2,4,6-	118-96-7	2.2E+00		2.2E+00	1.8E+01	1.8E+01			1.3E-02	
				2.0E-02	P					Triphenylphosphine Oxide	791-28-6				7.3E+02	7.3E+02			3.0E+00	
				2.0E-02	A					Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8				7.3E+02	7.3E+02			1.6E+01	
2.0E-02	P			7.0E-03	P					Tris(2-chloroethyl)phosphate	115-96-8	3.4E+00		3.4E+00	2.6E+02	2.6E+02			3.3E-03	
3.2E-03	P			1.0E-01	P					Tris(2-ethylhexyl)phosphate	78-42-2	2.1E+01		2.1E+01	3.7E+03	3.7E+03			1.0E+02	
				3.0E-03	I	3.0E-04	A			Uranium (Soluble Salts)	NA				1.1E+02	1.1E+02	3.0E+01		4.9E+01	1.4E+01
1.0E+00	C	2.9E-04	C							Urethane	51-79-6	6.7E-02		6.7E-02					1.5E-05	
		8.3E-03	P	9.0E-03	I	7.0E-06	P			Vanadium Pentoxide	1314-62-1				3.3E+02	3.3E+02				
				2.0E-02	H					Vanadium Sulfate	36907-42-3				7.3E+02	7.3E+02				
				5.0E-03	S					Vanadium and Compounds	NA				1.8E+02	1.8E+02			1.8E+02	
				7.0E-05	P	1.0E-04	A			Vanadium, Metallic	7440-62-2				2.6E+00	2.6E+00			2.6E+00	
				1.0E-03	I					Vernolate	1929-77-7				3.7E+01	3.7E+01			2.9E-02	
				2.5E-02	I					Vinclozolin	50471-44-8				9.1E+02	9.1E+02			7.0E-01	
				1.0E+00	H	2.0E-01	I	V		Vinyl Acetate	108-05-4				3.7E+04	4.2E+02	4.1E+02		8.8E-02	
		3.2E-05	H			3.0E-03	I	V		Vinyl Bromide	593-60-2		1.5E-01	1.5E-01		6.3E+00	6.3E+00		4.4E-05	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	Vinyl Chloride	75-01-4	1.7E-02	3.2E-01	1.6E-02	1.1E+02	2.1E+02	7.2E+01	2.0E+00	5.6E-06	6.9E-04
				3.0E-04	I					Warfarin	81-81-2				1.1E+01	1.1E+01			1.2E-02	
				2.0E-01	I	1.0E-01	I	V		Xylene, Mixture	1330-20-7				7.3E+03	2.1E+02	2.0E+02	1.0E+04	2.0E-01	9.8E+00
				2.0E-01	S	7.0E-01	C	V		Xylene, P-	106-42-3				7.3E+03	1.5E+03	1.2E+03		1.2E+00	

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Toxicity and Chemical-specific Information							Contaminant		Carcinogenic Target Risk			Noncancer Hazard Index			Protection of Ground Water SSLs					
SFO (mg/kg-day) ⁻¹	k e y	IUR (ug/m ³) ⁻¹	k e y	RfD _o (mg/kg-day)	k e y	RfC _i (mg/m ³)	k e y	v o l u t a b l e	m u t a g e n	Analyte	CAS No.	ingc	inhc	prgc	ingn	inhn	prgn	MCL (ug/L)	Risk-based SSL (mg/kg)	MCL-based SSL (mg/kg)
				2.0E-01	S	7.0E-01	C	V		Xylene, m-	108-38-3				7.3E+03	1.5E+03	1.2E+03		1.2E+00	
				2.0E-01	S	7.0E-01	C	V		Xylene, o-	95-47-6				7.3E+03	1.5E+03	1.2E+03		1.2E+00	
				3.0E-01	I					Zinc (Metallic)	7440-66-6				1.1E+04		1.1E+04		6.8E+02	
				3.0E-04	I					Zinc Phosphide	1314-84-7				1.1E+01		1.1E+01			
				5.0E-02	I					Zineb	12122-67-7				1.8E+03		1.8E+03		5.3E+00	

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Acephate	30560-19-1	183.16	EPI Dermwin v2.0	2.048E-11	5.01E-13	EPI HenryWin v3.2	1.35	CRC 89th Ed					10	EPI KOCWIN v2.0	818000	EPI WATERNT v.01
Acetaldehyde	75-07-0	44.05	EPI Dermwin v2.0	0.0027269	0.0000667	EPI HenryWin v3.2	0.7834	CRC 89th Ed	0.12771	USEPA 2001	0.0000135	USEPA 2001	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Acetochlor	34256-82-1	269.77	EPI Dermwin v2.0	9.1169E-07	2.23E-08	EPI HenryWin v3.2							298.4	EPI KOCWIN v2.0	223	EPI WATERNT v.01
Acetone	67-64-1	58.08	EPI Dermwin v2.0	0.0014309	0.000035	EPI HenryWin v3.2	0.7845	CRC 89th Ed	0.105923	USEPA 2001	0.0000115	USEPA 2001	2.364	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Acetone Cyanohydrin	75-86-5	85.11	EPI Dermwin v2.0	0.0005315	0.000013	EPI HenryWin v3.2	0.932	CRC 89th Ed	0.085946	USEPA 2001	0.0000101	USEPA 2001	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Acetonitrile	75-05-8	41.05	EPI Dermwin v2.0	0.0014105	0.0000345	EPI HenryWin v3.2	0.7857	CRC 89th Ed	0.134	USEPA 2001	0.0000141	USEPA 2001	4.67	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Acetophenone	98-86-2	120.15	EPI Dermwin v2.0	0.0004252	0.0000104	EPI HenryWin v3.2	1.0281	CRC 89th Ed	0.065222	USEPA 2001	8.7229E-06	USEPA 2001	51.85	EPI KOCWIN v2.0	6130	EPI WATERNT v.01
Acetylaminofluorene, 2-	53-96-3	223.28	EPI Dermwin v2.0	7.8496E-09	1.92E-10	EPI HenryWin v3.2							2206	EPI KOCWIN v2.0	8.4607	EPI WATERNT v.01
Acrolein	107-02-8	56.06	EPI Dermwin v2.0	0.0049877	0.000122	EPI HenryWin v3.2	0.84	CRC 89th Ed	0.111693	USEPA 2001	0.0000122	USEPA 2001	1	EPI KOCWIN v2.0	212000	EPI WATERNT v.01
Acrylamide	79-06-1	71.08	EPI Dermwin v2.0	6.9501E-08	1.7E-09	EPI HenryWin v3.2							5.694	EPI KOCWIN v2.0	390000	EPI WATERNT v.01
Acrylic Acid	79-10-7	72.06	EPI Dermwin v2.0	0.0000151	0.00000037	EPI HenryWin v3.2	1.0511	CRC 89th Ed	0.102722	EPA 2002	0.000012	EPA 2002	1.44	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Acrylonitrile	107-13-1	53.06	EPI Dermwin v2.0	0.0056419	0.000138	EPI HenryWin v3.2	0.8007	CRC 89th Ed	0.11369	USEPA 2001	0.0000123	USEPA 2001	8.511	EPI KOCWIN v2.0	74500	EPI WATERNT v.01
Adiponitrile	111-69-3	108.14	EPI Dermwin v2.0	4.9469E-08	1.21E-09	EPI HenryWin v3.2	0.9676	CRC 89th Ed	0.070778	EPA 2002	8.9598E-06	EPA 2002	20.18	EPI KOCWIN v2.0	80000	EPI WATERNT v.01
Alachlor	15972-60-8	269.77	EPI Dermwin v2.0	3.4015E-07	8.32E-09	EPI HenryWin v3.2	1.133	CRC 89th Ed					312.3	EPI KOCWIN v2.0	240	EPI WATERNT v.01
Aldicarb	116-06-3	190.26	EPI Dermwin v2.0	5.8872E-08	1.44E-09	EPI HenryWin v3.2	1.195	CRC 89th Ed					24.64	EPI KOCWIN v2.0	6030	EPI WATERNT v.01
Aldicarb Sulfone	1646-88-4	222.26	EPI Dermwin v2.0	1.3778E-07	3.37E-09	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	10000	EPI WATERNT v.01
Aldrin	309-00-2	364.92	EPI Dermwin v2.0	0.0017989	0.000044	EPI HenryWin v3.2							82020	EPI KOCWIN v2.0	0.017	EPI WATERNT v.01
Allyl	74223-64-6	381.37	EPI Dermwin v2.0	5.397E-15	1.32E-16	EPI HenryWin v3.2							92.5	EPI KOCWIN v2.0	9500	EPI WATERNT v.01
Allyl Alcohol	107-18-6	58.08	EPI Dermwin v2.0	0.000204	0.00000499	EPI HenryWin v3.2	0.854	CRC 89th Ed	0.109755	EPA 2002	0.0000121	EPA 2002	1.904	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Allyl Chloride	107-05-1	76.53	EPI Dermwin v2.0	0.4497138	0.011	EPI HenryWin v3.2	0.9376	CRC 89th Ed	0.093607	USEPA 2001	0.0000108	USEPA 2001	39.6	EPI KOCWIN v2.0	3370	EPI WATERNT v.01
Aluminum	7429-90-5	30.01	EPI Dermwin v2.0				2.7	CRC 89th Ed							0	CRC 89th Ed
Aluminum Phosphide	20859-73-8	57.96	EPI Dermwin v2.0				2.4	CRC 89th Ed							0	CRC 89th Ed
Amdro	67485-29-4	494.49	EPI Dermwin v2.0	0.0000899	0.0000022	EPI HenryWin v3.2							179700000	EPI KOCWIN v2.0	0.006	EPI WATERNT v.01
Ametryn	834-12-8	227.33	EPI Dermwin v2.0	9.9346E-08	2.43E-09	EPI HenryWin v3.2							428.2	EPI KOCWIN v2.0	209	EPI WATERNT v.01
Aminobiphenyl, 4-	92-67-1	169.23	EPI Dermwin v2.0	7.0728E-06	0.00000173	EPI HenryWin v3.2							2471	EPI KOCWIN v2.0	128.81	EPI WATERNT v.01
Aminophenol, m-	591-27-5	109.13	EPI Dermwin v2.0	1.0957E-08	2.68E-10	EPI HenryWin v3.2							90.2	EPI KOCWIN v2.0	27000	EPI WATERNT v.01
Aminophenol, p-	123-30-8	109.13	EPI Dermwin v2.0	1.4677E-08	3.59E-10	EPI HenryWin v3.2							90.2	EPI KOCWIN v2.0	16000	EPI WATERNT v.01
Amitraz	33089-61-1	293.42	EPI Dermwin v2.0	0.0004035	0.00000987	EPI HenryWin v3.2	1.128	CRC 89th Ed					257300	EPI KOCWIN v2.0	1	EPI WATERNT v.01
Ammonia	7664-41-7	17.03	EPI Dermwin v2.0	0.0006582		HLC from PHYPROP converted to H ⁺	0.696	CRC 89th Ed							482000	CRC 89th Ed
Ammonium Perchlorate	7790-98-9	117.49	EPI Dermwin v2.0				1.95	CRC 89th Ed							200000	EPI WATERNT v.01
Ammonium Sulfamate	7773-06-0	97.09	EPI Dermwin v2.0												147000	EPI WATERNT v.01
Aniline	62-53-3	93.13	EPI Dermwin v2.0	0.0000826	0.00000202	EPI HenryWin v3.2	1.0217	CRC 89th Ed	0.083011	EPA 2002	0.0000101	EPA 2002	70.23	EPI KOCWIN v2.0	36000	EPI WATERNT v.01
Antimony (metallic)	7440-36-0	124.78	EPI Dermwin v2.0				6.68	CRC 89th Ed							0	CRC 89th Ed
Antimony Pentoxide	1314-60-9	323.52	EPI Dermwin v2.0				3.78	CRC 89th Ed							3000	CRC 89th Ed
Antimony Potassium Tartrate	11071-15-1	613.83	EPI Dermwin v2.0												52600	EPI WATERNT v.01
Antimony Tetroxide	1332-81-6	307.52	EPI Dermwin v2.0				6.64	CRC 89th Ed								CRC 89th Ed
Antimony Trioxide	1309-64-4	291.52	EPI Dermwin v2.0				5.58	CRC 89th Ed							1	EPI WATERNT v.01
Apollo	74115-24-5	303.15	EPI Dermwin v2.0	1.5944E-08	3.9E-10	EPI HenryWin v3.2							30210	EPI KOCWIN v2.0		
Aramite	140-57-8	334.86	EPI Dermwin v2.0	7.7678E-06	0.00000019	EPI HenryWin v3.2	1.143	CRC 89th Ed					5550	EPI KOCWIN v2.0	2.5922	EPI WATERNT v.01
Arsenic, Inorganic	7440-38-2	77.95	EPI Dermwin v2.0				5.75	CRC 89th Ed							0	CRC 89th Ed
Arsine	7784-42-1	77.95	EPI Dermwin v2.0				3.186	CRC 89th Ed							957.6	CRC 89th Ed
Assure	76578-14-8	372.81	EPI Dermwin v2.0	4.3336E-07	1.06E-08	EPI HenryWin v3.2							7736	EPI KOCWIN v2.0	0.3	EPI WATERNT v.01
Asulam	3337-71-1	230.24	EPI Dermwin v2.0	6.991E-11	1.71E-12	EPI HenryWin v3.2							27.8	EPI KOCWIN v2.0	5000	EPI WATERNT v.01
Atrazine	1912-24-9	215.69	EPI Dermwin v2.0	9.6484E-08	2.36E-09	EPI HenryWin v3.2							224.5	EPI KOCWIN v2.0	34.7	EPI WATERNT v.01
Auramine	492-80-8	267.38	EPI Dermwin v2.0	1.4881E-07	3.64E-09	EPI HenryWin v3.2							4456	EPI KOCWIN v2.0	10000	EPI WATERNT v.01
Avermectin B1	65195-55-3	875.12	EPI Dermwin v2.0	5.397E-26	1.32E-27	EPI HenryWin v3.2							876700	EPI KOCWIN v2.0	1.4194	EPI WATERNT v.01
Azobenzene	103-33-3	182.23	EPI Dermwin v2.0	0.0005519	0.0000135	EPI HenryWin v3.2	1.09	Merk	0.034319	USEPA 2001	7.0365E-06	USEPA 2001	3759	EPI KOCWIN v2.0	6.4	EPI WATERNT v.01
Barium	7440-39-3	137.33	EPI Dermwin v2.0				3.62	CRC 89th Ed							0	CRC 89th Ed
Baygon	114-26-1	209.25	EPI Dermwin v2.0	5.8463E-08	1.43E-09	EPI HenryWin v3.2	1.12	CRC 89th Ed					59.95	EPI KOCWIN v2.0	1860	EPI WATERNT v.01
Bayleton	43121-43-3	293.76	EPI Dermwin v2.0	3.3156E-09	8.11E-11	EPI HenryWin v3.2	1.22	CRC 89th Ed					298.5	EPI KOCWIN v2.0	71.5	EPI WATERNT v.01
Baythroid	68359-37-5	434.3	EPI Dermwin v2.0	1.1856E-06	0.000000029	EPI HenryWin v3.2							130600	EPI KOCWIN v2.0	0.003	EPI WATERNT v.01
Benefin	1861-40-1	335.29	EPI Dermwin v2.0	0.011897	0.000291	EPI HenryWin v3.2							16390	EPI KOCWIN v2.0	0.1	EPI WATERNT v.01
Benomyl	17804-35-2	290.32	EPI Dermwin v2.0	2.016E-10	4.93E-12	EPI HenryWin v3.2							336.2	EPI KOCWIN v2.0	3.8	EPI WATERNT v.01
Bentazon	25057-89-0	240.28	EPI Dermwin v2.0	8.9125E-08	2.18E-09	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	500	EPI WATERNT v.01
Benzaldehyde	100-52-7	106.13	EPI Dermwin v2.0	0.0010916	0.0000267	EPI HenryWin v3.2	1.0401	CRC 89th Ed	0.074393	USEPA 2001	9.4627E-06	USEPA 2001	11.09	EPI KOCWIN v2.0	6950	EPI WATERNT v.01
Benzene	71-43-2	78.11	EPI Dermwin v2.0	0.2269011	0.00555	EPI HenryWin v3.2	0.8765	CRC 89th Ed	0.089538	USEPA 2001	0.0000103	USEPA 2001	145.8	EPI KOCWIN v2.0	1790	EPI WATERNT v.01
Benzethiol	108-98-5	110.17	EPI Dermwin v2.0	0.0136958	0.000335	EPI HenryWin v3.2	1.0775	CRC 89th Ed	0.072863	USEPA 2001	9.4511E-06	USEPA 2001	233.9	EPI KOCWIN v2.0	835	EPI WATERNT v.01
Benzidine	92-87-5	184.24	EPI Dermwin v2.0	2.8823E-09	7.05E-11	EPI HenryWin v3.2							1190	EPI KOCWIN v2.0	322	EPI WATERNT v.01
Benzoic Acid	65-85-0	122.12	EPI Dermwin v2.0	1.5576E-06	3.81E-08	EPI HenryWin v3.2	1.2659	CRC 89th Ed					16.55	EPI KOCWIN v2.0	3400	EPI WATERNT v.01
Benztotrichloride	98-07-7	195.48	EPI Dermwin v2.0	0.0106296	0.00026	EPI HenryWin v3.2	1.3723	CRC 89th Ed	0.031256	USEPA 2001	7.746E-06	USEPA 2001	1001	EPI KOCWIN v2.0	53	EPI WATERNT v.01
Benzyl Alcohol	100-51-6	108.14	EPI Dermwin v2.0	0.0000138	0.000000337	EPI HenryWin v3.2	1.0419	CRC 89th Ed	0.073119	EPA 2002	9.3665E-06	EPA 2002	21.46	EPI KOCWIN v2.0	42900	EPI WATERNT v.01
Benzyl Chloride	100-44-7	126.59	EPI Dermwin v2.0	0.0168438	0.000412	EPI HenryWin v3.2	1.1004	CRC 89th Ed	0.063362	USEPA 2001	8.8057E-06	USEPA 2001	446.1	EPI KOCWIN v2.0	525	EPI WATERNT v.01
Beryllium and compounds	7440-41-7	9.01	EPI Dermwin v2.0				1.85	CRC 89th Ed							0	Lange's 15th Ed
Bidrin	141-66-2	237.19	EPI Dermwin v2.0	2.0564E-09	5.03E-11	EPI HenryWin v3.2	1.216	CRC 89th Ed								

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	D _w (cm ² /s)	D _w Ref	K _{oc} (L/kg)	K _{oc} Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Bis(2-chloro-1-methylethyl) ether	108-60-1	171.07	EPI Dermwin v2.0	0.0030335	0.0000742	EPI HenryWin v3.2	1.103	CRC 89th Ed	0.039889	USEPA 2001	7.3606E-06	USEPA 2001	82.92	EPI KOCWIN v2.0	1700	EPI WATERNT v.01
Bis(2-chloroethoxy)methane	111-91-1	173.04	EPI Dermwin v2.0	0.0001574	0.00000385	EPI HenryWin v3.2							14.38	EPI KOCWIN v2.0	7800	EPI WATERNT v.01
Bis(2-chloroethyl)ether	111-44-4	143.01	EPI Dermwin v2.0	0.000695	0.000017	EPI HenryWin v3.2	1.22	CRC 89th Ed	0.056719	USEPA 2001	8.707E-06	USEPA 2001	32.21	EPI KOCWIN v2.0	17200	EPI WATERNT v.01
Bis(2-ethylhexyl)phthalate	117-81-7	390.57	EPI Dermwin v2.0	0.000011	0.00000027	EPI HenryWin v3.2	0.981	CRC 89th Ed					119600	EPI KOCWIN v2.0	0.27	EPI WATERNT v.01
Bis(chloromethyl)ether	542-88-1	114.96	EPI Dermwin v2.0	0.1782502	0.00436	EPI HenryWin v3.2	1.323	CRC 89th Ed	0.0763	USEPA 2001	0.0000104	USEPA 2001	9.699	EPI KOCWIN v2.0	22000	EPI WATERNT v.01
Bisphenol A	80-05-7	228.29	EPI Dermwin v2.0	3.745E-10	9.16E-12	EPI HenryWin v3.2							37670	EPI KOCWIN v2.0	120	EPI WATERNT v.01
Boron And Borates Only	7440-42-8	13.84	EPI Dermwin v2.0				2.34	CRC 89th Ed							0	CRC 89th Ed
Boron Trifluoride	7637-07-2	67.81	EPI Dermwin v2.0				2.772	CRC 89th Ed							3320000	EPI WATERNT v.01
Bromate	15541-45-4	79.9	EPI Dermwin v2.0													
Bromo-2-chloroethane, 1-	107-04-0	143.41	EPI Dermwin v2.0	0.0371627	0.000909	EPI HenryWin v3.2	1.7392	CRC 89th Ed	0.065925	USEPA 2001	0.0000108	USEPA 2001	39.6	EPI KOCWIN v2.0	6900	EPI WATERNT v.01
Bromobenzene	108-86-1	157.01	EPI Dermwin v2.0	0.1009812	0.00247	EPI HenryWin v3.2	1.495	CRC 89th Ed	0.053713	USEPA 2001	9.3004E-06	USEPA 2001	233.9	EPI KOCWIN v2.0	446	EPI WATERNT v.01
Bromodichloromethane	75-27-4	163.83	EPI Dermwin v2.0	0.0866721	0.00212	EPI HenryWin v3.2	1.98	CRC 89th Ed	0.056263	USEPA 2001	0.0000107	USEPA 2001	31.82	EPI KOCWIN v2.0	3030	EPI WATERNT v.01
Bromoform	75-25-2	252.73	EPI Dermwin v2.0	0.0218724	0.000535	EPI HenryWin v3.2	2.8788	CRC 89th Ed					31.82	EPI KOCWIN v2.0	3100	EPI WATERNT v.01
Bromomethane	74-83-9	94.94	EPI Dermwin v2.0	0.3000818	0.00734	EPI HenryWin v3.2			0.100497	USEPA 2001	0.0000135	USEPA 2001	13.22	EPI KOCWIN v2.0	15000	EPI WATERNT v.01
Bromophos	2104-96-3	365.99	EPI Dermwin v2.0	0.0008381	0.000205	EPI HenryWin v3.2	1.6755	CRC 89th Ed					2019	EPI KOCWIN v2.0	0.3	EPI WATERNT v.01
Bromoxynil	1689-84-5	276.92	EPI Dermwin v2.0	5.3966E-09	1.32E-10	EPI HenryWin v3.2							330.1	EPI KOCWIN v2.0	130	EPI WATERNT v.01
Bromoxynil Octanoate	1689-99-2	403.12	EPI Dermwin v2.0	0.0013042	0.0000319	EPI HenryWin v3.2							4252	EPI KOCWIN v2.0	0.08	EPI WATERNT v.01
Butadiene, 1,3-	106-99-0	54.09	EPI Dermwin v2.0	3.0089943	0.0736	EPI HenryWin v3.2	0.6149	CRC 89th Ed	0.100351	USEPA 2001	0.0000103	USEPA 2001	39.6	EPI KOCWIN v2.0	735	EPI WATERNT v.01
Butanol, N-	71-36-3	74.12	EPI Dermwin v2.0	0.0003602	0.00000881	EPI HenryWin v3.2	0.8095	CRC 89th Ed	0.090042	EPA 2002	0.0000101	EPA 2002	3.471	EPI KOCWIN v2.0	63200	EPI WATERNT v.01
Butyl Benzyl Phthlate	85-68-7	312.37	EPI Dermwin v2.0	0.0000515	0.00000126	EPI HenryWin v3.2	1.119	CRC 89th Ed					7155	EPI KOCWIN v2.0	2.69	EPI WATERNT v.01
Butyl alcohol, sec-	78-92-2	74.12	EPI Dermwin v2.0	0.0003704	0.00000906	EPI HenryWin v3.2	0.8063	CRC 89th Ed					2.919	EPI KOCWIN v2.0	181000	EPI WATERNT v.01
Butylate	2008-41-5	217.37	EPI Dermwin v2.0	0.0034546	0.0000845	EPI HenryWin v3.2	0.9402	CRC 89th Ed					385.7	EPI KOCWIN v2.0	45	EPI WATERNT v.01
Butylated hydroxyanisole	25013-16-5	180.25	EPI Dermwin v2.0	0.0000478	0.00000117	EPI HenryWin v3.2							840.7	EPI KOCWIN v2.0	742.97	EPI WATERNT v.01
Butylphthalyl Butylglycolate	85-70-1	336.39	EPI Dermwin v2.0	1.2592E-07	3.08E-09	EPI HenryWin v3.2							11240	EPI KOCWIN v2.0	8.4709	EPI WATERNT v.01
Cacodylic Acid	75-60-5	138	EPI Dermwin v2.0										43.89	EPI KOCWIN v2.0	2000000	EPI WATERNT v.01
Cadmium (Diet)	7440-43-9	112.41	EPI Dermwin v2.0				8.69	CRC 89th Ed							0	CRC 89th Ed
Cadmium (Water)	7440-43-9	112.41	EPI Dermwin v2.0				8.69	CRC 89th Ed							0	CRC 89th Ed
Caprolactam	105-60-2	113.16	EPI Dermwin v2.0	1.0343E-06	2.53E-08	EPI HenryWin v3.2							24.5	EPI KOCWIN v2.0	772000	EPI WATERNT v.01
Captaol	2425-06-1	349.06	EPI Dermwin v2.0	2.0114E-07	4.92E-09	EPI HenryWin v3.2							782.7	EPI KOCWIN v2.0	1.4	EPI WATERNT v.01
Captan	133-06-2	300.59	EPI Dermwin v2.0	2.8618E-07	0.000000007	EPI HenryWin v3.2	1.74	CRC 89th Ed					252.2	EPI KOCWIN v2.0	5.1	EPI WATERNT v.01
Carbaryl	63-25-2	201.23	EPI Dermwin v2.0	1.3369E-07	3.27E-09	EPI HenryWin v3.2	1.228	CRC 89th Ed					354.8	EPI KOCWIN v2.0	110	EPI WATERNT v.01
Carbofuran	1563-66-2	221.26	EPI Dermwin v2.0	1.2633E-07	3.09E-09	EPI HenryWin v3.2	1.18	CRC 89th Ed					95.25	EPI KOCWIN v2.0	320	EPI WATERNT v.01
Carbon Disulfide	75-15-0	76.13	EPI Dermwin v2.0	0.5887163	0.0144	EPI HenryWin v3.2	1.2632	CRC 89th Ed	0.106447	USEPA 2001	0.000013	USEPA 2001	21.73	EPI KOCWIN v2.0	2160	EPI WATERNT v.01
Carbon Tetrachloride	56-23-5	153.82	EPI Dermwin v2.0	1.1283729	0.0276	EPI HenryWin v3.2	1.594	CRC 89th Ed	0.057144	USEPA 2001	9.7849E-06	USEPA 2001	43.89	EPI KOCWIN v2.0	793	EPI WATERNT v.01
Carbosulfan	55285-14-8	380.55	EPI Dermwin v2.0	0.0000209	0.000000512	EPI HenryWin v3.2	1.056	CRC 89th Ed					11960	EPI KOCWIN v2.0	0.3	EPI WATERNT v.01
Carboxin	5234-68-4	235.3	EPI Dermwin v2.0	1.3083E-08	3.2E-10	EPI HenryWin v3.2							169.4	EPI KOCWIN v2.0	147	EPI WATERNT v.01
Ceric oxide	1306-38-3	172.11	EPI Dermwin v2.0				7.216	CRC 89th Ed							107000	EPI WATERNT v.01
Chloral Hydrate	302-17-0	165.4	EPI Dermwin v2.0	4.4563E-09	1.09E-10	EPI HenryWin v3.2	1.9081	CRC 89th Ed	0.054399	EPA 2002	0.0000104	EPA 2002	1	EPI KOCWIN v2.0	793000	EPI WATERNT v.01
Chloramben	133-90-4	206.03	EPI Dermwin v2.0	1.5822E-09	3.87E-11	EPI HenryWin v3.2							21.37	EPI KOCWIN v2.0	700	EPI WATERNT v.01
Chloranil	118-75-2	245.88	EPI Dermwin v2.0	1.3369E-08	3.27E-10	EPI HenryWin v3.2							308.1	EPI KOCWIN v2.0	250	EPI WATERNT v.01
Chlordane	12789-03-6	409.78	EPI Dermwin v2.0	0.0019869	0.0000486	EPI HenryWin v3.2	1.6	CRC 87th edition					33780	EPI KOCWIN v2.0	0.056	EPI WATERNT v.01
Chlordecone (Kepone)	143-50-0	490.64	EPI Dermwin v2.0	2.1995E-06	5.38E-08	EPI HenryWin v3.2	1.61	CRC 89th Ed					17500	EPI KOCWIN v2.0	2.7	EPI WATERNT v.01
Chlorfenvinphos	470-90-6	359.58	EPI Dermwin v2.0	1.1815E-06	2.89E-08	EPI HenryWin v3.2							1264	EPI KOCWIN v2.0	124	EPI WATERNT v.01
Chlorimuron, Ethyl-	90982-32-4	414.82	EPI Dermwin v2.0	7.441E-14	1.82E-15	EPI HenryWin v3.2							71.79	EPI KOCWIN v2.0	1200	EPI WATERNT v.01
Chlorine	7782-50-5	70.91	EPI Dermwin v2.0	0.4783		HLC from PHYPROP converted to H ⁺	2.898	CRC 89th Ed							6300	EPI WATERNT v.01
Chlorine Dioxide	10049-04-4	67.45	EPI Dermwin v2.0				2.757	CRC 89th Ed							112000	CRC 89th Ed
Chlorite (Sodium Salt)	7758-19-2	90.44	EPI Dermwin v2.0												640000	CRC 89th Ed
Chloro-1,1-difluoroethane, 1-	75-68-3	100.5	EPI Dermwin v2.0	2.4039248	0.0588	EPI HenryWin v3.2	1.107	CRC 89th Ed	0.080393	USEPA 2001	0.0000101	USEPA 2001	43.89	EPI KOCWIN v2.0	1400	EPI WATERNT v.01
Chloro-1,3-butadiene, 2-	126-99-8	88.54	EPI Dermwin v2.0	2.2935405	0.0561	EPI HenryWin v3.2	0.956	CRC 89th Ed	0.084147	USEPA 2001	0.00001	USEPA 2001	60.7	EPI KOCWIN v2.0	836.92	EPI WATERNT v.01
Chloro-2-methylaniline HCl, 4-	3165-93-3	141.6	EPI Dermwin v2.0	0.0000814	0.00000199	EPI HenryWin v3.2			0.069938	USEPA 1987	8.1717E-06	USEPA 1987	184.5	EPI KOCWIN v2.0	1732.4	EPI WATERNT v.01
Chloroacetaldehyde, 2-	107-20-0	78.5	EPI Dermwin v2.0	0.00074	0.0000181	EPI HenryWin v3.2	1.19	CRC 89th Ed	0.101505	USEPA 2001	0.0000123	USEPA 2001	1	EPI KOCWIN v2.0	266780	EPI WATERNT v.01
Chloroacetic Acid	79-11-8	94.5	EPI Dermwin v2.0	3.7858E-07	9.26E-09	EPI HenryWin v3.2	1.4043	CRC 89th Ed					1.44	EPI KOCWIN v2.0	858000	EPI WATERNT v.01
Chloroacetophenone, 2-	532-27-4	154.6	EPI Dermwin v2.0	0.0001349	0.0000033	EPI HenryWin v3.2	1.324	CRC 89th Ed	0.052239	EPA 2002	8.7273E-06	EPA 2002	98.9	EPI KOCWIN v2.0	2484.9	EPI WATERNT v.01
Chloroaniline, p-	106-47-8	127.57	EPI Dermwin v2.0	0.0000474	0.00000116	EPI HenryWin v3.2	1.429	CRC 89th Ed	0.070385	EPA 2002	0.0000103	EPA 2002	112.7	EPI KOCWIN v2.0	3900	EPI WATERNT v.01
Chlorobenzene	108-90-7	112.56	EPI Dermwin v2.0	0.1271464	0.00311	EPI HenryWin v3.2	1.1058	CRC 89th Ed	0.072131	USEPA 2001	9.4765E-06	USEPA 2001	233.9	EPI KOCWIN v2.0	498	EPI WATERNT v.01
Chlorobenzilate	510-15-6	325.19	EPI Dermwin v2.0	2.9599E-06	7.24E-08	EPI HenryWin v3.2	1.2816	CRC 89th Ed					1539	EPI KOCWIN v2.0	13	EPI WATERNT v.01
Chlorobenzoic Acid, p-	74-11-3	156.57	EPI Dermwin v2.0	1.5863E-06	3.88E-08	EPI HenryWin v3.2							26.56	EPI KOCWIN v2.0	72	EPI WATERNT v.01
Chlorobenzotrifluoride, 4-	98-56-6	180.56	EPI Dermwin v2.0	1.4186427	0.0347	EPI HenryWin v3.2	1.334	CRC 89th Ed	0.0385	USEPA 2001	7.9872E-06	USEPA 2001	1606	EPI KOCWIN v2.0	11.723	EPI WATERNT v.01
Chlorobutane, 1-	109-69-3	92.57	EPI Dermwin v2.0	0.6827473	0.0167	EPI HenryWin v3.2	0.8857	CRC 89th Ed	0.078413	USEPA 2001	9.3274E-06	USEPA 2001	72.17	EPI KOCWIN v2.0	1100	EPI WATERNT v.01
Chlorodifluoromethane	75-45-6	86.47	EPI Dermwin v2.0	1.6598528	0.0406	EPI HenryWin v3.2	1.4909	CRC 89th Ed	0.103378	USEPA 2001	0.0000133	USEPA 2001	31.82	EPI KOCWIN v2.0	2770	EPI WATERNT v.01
Chloroform	67-66-3	119.38	EPI Dermwin v2.0	0.1500409	0.00367	EPI HenryWin v3.2	1.4788	CRC 89th Ed	0.07692	USEPA 2001	0.0000109	USEPA 2001	31.82	EPI KOCWIN v2.0	79	

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Dichloroacetic Acid	79-43-6	128.94	EPI Dermwin v2.0	3.426E-07	8.38E-09	EPI HenryWin v3.2	1.5634	CRC 89th Ed	0.072234	EPA 2002	0.0000108	EPA 2002	2.252	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Dichlorobenzene, 1,2-	95-50-1	147	EPI Dermwin v2.0	0.0784955	0.00192	EPI HenryWin v3.2	1.3059	CRC 89th Ed	0.05617	USEPA 2001	8.9213E-06	USEPA 2001	382.9	EPI KOCWIN v2.0	156	EPI WATERNT v.01
Dichlorobenzene, 1,4-	106-46-7	147	EPI Dermwin v2.0	0.0985282	0.00241	EPI HenryWin v3.2	1.2475	CRC 89th Ed	0.055043	USEPA 2001	8.6797E-06	USEPA 2001	375.3	EPI KOCWIN v2.0	81.3	EPI WATERNT v.01
Dichlorobenzidine, 3,3'-	91-94-1	253.13	EPI Dermwin v2.0	2.0891E-09	5.11E-11	EPI HenryWin v3.2							3190	EPI KOCWIN v2.0	3.1	EPI WATERNT v.01
Dichlorobenzophenone, 4,4'-	90-98-2	251.11	EPI Dermwin v2.0	0.0000437	0.00000107	EPI HenryWin v3.2	1.45	CRC 89th Ed					2927	EPI KOCWIN v2.0	7.802	EPI WATERNT v.01
Dichlorodifluoromethane	75-71-8	120.91	EPI Dermwin v2.0	14.022895	0.343	EPI HenryWin v3.2			0.077704	USEPA 1987	0.0791E-06	USEPA 1987	43.89	EPI KOCWIN v2.0	280	EPI WATERNT v.01
Dichloroethane, 1,1-	75-34-3	98.96	EPI Dermwin v2.0	0.2297629	0.00562	EPI HenryWin v3.2	1.1757	CRC 89th Ed	0.083645	USEPA 2001	0.0000106	USEPA 2001	31.82	EPI KOCWIN v2.0	540	EPI WATERNT v.01
Dichloroethane, 1,2-	107-06-2	98.96	EPI Dermwin v2.0	0.048242	0.00118	EPI HenryWin v3.2	1.2454	CRC 89th Ed	0.085722	USEPA 2001	0.000011	USEPA 2001	39.6	EPI KOCWIN v2.0	8600	EPI WATERNT v.01
Dichloroethylene, 1,1-	75-35-4	96.94	EPI Dermwin v2.0	1.0670482	0.0261	EPI HenryWin v3.2	1.213	CRC 89th Ed	0.086314	USEPA 2001	0.000011	USEPA 2001	31.82	EPI KOCWIN v2.0	2420	EPI WATERNT v.01
Dichloroethylene, 1,2- (Mixed Isomers)	540-59-0	96.94	EPI Dermwin v2.0	0.1668029	0.00408	EPI HenryWin v3.2			0.090036	USEPA 1987	0.0000105	USEPA 1987	39.6	EPI KOCWIN v2.0	3500	EPI WATERNT v.01
Dichloroethylene, 1,2-cis-	156-59-2	96.94	EPI Dermwin v2.0	0.1668029	0.00408	EPI HenryWin v3.2	1.2837	CRC 89th Ed	0.088409	USEPA 2001	0.0000113	USEPA 2001	39.6	EPI KOCWIN v2.0	6410	EPI WATERNT v.01
Dichloroethylene, 1,2-trans-	156-60-5	96.94	EPI Dermwin v2.0	0.1668029	0.00408	EPI HenryWin v3.2	1.2565	CRC 89th Ed	0.087613	USEPA 2001	0.0000112	USEPA 2001	39.6	EPI KOCWIN v2.0	4520	EPI WATERNT v.01
Dichlorophenol, 2,4-	120-83-2	163	EPI Dermwin v2.0	0.0001754	0.00000429	EPI HenryWin v3.2			0.063674	USEPA 1987	7.4398E-06	USEPA 1987	491.8	EPI KOCWIN v2.0	4500	EPI WATERNT v.01
Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	221.04	EPI Dermwin v2.0	1.4473E-06	3.54E-08	EPI HenryWin v3.2							29.63	EPI KOCWIN v2.0	677	EPI WATERNT v.01
Dichlorophenoxybutyric Acid, 4-(2,4-	94-82-6	249.1	EPI Dermwin v2.0	2.3998E-07	5.87E-09	EPI HenryWin v3.2							98.4	EPI KOCWIN v2.0	46	EPI WATERNT v.01
Dichloropropane, 1,2-	78-87-5	112.99	EPI Dermwin v2.0	0.1152903	0.00282	EPI HenryWin v3.2			0.081294	USEPA 1987	9.4986E-06	USEPA 1987	60.7	EPI KOCWIN v2.0	2800	EPI WATERNT v.01
Dichloropropane, 1,3-	142-28-9	112.99	EPI Dermwin v2.0	0.0399019	0.000976	EPI HenryWin v3.2	1.1785	CRC 89th Ed	0.073874	USEPA 2001	9.3023E-06	USEPA 2001	72.17	EPI KOCWIN v2.0	2750	EPI WATERNT v.01
Dichloropropanol, 2,3-	616-23-9	128.99	EPI Dermwin v2.0	1.48E-07	3.62E-09	EPI HenryWin v3.2	1.3607	CRC 89th Ed					5.568	EPI KOCWIN v2.0	60820	EPI WATERNT v.01
Dichloropropene, 1,3-	542-75-6	110.97	EPI Dermwin v2.0	0.1451349	0.00355	EPI HenryWin v3.2			0.082278	USEPA 1987	9.6135E-06	USEPA 1987	72.17	EPI KOCWIN v2.0	2800	EPI WATERNT v.01
Dichlorvos	62-73-7	220.98	EPI Dermwin v2.0	0.0000235	0.000000574	EPI HenryWin v3.2	1.415	CRC 89th Ed					53.96	EPI KOCWIN v2.0	8000	EPI WATERNT v.01
Dicyclopentadiene	77-73-6	132.21	EPI Dermwin v2.0	2.5551922	0.0625	EPI HenryWin v3.2			0.073211	USEPA 1987	8.5541E-06	USEPA 1987	1513	EPI KOCWIN v2.0	13.687	EPI WATERNT v.01
Dieldrin	60-57-1	380.91	EPI Dermwin v2.0	0.0004088	0.00001	EPI HenryWin v3.2	1.75	CRC 89th Ed					20090	EPI KOCWIN v2.0	0.195	EPI WATERNT v.01
Diesel Engine Exhaust	NA															
Diethanolamine	111-42-2	105.14	EPI Dermwin v2.0	1.5822E-09	3.87E-11	EPI HenryWin v3.2	1.0966	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Diethyl Phthalate	84-66-2	222.24	EPI Dermwin v2.0	0.0000249	0.00000061	EPI HenryWin v3.2	1.232	CRC 89th Ed					104.9	EPI KOCWIN v2.0	1080	EPI WATERNT v.01
Diethylene Glycol Monobutyl Ether	112-34-5	162.23	EPI Dermwin v2.0	2.9436E-07	7.2E-09	EPI HenryWin v3.2	0.9553	CRC 89th Ed					10.9	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Diethylene Glycol Monoethyl Ether	111-90-0	134.18	EPI Dermwin v2.0	9.1169E-07	2.23E-08	EPI HenryWin v3.2	0.9885	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Diethylformamide	617-84-5	101.15	EPI Dermwin v2.0	5.3148E-06	0.00000013	EPI HenryWin v3.2	0.908	CRC 89th Ed					2.06	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Diethylstilbestrol	56-53-1	268.36	EPI Dermwin v2.0	2.371E-10	5.8E-12	EPI HenryWin v3.2							274100	EPI KOCWIN v2.0	12	EPI WATERNT v.01
Difenoquat	43222-48-6	360.43	EPI Dermwin v2.0										78800	EPI KOCWIN v2.0	8170000	EPI WATERNT v.01
Diflubenzuron	35367-38-5	310.69	EPI Dermwin v2.0	1.8806E-07	4.6E-09	EPI HenryWin v3.2							463.2	EPI KOCWIN v2.0	0.08	EPI WATERNT v.01
Difluoroethane, 1,1-	75-37-6	66.05	EPI Dermwin v2.0	0.8299264	0.0203	EPI HenryWin v3.2	0.896	CRC 89th Ed	0.102316	USEPA 2001	0.0000115	USEPA 2001	31.82	EPI KOCWIN v2.0	3200	EPI WATERNT v.01
Dihydrosafrole	94-58-6	164.21	EPI Dermwin v2.0	6.7457073	0.165	EPI HenryWin v3.2			0.063361	USEPA 1987	7.4032E-06	USEPA 1987	207.2	EPI KOCWIN v2.0	5.7277	EPI WATERNT v.01
Diisopropyl Ether	108-20-3	102.18	EPI Dermwin v2.0	0.1046607	0.00256	EPI HenryWin v3.2	0.7192	CRC 89th Ed	0.065423	USEPA 2001	7.7582E-06	USEPA 2001	22.79	EPI KOCWIN v2.0	8800	EPI WATERNT v.01
Diisopropyl Methylphosphonate	1445-75-6	180.19	EPI Dermwin v2.0	0.0017907	0.0000438	EPI HenryWin v3.2			0.059557	USEPA 1987	6.9588E-06	USEPA 1987	42.2	EPI KOCWIN v2.0	1500	EPI WATERNT v.01
Dimethipin	55290-64-7	210.26	EPI Dermwin v2.0	9.403E-10	2.3E-11	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	4600	EPI WATERNT v.01
Dimethoate	60-51-5	229.25	EPI Dermwin v2.0	9.9346E-09	2.43E-10	EPI HenryWin v3.2	1.277	CRC 89th Ed					12.77	EPI KOCWIN v2.0	23300	EPI WATERNT v.01
Dimethoxybenzidine, 3,3'-	119-90-4	244.3	EPI Dermwin v2.0	1.9052E-09	4.66E-11	EPI HenryWin v3.2							508.8	EPI KOCWIN v2.0	60	EPI WATERNT v.01
Dimethyl methylphosphonate	756-79-6	124.08	EPI Dermwin v2.0	0.0000511	0.00000125	EPI HenryWin v3.2	1.1684	CRC 89th Ed	0.06658	EPA 2002	9.2386E-06	EPA 2002	5.407	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Dimethylamino azobenzene [p-]	60-11-7	225.3	EPI Dermwin v2.0	9.5666E-06	0.000000234	EPI HenryWin v3.2							2028	EPI KOCWIN v2.0	0.23	EPI WATERNT v.01
Dimethylamine HCl, 2,4-	21436-96-4	121.18	EPI Dermwin v2.0	0.0001022	0.0000025	EPI HenryWin v3.2			0.077589	USEPA 1987	9.0657E-06	USEPA 1987	184.5	EPI KOCWIN v2.0	2175.5	EPI WATERNT v.01
Dimethylaniline, 2,4-	95-68-1	121.18	EPI Dermwin v2.0	0.0001022	0.0000025	EPI HenryWin v3.2	0.9723	CRC 89th Ed	0.063025	EPA 2002	8.3925E-06	EPA 2002	184.5	EPI KOCWIN v2.0	2175.5	EPI WATERNT v.01
Dimethylaniline, N,N-	121-69-7	121.18	EPI Dermwin v2.0	0.0023222	0.0000568	EPI HenryWin v3.2	0.9557	CRC 89th Ed	0.062541	USEPA 2001	8.3063E-06	USEPA 2001	78.67	EPI KOCWIN v2.0	1450	EPI WATERNT v.01
Dimethylbenzidine, 3,3'-	119-93-7	212.3	EPI Dermwin v2.0	3.3115E-09	8.1E-11	EPI HenryWin v3.2							3190	EPI KOCWIN v2.0	1300	EPI WATERNT v.01
Dimethylformamide	68-12-2	73.1	EPI Dermwin v2.0	3.0213E-06	7.39E-08	EPI HenryWin v3.2	0.9445	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Dimethylhydrazine, 1,1-	57-14-7	60.1	EPI Dermwin v2.0	2.8414E-06	6.95E-08	EPI HenryWin v3.2	0.791	CRC 89th Ed					11.95	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Dimethylhydrazine, 1,2-	540-73-8	60.1	EPI Dermwin v2.0	2.8414E-06	6.95E-08	EPI HenryWin v3.2	0.8274	CRC 89th Ed					14.87	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Dimethylphenol, 2,4-	105-67-9	122.17	EPI Dermwin v2.0	0.0000389	0.000000951	EPI HenryWin v3.2	0.965	CRC 89th Ed	0.062245	EPA 2002	8.314E-06	EPA 2002	491.8	EPI KOCWIN v2.0	7870	EPI WATERNT v.01
Dimethylphenol, 2,6-	576-26-1	122.17	EPI Dermwin v2.0	0.0002719	0.00000665	EPI HenryWin v3.2			0.077169	USEPA 1987	9.0166E-06	USEPA 1987	501.9	EPI KOCWIN v2.0	6050	EPI WATERNT v.01
Dimethylphenol, 3,4-	95-65-8	122.17	EPI Dermwin v2.0	0.000017	0.000000415	EPI HenryWin v3.2	0.983	CRC 89th Ed	0.062762	EPA 2002	8.4067E-06	EPA 2002	491.8	EPI KOCWIN v2.0	4760	EPI WATERNT v.01
Dimethylterephthalate	120-61-6	194.19	EPI Dermwin v2.0	0.0054783	0.000134	EPI HenryWin v3.2	1.075	CRC 89th Ed	0.028533	USEPA 2001	6.7171E-06	USEPA 2001	30.96	EPI KOCWIN v2.0	19	EPI WATERNT v.01
Dimethylvinylchloride	513-37-1	90.55	EPI Dermwin v2.0	3.311529	0.081	EPI HenryWin v3.2	0.9186	CRC 89th Ed	0.081174	USEPA 2001	9.6608E-06	USEPA 2001	60.7	EPI KOCWIN v2.0	1000	EPI WATERNT v.01
Dinitro-o-cresol, 4,6-	534-52-1	198.14	EPI Dermwin v2.0	0.0000572	0.0000014	EPI HenryWin v3.2			0.055904	USEPA 1987	6.5319E-06	USEPA 1987	75.4	EPI KOCWIN v2.0	198	EPI WATERNT v.01
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	266.26	EPI Dermwin v2.0	1.3818E-09	3.38E-11	EPI HenryWin v3.2							16540	EPI KOCWIN v2.0	15	EPI WATERNT v.01
Dinitrobenzene, 1,2-	528-29-0	168.11	EPI Dermwin v2.0	2.1791E-06	5.33E-08	EPI HenryWin v3.2	1.3119	CRC 89th Ed	0.044718	EPA 2002	8.2538E-06	EPA 2002	358.8	EPI KOCWIN v2.0	133	EPI WATERNT v.01
Dinitrobenzene, 1,3-	99-65-0	168.11	EPI Dermwin v2.0	2.0033E-06	0.000000049	EPI HenryWin v3.2	1.5751	CRC 89th Ed					351.6	EPI KOCWIN v2.0	533	EPI WATERNT v.01
Dinitrobenzene, 1,4-	100-25-4	168.11	EPI Dermwin v2.0	0.0000151	0.00000037	EPI HenryWin v3.2	1.625	CRC 89th Ed	0.049167	EPA 2002	9.3849E-06	EPA 2002	351.6	EPI KOCWIN v2.0	69	EPI WATERNT v.01
Dinitrophenol, 2,4-	51-28-5	184.11	EPI Dermwin v2.0	3.5159E-06	0.000000086	EPI HenryWin v3.2										

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm·m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
*TCDD, 2,3,7,8-	1746-01-6	321.98	EPI Dermwin v2.0	0.0020442	0.00005	EPI HenryWin v3.2							249100	EPI KOCWIN v2.0	0.0002	EPI WATERNT v.01
Diphenamid	957-51-7	239.32	EPI Dermwin v2.0	1.4841E-09	3.63E-11	EPI HenryWin v3.2	1.17	CRC 89th Ed					4798	EPI KOCWIN v2.0	260	EPI WATERNT v.01
Diphenyl Sulfone	127-63-9	218.27	EPI Dermwin v2.0	0.0000102	0.000000249	EPI HenryWin v3.2	1.252	CRC 89th Ed					1109	EPI KOCWIN v2.0	9.4191	EPI WATERNT v.01
Diphenylamine	122-39-4	169.23	EPI Dermwin v2.0	0.000011	0.00000269	EPI HenryWin v3.2	1.158	CRC 89th Ed	0.041706	EPA 2002	7.628E-06	EPA 2002	825.8	EPI KOCWIN v2.0	53	EPI WATERNT v.01
Diphenylhydrazine, 1,2-Diquat	122-66-7	184.24	EPI Dermwin v2.0	0.0000195	0.000000478	EPI HenryWin v3.2	1.158	CRC 89th Ed					1505	EPI KOCWIN v2.0	221	EPI WATERNT v.01
Direct Black 38	85-00-7	344.05	EPI Dermwin v2.0	5.805E-12	1.42E-13	EPI HenryWin v3.2	1.24	CRC 89th Ed					9272	EPI KOCWIN v2.0	708000	EPI WATERNT v.01
Direct Blue 6	1937-37-7	737.77	EPI Dermwin v2.0	3.365E-38	8.23E-40	EPI HenryWin v3.2							242000000	EPI KOCWIN v2.0	55.937	EPI WATERNT v.01
Direct Brown 95	2602-46-2	821.67	EPI Dermwin v2.0	6.705E-42	1.64E-43	EPI HenryWin v3.2							790800000	EPI KOCWIN v2.0	8.2167E-07	EPI WATERNT v.01
Disulfoton	16071-86-6	760.11	EPI Dermwin v2.0	0.0000883	0.00000216	EPI HenryWin v3.2	1.144	CRC 89th Ed					6985000	EPI KOCWIN v2.0	9.7133E-07	EPI WATERNT v.01
	298-04-4	274.39	EPI Dermwin v2.0										837.9	EPI KOCWIN v2.0	16.3	EPI WATERNT v.01
Dithiane, 1,4-Diuron	505-29-3	120.23	EPI Dermwin v2.0	0.0017171	0.000042	EPI HenryWin v3.2			0.077997	USEPA 1987	9.1133E-06	USEPA 1987	145.8	EPI KOCWIN v2.0	3000	EPI WATERNT v.01
Dodine	330-54-1	233.1	EPI Dermwin v2.0	2.0605E-08	5.04E-10	EPI HenryWin v3.2							109.1	EPI KOCWIN v2.0	42	EPI WATERNT v.01
	2439-10-3	287.45	EPI Dermwin v2.0	3.6836E-09	9.01E-11	EPI HenryWin v3.2							2482	EPI KOCWIN v2.0	630	EPI WATERNT v.01
EPTC	759-94-4	189.32	EPI Dermwin v2.0	0.00065	0.0000159	EPI HenryWin v3.2	0.9546	CRC 89th Ed	0.029126	USEPA 2001	6.3511E-06	USEPA 2001	164.1	EPI KOCWIN v2.0	375	EPI WATERNT v.01
Endosulfan	115-29-7	406.92	EPI Dermwin v2.0	0.0026574	0.000065	EPI HenryWin v3.2	1.745	CRC 89th Ed					6761	EPI KOCWIN v2.0	0.325	EPI WATERNT v.01
Endothall	145-73-3	186.17	EPI Dermwin v2.0	1.574E-14	3.85E-16	EPI HenryWin v3.2	1.431	CRC 89th Ed					19.41	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Endrin	72-20-8	380.91	EPI Dermwin v2.0	0.0004088	0.00001	EPI HenryWin v3.2							20090	EPI KOCWIN v2.0	0.25	EPI WATERNT v.01
Epichlorohydrin	106-89-8	92.53	EPI Dermwin v2.0	0.0012428	0.0000304	EPI HenryWin v3.2	1.1812	Merk	0.088808	USEPA 2001	0.0000111	USEPA 2001	9.907	EPI KOCWIN v2.0	65900	EPI WATERNT v.01
Epoxybutane, 1,2-	106-88-7	72.11	EPI Dermwin v2.0	0.007359	0.00018	EPI HenryWin v3.2	0.8297	CRC 89th Ed	0.092894	USEPA 2001	0.0000104	USEPA 2001	9.907	EPI KOCWIN v2.0	95000	EPI WATERNT v.01
Ethephon	16672-87-0	144.5	EPI Dermwin v2.0	2.33E-10	5.7E-12	EPI HenryWin v3.2	1.2	CRC 89th Ed					5.028	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethion	563-12-2	384.46	EPI Dermwin v2.0	0.0000155	0.00000379	EPI HenryWin v3.2	1.22	CRC 89th Ed					882	EPI KOCWIN v2.0	2	EPI WATERNT v.01
Ethoxyethanol Acetate, 2-	111-15-9	132.16	EPI Dermwin v2.0	0.0001308	0.0000032	EPI HenryWin v3.2	0.974	CRC 89th Ed	0.05695	EPA 2002	7.9753E-06	EPA 2002	4.542	EPI KOCWIN v2.0	247000	EPI WATERNT v.01
Ethoxyethanol, 2-Ethyl Acetate	110-80-5	90.12	EPI Dermwin v2.0	0.0000192	0.00000047	EPI HenryWin v3.2	0.9253	CRC 89th Ed	0.081756	EPA 2002	9.7308E-06	EPA 2002	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethyl Acrylate	141-78-6	88.11	EPI Dermwin v2.0	0.0054783	0.000134	EPI HenryWin v3.2	0.9003	CRC 89th Ed	0.082314	USEPA 2001	9.7026E-06	USEPA 2001	5.583	EPI KOCWIN v2.0	8000	EPI WATERNT v.01
Ethyl Chloride	75-00-3	64.52	EPI Dermwin v2.0	0.4538021	0.0111	EPI HenryWin v3.2	0.9234	CRC 89th Ed	0.074539	USEPA 2001	9.1242E-06	USEPA 2001	10.65	EPI KOCWIN v2.0	15000	EPI WATERNT v.01
Ethyl Ether	60-29-7	74.12	EPI Dermwin v2.0	0.0502862	0.00123	EPI HenryWin v3.2	0.8902	CRC 89th Ed	0.103754	USEPA 2001	0.0000116	USEPA 2001	21.73	EPI KOCWIN v2.0	6710	EPI WATERNT v.01
Ethyl Methacrylate	97-63-2	114.15	EPI Dermwin v2.0	0.023426	0.000573	EPI HenryWin v3.2	0.7138	CRC 89th Ed	0.085248	USEPA 2001	9.3639E-06	USEPA 2001	9.699	EPI KOCWIN v2.0	60400	EPI WATERNT v.01
	2104-64-5	323.31	EPI Dermwin v2.0	0.0000182	0.000000444	EPI HenryWin v3.2	0.9135	CRC 89th Ed	0.065344	USEPA 2001	8.3794E-06	USEPA 2001	16.66	EPI KOCWIN v2.0	5400	EPI WATERNT v.01
Ethyl-p-nitrophenyl Phosphonate	100-41-4	106.17	EPI Dermwin v2.0	0.0001586	0.00788	EPI HenryWin v3.2	1.27	CRC 89th Ed					15470	EPI KOCWIN v2.0	3.11	EPI WATERNT v.01
Ethylene Cyanohydrin	109-78-4	71.08	EPI Dermwin v2.0	3.0662E-07	7.5E-09	EPI HenryWin v3.2	0.8626	CRC 89th Ed	0.068465	USEPA 2001	8.4558E-06	USEPA 2001	446.1	EPI KOCWIN v2.0	169	EPI WATERNT v.01
	107-15-3	60.1	EPI Dermwin v2.0	7.0728E-08	1.73E-09	EPI HenryWin v3.2	1.0404	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethylene Glycol	107-21-1	62.07	EPI Dermwin v2.0	2.453E-06	0.00000006	EPI HenryWin v3.2	0.8979	CRC 89th Ed	0.062619	EPA 2002	8.1419E-06	EPA 2002	2.823	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethylene Glycol Monobutyl Ether	111-76-2	118.18	EPI Dermwin v2.0	0.0000654	0.0000016	EPI HenryWin v3.2	1.1135	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethylene Oxide	75-21-8	44.05	EPI Dermwin v2.0	0.0060507	0.000148	EPI HenryWin v3.2	0.8821	CRC 89th Ed	0.133972	USEPA 2001	0.0000145	USEPA 2001	3.237	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethylene Thiourea	96-45-7	102.15	EPI Dermwin v2.0	0.0000137	0.000000336	EPI HenryWin v3.2			0.086948	USEPA 1987	0.0000102	USEPA 1987	12.97	EPI KOCWIN v2.0	20000	EPI WATERNT v.01
Ethyleneimine	151-56-4	43.07	EPI Dermwin v2.0	0.0004947	0.0000121	EPI HenryWin v3.2	0.832	CRC 89th Ed	0.132827	USEPA 2001	0.0000142	USEPA 2001	9.043	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Ethylphthalyl Ethyl Glycolate	84-72-0	280.28	EPI Dermwin v2.0	3.1603E-08	7.73E-10	EPI HenryWin v3.2							1019	EPI KOCWIN v2.0	992.56	EPI WATERNT v.01
Express	101200-48-0	395.39	EPI Dermwin v2.0	4.17E-12	1.02E-13	EPI HenryWin v3.2	1.15	CRC 89th Ed					94.69	EPI KOCWIN v2.0	50	EPI WATERNT v.01
Fenamiphos	22224-92-6	303.36	EPI Dermwin v2.0	4.9469E-08	1.21E-09	EPI HenryWin v3.2							398	EPI KOCWIN v2.0	329	EPI WATERNT v.01
Fenproprathrin	39515-41-8	349.43	EPI Dermwin v2.0	0.0003123	0.00000764	EPI HenryWin v3.2							22490	EPI KOCWIN v2.0	0.33	EPI WATERNT v.01
Fluometuron	2164-17-2	232.21	EPI Dermwin v2.0	1.067E-07	2.61E-09	EPI HenryWin v3.2							285.3	EPI KOCWIN v2.0	110	EPI WATERNT v.01
Fluoride	16984-48-8	38	EPI Dermwin v2.0										1	EPI KOCWIN v2.0	1.69	EPI WATERNT v.01
Fluorine (Soluble Fluoride)	7782-41-4	38	EPI Dermwin v2.0				1.553	CRC 89th Ed								
Fluridone	59756-60-4	329.32	EPI Dermwin v2.0	3.3115E-07	8.1E-09	EPI HenryWin v3.2							56770	EPI KOCWIN v2.0	12	EPI WATERNT v.01
Flurprimidol	56425-91-3	312.29	EPI Dermwin v2.0	5.3557E-08	1.31E-09	EPI HenryWin v3.2							2189	EPI KOCWIN v2.0	114	EPI WATERNT v.01
Flutolanil	66332-96-5	323.32	EPI Dermwin v2.0	1.3001E-07	3.18E-09	EPI HenryWin v3.2							2558	EPI KOCWIN v2.0	6.53	EPI WATERNT v.01
Fluvalinate	69409-94-5	502.92	EPI Dermwin v2.0	5.928E-07	1.45E-08	EPI HenryWin v3.2							730000	EPI KOCWIN v2.0	0.005	EPI WATERNT v.01
Folpet	133-07-3	296.56	EPI Dermwin v2.0	3.1316E-06	7.66E-08	EPI HenryWin v3.2							17.7	EPI KOCWIN v2.0	0.8	EPI WATERNT v.01
Fomesafen	72178-02-0	438.76	EPI Dermwin v2.0	3.078E-11	7.53E-13	EPI HenryWin v3.2	1.28	CRC 89th Ed					1546	EPI KOCWIN v2.0	50	EPI WATERNT v.01
Fonofos	944-22-9	246.32	EPI Dermwin v2.0	0.0002854	0.00000698	EPI HenryWin v3.2	1.16	CRC 89th Ed					855.8	EPI KOCWIN v2.0	15.7	EPI WATERNT v.01
Formaldehyde	50-00-0	30.03	EPI Dermwin v2.0	0.0000138	0.000000337	EPI HenryWin v3.2	0.815	CRC 89th Ed	0.167073	EPA 2002	0.0000174	EPA 2002	1	EPI KOCWIN v2.0	400000	EPI WATERNT v.01
Formic Acid	64-18-6	46.03	EPI Dermwin v2.0	6.8275E-06	0.000000167	EPI HenryWin v3.2	1.22	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Fosetyl-AL	39148-24-8	354.11	EPI Dermwin v2.0										6485	EPI KOCWIN v2.0	111000	EPI WATERNT v.01
Furans																
*Dibenzofuran	132-64-9	168.2	EPI Dermwin v2.0	0.0087081	0.000213	EPI HenryWin v3.2	1.0886	CRC 89th Ed	0.04105	USEPA 2001	7.3773E-06	USEPA 2001	9161	EPI KOCWIN v2.0	3.1	EPI WATERNT v.01
*Furan	110-00-9	68.08	EPI Dermwin v2.0	0.2207686	0.0054	EPI HenryWin v3.2	0.9514	CRC 89th Ed	0.102673	USEPA 2001	0.0000117	USEPA 2001	79.99	EPI KOCWIN v2.0	10000	EPI WATERNT v.01
Furazolidone	67-45-8	225.16	EPI Dermwin v2.0	1.3328E-09	3.26E-11	EPI HenryWin v3.2							85.94	EPI KOCWIN v2.0	40	EPI WATERNT v.01
Furfural	98-01-1	96.09	EPI Dermwin v2.0	0.0001541	0.00000377	EPI HenryWin v3.2	1.1594	CRC 89th Ed	0.085318	EPA 2002	0.0000107	EPA 2002	6.083	EPI KOCWIN v2.0	74100	EPI WATERNT v.01
Furium	531-82-8	253.23	EPI Dermwin v2.0	5.437E-14	1.33E-15	EPI HenryWin v3.2							577.6	EPI KOCWIN v2.0	4205.3	EPI WATERNT v.01
Furmecyclo	60568-05-0	251.33	EPI Dermwin v2.0	2.8168E-07	6.89E-09	EPI HenryWin v3.2							429	EPI KOCWIN v2.0	0.3	EPI WATERNT v.01
Glufosinate, Ammonium	77182-82-2	198.16	EPI Dermwin v2.0	1.034E-22	2.53E-24	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	1370000	EPI WATERNT v.

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Haloxyfop, Methyl	69806-40-2	375.73	EPI Dermwin v2.0	0.000013	0.000000319	EPI HenryWin v3.2							5454	EPI KOCWIN v2.0	9.3	EPI WATERNT v.01
Harmony	79277-27-3	387.39	EPI Dermwin v2.0	1.668E-12	4.08E-14	EPI HenryWin v3.2							50.76	EPI KOCWIN v2.0	2240	EPI WATERNT v.01
Heptachlor	76-44-8	373.32	EPI Dermwin v2.0	0.0120196	0.000294	EPI HenryWin v3.2	1.57	CRC 89th Ed					41260	EPI KOCWIN v2.0	0.18	EPI WATERNT v.01
Heptachlor Epoxide	1024-57-3	389.32	EPI Dermwin v2.0	0.0008585	0.000021	EPI HenryWin v3.2							10110	EPI KOCWIN v2.0	0.2	EPI WATERNT v.01
Hexabromobenzene	87-82-1	551.49	EPI Dermwin v2.0	0.0011488	0.0000281	EPI HenryWin v3.2							2807	EPI KOCWIN v2.0	0.00016	EPI WATERNT v.01
Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2														0.0009	IRIS Profile
Hexachlorobenzene	118-74-1	284.78	EPI Dermwin v2.0	0.0695012	0.0017	EPI HenryWin v3.2	2.044	CRC 89th Ed					6195	EPI KOCWIN v2.0	0.0062	EPI WATERNT v.01
Hexachlorobutadiene	87-68-3	260.76	EPI Dermwin v2.0	0.4210957	0.0103	EPI HenryWin v3.2	1.556	CRC 89th Ed					845.2	EPI KOCWIN v2.0	3.2	EPI WATERNT v.01
Hexachlorocyclohexane, Alpha-	319-84-6	290.83	EPI Dermwin v2.0	0.0002101	0.00000514	EPI HenryWin v3.2							2807	EPI KOCWIN v2.0	2	EPI WATERNT v.01
Hexachlorocyclohexane, Beta-	319-85-7	290.83	EPI Dermwin v2.0	0.0002101	0.00000514	EPI HenryWin v3.2	1.89	CRC 89th Ed					2807	EPI KOCWIN v2.0	0.24	EPI WATERNT v.01
Hexachlorocyclohexane, Gamma-(Lindane)	58-89-9	290.83	EPI Dermwin v2.0	0.0002101	0.00000514	EPI HenryWin v3.2							2807	EPI KOCWIN v2.0	7.3	EPI WATERNT v.01
Hexachlorocyclohexane, Technical	608-73-1	290.83	EPI Dermwin v2.0	0.0002101	0.00000514	EPI HenryWin v3.2							2807	EPI KOCWIN v2.0	8	EPI WATERNT v.01
Hexachlorocyclopentadiene	77-47-4	272.77	EPI Dermwin v2.0	1.103843	0.027	EPI HenryWin v3.2	1.7019	CRC 89th Ed					1404	EPI KOCWIN v2.0	1.8	EPI WATERNT v.01
Hexachloroethane	67-72-1	236.74	EPI Dermwin v2.0	0.1590352	0.00389	EPI HenryWin v3.2	2.091	CRC 89th Ed					196.8	EPI KOCWIN v2.0	50	EPI WATERNT v.01
Hexachlorophene	70-30-4	406.91	EPI Dermwin v2.0	2.24E-11	5.48E-13	EPI HenryWin v3.2							668600	EPI KOCWIN v2.0	140	EPI WATERNT v.01
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	222.12	EPI Dermwin v2.0	8.217E-10	2.01E-11	EPI HenryWin v3.2	1.82	CRC 89th Ed					89.07	EPI KOCWIN v2.0	59.7	EPI WATERNT v.01
Hexamethylene Diisocyanate, 1,6-	822-06-0	168.2	EPI Dermwin v2.0	0.0019624	0.000048	EPI HenryWin v3.2	1.0528	CRC 89th Ed	0.040426	USEPA 2001	7.2308E-06	USEPA 2001	4818	EPI KOCWIN v2.0	179.03	EPI WATERNT v.01
Hexane, N-	110-54-3	86.18	EPI Dermwin v2.0	73.589534	1.8	EPI HenryWin v3.2	0.6606	CRC 89th Ed	0.073106	USEPA 2001	8.1657E-06	USEPA 2001	131.5	EPI KOCWIN v2.0	9.5	EPI WATERNT v.01
Hexanedioic Acid	124-04-9	146.14	EPI Dermwin v2.0	1.926E-10	4.71E-12	EPI HenryWin v3.2	1.36	CRC 89th Ed					24.34	EPI KOCWIN v2.0	30800	EPI WATERNT v.01
Hexanone, 2-	591-78-6	100.16	EPI Dermwin v2.0	0.0038103	0.0000932	EPI HenryWin v3.2	0.8113	CRC 89th Ed	0.070356	USEPA 2001	8.4404E-06	USEPA 2001	14.98	EPI KOCWIN v2.0	17200	EPI WATERNT v.01
Hexazinone	51235-04-2	252.32	EPI Dermwin v2.0	9.24E-11	2.26E-12	EPI HenryWin v3.2	1.25	CRC 89th Ed					129.4	EPI KOCWIN v2.0	33000	EPI WATERNT v.01
Hydrazine	302-01-2	32.05	EPI Dermwin v2.0				1.0036	CRC 89th Ed							1000000	EPI WATERNT v.01
Hydrazine Sulfate	10034-93-2	128.1	EPI Dermwin v2.0				1.378	CRC 89th Ed							30550	CRC 89th Ed
Hydrogen Chloride	7647-01-0	35.45	EPI Dermwin v2.0				1.49	CRC 89th Ed							720000	CRC 89th Ed
Hydrogen Fluoride	7664-39-3	20.01	EPI Dermwin v2.0				0.818	CRC 89th Ed								CRC 89th Ed
Hydrogen Sulfide	7783-06-4	34.08	EPI Dermwin v2.0				1.393	CRC 89th Ed							5132	CRC 89th Ed
Hydroquinone	123-31-9	110.11	EPI Dermwin v2.0	1.9338E-09	4.73E-11	EPI HenryWin v3.2	1.33	CRC 89th Ed					240.5	EPI KOCWIN v2.0	72000	EPI WATERNT v.01
Imazalil	35554-44-0	297.19	EPI Dermwin v2.0	1.0589E-07	2.59E-09	EPI HenryWin v3.2	1.243	CRC 89th Ed					8495	EPI KOCWIN v2.0	180	EPI WATERNT v.01
Imazaquin	81335-37-7	311.34	EPI Dermwin v2.0	2.825E-16	6.91E-18	EPI HenryWin v3.2							2386	EPI KOCWIN v2.0	90	EPI WATERNT v.01
Iodine	7553-56-2	253.81	EPI Dermwin v2.0				4.933	CRC 89th Ed							330	EPI WATERNT v.01
Iprodione	36734-19-7	330.17	EPI Dermwin v2.0	1.2756E-07	3.12E-09	EPI HenryWin v3.2							52.52	EPI KOCWIN v2.0	13.9	EPI WATERNT v.01
Iron	7439-89-6	55.85	EPI Dermwin v2.0				7.87	CRC 89th Ed							0	Lange's 15th Ed
Isobutyl Alcohol	78-83-1	74.12	EPI Dermwin v2.0	0.0003998	0.00000978	EPI HenryWin v3.2	0.8018	CRC 89th Ed	0.089671	EPA 2002	0.00001	EPA 2002	2.919	EPI KOCWIN v2.0	85000	EPI WATERNT v.01
Isophorone	78-59-1	138.21	EPI Dermwin v2.0	0.0002715	0.00000664	EPI HenryWin v3.2	0.9255	CRC 89th Ed	0.052505	EPA 2002	7.5296E-06	EPA 2002	65.15	EPI KOCWIN v2.0	12000	EPI WATERNT v.01
Isopropalin	33820-53-0	309.37	EPI Dermwin v2.0	0.004538	0.000111	EPI HenryWin v3.2							11430	EPI KOCWIN v2.0	0.11	EPI WATERNT v.01
Isopropanol	67-63-0	60.1	EPI Dermwin v2.0	0.0003312	0.0000081	EPI HenryWin v3.2	0.7809	CRC 89th Ed	0.103223	EPA 2002	0.0000112	EPA 2002	1.53	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Isopropyl Methyl Phosphonic Acid	1832-54-8	138.1	EPI Dermwin v2.0	2.8128E-07	6.88E-09	EPI HenryWin v3.2							7.707	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Isoxaben	82558-50-7	332.4	EPI Dermwin v2.0	5.1922E-08	1.27E-09	EPI HenryWin v3.2				USEPA 1987			1262	EPI KOCWIN v2.0	1.42	EPI WATERNT v.01
JP-7	NA															
Kerb	23950-58-5	256.13	EPI Dermwin v2.0	3.9943E-07	9.77E-09	EPI HenryWin v3.2							404.9	EPI KOCWIN v2.0	15	EPI WATERNT v.01
Lactofen	77501-63-4	461.78	EPI Dermwin v2.0	0.0000193	0.000000472	EPI HenryWin v3.2							23030	EPI KOCWIN v2.0	0.1	EPI WATERNT v.01
Lead Compounds																
*Lead acetate	301-04-2	325.29	EPI Dermwin v2.0				3.25	CRC 89th Ed					1	EPI KOCWIN v2.0	1600	EPI WATERNT v.01
*Lead and Compounds	7439-92-1	207.2	EPI Dermwin v2.0				11.3	CRC 89th Ed							0	CRC 89th Ed
*Lead subacetate	1335-32-6	805.7	EPI Dermwin v2.0										10.37	EPI KOCWIN v2.0	62500	EPI WATERNT v.01
*Tetraethyl Lead	78-00-2	323.45	EPI Dermwin v2.0	23.221586	0.568	EPI HenryWin v3.2	1.653	CRC 89th Ed					647.9	EPI KOCWIN v2.0	0.29	EPI WATERNT v.01
Linuron	330-55-2	249.1	EPI Dermwin v2.0	2.5552E-07	6.25E-09	EPI HenryWin v3.2							339.8	EPI KOCWIN v2.0	75	EPI WATERNT v.01
Lithium	7439-93-2	6.94	EPI Dermwin v2.0				0.534	CRC 89th Ed							0	CRC 89th Ed
Lithium Perchlorate	7791-03-9	106.39	EPI				2.428	CRC 89th Ed							587000	CRC 89th Ed
Londax	83055-99-6	410.4	EPI Dermwin v2.0	1.545E-13	3.78E-15	EPI HenryWin v3.2							27.76	EPI KOCWIN v2.0	120	EPI WATERNT v.01
MCPA	94-74-6	200.62	EPI Dermwin v2.0	5.4374E-08	1.33E-09	EPI HenryWin v3.2							29.63	EPI KOCWIN v2.0	630	EPI WATERNT v.01
MCPB	94-81-5	228.68	EPI Dermwin v2.0	1.1079E-07	2.71E-09	EPI HenryWin v3.2							98.4	EPI KOCWIN v2.0	48	EPI WATERNT v.01
MCPP	93-65-2	214.65	EPI Dermwin v2.0	3.6631E-08	8.96E-10	EPI HenryWin v3.2							48.51	EPI KOCWIN v2.0	620	EPI WATERNT v.01
Malathion	121-75-5	330.35	EPI Dermwin v2.0	1.9992E-07	4.89E-09	EPI HenryWin v3.2	1.2076	CRC 89th Ed					31.27	EPI KOCWIN v2.0	143	EPI WATERNT v.01
Maleic Anhydride	108-31-6	98.06	EPI Dermwin v2.0	0.0001607	0.00000393	EPI HenryWin v3.2	1.314	CRC 89th Ed	0.088395	EPA 2002	0.0000114	EPA 2002	1	EPI KOCWIN v2.0	460250	EPI WATERNT v.01
Maleic Hydrazide	123-33-1	112.09	EPI Dermwin v2.0	1.0834E-09	2.65E-11	EPI HenryWin v3.2			0.081729	USEPA 1987	9.5494E-06	USEPA 1987	3.303	EPI KOCWIN v2.0	4510	EPI WATERNT v.01
Malononitrile	109-77-3	66.06	EPI Dermwin v2.0	5.3557E-06	0.000000131	EPI HenryWin v3.2	1.191	CRC 89th Ed	0.115073	EPA 2002	0.0000136	EPA 2002	3.334	EPI KOCWIN v2.0	133000	EPI WATERNT v.01
Mancozeb	8018-01-7	212.36	EPI Dermwin v2.0	0.0000231	0.000000564	EPI HenryWin v3.2							607.6	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Maneb	12427-38-2	212.36	EPI Dermwin v2.0	0.0000231	0.000000564	EPI HenryWin v3.2							607.6	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Manganese (Diet)	7439-96-5	54.94	EPI Dermwin v2.0				7.3	CRC 89th Ed							0	Lange's 15th Ed
Manganese (Non-diet)	7439-96-5	54.94	EPI Dermwin v2.0				7.3	CRC 89th Ed							57	EPI WATERNT v.01
Mephosfolan	950-10-7	269.32	EPI Dermwin v2.0	4.8651E-09	1.19E-10	EPI HenryWin v3.2							636.3	EPI KOCWIN v2.0	500000	EPI WATERNT v.01
Mepiquat Chloride	24307-26-4	149.67	EPI Dermwin v2.0	1.762E-10	4.31E-12	EPI HenryWin v3.2							66.16	EPI KOCWIN v2.0		EPI WATERNT v.01
Mercury Compounds																
*Mercuric Chloride (and other Mercury salts)	7487-94-7	271.5	EPI Dermwin v2.0				5.6	CRC 89th Ed							69000	EPI WATERNT v.01
*Mercury (elemental)	7439-97-6	200.59	EPI Dermwin v2.0	0.467	0.0114	SSL	13.5336	CRC 89th Ed	0.0307	SSL	0.0000063	SSL			0.06	EPI WATERNT v.01
*Methyl Mercury	22967-92-6	215.63	EPI Dermwin v2.0													

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	D _w (cm ² /s)	D _w Ref	K _{oc} (L/kg)	K _{oc} Ref	S (mg/L)	S Ref
ALAR ~Phenylmercuric Acetate Merphos	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
	62-38-4	336.74	EPI Dermwin v2.0	2.314E-08	5.66E-10	EPI HenryWin v3.2							56.44	EPI KOCWIN v2.0	4370	EPI WATERNT v.01
	150-50-5	298.5	EPI Dermwin v2.0	0.000928	0.0000227	EPI HenryWin v3.2	1.02	CRC 89th Ed					48970	EPI KOCWIN v2.0	0.0009971	EPI WATERNT v.01
Merphos Oxide	78-48-8	314.5	EPI Dermwin v2.0	0.000012	0.000000294	EPI HenryWin v3.2	1.057	CRC 89th Ed					2350	EPI KOCWIN v2.0	2.3	EPI WATERNT v.01
Metalaxyl	57837-19-1	279.34	EPI Dermwin v2.0	1.2061E-07	2.95E-09	EPI HenryWin v3.2							38.57	EPI KOCWIN v2.0	8400	EPI WATERNT v.01
Methacrylonitrile	126-98-7	67.09	EPI Dermwin v2.0	0.0100981	0.000247	EPI HenryWin v3.2	0.8001	CRC 89th Ed	0.096431	USEPA 2001	0.0000106	USEPA 2001	13.05	EPI KOCWIN v2.0	25400	EPI WATERNT v.01
Methamidophos	10265-92-6	141.13	EPI Dermwin v2.0	3.5487E-08	8.68E-10	EPI HenryWin v3.2	1.31	CRC 89th Ed					5.407	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Methanol	67-56-1	32.04	EPI Dermwin v2.0	0.000186	0.00000455	EPI HenryWin v3.2	0.7914	CRC 89th Ed	0.158281	EPA 2002	0.0000165	EPA 2002	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Methidathion	950-37-8	302.32	EPI Dermwin v2.0	2.9313E-07	7.17E-09	EPI HenryWin v3.2							21.24	EPI KOCWIN v2.0	187	EPI WATERNT v.01
Methylol	16752-77-5	162.21	EPI Dermwin v2.0	8.054E-10	1.97E-11	EPI HenryWin v3.2	1.2946	CRC 89th Ed	0.04759	EPA 2002	8.3658E-06	EPA 2002	10	EPI KOCWIN v2.0	58000	EPI WATERNT v.01
Methoxy-5-nitroaniline, 2-	99-59-2	168.15	EPI Dermwin v2.0	6.0098E-07	1.47E-08	EPI HenryWin v3.2	1.2068	CRC 89th Ed					71.31	EPI KOCWIN v2.0	115	EPI WATERNT v.01
Methoxychlor	72-43-5	345.66	EPI Dermwin v2.0	8.2993E-06	0.00000203	EPI HenryWin v3.2	1.41	CRC 89th Ed					26890	EPI KOCWIN v2.0	0.1	EPI WATERNT v.01
Methoxyethanol Acetate, 2-	110-49-6	118.13	EPI Dermwin v2.0	0.0000127	0.000000311	EPI HenryWin v3.2	1.0074	CRC 89th Ed	0.065835	EPA 2002	8.7052E-06	EPA 2002	2.492	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Methoxyethanol, 2-	109-86-4	76.1	EPI Dermwin v2.0	0.0000135	0.00000033	EPI HenryWin v3.2	0.9647	CRC 89th Ed	0.095152	EPA 2002	0.000011	EPA 2002	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Methyl Acetate	79-20-9	74.08	EPI Dermwin v2.0	0.0047016	0.000115	EPI HenryWin v3.2	0.9342	CRC 89th Ed	0.095776	USEPA 2001	0.000011	USEPA 2001	3.064	EPI KOCWIN v2.0	243000	EPI WATERNT v.01
Methyl Acrylate	96-33-3	86.09	EPI Dermwin v2.0	0.0081357	0.000199	EPI HenryWin v3.2	0.9535	CRC 89th Ed	0.085998	USEPA 2001	0.0000102	USEPA 2001	5.844	EPI KOCWIN v2.0	49400	EPI WATERNT v.01
Methyl Ethyl Ketone (2-Butanone)	78-93-3	72.11	EPI Dermwin v2.0	0.0023262	0.0000569	EPI HenryWin v3.2	0.7999	CRC 89th Ed	0.091444	USEPA 2001	0.0000102	USEPA 2001	4.51	EPI KOCWIN v2.0	223000	EPI WATERNT v.01
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1	100.16	EPI Dermwin v2.0	0.0056419	0.000138	EPI HenryWin v3.2	0.7965	CRC 89th Ed	0.06978	USEPA 2001	8.3477E-06	USEPA 2001	12.6	EPI KOCWIN v2.0	19000	EPI WATERNT v.01
Methyl Isocyanate	624-83-9	57.05	EPI Dermwin v2.0	0.0378577	0.000926	EPI HenryWin v3.2	0.9588	CRC 89th Ed	0.116552	USEPA 2001	0.0000131	USEPA 2001	39.6	EPI KOCWIN v2.0	48330	EPI WATERNT v.01
Methyl Methacrylate	80-62-6	100.12	EPI Dermwin v2.0	0.0130417	0.000319	EPI HenryWin v3.2	0.9377	CRC 89th Ed	0.075045	USEPA 2001	9.2087E-06	USEPA 2001	9.14	EPI KOCWIN v2.0	15000	EPI WATERNT v.01
Methyl Parathion	298-00-0	263.21	EPI Dermwin v2.0	4.0883E-06	0.0000001	EPI HenryWin v3.2	1.358	CRC 89th Ed					729.3	EPI KOCWIN v2.0	37.7	EPI WATERNT v.01
Methyl Phosphonic Acid	993-13-5	96.02	EPI Dermwin v2.0	4.988E-10	1.22E-11	EPI HenryWin v3.2							1.407	EPI KOCWIN v2.0	20000	EPI WATERNT v.01
Methyl Styrene (Mixed Isomers)	25013-15-4	118.18	EPI Dermwin v2.0	0.1042518	0.00255	EPI HenryWin v3.2			0.078897	USEPA 1987	9.2184E-06	USEPA 1987	697.8	EPI KOCWIN v2.0	89	EPI WATERNT v.01
Methyl methanesulfonate	66-27-3	110.13	EPI Dermwin v2.0	0.0001648	0.00000403	EPI HenryWin v3.2	1.2943	CRC 89th Ed					4.332	EPI KOCWIN v2.0	837860	EPI WATERNT v.01
Methyl tert-Butyl Ether (MTBE)	1634-04-4	88.15	EPI Dermwin v2.0	0.0239984	0.000587	EPI HenryWin v3.2	0.7353	CRC 89th Ed	0.075268	USEPA 2001	8.5905E-06	USEPA 2001	11.56	EPI KOCWIN v2.0	51000	EPI WATERNT v.01
Methyl-5-Nitroaniline, 2-	99-55-8	152.15	EPI Dermwin v2.0	7.9313E-07	1.94E-08	EPI HenryWin v3.2							178.6	EPI KOCWIN v2.0	613.11	EPI WATERNT v.01
Methyl-N-nitro-N-nitrosoguanidine, N-	70-25-7	147.09	EPI Dermwin v2.0	4.988E-11	1.22E-12	EPI HenryWin v3.2							72.02	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Methylaniline Hydrochloride, 2-	636-21-5	107.16	EPI Dermwin v2.0	0.0000809	0.00000198	EPI HenryWin v3.2			0.084217	USEPA 1987	9.8401E-06	USEPA 1987	115	EPI KOCWIN v2.0	16600	EPI WATERNT v.01
Methylarsonic acid	124-58-3	139.97	EPI Dermwin v2.0										43.89	EPI KOCWIN v2.0	256000	EPI WATERNT v.01
Methylcholanthrene, 3-	56-49-5	268.36	EPI Dermwin v2.0	0.0002142	0.00000524	EPI HenryWin v3.2	1.28	CRC 89th Ed					961600	EPI KOCWIN v2.0	0.0029	EPI WATERNT v.01
Methylene Chloride	75-09-2	84.93	EPI Dermwin v2.0	0.13287	0.00325	EPI HenryWin v3.2	1.3266	CRC 89th Ed	0.099939	USEPA 2001	0.0000125	USEPA 2001	21.73	EPI KOCWIN v2.0	13000	EPI WATERNT v.01
Methylene-bis(2-chloroaniline), 4,4'	101-14-4	267.16	EPI Dermwin v2.0	4.661E-10	1.14E-11	EPI HenryWin v3.2							5698	EPI KOCWIN v2.0	13.9	EPI WATERNT v.01
Methylene-bis(N,N-dimethyl) Aniline, 4,4'	101-61-1	254.38	EPI Dermwin v2.0	4.9469E-06	0.00000121	EPI HenryWin v3.2							2667	EPI KOCWIN v2.0	5.4926	EPI WATERNT v.01
Methylenebisbenzenamine, 4,4'	101-77-9	198.27	EPI Dermwin v2.0	6.46E-10	1.58E-11	EPI HenryWin v3.2							2126	EPI KOCWIN v2.0	1000	EPI WATERNT v.01
Methylenediphenyl Diisocyanate	101-68-8	250.26	EPI Dermwin v2.0	0.0000366	0.000000895	EPI HenryWin v3.2	1.197	CRC 89th Ed					284900	EPI KOCWIN v2.0	1.836	EPI WATERNT v.01
Methylstyrene, Alpha-	98-83-9	118.18	EPI Dermwin v2.0	0.1042518	0.00255	EPI HenryWin v3.2	0.9106	CRC 89th Ed	0.062902	USEPA 2001	8.1911E-06	USEPA 2001	697.8	EPI KOCWIN v2.0	116	EPI WATERNT v.01
Metolachlor	51218-45-2	283.8	EPI Dermwin v2.0	3.6795E-07	0.00000009	EPI HenryWin v3.2	1.12	CRC 89th Ed					488.5	EPI KOCWIN v2.0	530	EPI WATERNT v.01
Metribuzin	21087-64-9	214.29	EPI Dermwin v2.0	4.7833E-09	1.17E-10	EPI HenryWin v3.2	1.31	CRC 89th Ed					53.13	EPI KOCWIN v2.0	1050	EPI WATERNT v.01
Midrange Aliphatic Hydrocarbon Streams	NA															
Mineral oils	8012-95-1	170.34	EPI Dermwin v2.0	334.42355	8.18	EPI HenryWin v3.2			0.061831	USEPA 1987	7.2245E-06	USEPA 1987	4818	EPI KOCWIN v2.0	0.0037	EPI WATERNT v.01
Mirex	2385-85-5	545.55	EPI Dermwin v2.0	0.0331562	0.000811	EPI HenryWin v3.2							356600	EPI KOCWIN v2.0	0.085	EPI WATERNT v.01
Molinate	2212-67-1	187.3	EPI Dermwin v2.0	0.0001676	0.0000041	EPI HenryWin v3.2	1.063	CRC 89th Ed	0.031561	EPA 2002	6.8182E-06	EPA 2002	181.9	EPI KOCWIN v2.0	970	EPI WATERNT v.01
Molybdenum	7439-98-7	95.94	EPI Dermwin v2.0				10.2	CRC 89th Ed							0	CRC 89th Ed
Monochloramine	10599-90-3	51.48	EPI Dermwin v2.0													CRC 89th Ed
Monomethylaniline	100-61-8	107.16	EPI Dermwin v2.0	0.000363	0.00000888	EPI HenryWin v3.2	0.9891	CRC 89th Ed	0.0721	EPA 2002	9.1284E-06	EPA 2002	82.08	EPI KOCWIN v2.0	5620	EPI WATERNT v.01
N,N'-Diphenyl-1,4-benzenediamine	74-31-7	260.34	EPI Dermwin v2.0	8.381E-09	2.05E-10	EPI HenryWin v3.2							51890	EPI KOCWIN v2.0	1.5867	EPI WATERNT v.01
Naled	300-76-5	380.79	EPI Dermwin v2.0	0.0026615	0.0000651	EPI HenryWin v3.2	1.96	CRC 89th Ed					126.7	EPI KOCWIN v2.0	1.5	EPI WATERNT v.01
Naphtha, High Flash Aromatic (HFAN)	64724-95-6															
Naphthylamine, 2-	91-59-8	143.19	EPI Dermwin v2.0	3.3115E-06	0.000000081	EPI HenryWin v3.2	1.6414	CRC 89th Ed					2478	EPI KOCWIN v2.0	189	EPI WATERNT v.01
Napropamide	15299-99-7	271.36	EPI Dermwin v2.0	3.4383E-08	8.41E-10	EPI HenryWin v3.2							3218	EPI KOCWIN v2.0	73	EPI WATERNT v.01
Nickel Carbonyl	13463-39-3	170.73	EPI				1.31	CRC 89th Ed							0	CRC 89th Ed
Nickel Oxide	1313-99-1	74.69	EPI Dermwin v2.0				6.72	CRC 89th Ed							0	CRC 89th Ed
Nickel Refinery Dust	NA															
Nickel Soluble Salts	7440-02-0	58.69	EPI Dermwin v2.0				8.9	CRC 89th Ed							0	CRC 89th Ed
Nickel Sub sulfide	12035-72-2	240.21	EPI				5.87	CRC 89th Ed							0	Lange's 15th Ed
Nitrate	14797-55-8	62	EPI Dermwin v2.0				1.5129	CRC 89th Ed								
Nitrite	14797-65-0	47.01	EPI Dermwin v2.0													
Nitroaniline, 2-	88-74-4	138.13	EPI Dermwin v2.0	2.4121E-06	0.000000059	EPI HenryWin v3.2	0.9015	CRC 89th Ed					111.3	EPI KOCWIN v2.0	1470	EPI WATERNT v.01
Nitroaniline, 4-	100-01-6	138.13	EPI Dermwin v2.0	5.1513E-08	1.26E-09	EPI HenryWin v3.2	1.424	CRC 89th Ed					109.1	EPI KOCWIN v2.0	728	EPI WATERNT v.01
Nitrobenzene	98-95-3	123.11	EPI Dermwin v2.0	0.0009812	0.000024	EPI HenryWin v3.2	1.2037	CRC 89th Ed	0.068054	USEPA 2001	9.4495E-06	USEPA 2001	226.4	EPI KOCWIN v2.0	2090	EPI WATERNT v.01
Nitrocellulose	9004-70-0	387.3	EPI Dermwin v2.0	1.345E-21	3.29E-23	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Nitrofurantoin	67-20-9	238.16	EPI Dermwin v2.0	5.437E-11	1.33E-12	EPI HenryWin v3.2							116.8	EPI KOCWIN v2.0	79.5	EPI WATERNT v.01
Nitrofurazone	59-87-0	198.14	EPI Dermwin v2.0	1.267E-11	3.1E-13	EPI HenryWin v3.2							349.7	EPI KOCWIN v2.0	210	EPI WATERNT v.01
Nitroglycerin	55-63-0	227.09	EPI Dermwin v2.0	3.5405E-06	8.66E-08	EPI HenryWin v3.2	1.5931	CRC 89th Ed					115.8	E		

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility		
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref	
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01	
Nitroso-N-methyleurea, N-	684-93-5	103.08	EPI Dermwin v2.0	4.0515E-09	9.91E-11	EPI HenryWin v3.2							11.6	EPI KOCWIN v2.0	144000	EPI WATERNT v.01	
Nitroso-di-N-butylamine, N-	924-16-3	158.25	EPI Dermwin v2.0	0.0005397	0.0000132	EPI HenryWin v3.2			0.064942	USEPA 1987	7.5879E-06	USEPA 1987	914.6	EPI KOCWIN v2.0	1270	EPI WATERNT v.01	
Nitroso-di-N-propylamine, N-	621-64-7	130.19	EPI Dermwin v2.0	0.000022	0.00000538	EPI HenryWin v3.2	0.9163	CRC 89th Ed	0.05644	EPA 2002	7.758E-06	EPA 2002	275.4	EPI KOCWIN v2.0	13000	EPI WATERNT v.01	
Nitrosodiethanolamine, N-	1116-54-7	134.14	EPI Dermwin v2.0	9.321E-15	2.28E-16	EPI HenryWin v3.2							1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01	
Nitrosodiethylamine, N-	55-18-5	102.14	EPI Dermwin v2.0	0.0001484	0.00000363	EPI HenryWin v3.2	0.9422	CRC 89th Ed	0.073841	EPA 2002	9.1252E-06	EPA 2002	82.92	EPI KOCWIN v2.0	106000	EPI WATERNT v.01	
Nitrosodimethylamine, N-	62-75-9	74.08	EPI Dermwin v2.0	0.0000744	0.00000182	EPI HenryWin v3.2	1.0048	CRC 89th Ed	0.09877	EPA 2002	0.0000115	EPA 2002	22.79	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01	
Nitrosodiphenylamine, N-	86-30-6	198.23	EPI Dermwin v2.0	0.0000495	0.00000121	EPI HenryWin v3.2			0.055887	USEPA 1987	6.5299E-06	USEPA 1987	2632	EPI KOCWIN v2.0	35	EPI WATERNT v.01	
Nitrosomethylamine, N-	10595-95-6	88.11	EPI Dermwin v2.0	0.0000589	0.00000144	EPI HenryWin v3.2			0.095956	USEPA 1987	0.0000112	USEPA 1987	43.47	EPI KOCWIN v2.0	300000	EPI WATERNT v.01	
Nitrosomorpholine [N-]	59-89-2	116.12	EPI Dermwin v2.0	1.0016E-06	2.45E-08	EPI HenryWin v3.2							22.51	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01	
Nitrosopiperidine [N-]	100-75-4	114.15	EPI Dermwin v2.0	0.0000345	0.000000844	EPI HenryWin v3.2	1.0631	CRC 89th Ed					167.5	EPI KOCWIN v2.0	76500	EPI WATERNT v.01	
Nitrosopyrrolidine, N-	930-55-2	100.12	EPI Dermwin v2.0	1.9992E-06	4.89E-08	EPI HenryWin v3.2	1.085	CRC 89th Ed					91.91	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01	
Nitrotoluene, m-	99-08-1	137.14	EPI Dermwin v2.0	0.0003802	0.0000093	EPI HenryWin v3.2	1.1581	CRC 89th Ed	0.058686	EPA 2002	8.6541E-06	EPA 2002	363.2	EPI KOCWIN v2.0	500	EPI WATERNT v.01	
Nitrotoluene, o-	88-72-2	137.14	EPI Dermwin v2.0	0.000511	0.0000125	EPI HenryWin v3.2	1.1611	CRC 89th Ed	0.058754	USEPA 2001	8.6675E-06	USEPA 2001	370.6	EPI KOCWIN v2.0	650	EPI WATERNT v.01	
Nitrotoluene, p-	99-99-0	137.14	EPI Dermwin v2.0	0.0002302	0.00000563	EPI HenryWin v3.2	1.1038	CRC 89th Ed	0.057443	EPA 2002	8.4083E-06	EPA 2002	363.2	EPI KOCWIN v2.0	442	EPI WATERNT v.01	
Nonane, n-	111-84-2	128.26	EPI Dermwin v2.0	139.00245	3.4	EPI HenryWin v3.2	0.7192	CRC 89th Ed	0.051432	USEPA 2001	6.769E-06	USEPA 2001	796	EPI KOCWIN v2.0	0.22	EPI WATERNT v.01	
Norflurazon	27314-13-2	303.67	EPI Dermwin v2.0	1.4023E-08	3.43E-10	EPI HenryWin v3.2							3118	EPI KOCWIN v2.0	33.7	EPI WATERNT v.01	
Nustar	85509-19-9	315.4	EPI Dermwin v2.0	0.0000207	0.000000506	EPI HenryWin v3.2							81060	EPI KOCWIN v2.0	54	EPI WATERNT v.01	
Octabromodiphenyl Ether	32536-52-0	801.38	EPI Dermwin v2.0	0.0000105	0.000000256	EPI HenryWin v3.2							98880	EPI KOCWIN v2.0	0.0000743	EPI WATERNT v.01	
Octahydro-1,3,5,7-tetra (HMX)	2691-41-0	296.16	EPI Dermwin v2.0	3.5446E-08	8.67E-10	EPI HenryWin v3.2							531.6	EPI KOCWIN v2.0	5	EPI WATERNT v.01	
Octamethylpyrophosphoramide	152-16-9	286.25	EPI Dermwin v2.0	2.58E-15	6.31E-17	EPI HenryWin v3.2	1.09	CRC 89th Ed					20.12	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01	
Oryzalin	19044-88-3	346.36	EPI Dermwin v2.0	7.8087E-08	1.91E-09	EPI HenryWin v3.2							825.4	EPI KOCWIN v2.0	2.5	EPI WATERNT v.01	
Oxadiazon	19666-30-9	345.23	EPI Dermwin v2.0	2.9722E-06	7.27E-08	EPI HenryWin v3.2							4996	EPI KOCWIN v2.0	0.7	EPI WATERNT v.01	
Oxamyl	23135-22-0	219.26	EPI Dermwin v2.0	9.6893E-09	2.37E-10	EPI HenryWin v3.2	0.97	CRC 89th Ed					10	EPI KOCWIN v2.0	280000	EPI WATERNT v.01	
Paclitaxel	76738-62-0	293.8	EPI Dermwin v2.0	3.3851E-09	8.28E-11	EPI HenryWin v3.2	1.22	CRC 89th Ed					922.9	EPI KOCWIN v2.0	26	EPI WATERNT v.01	
Paraquat Dichloride	1910-42-5	257.16	EPI Dermwin v2.0	1.316E-11	3.22E-13	EPI HenryWin v3.2							6780	EPI KOCWIN v2.0	700000	EPI WATERNT v.01	
Parathion	56-38-2	291.26	EPI Dermwin v2.0	0.0000122	0.000000298	EPI HenryWin v3.2	1.2681	CRC 89th Ed					2422	EPI KOCWIN v2.0	11	EPI WATERNT v.01	
Pebutate	1114-71-2	203.35	EPI Dermwin v2.0	0.0096893	0.000237	EPI HenryWin v3.2	0.9458	CRC 89th Ed					299.1	EPI KOCWIN v2.0	100	EPI WATERNT v.01	
Pendimethalin	40487-42-1	281.31	EPI Dermwin v2.0	0.000035	0.000000856	EPI HenryWin v3.2	1.19	CRC 89th Ed					5615	EPI KOCWIN v2.0	0.3	EPI WATERNT v.01	
Pentabromodiphenyl Ether	32534-81-9	564.69	EPI Dermwin v2.0	0.0001447	0.00000354	EPI HenryWin v3.2							21660	EPI KOCWIN v2.0	0.0000009	EPI WATERNT v.01	
Pentabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-99)	60348-60-9	564.69	EPI Dermwin v2.0	0.0001447	0.00000354	EPI HenryWin v3.2	2.28	IRIS Profile					21660	EPI KOCWIN v2.0	0.0000009	EPI WATERNT v.01	
Pentachlorobenzene	608-93-5	250.34	EPI Dermwin v2.0	0.0287408	0.000703	EPI HenryWin v3.2	1.8342	CRC 89th Ed					3708	EPI KOCWIN v2.0	0.831	EPI WATERNT v.01	
Pentachloroethane	76-01-7	202.3	EPI Dermwin v2.0	0.0793132	0.00194	EPI HenryWin v3.2	1.6796	CRC 89th Ed					136.2	EPI KOCWIN v2.0	480	EPI WATERNT v.01	
Pentachloronitrobenzene	82-68-8	295.34	EPI Dermwin v2.0	0.001807	0.0000442	EPI HenryWin v3.2	1.718	CRC 89th Ed					5996	EPI KOCWIN v2.0	0.44	EPI WATERNT v.01	
Pentachlorophenol	87-86-5	266.34	EPI Dermwin v2.0	1.0016E-06	2.45E-08	EPI HenryWin v3.2	1.978	CRC 89th Ed					4959	EPI KOCWIN v2.0	14	EPI WATERNT v.01	
Pentane, n-	109-66-0	72.15	EPI Dermwin v2.0	51.103843	1.25	EPI HenryWin v3.2	0.6262	CRC 89th Ed	0.08213	USEPA 2001	8.7975E-06	USEPA 2001	72.17	EPI KOCWIN v2.0	38	EPI WATERNT v.01	
Perchlorate and Perchlorate Salts	14797-73-0	117.49	EPI												245000	CRC 89th Ed	
Permethrin	52645-53-1	391.3	EPI Dermwin v2.0	0.0000765	0.00000187	EPI HenryWin v3.2	1.23	CRC 89th Ed					118800	EPI KOCWIN v2.0	0.006	EPI WATERNT v.01	
Phenacetin	62-44-2	179.22	EPI Dermwin v2.0	8.7081E-09	2.13E-10	EPI HenryWin v3.2							40.99	EPI KOCWIN v2.0	766	EPI WATERNT v.01	
Phenmedipham	13684-63-4	300.32	EPI Dermwin v2.0	3.438E-11	8.41E-13	EPI HenryWin v3.2							2594	EPI KOCWIN v2.0	4.7	EPI WATERNT v.01	
Phenol	108-95-2	94.11	EPI Dermwin v2.0	0.0000136	0.000000333	EPI HenryWin v3.2	1.0545	CRC 89th Ed	0.083401	EPA 2002	0.0000103	EPA 2002	187.2	EPI KOCWIN v2.0	82800	EPI WATERNT v.01	
Phenylenediamine, m-	108-45-2	108.14	EPI Dermwin v2.0	5.1104E-08	1.25E-09	EPI HenryWin v3.2	1.0096	CRC 89th Ed					33.83	EPI KOCWIN v2.0	238000	EPI WATERNT v.01	
Phenylenediamine, o-	95-54-5	108.14	EPI Dermwin v2.0	2.9436E-07	7.2E-09	EPI HenryWin v3.2							34.52	EPI KOCWIN v2.0	40400	EPI WATERNT v.01	
Phenylenediamine, p-	106-50-3	108.14	EPI Dermwin v2.0	6.3304E-08	8.88E-10	EPI HenryWin v3.2							33.83	EPI KOCWIN v2.0	37000	EPI WATERNT v.01	
Phenylphenol, 2-	90-43-7	170.21	EPI Dermwin v2.0	0.0000429	0.00000105	EPI HenryWin v3.2	1.213	CRC 89th Ed	0.042092	EPA 2002	7.8162E-06	EPA 2002	6722	EPI KOCWIN v2.0	700	EPI WATERNT v.01	
Phorate	298-02-2	260.37	EPI Dermwin v2.0	0.0001787	0.00000437	EPI HenryWin v3.2	1.16	CRC 89th Ed					459.8	EPI KOCWIN v2.0	50	EPI WATERNT v.01	
Phosgene	75-44-5	98.92	EPI Dermwin v2.0	0.6827473	0.0167	EPI HenryWin v3.2	1.3719	CRC 89th Ed	0.089326	USEPA 2001	0.0000117	USEPA 2001	1	EPI KOCWIN v2.0	6825.5	Yaws 2001	
Phosmet	732-11-6	317.32	EPI Dermwin v2.0	3.426E-07	8.38E-09	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	24.4	EPI WATERNT v.01	
Phosphine	7803-51-2	34	EPI Dermwin v2.0				1.39	CRC 89th Ed							3.3	EPI WATERNT v.01	
Phosphoric Acid	7664-38-2	98	EPI Dermwin v2.0												5480000	CRC 89th Ed	
Phosphorus, White	7723-14-0	34	EPI Dermwin v2.0				2.69	CRC 89th Ed							3.3	EPI WATERNT v.01	
Phthalic Acid, P-	100-21-0	166.13	EPI Dermwin v2.0	1.586E-11	3.88E-13	EPI HenryWin v3.2							79.24	EPI KOCWIN v2.0	15	EPI WATERNT v.01	
Phthalic Anhydride	85-44-9	148.12	EPI Dermwin v2.0	6.6639E-07	1.63E-08	EPI HenryWin v3.2	1.527	CRC 89th Ed					10	EPI KOCWIN v2.0	6200	EPI WATERNT v.01	
Picloram	1918-02-1	241.46	EPI Dermwin v2.0	2.179E-12	5.33E-14	EPI HenryWin v3.2							38.77	EPI KOCWIN v2.0	430	EPI WATERNT v.01	
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	199.12	EPI Dermwin v2.0	7.604E-13	1.86E-14	EPI HenryWin v3.2			0.05572	USEPA 1987	6.5104E-06	USEPA 1987	226.5	EPI KOCWIN v2.0	1400	EPI WATERNT v.01	
Pirimiphos, Methyl	29232-93-7	305.33	EPI Dermwin v2.0	0.0000287	0.000000701	EPI HenryWin v3.2	1.17	CRC 89th Ed					374.7	EPI KOCWIN v2.0	8.6	EPI WATERNT v.01	
Polybrominated Biphenyls	59536-65-1		EPI			EPI (HenryWin)										EPI (PKOCWIN)	
Polychlorinated Biphenyls (PCBs)																	EPI (WSKOWWIN)
*Aroclor 1016	12674-11-2	257.55	EPI Dermwin v2.0	0.0081766	0.0002	EPI HenryWin v3.2							47700	EPI KOCWIN v2.0	0.42	EPI WATERNT v.01	
*Aroclor 1221	11104-28-2	188.66	EPI Dermwin v2.0	0.0300899	0.000736	EPI HenryWin v3.2			0.057761	USEPA 1987	6.7489E-06	USEPA 1987	8397	EPI KOCWIN v2.0	15	EPI WATERNT v.01	
*Aroclor 1232	11141-16-5	188.66	EPI Dermwin v2.0	0.0300899	0.000736	EPI HenryWin v3.2			0.057761	USEPA 1987	6.7489E-06	USEPA 1987	8397	EPI KOCWIN v2.0	1.45	EPI WATERNT v.01	
*Aroclor 1242	53469-21-9	291.99	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.277	EPI WATERNT v.01	
*Aroclor 1248	12672-29-6	291.99	EPI Dermwin v2.0	0.0179886	0.00044	EPI HenryWin v3.2							76530	EPI KOCWIN v2.0			

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	D _w (cm ² /s)	D _w Ref	K _{oc} (L/kg)	K _{oc} Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
*Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 156)	38380-08-4	360.88	EPI Dermwin v2.0	0.0058463	0.000143	EPI HenryWin v3.2							213600	EPI KOCWIN v2.0	0.00533	EPI WATERNT v.01
*Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	360.88	EPI Dermwin v2.0	0.0066231	0.000162	EPI HenryWin v3.2							209300	EPI KOCWIN v2.0	0.00051	EPI WATERNT v.01
*Pentachlorobiphenyl, 2',3,4,4',5'- (PCB 123)	65510-44-3	326.44	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							130500	EPI KOCWIN v2.0	0.016	EPI WATERNT v.01
*Pentachlorobiphenyl, 2,3',4,4',5'- (PCB 118)	31598-00-6	326.44	EPI Dermwin v2.0	0.0117743	0.000288	EPI HenryWin v3.2							127900	EPI KOCWIN v2.0	0.0134	EPI WATERNT v.01
*Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	326.44	EPI Dermwin v2.0	0.0115699	0.000283	EPI HenryWin v3.2							130500	EPI KOCWIN v2.0	0.0034	EPI WATERNT v.01
*Pentachlorobiphenyl, 2,3,4,4',5'- (PCB 114)	74472-37-0	326.44	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							130500	EPI KOCWIN v2.0	0.016	EPI WATERNT v.01
*Pentachlorobiphenyl, 3,3',4,4',5'- (PCB 126)	57465-28-8	326.44	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							127900	EPI KOCWIN v2.0	0.0073282	EPI WATERNT v.01
*Polychlorinated Biphenyls (high risk)	1336-36-3	291.99	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.7	EPI WATERNT v.01
*Polychlorinated Biphenyls (low risk)	1336-36-3	291.99	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.7	EPI WATERNT v.01
*Polychlorinated Biphenyls (lowest risk)	1336-36-3	291.99	EPI Dermwin v2.0	0.0077678	0.00019	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.7	EPI WATERNT v.01
*Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	291.99	EPI Dermwin v2.0	0.0003843	0.0000094	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.000569	EPI WATERNT v.01
*Tetrachlorobiphenyl, 3,4,4',5'- (PCB 81)	70362-50-4	291.99	EPI Dermwin v2.0	0.0091169	0.000223	EPI HenryWin v3.2							78100	EPI KOCWIN v2.0	0.032245	EPI WATERNT v.01
Polymeric Methylenediphenyl Diisocyanate (PMDI)	9016-87-9	512.53	EPI Dermwin v2.0	5.397E-10	1.32E-11	EPI HenryWin v3.2							1000000000	EPI KOCWIN v2.0	1.763E-06	EPI WATERNT v.01
Polynuclear Aromatic Hydrocarbons (PAHs)																
*Acenaphthene	83-32-9	154.21	EPI Dermwin v2.0	0.0075225	0.000184	EPI HenryWin v3.2	1.222	CRC 89th Ed	0.050614	USEPA 2001	0.00000833	USEPA 2001	5027	EPI KOCWIN v2.0	3.9	EPI WATERNT v.01
*Anthracene	120-12-7	178.24	EPI Dermwin v2.0	0.0022731	0.0000556	EPI HenryWin v3.2	1.28	CRC 89th Ed	0.038973	USEPA 2001	7.8523E-06	USEPA 2001	16360	EPI KOCWIN v2.0	0.0434	EPI WATERNT v.01
*Benz[a]anthracene	56-55-3	228.3	EPI Dermwin v2.0	0.0004906	0.000012	EPI HenryWin v3.2							176900	EPI KOCWIN v2.0	0.0094	EPI WATERNT v.01
*Benzo[b]fluoranthene	205-82-3	252.32	EPI Dermwin v2.0	8.2993E-06	0.00000203	EPI HenryWin v3.2							599400	EPI KOCWIN v2.0	0.0025	EPI WATERNT v.01
*Benzo[a]pyrene	50-32-8	252.32	EPI Dermwin v2.0	0.0000187	0.000000457	EPI HenryWin v3.2							587400	EPI KOCWIN v2.0	0.00162	EPI WATERNT v.01
*Benzo[b]fluoranthene	205-99-2	252.32	EPI Dermwin v2.0	0.0000269	0.000000657	EPI HenryWin v3.2							599400	EPI KOCWIN v2.0	0.0015	EPI WATERNT v.01
*Benzo[k]fluoranthene	207-08-9	252.32	EPI Dermwin v2.0	0.0000239	0.000000584	EPI HenryWin v3.2							587400	EPI KOCWIN v2.0	0.0008	EPI WATERNT v.01
*Chrysene	218-01-9	228.3	EPI Dermwin v2.0	0.0002138	0.00000523	EPI HenryWin v3.2	1.274	CRC 89th Ed					180500	EPI KOCWIN v2.0	0.002	EPI WATERNT v.01
*Dibenz[a,h]anthracene	53-70-3	278.36	EPI Dermwin v2.0	5.7645E-06	0.000000141	EPI HenryWin v3.2							1912000	EPI KOCWIN v2.0	0.00249	EPI WATERNT v.01
*Dibenzo[a,e]pyrene	192-65-4	302.38	EPI Dermwin v2.0	5.7645E-07	1.41E-08	EPI HenryWin v3.2							6479000	EPI KOCWIN v2.0	0.0000425	EPI WATERNT v.01
*Dimethylbenz[a]anthracene, 7,12-	57-97-6	256.35	EPI Dermwin v2.0	0.0001537	0.00000376	EPI HenryWin v3.2							493600	EPI KOCWIN v2.0	0.061	EPI WATERNT v.01
*Fluoranthene	206-44-0	202.26	EPI Dermwin v2.0	0.0003622	0.00000886	EPI HenryWin v3.2	1.252	CRC 89th Ed					55450	EPI KOCWIN v2.0	0.26	EPI WATERNT v.01
*Fluorene	86-73-7	166.22	EPI Dermwin v2.0	0.003933	0.0000962	EPI HenryWin v3.2	1.203	CRC 89th Ed	0.043974	USEPA 2001	7.889E-06	USEPA 2001	9160	EPI KOCWIN v2.0	1.69	EPI WATERNT v.01
*Indeno[1,2,3-cd]pyrene	193-39-5	276.34	EPI Dermwin v2.0	0.0000142	0.000000348	EPI HenryWin v3.2							1951000	EPI KOCWIN v2.0	0.00019	EPI WATERNT v.01
*Methylnaphthalene, 1-	90-12-0	142.2	EPI Dermwin v2.0	0.0210139	0.000514	EPI HenryWin v3.2	1.0202	CRC 89th Ed	0.052771	USEPA 2001	7.8477E-06	USEPA 2001	2528	EPI KOCWIN v2.0	25.8	EPI WATERNT v.01
*Methylnaphthalene, 2-	91-57-6	142.2	EPI Dermwin v2.0	0.0211774	0.000518	EPI HenryWin v3.2	1.0058	CRC 89th Ed	0.052432	USEPA 2001	7.7811E-06	USEPA 2001	2478	EPI KOCWIN v2.0	24.6	EPI WATERNT v.01
*Naphthalene	91-20-3	128.18	EPI Dermwin v2.0	0.0179886	0.000044	EPI HenryWin v3.2	1.0253	CRC 89th Ed	0.060499	USEPA 2001	8.377E-06	USEPA 2001	1544	EPI KOCWIN v2.0	31	EPI WATERNT v.01
*Nitropyrene, 4-	57835-92-4	247.26	EPI Dermwin v2.0	1.0016E-06	2.45E-08	EPI HenryWin v3.2							86110	EPI KOCWIN v2.0	0.044505	EPI WATERNT v.01
*Pyrene	129-00-0	202.26	EPI Dermwin v2.0	0.0004865	0.0000119	EPI HenryWin v3.2	1.271	CRC 89th Ed	0.027787	EPA 2002	7.2479E-06	EPA 2002	54340	EPI KOCWIN v2.0	0.135	EPI WATERNT v.01
Potassium Perchlorate	7778-74-7	138.55	EPI Dermwin v2.0				2.52	CRC 89th Ed							15000	EPI WATERNT v.01
Prochloraz	67747-09-5	376.67	EPI Dermwin v2.0	6.7048E-07	1.64E-08	EPI HenryWin v3.2							2425	EPI KOCWIN v2.0	34	EPI WATERNT v.01
Profuralin	26399-36-0	347.3	EPI Dermwin v2.0	0.0118561	0.00029	EPI HenryWin v3.2							30520	EPI KOCWIN v2.0	0.1	EPI WATERNT v.01
Prometon	1610-18-0	225.3	EPI Dermwin v2.0	3.7163E-08	9.09E-10	EPI HenryWin v3.2							137.4	EPI KOCWIN v2.0	750	EPI WATERNT v.01
Prometryn	7287-19-6	241.36	EPI Dermwin v2.0	4.8651E-07	1.19E-08	EPI HenryWin v3.2	1.157	CRC 89th Ed					656.4	EPI KOCWIN v2.0	33	EPI WATERNT v.01
Propachlor	1918-16-7	211.69	EPI Dermwin v2.0	0.0000147	0.00000036	EPI HenryWin v3.2	1.242	CRC 89th Ed					204.5	EPI KOCWIN v2.0	580	EPI WATERNT v.01
Propamil	709-98-8	218.08	EPI Dermwin v2.0	6.991E-08	1.71E-09	EPI HenryWin v3.2	1.25	CRC 89th Ed					175.9	EPI KOCWIN v2.0	152	EPI WATERNT v.01
Propargite	2312-35-8	350.48	EPI Dermwin v2.0	0.0000262	0.00000064	EPI HenryWin v3.2	1.1	CRC 89th Ed					36650	EPI KOCWIN v2.0	0.215	EPI WATERNT v.01
Propargyl Alcohol	107-19-7	56.06	EPI Dermwin v2.0	0.000047	0.00000115	EPI HenryWin v3.2	0.9478	CRC 89th Ed	0.117395	EPA 2002	0.0000131	EPA 2002	1.904	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Propazine	139-40-2	229.71	EPI Dermwin v2.0	1.8806E-07	4.6E-09	EPI HenryWin v3.2	1.162	CRC 89th Ed					344.1	EPI KOCWIN v2.0	8.6	EPI WATERNT v.01
Prophan	122-42-9	179.22	EPI Dermwin v2.0	7.5225E-06	0.000000184	EPI HenryWin v3.2	1.09	CRC 89th Ed					218.6	EPI KOCWIN v2.0	179	EPI WATERNT v.01
Propiconazole	60207-90-1	342.23	EPI Dermwin v2.0	7.0319E-08	1.72E-09	EPI HenryWin v3.2	1.27	CRC 89th Ed					1556	EPI KOCWIN v2.0	110	EPI WATERNT v.01
Propionaldehyde	123-38-6	58.08	EPI Dermwin v2.0	0.0030008	0.0000734	EPI HenryWin v3.2	0.8657	CRC 89th Ed	0.110378	USEPA 2001	0.0000122	USEPA 2001	1	EPI KOCWIN v2.0	306000	EPI WATERNT v.01
Propyl benzene	103-65-1	120.2	EPI Dermwin v2.0	0.4292723	0.0105	EPI HenryWin v3.2	0.8593	CRC 89th Ed	0.060156	USEPA 2001	7.831E-06	USEPA 2001	813.1	EPI KOCWIN v2.0	52.2	EPI WATERNT v.01
Propylene	115-07-1	42.08	EPI Dermwin v2.0	8.0131	0.196	EPI HenryWin v3.2	0.505	CRC 89th Ed	0.109699	USEPA 2001	0.0000107	USEPA 2001	21.73	EPI KOCWIN v2.0	200	EPI WATERNT v.01
Propylene Glycol	57-55-6	76.1	EPI Dermwin v2.0	5.2739E-07	1.29E-08	EPI HenryWin v3.2	1.0361	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Propylene Glycol Dinitrate	6423-43-4	166.09	EPI Dermwin v2.0	0.0000385	0.000000942	EPI HenryWin v3.2			0.062882	USEPA 1987	7.3472E-06	USEPA 1987	60.7	EPI KOCWIN v2.0	3261.9	EPI WATERNT v.01
Propylene Glycol Monoethyl Ether	1569-02-4	104.15	EPI Dermwin v2.0	1.0016E-06	2.45E-08	EPI HenryWin v3.2							1.303	EPI KOCWIN v2.0	789970	EPI WATERNT v.01
Propylene Glycol Monomethyl Ether	107-98-2	90.12	EPI Dermwin v2.0	0.0000376	0.00000092	EPI HenryWin v3.2	0.962	CRC 89th Ed	0.083147	EPA 2002	9.9606E-06	EPA 2002	1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Propylene Oxide	75-56-9	58.08	EPI Dermwin v2.0	0.0028455	0.0000696	EPI HenryWin v3.2			0.126688	USEPA 1987	0.0000148	USEPA 1987	5.194	EPI KOCWIN v2.0	590000	EPI WATERNT v.01
Pursuit	81335-77-5	289.34	EPI Dermwin v2.0	4.252E-15	1.04E-16	EPI HenryWin v3.2							339.1	EPI KOCWIN v2.0	1400	EPI WATERNT v.01
Pydrin	51630-58-1	419.91	EPI Dermwin v2.0	1.4105E-08	3.45E-08	EPI HenryWin v3.2	1.15	CRC 89th Ed					317000	EPI KOCWIN v2.0	0.024	EPI WATERNT v.01
Pyridine	110-86-1	79.1	EPI Dermwin v2.0	0.0004497	0.000011	EPI HenryWin v3.2	0.9819	CRC 89th Ed	0.09309	USEPA 2001	0.0000109	USEPA 2001	71.72	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Quinalphos	13593-03-8	298.3	EPI Dermwin v2.0	1.897E-06	4.64E-08	EPI HenryWin v3.2							4185	EPI KOCWIN v2.0	22	EPI WATERNT v.01
Quinoline	91-22-5	129.16	EPI Dermwin v2.0	0.0000683	0.00000167	EPI HenryWin v3.2	1.0977	CRC 89th Ed	0.0618	EPA 2002	8.6873E-06	EPA 2002	1544	EPI KOCWIN v2.0	6110	EPI WATERNT v.01
Refractory Ceramic Fibers	NA															
Resmethrin	10453-86-8	338.45	EPI Dermwin v2.0	5.4374E-06	0.000000133	EPI HenryWin v3.2							311400	EPI KOCWIN v2.0	0.0379	EPI WATERNT v.01
Ronnel	299-84-3	321.54	EPI Dermwin v2.0	0.0013083	0.000032	EPI HenryWin v3.2										

Regional Screening Level (RSL) Chemical-specific Parameters Supporting Table November 2010

Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Diw (cm ² /s)	Diw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Sethoxydim	74051-80-2	327.49	EPI Dermwin v2.0	8.831E-10	2.16E-11	EPI HenryWin v3.2	1.043	CRC 89th Ed					4374	EPI KOCWIN v2.0	25	EPI WATERNT v.01
Silica (crystalline, respirable)	7631-86-9	60.08	EPI Dermwin v2.0													
Silver	7440-22-4	107.87	EPI Dermwin v2.0				10.5	CRC 89th Ed							0	Lange's 15th Ed
Simazine	122-34-9	201.66	EPI Dermwin v2.0	3.8512E-08	9.42E-10	EPI HenryWin v3.2	1.302	CRC 89th Ed					146.5	EPI KOCWIN v2.0	6.2	EPI WATERNT v.01
Sodium Acifluorfen	62476-59-9	383.65	EPI Dermwin v2.0	2.4734E-09	6.05E-11	EPI HenryWin v3.2							3880	EPI KOCWIN v2.0	250000	EPI WATERNT v.01
Sodium Azide	26628-22-8	65.01	EPI Dermwin v2.0				1.846	CRC 89th Ed							408000	CRC 89th Ed
Sodium Diethyldithiocarbamate	148-18-5	171.25	EPI Dermwin v2.0										204.5	EPI KOCWIN v2.0	427890	EPI WATERNT v.01
Sodium Fluoride	7681-49-4	41.99	EPI Dermwin v2.0				2.78	CRC 89th Ed							2100000	EPI WATERNT v.01
Sodium Fluoroacetate	62-74-8	100.03	EPI Dermwin v2.0	0.0000446	0.00000109	EPI HenryWin v3.2			0.088173	USEPA 1987	0.0000103	USEPA 1987	1.44	EPI KOCWIN v2.0	1110000	EPI WATERNT v.01
Sodium Metavanadate	13718-26-8	121.93	CRC 89th Ed												210000	CRC 89th Ed
Sodium Perchlorate	7601-89-0	122.44	EPI Dermwin v2.0				2.52	CRC 89th Ed							2100000	EPI WATERNT v.01
Stirofos (Tetrachlorovinphos)	961-11-5	365.97	EPI Dermwin v2.0	7.5225E-08	1.84E-09	EPI HenryWin v3.2							1375	EPI KOCWIN v2.0	11	EPI WATERNT v.01
Strontium, Stable	7440-24-6	87.62	EPI Dermwin v2.0				2.64	CRC 89th Ed							0	CRC 89th Ed
Strychnine	57-24-9	334.42	EPI Dermwin v2.0	2.437E-12	5.96E-14	EPI HenryWin v3.2	1.36	CRC 89th Ed					5403	EPI KOCWIN v2.0	160	EPI WATERNT v.01
Styrene	100-42-5	104.15	EPI Dermwin v2.0	0.1124285	0.00275	EPI HenryWin v3.2	0.9016	CRC 89th Ed	0.071114	USEPA 2001	8.7838E-06	USEPA 2001	446.1	EPI KOCWIN v2.0	310	EPI WATERNT v.01
Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9	287.16	EPI Dermwin v2.0	5.601E-06	0.000000137	EPI HenryWin v3.2							2855	EPI KOCWIN v2.0	0.51209	EPI WATERNT v.01
Sulfuric Acid	7664-93-9	98.07	EPI Dermwin v2.0				1.8302	CRC 89th Ed							1000000	EPI WATERNT v.01
Systhane	88671-89-0	288.78	EPI Dermwin v2.0	1.7498E-07	4.28E-09	EPI HenryWin v3.2							6075	EPI KOCWIN v2.0	142	EPI WATERNT v.01
TCMTB	21564-17-0	238.34	EPI Dermwin v2.0	2.653E-10	6.49E-12	EPI HenryWin v3.2							3374	EPI KOCWIN v2.0	125	EPI WATERNT v.01
Tebuthiuron	34014-18-1	228.31	EPI Dermwin v2.0	4.906E-09	1.2E-10	EPI HenryWin v3.2							42.35	EPI KOCWIN v2.0	2500	EPI WATERNT v.01
Temephos	3383-96-8	466.46	EPI Dermwin v2.0	8.0131E-08	1.96E-09	EPI HenryWin v3.2	1.32	CRC 89th Ed					95060	EPI KOCWIN v2.0	0.27	EPI WATERNT v.01
Terbacil	5902-51-2	216.67	EPI Dermwin v2.0	4.906E-09	1.2E-10	EPI HenryWin v3.2	1.34	CRC 89th Ed					50.1	EPI KOCWIN v2.0	710	EPI WATERNT v.01
Terbufos	13071-79-9	288.42	EPI Dermwin v2.0	0.0009812	0.000024	EPI HenryWin v3.2	1.105	CRC 89th Ed					998.9	EPI KOCWIN v2.0	5.07	EPI WATERNT v.01
Terbutryn	886-50-0	241.36	EPI Dermwin v2.0	8.7899E-07	2.15E-08	EPI HenryWin v3.2	1.115	CRC 89th Ed					607	EPI KOCWIN v2.0	25	EPI WATERNT v.01
Tetrabromodiphenyl ether, 2,2',4,4'-(BDE-47)	5436-43-1	485.8	EPI Dermwin v2.0	0.0003467	0.00000848	EPI HenryWin v3.2							13230	EPI KOCWIN v2.0	0.054234	EPI WATERNT v.01
Tetrachlorobenzene, 1,2,4,5-	95-94-3	215.89	EPI Dermwin v2.0	0.0408831	0.001	EPI HenryWin v3.2	1.858	CRC 89th Ed					2220	EPI KOCWIN v2.0	0.595	EPI WATERNT v.01
Tetrachloroethane, 1,1,1,2-	630-20-6	167.85	EPI Dermwin v2.0	0.1022077	0.0025	EPI HenryWin v3.2	1.5406	CRC 89th Ed	0.048176	USEPA 2001	9.0977E-06	USEPA 2001	86.03	EPI KOCWIN v2.0	1070	EPI WATERNT v.01
Tetrachloroethane, 1,1,2,2-	79-34-5	167.85	EPI Dermwin v2.0	0.0150041	0.000367	EPI HenryWin v3.2	1.5953	CRC 89th Ed	0.048921	USEPA 2001	9.2902E-06	USEPA 2001	94.94	EPI KOCWIN v2.0	2830	EPI WATERNT v.01
Tetrachloroethylene	127-18-4	165.83	EPI Dermwin v2.0	0.7236304	0.0177	EPI HenryWin v3.2	1.623	CRC 89th Ed	0.050466	USEPA 2001	9.4551E-06	USEPA 2001	94.94	EPI KOCWIN v2.0	206	EPI WATERNT v.01
Tetrachlorophenol, 2,3,4,6-	58-90-2	231.89	EPI Dermwin v2.0	0.0003614	0.00000884	EPI HenryWin v3.2							2969	EPI KOCWIN v2.0	23	EPI WATERNT v.01
Tetrachlorotoluene, p-alpha, alpha, alpha-	5216-25-1	229.92	EPI Dermwin v2.0	0.0078904	0.00193	EPI HenryWin v3.2	1.4463	CRC 89th Ed					1606	EPI KOCWIN v2.0	6.1149	EPI WATERNT v.01
Tetraethyl Dithiopyrophosphate	3689-24-5	322.31	EPI Dermwin v2.0	0.0001819	0.00000445	EPI HenryWin v3.2	1.196	CRC 89th Ed					265.6	EPI KOCWIN v2.0	30	EPI WATERNT v.01
Tetrafluoroethane, 1,1,1,2-	811-97-2	102.03	EPI Dermwin v2.0	2.0441537	0.05	EPI HenryWin v3.2	1.2072	CRC 89th Ed	0.082307	USEPA 2001	0.0000106	USEPA 2001	86.03	EPI KOCWIN v2.0	1089.7	EPI WATERNT v.01
Tetryl (Trinitrophenylmethylnitramine)	479-45-8	287.15	EPI Dermwin v2.0	1.1079E-07	2.71E-09	EPI HenryWin v3.2	1.57	CRC 89th Ed					4605	EPI KOCWIN v2.0	74	EPI WATERNT v.01
Thallium (Soluble Salts)	7440-28-0	204.38	EPI Dermwin v2.0				11.8	CRC 89th Ed							0	CRC 89th Ed
Thiobencarb	28249-77-6	257.78	EPI Dermwin v2.0	0.0000109	0.000000267	EPI HenryWin v3.2	1.16	CRC 89th Ed					1628	EPI KOCWIN v2.0	28	EPI WATERNT v.01
Thiodiglycol	111-48-8	122.18	EPI Dermwin v2.0	1.12E-11	2.74E-13	EPI HenryWin v3.2	1.1793	CRC 89th Ed					1	EPI KOCWIN v2.0	1000000	EPI WATERNT v.01
Thiofanox	39196-18-4	218.32	EPI Dermwin v2.0	3.8389E-07	9.39E-09	EPI HenryWin v3.2							72.4	EPI KOCWIN v2.0	5200	EPI WATERNT v.01
Thiophanate, Methyl	23564-05-8	342.39	EPI Dermwin v2.0	4.9469E-08	1.21E-09	EPI HenryWin v3.2							327.4	EPI KOCWIN v2.0	26.6	EPI WATERNT v.01
Thiram	137-26-8	240.42	EPI Dermwin v2.0	7.4407E-06	0.000000182	EPI HenryWin v3.2							611.4	EPI KOCWIN v2.0	30	EPI WATERNT v.01
Tin	7440-31-5	120.73	EPI Dermwin v2.0				7.287	CRC 89th Ed							0	Lange's 15th Ed
Titanium Tetrachloride	7550-45-0	189.68	EPI Dermwin v2.0				1.73	CRC 89th Ed								CRC 89th Ed
Toluene	108-88-3	92.14	EPI Dermwin v2.0	0.2714636	0.00664	EPI HenryWin v3.2	0.8623	CRC 89th Ed	0.077805	USEPA 2001	9.2045E-06	USEPA 2001	233.9	EPI KOCWIN v2.0	526	EPI WATERNT v.01
Toluidine, p-	106-49-0	107.16	EPI Dermwin v2.0	0.0000826	0.00000202	EPI HenryWin v3.2	0.9619	CRC 89th Ed	0.071219	EPA 2002	8.977E-06	EPA 2002	112.7	EPI KOCWIN v2.0	6500	EPI WATERNT v.01
Toxaphene	8001-35-2	413.82	EPI Dermwin v2.0	0.0002453	0.000006	EPI HenryWin v3.2							77200	EPI KOCWIN v2.0	0.0069682	EPI WATERNT v.01
Tralometrin	66841-25-6	665.02	EPI Dermwin v2.0	1.6108E-08	3.94E-10	EPI HenryWin v3.2							191100	EPI KOCWIN v2.0	0.08	EPI WATERNT v.01
Tri-n-butyltin	688-73-3	291.07	EPI Dermwin v2.0	62.142273	1.52	EPI HenryWin v3.2	1.103	CRC 89th Ed					8091	EPI KOCWIN v2.0	0.82457	EPI WATERNT v.01
Triallate	2303-17-5	304.66	EPI Dermwin v2.0	0.0004906	0.000012	EPI HenryWin v3.2	1.273	CRC 89th Ed					1008	EPI KOCWIN v2.0	4	EPI WATERNT v.01
Triasulfuron	82097-50-5	401.83	EPI Dermwin v2.0	1.321E-11	3.23E-13	EPI HenryWin v3.2							427.2	EPI KOCWIN v2.0	32	EPI WATERNT v.01
Tribromobenzene, 1,2,4-	615-54-3	314.8	EPI Dermwin v2.0	0.0158626	0.000388	EPI HenryWin v3.2			0.041058	USEPA 1987	4.7973E-06	USEPA 1987	614.3	EPI KOCWIN v2.0	4.9	EPI WATERNT v.01
Tributyl Phosphate	126-73-8	266.32	EPI Dermwin v2.0	0.0000576	0.00000141	EPI HenryWin v3.2	0.9727	CRC 89th Ed					2350	EPI KOCWIN v2.0	280	EPI WATERNT v.01
Tributyltin Compounds	NA															
Tributyltin Oxide	56-35-9	596.12	EPI Dermwin v2.0	0.0000123	0.000000302	EPI HenryWin v3.2	1.17	CRC 89th Ed					25930000	EPI KOCWIN v2.0	19.5	EPI WATERNT v.01
Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	187.38	EPI Dermwin v2.0	21.504497	0.526	EPI HenryWin v3.2	1.5635	CRC 89th Ed	0.037566	USEPA 2001	8.592E-06	USEPA 2001	196.8	EPI KOCWIN v2.0	170	EPI WATERNT v.01
Trichloroacetic Acid	76-03-9	163.39	EPI Dermwin v2.0	5.5192E-07	1.35E-08	EPI HenryWin v3.2	1.6126	CRC 89th Ed					3.231	EPI KOCWIN v2.0	54600	EPI WATERNT v.01
Trichloroaniline HCl, 2,4,6-	33663-50-2	232.93	EPI Dermwin v2.0	2.935E-12	7.18E-14	EPI HenryWin v3.2							1271	EPI KOCWIN v2.0	20.964	EPI WATERNT v.01
Trichloroaniline, 2,4,6-	634-93-5	196.46	EPI Dermwin v2.0	0.0000548	0.00000134	EPI HenryWin v3.2							4440	EPI KOCWIN v2.0	40	EPI WATERNT v.01
Trichlorobenzene, 1,2,3-	87-61-6	181.45	EPI Dermwin v2.0	0.0511038	0.00125	EPI HenryWin v3.2	1.4533	CRC 89th Ed	0.03953	USEPA 2001	8.3836E-06	USEPA 2001	1383	EPI KOCWIN v2.0	18	EPI WATERNT v.01
Trichlorobenzene, 1,2,4-	120-82-1	181.45	EPI Dermwin v2.0	0.0508504	0.00142	EPI HenryWin v3.2	1.459	CRC 89th Ed	0.039599	USEPA 2001	8.4033E-06	USEPA 2001	1356	EPI KOCWIN v2.0	49	EPI WATERNT v.01
Trichloroethane, 1,1,1-	71-55-6	133.41	EPI Dermwin v2.0	0.7031889	0.0172	EPI HenryWin v3.2	1.339	CRC 89th Ed	0.064817	USEPA 2001	9.599E-06	USEPA 2001	43.89	EPI KOCWIN v2.0	1290	EPI WATERNT v.01
Trichloroethane, 1,1,2-	79-00-5	133.41	EPI Dermwin v2.0	0.0336877	0.000824	EPI HenryWin v3.2	1.4397	CRC 89th Ed	0.06689	USEPA 2001	0.00001	USEPA 2001	60.7	EPI KOCWIN v2.0	4590	EPI WATERNT v.01
Trichloroethylene	79-01-6	131.39	EPI Dermwin v2.0	0.4026983	0.00985	EPI HenryWin v3.2	1.4642	CRC 89th Ed	0.068662	USEPA 2001	0.0000102	USEPA 2001	60.7	EPI KOCWIN v2.0	1280	EPI WATERNT v.01
Trichlorofluoromethane	75-69-4	137.37	EPI Dermwin v2.0	3.9656582	0.097	EPI HenryWin v3.2	1.4879	CRC 89th Ed	0.065356	USEPA 2001	0.00001	USEPA 2001	43.89	EPI KOCWIN v2.0		

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Contaminant		Molecular Weight		Henry's Law Constants			Density		Diffusivity in Air		Diffusivity in Water		Organic Carbon Partition		Water Solubility	
Analyte	CAS No.	MW	MW Ref	H ⁺ (unitless)	HLC (atm-m ³ /mole)	H ⁺ and HLC Ref	Density (g/cm ³)	Density Ref	Dia (cm ² /s)	Dia Ref	Dw (cm ² /s)	Dw Ref	Koc (L/kg)	Koc Ref	S (mg/L)	S Ref
ALAR	1596-84-5	160.17	EPI Dermwin v2.0	1.7294E-08	4.23E-10	EPI HenryWin v3.2							10	EPI KOCWIN v2.0	100000	EPI WATERNT v.01
Trichloropropane, 1,1,2-	598-77-6	147.43	EPI Dermwin v2.0	0.0129599	0.000317	EPI HenryWin v3.2	1.372	CRC 89th Ed	0.057158	USEPA 2001	9.1735E-06	USEPA 2001	94.94	EPI KOCWIN v2.0	1900	EPI WATERNT v.01
Trichloropropane, 1,2,3-	96-18-4	147.43	EPI Dermwin v2.0	0.0140229	0.000343	EPI HenryWin v3.2	1.3889	CRC 89th Ed	0.057466	USEPA 2001	9.2411E-06	USEPA 2001	115.8	EPI KOCWIN v2.0	1750	EPI WATERNT v.01
Trichloropropene, 1,2,3-	96-19-5	145.42	EPI Dermwin v2.0	0.7195421	0.0176	EPI HenryWin v3.2	1.412	CRC 89th Ed	0.059063	USEPA 2001	9.4102E-06	USEPA 2001	115.8	EPI KOCWIN v2.0	484.19	EPI WATERNT v.01
Tridiphane	58138-08-2	320.43	EPI Dermwin v2.0	0.0000168	0.00000041	EPI HenryWin v3.2							3447	EPI KOCWIN v2.0	1.1696	EPI WATERNT v.01
Triethylamine	121-44-8	101.19	EPI Dermwin v2.0	0.0060916	0.000149	EPI HenryWin v3.2	0.7275	CRC 89th Ed	0.066363	USEPA 2001	7.8576E-06	USEPA 2001	50.81	EPI KOCWIN v2.0	68600	EPI WATERNT v.01
Trifluralin	1582-09-8	335.29	EPI Dermwin v2.0	0.004211	0.000103	EPI HenryWin v3.2							16390	EPI KOCWIN v2.0	0.184	EPI WATERNT v.01
Trimethyl Phosphate	512-56-1	140.08	EPI Dermwin v2.0	2.9436E-07	7.2E-09	EPI HenryWin v3.2	1.2144	CRC 89th Ed					10.6	EPI KOCWIN v2.0	500000	EPI WATERNT v.01
Trimethylbenzene, 1,2,4-	95-63-6	120.2	EPI Dermwin v2.0	0.2518397	0.00616	EPI HenryWin v3.2	0.8758	CRC 89th Ed	0.060675	USEPA 2001	7.9209E-06	USEPA 2001	614.3	EPI KOCWIN v2.0	57	EPI WATERNT v.01
Trimethylbenzene, 1,3,5-	108-67-8	120.2	EPI Dermwin v2.0	0.3585446	0.00877	EPI HenryWin v3.2	0.8615	CRC 89th Ed	0.060225	USEPA 2001	7.843E-06	USEPA 2001	602.1	EPI KOCWIN v2.0	48.2	EPI WATERNT v.01
Trinitrobenzene, 1,3,5-	99-35-4	213.11	EPI Dermwin v2.0	2.6574E-07	6.5E-09	EPI HenryWin v3.2	1.4775	CRC 89th Ed					1683	EPI KOCWIN v2.0	278	EPI WATERNT v.01
Trinitrotoluene, 2,4,6-	118-96-7	227.13	EPI Dermwin v2.0	8.5037E-07	2.08E-08	EPI HenryWin v3.2	1.654	CRC 89th Ed					2812	EPI KOCWIN v2.0	115	EPI WATERNT v.01
Triphenylphosphine Oxide	791-28-6	278.29	EPI Dermwin v2.0	2.1504E-08	5.26E-10	EPI HenryWin v3.2	1.2124	CRC 89th Ed					1954	EPI KOCWIN v2.0	204.51	EPI WATERNT v.01
Tris(1,3-Dichloro-2-propyl) Phosphate	13674-87-8	430.91	EPI Dermwin v2.0	1.07E-07	2.61E-09	EPI HenryWin v3.2							11130	EPI KOCWIN v2.0	7	EPI WATERNT v.01
Tris(2-chloroethyl)phosphate	115-96-8	285.49	EPI Dermwin v2.0	0.0001345	0.00000329	EPI HenryWin v3.2	1.39	CRC 89th Ed					388.3	EPI KOCWIN v2.0	7000	EPI WATERNT v.01
Tris(2-ethylhexyl)phosphate	78-42-2	434.65	EPI Dermwin v2.0	3.2134E-06	7.86E-08	EPI HenryWin v3.2	0.99	CRC 89th Ed					2468000	EPI KOCWIN v2.0	0.6	EPI WATERNT v.01
Uranium (Soluble Salts)	NA						19.1	CRC 89th Ed							0	Lange's 15th Ed
Urethane	51-79-6	89.09	EPI Dermwin v2.0	2.6288E-06	6.43E-08	EPI HenryWin v3.2	0.9862	CRC 89th Ed					12.13	EPI KOCWIN v2.0	480000	EPI WATERNT v.01
Vanadium Pentoxide	1314-62-1	181.88	EPI Dermwin v2.0				3.35	CRC 89th Ed							700	CRC 89th Ed
Vanadium Sulfate	36907-42-3	273.11	CRC 89th Ed													
Vanadium and Compounds	NA	50.94	CRC 89th Ed				6	CRC 89th Ed							0	CRC 89th Ed
Vanadium, Metallic	7440-62-2	50.94	EPI Dermwin v2.0				6	CRC 89th Ed							0	CRC 89th Ed
Vernolate	1929-77-7	203.35	EPI Dermwin v2.0	0.0012633	0.0000309	EPI HenryWin v3.2	0.952	CRC 89th Ed					299.1	EPI KOCWIN v2.0	90	EPI WATERNT v.01
Vinclozolin	50471-44-8	286.12	EPI Dermwin v2.0	7.1137E-07	1.74E-08	EPI HenryWin v3.2	1.51	CRC 89th Ed					283.6	EPI KOCWIN v2.0	2.6	EPI WATERNT v.01
Vinyl Acetate	108-05-4	86.09	EPI Dermwin v2.0	0.0208913	0.000511	EPI HenryWin v3.2	0.9256	CRC 89th Ed	0.084902	USEPA 2001	0.00001	USEPA 2001	5.583	EPI KOCWIN v2.0	20000	EPI WATERNT v.01
Vinyl Bromide	593-60-2	106.95	EPI Dermwin v2.0	0.5028618	0.0123	EPI HenryWin v3.2	1.4933	CRC 89th Ed	0.086224	USEPA 2001	0.0000117	USEPA 2001	21.73	EPI KOCWIN v2.0	10358	EPI WATERNT v.01
Vinyl Chloride	75-01-4	62.5	EPI Dermwin v2.0	1.1365495	0.0278	EPI HenryWin v3.2	0.9106	CRC 89th Ed	0.107119	USEPA 2001	0.000012	USEPA 2001	21.73	EPI KOCWIN v2.0	8800	EPI WATERNT v.01
Warfarin	81-81-2	308.34	EPI Dermwin v2.0	1.1325E-07	2.77E-09	EPI HenryWin v3.2							426.1	EPI KOCWIN v2.0	17	EPI WATERNT v.01
Xylene, Mixture	1330-20-7	106.17	EPI Dermwin v2.0	0.2117743	0.00518	EPI HenryWin v3.2			0.08474	USEPA 1987	9.9011E-06	USEPA 1987	382.9	EPI KOCWIN v2.0	106	EPI WATERNT v.01
Xylene, p-	106-42-3	106.17	EPI Dermwin v2.0	0.2820932	0.0069	EPI HenryWin v3.2	0.8565	CRC 89th Ed	0.068249	USEPA 2001	8.4199E-06	USEPA 2001	375.3	EPI KOCWIN v2.0	162	EPI WATERNT v.01
Xylene, m-	108-38-3	106.17	EPI Dermwin v2.0	0.2935405	0.00718	EPI HenryWin v3.2	0.8598	CRC 89th Ed	0.068366	USEPA 2001	8.4394E-06	USEPA 2001	375.3	EPI KOCWIN v2.0	161	EPI WATERNT v.01
Xylene, o-	95-47-6	106.17	EPI Dermwin v2.0	0.2117743	0.00518	EPI HenryWin v3.2	0.8755	CRC 89th Ed	0.06892	USEPA 2001	8.5315E-06	USEPA 2001	382.9	EPI KOCWIN v2.0	178	EPI WATERNT v.01
Zinc (Metallic)	7440-66-6	67.41	EPI Dermwin v2.0				7.134	CRC 89th Ed							0	Lange's 15th Ed
Zinc Phosphide	1314-84-7	258.18	CRC 89th Ed				4.55	CRC 89th Ed							0	CRC 89th Ed
Zineb	12122-67-7	275.74	EPI Dermwin v2.0	6.5004E-09	1.59E-10	EPI HenryWin v3.2							1345	EPI KOCWIN v2.0	10	EPI WATERNT v.01

EPA 2002 = EPA 2002

EPA 1987 = Processes, Coefficients, and Models for Simulation Toxic Organics and Heavy Metals in Surface Waters. EPA/600/3-87/015. Office of Research and Development, Athens, GA.

CRC = Handbook of Chemistry and Physics

MW Other = Chemfinder, Dermwin version 1.42, or Physprop Datab

CRC Chrom III note = CRC 85th edition, (Values reported here are for chromium (III) oxide (CAS 1308-38-9) which is one of the water insoluble salts.)

CRC Chrom VI note = CRC 85th edition, (decomposes at this temp) Values reported here are for chromium (VI) oxide (CAS 1333-82-0)

EPI (Henry Win) 1 = EPI (HenryWin) Experimental value; citation not listed



Mid-Atlantic Risk Assessment

You are here: [EPA Home](#) | [Mid-Atlantic Risk Assessment](#) | Regional Screening Table - User's Guide

User's Guide (November 2010)

Disclaimer

Table of Contents

This guidance sets forth a recommended, but not mandatory, approach based upon currently available information with respect to risk assessment for response actions at CERCLA sites. This document does not establish binding rules. Alternative approaches for risk assessment may be found to be more appropriate at specific sites (e.g., where site circumstances do not match the underlying assumptions, conditions and models of the guidance). The decision whether to use an alternative approach and a description of any such approach should be documented for such sites. Accordingly, when comments are received at individual CERCLA sites questioning the use of the approaches recommended in this guidance, the comments should be considered and an explanation provided for the selected approach.

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It should also be noted that the screening levels (SLs) in these tables are based upon human health risk and do not address potential ecological risk. Some sites in sensitive ecological settings may also need to be evaluated for potential ecological risk. EPA's guidance "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessment" <http://www.epa.gov/oswer/riskassessment/ecorisk/ecorisk.htm> contains an eight step process for using benchmarks for ecological effects in the remedy selection process.

1. Introduction

The purpose of this website is to provide default screening tables and a calculator to assist Remedial Project Managers (RPMs), On Scene Coordinators (OSC's), risk assessors and others involved in decision-making concerning CERCLA hazardous waste sites and to determine whether levels of contamination found at the site may warrant further investigation or site cleanup, or whether no further investigation or action may be required.

Users within and outside the CERCLA program should use the tables or calculator results at their own discretion and they should take care to understand the assumptions incorporated in these results and to apply the SLs appropriately.

The SLs presented in the Generic Tables are chemical-specific concentrations for individual contaminants in air, drinking water and soil that may warrant further investigation or site cleanup. The SLs generated from the calculator may be site-specific concentrations for individual chemicals in soil, air, water and fish. **It should be emphasized that SLs are not cleanup standards.** SLs should not be used as cleanup levels for a CERCLA site until the other remedy selections identified in the relevant portions of the National Contingency Plan (NCP), 40 CFR Part 300, have been evaluated and considered. PRGs is a term used to describe a project team's early and evolving identification of possible remedial goals. PRGs may be initially identified early in the Remedial Investigation/ Feasibility Study (RI/FS) process (e.g., at RI scoping) to select appropriate detection limits for RI sampling. Typically, it is necessary for PRGs to be more generic early in the process and to become more refined and site-specific as data collection and assessment progress. The SLs identified on this website are likely to serve as PRGs early in the process--e.g., at RI scoping and at screening of chemicals of potential concern (COPCs) for the baseline risk assessment. However, once the baseline risk assessment has been performed, PRGs can be derived from the calculator using site-specific risks, and the SLs in the Generic Tables are less likely to apply. PRGs developed in the FS will usually be based on site-specific risks and Applicable or Relevant and Appropriate Requirements (ARARs) and not on generic SLs.

2. Understanding the Screening Tables

2.1 General Considerations

Risk-based SLs are derived from equations combining exposure assumptions with chemical-specific toxicity values.

2.2 Exposure Assumptions

Generic SLs are based on default exposure parameters and factors that represent Reasonable Maximum Exposure (RME) conditions for long-term/chronic exposures and are based on the methods outlined in EPA's [Risk Assessment Guidance for Superfund, Part B Manual \(1991\)](#) and Soil Screening Guidance documents ([1996](#) and [2002](#)).

Site-specific information may warrant modifying the default parameters in the equations and calculating site-specific SLs, which may differ from the values in these tables. In completing such calculations, the user should answer some fundamental questions about the site. For example, information is needed on the contaminants detected at the site, the land use, impacted media and the likely pathways for human exposure.

Whether these generic SLs or site-specific screening levels are used, it is important to clearly demonstrate the equations and exposure parameters used in deriving SLs at a site. A discussion of the assumptions used in the SL calculations should be included in the documentation for a CERCLA site.

2.3 Toxicity Values

In 2003, EPA's Superfund program revised its hierarchy of human health toxicity values, providing three tiers of toxicity values (<http://www.epa.gov/oswer/riskassessment/pdf/hhmemo.pdf>). Three tier 3 sources were identified in that guidance, but it was acknowledged that additional tier 3 sources may exist. The 2003 guidance did not attempt to rank or put the identified tier 3 sources into a hierarchy of their own. However, when developing the screening tables and calculator presented on this website, EPA needed to establish a hierarchy among the tier 3 sources. The toxicity values used as "defaults" in these tables and calculator are consistent with the 2003 guidance. Toxicity values from the following sources in the order in which they are presented below are used as the defaults in these tables and calculator.

1. EPA's Integrated Risk Information System ([IRIS](#))
2. The Provisional Peer Reviewed Toxicity Values ([PPRTVs](#)) derived by EPA's Superfund Health Risk Technical Support Center (STSC) for the EPA Superfund program.
3. The Agency for Toxic Substances and Disease Registry ([ATSDR](#)) minimal risk levels ([MRLs](#))
4. The California Environmental Protection Agency ([OEHHA](#)) Office of Environmental Health Hazard Assessment's Chronic Reference Exposure Levels ([RELS](#)) from December 18, 2008 and the [Cancer Potency Values](#) from July 21, 2009.
5. In the Fall 2009, this new source of toxicity values used was added: screening toxicity values in an appendix to certain PPRTV assessments. While we have less confidence in a screening toxicity value than in a PPRTV, we put these ahead of HEAST toxicity values because these appendix screening toxicity values are more recent and use current EPA methodologies in the derivation, and because the PPRTV appendix screening toxicity values also receive external peer review.

6. The EPA Superfund program's Health Effects Assessment Summary. (Note that the [HEAST](#) website of toxicity values for chemical contaminants is not open to users outside of EPA, but values can be obtained for use on Superfund sites by contacting Rich Kapuscinski at Kapuscinski.Rich@epa.gov).

Users of these screening tables and calculator wishing to consider using other toxicity values, including toxicity values from additional sources, may find the discussions and seven preferences on selecting toxicity values in the attached Environmental Council of States paper useful for this purpose ([ECOS website](#), [ECOS paper](#)).

When using toxicity values, users are encouraged to carefully review the basis for the value and to document the basis of toxicity values used on a CERCLA site.

2.3.1 Reference Doses

The current, or recently completed, EPA toxicity assessments used in these screening tables (IRIS and PPRTVs) define a reference dose, or RfD, as an estimate (with uncertainty spanning perhaps an order of magnitude) of a daily oral exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark dose, or using categorical regression, with uncertainty factors generally applied to reflect limitations of the data used. RfDs are generally the toxicity value used most often in evaluating noncancer health effects at Superfund sites. Various types of RfDs are available depending on the critical effect (developmental or other) and the length of exposure being evaluated (chronic or subchronic). Some of the SLs in these tables also use Agency for Toxic Substances and Disease Registry (ATSDR) chronic oral minimal risk levels (MRLs) as an oral chronic RfD. The HEAST RfDs used in these SLs were based upon then current EPA toxicity methodologies, but did not use the more recent benchmark dose or categorical regression methodologies. Chronic oral reference doses and ATSDR chronic oral MRLs are expressed in units of (mg/kg-day).

Chronic oral RfDs are specifically developed to be protective for long-term exposure to a compound. As a guideline for Superfund program risk assessments, chronic oral RfDs generally should be used to evaluate the potential noncarcinogenic effects associated with exposure periods greater than 7 years (approximately 10 percent of a human lifetime). However, this is not a bright line. Note, that ATSDR defines chronic exposure as greater than 1 year for use of their values.

2.3.2 Reference Concentrations

The current, or recently completed, EPA toxicity assessments used in these screening tables (IRIS and PPRTV assessments) define a reference concentration (RfC) as an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from a NOAEL, LOAEL, or benchmark concentration, or using categorical regression with uncertainty factors generally applied to reflect limitations of the data used. Various types of RfCs are available depending on the critical effect (developmental or other) and the length of exposure being evaluated (chronic or subchronic). These screening tables also use ATSDR chronic inhalation MRLs as a chronic RfC, intermediate inhalation MRLs as a subchronic RfC and California Environmental Protection Agency (chronic) Reference Exposure Levels (RELs) as chronic RfCs. These screening tables may also use some RfCs from EPA's HEAST tables.

The chronic inhalation reference concentration is generally used for continuous or near continuous inhalation exposures that occur for 7 years or more. However, this is not a bright line, and ATSDR chronic MRLs are based on exposures longer than 1 year. EPA chronic inhalation reference concentrations are expressed in units of (mg/m³). Cal EPA RELs are presented in µg/m³ and have been converted to mg/m³ for use in these screening tables. Some ATSDR inhalation MRLs are derived in parts per million (ppm) and some in mg/m³. For use in this table all were converted into mg/m³.

2.3.3 Slope Factors

A slope factor and the accompanying weight-of-evidence determination are the toxicity data most commonly used to evaluate potential human carcinogenic risks. Generally, the slope factor is a plausible upper-bound estimate of the probability of a response per unit intake of a chemical over a lifetime. The slope factor is used in risk assessments to estimate an upper-bound lifetime probability of an individual developing cancer as a result of exposure to a particular level of a potential carcinogen. Slope factors should always be accompanied by the weight-of-evidence classification to indicate the strength of the evidence that the agent is a human carcinogen.

Oral slope factors are toxicity values for evaluating the probability of an individual developing cancer from oral exposure to contaminant levels over a lifetime. Oral slope factors are expressed in units of (mg/kg-day)⁻¹. When available, oral slope factors from EPA's IRIS or PPRTV assessments are used. The ATSDR does not derive cancer toxicity values (e.g. slope factors or inhalation unit risks). Some oral slope factors used in these screening tables were derived by the California Environmental Protection Agency, whose methodologies are quite similar to those used by EPA's IRIS and PPRTV assessments. When oral slope factors are not available in IRIS, PPRTV or Cal EPA assessments, values from HEAST are used.

2.3.4 Inhalation Unit Risk

The IUR is defined as the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to an agent at a concentration of 1 µg/m³ in air. Inhalation unit risk toxicity values are expressed in units of (µg/m³)⁻¹.

When available, inhalation unit risk values from EPA's IRIS or PPRTV assessments are used. The ATSDR does not derive cancer toxicity values (e.g. slope factors or inhalation unit risks). Some inhalation unit risk values used in these screening tables were derived by the California Environmental Protection Agency, whose methodologies are quite similar to those used by EPA's IRIS and PPRTV assessments. When inhalation unit risk values are not available in IRIS, PPRTV or Cal EPA assessments, values from HEAST are used.

2.3.5 Toxicity Equivalence Factors

Some chemicals are members of the same family and exhibit similar toxicological properties; however, they differ in the degree of toxicity. Therefore, a toxicity equivalence factor (TEF) must first be applied to adjust the measured concentrations to a toxicity equivalent concentration.

The following table contains the various dioxin-like toxicity equivalency factors for Dioxins, Furans and PCBs ([Van den Berg et al. 2006](#)), which are the World Health Organization 2005 values.

Dioxin Toxicity Equivalence Factors

	Dioxins and Furans	TEF
Chlorinated dibenzo-p-dioxins		
	2,3,7,8-TCDD	1
	1,2,3,7,8-PeCDD	1
	1,2,3,4,7,8-HxCDD	0.1
	1,2,3,6,7,8-HxCDD	0.1
	1,2,3,7,8,9-HxCDD	0.1
	1,2,3,4,6,7,8-HpCDD	0.01
	OCDD	0.0003
Chlorinated dibenzofurans		

	2,3,7,8-TCDF	0.1	
	1,2,3,7,8-PeCDF	0.03	
	2,3,4,7,8-PeCDF	0.3	
	1,2,3,4,7,8-HxCDF	0.1	
	1,2,3,6,7,8-HxCDF	0.1	
	1,2,3,7,8,9-HxCDF	0.1	
	2,3,4,6,7,8-HxCDF	0.1	
	1,2,3,4,6,7,8-HpCDF	0.01	
	1,2,3,4,7,8,9-HpCDF	0.01	
	OCDF	0.0003	
PCBs			
	IUPAC No.	Structure	
>Non-ortho	77	3,3',4,4'-TetraCB	0.0001
	81	3,4,4',5-TetraCB	0.0003
	126	3,3',4,4',5-PeCB	0.1
	169	3,3',4,4',5,5'-HxCB	0.03
>Mono-ortho	105	2,3,3',4,4'-PeCB	0.00003
	114	2,3,4,4',5-PeCB	0.00003
	118	2,3',4,4',5-PeCB	0.00003
	123	2',3,4,4',5-PeCB	0.00003
	156	2,3,3',4,4',5-HxCB	0.00003
	157	2,3,3',4,4',5'-HxCB	0.00003
	167	2,3',4,4',5,5'-HxCB	0.00003
	189	2,3,3',4,4',5,5'-HpCB	0.00003
>Di-ortho*	170	2,2',3,3',4,4',5-HpCB	0.0001
	180	2,2',3,4,4',5,5'-HpCB	0.00001

* Di-ortho values come from Ahlborg, U.G., et al. (1994), which are the WHO 1994 values from Toxic equivalency factors for dioxin-like PCBs: Report on WHO-ECEH and IPCS consultation, December 1993 *Chemosphere*, Volume 28, Issue 6, March 1994, Pages 1049-1067.

Carcinogenic polycyclic aromatic hydrocarbons

Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons (EPA/600/R-93/089, July 1993), recommends that a toxicity equivalency factor (TEF) be used to convert concentrations of carcinogenic polycyclic aromatic hydrocarbons (cPAHs) to an equivalent concentration of benzo(a)pyrene when assessing the cancer risks posed by these substances from oral exposures. These TEFs are based on the potency of each compound relative to that of benzo(a)pyrene. For the toxicity value database, these TEFs have been applied to the toxicity values. Although this is not in complete agreement with the direction in the aforementioned documents, this approach was used so that toxicity values could be generated for each cPAH. Additionally, it should be noted that computationally it makes little difference whether the TEFs are applied to the concentrations of cPAHs found in environmental samples or to the toxicity values as long as the TEFs are not applied to both. However, if the adjusted toxicity values are used, the user will need to sum the risks from all cPAHs as part of the risk assessment to derive a total risk from all cPAHs. A total risk from all cPAHs is what is derived when the TEFs are applied to the environmental concentrations of cPAHs and not to the toxicity values. These TEFs are not needed and should not be used with the Cal EPA Inhalation Unit Risk Values used, nor should they be used when calculating non-cancer risk. See FAQ no. 15.

The following table presents the TEFs for cPAHs recommended in *Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons*.

Toxicity Equivalency Factors for Carcinogenic Polycyclic Aromatic Hydrocarbons

Compound	TEF
Benzo(a)pyrene	1.0
Benz(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

2.4 Chemical-specific Parameters

Several chemical specific parameters are needed for development of the SLs. Different hierarchies are used for organic and inorganic compounds.

2.4.1 Organic Compounds

- Values were taken from <http://www.epa.gov/opptintr/exposure/pubs/episuite.htm>. These programs estimate various chemical-specific properties. The calculations for these SL tables use the experimental values for a property over the estimated values.
- EPA Soil Screening Level (SSL) [Exhibit C-1](#).
- WATER8, which has been replaced with [WATER9](#).
- Syracuse Research Corporation (SRC). 2005. [CHEMFATE](#) Database. SRC. Syracuse, NY. Accessed July 2005.
- Syracuse Research Corporation (SRC). 2005. [PHYSPROP](#) Database. SRC. Syracuse, NY. Accessed July 2005.

2.4.2 Inorganic Compounds

For unitless Henry's Law (ammonia, chlorine, cyanogen, cyanogen chloride, hydrogen cyanide only):

- Syracuse Research Corporation (SRC). 2005. [PHYSPROP](#) Database. SRC. Syracuse, NY. (<http://www.srcinc.com/what-we-do/databaseforms.aspx?id=386>).

2. Yaws' Handbook of Thermodynamic and Physical Properties of Chemical Compounds. Knovel, 2003. (<http://www.knovel.com>).

For Kd (soil-water partition coefficient):

1. EPA Soil Screening Level (SSL) Table C.4 (<http://www.epa.gov/superfund/health/conmedia/soil/index.htm>).
2. Baes, C.F. 1984. Oak Ridge National Laboratory. A Review and Analysis of Parameters for Assessing Transport of Environmentally Released Radionuclides through Agriculture. <http://homer.ornl.gov/baes/documents/ornl5786.html>. Values are also found in Superfund Chemical Data Matrix (SCDM) (<http://www.epa.gov/superfund/sites/npl/hrsres/tools/scdm.htm>).

For molecular weights:

1. EPI (<http://www.epa.gov/oppt/exposure/pubs/episuite.htm>)
2. Syracuse Research Corporation (SRC). 2005. PHYSPROP Database. SRC. Syracuse, NY. (<http://www.srcinc.com/what-we-do/databaseforms.aspx?id=386>).

For Vapor Pressure:

1. NIOSH Pocket Guide to Chemical Hazards (NPG), NIOSH Publication No. 97-140, February 2004. (<http://www.cdc.gov/niosh/npg/npg.html>).
2. Syracuse Research Corporation (SRC). 2005. CHEMFATE Database. SRC. Syracuse, NY. (<http://www.srcinc.com/what-we-do/databaseforms.aspx?id=381>).
3. Syracuse Research Corporation (SRC). 2005. PHYSPROP Database. SRC. Syracuse, NY. (<http://www.srcinc.com/what-we-do/databaseforms.aspx?id=386>).

For diffusivity in air and water, if desired at all, for the gasses and mercuric compounds:

1. WATER 9, (EPA 2001). See section 4.9.2.

3. Using the SL Tables

The "[Generic Tables](#)" page provides generic concentrations in the absence of site-specific exposure assessments. These concentrations can be used for:

- Prioritizing multiple sites or operable units or areas of concern within a facility or exposure units
- Setting risk-based detection limits for contaminants of potential concern (COPCs)
- Focusing future site investigation and risk assessment efforts (e.g., selecting COPCs for the baseline risk assessment)
- Identifying contamination which may warrant cleanup
- Identifying sites, or portions of sites, which warrant no further action or investigation
- Initial cleanup goals when site-specific data are lacking

Generic SLs are provided for multiple exposure pathways and for chemicals with both carcinogenic and noncarcinogenic effects. A Summary Table is provided that contains SLs corresponding to either a 10⁻⁶ risk level for carcinogens or a Hazard Quotient (HQ) of 1 for non-carcinogens. The summary table identifies whether the SL is based on cancer or noncancer effects by including a "c" or "n" after the SL. The Supporting Tables provide SLs corresponding to a 10⁻⁶ risk level for carcinogens and an HQ of 1 for noncarcinogens. Site specific SLs corresponding to an HQ of less than 1 may be appropriate for those sites where multiple chemicals are present that have RfDs or RfCs based on the same toxic endpoint. Site specific SLs based upon a cancer risk greater than 10⁻⁶ can be calculated and may be appropriate based upon site specific considerations. However, caution is recommended to ensure that cumulative cancer risk for all actual and potential carcinogenic contaminants found at the site does not have a residual (after site cleanup, or when it has been determined that no site cleanup is required) cancer risk exceeding 10⁻⁴. Also, changing the target risk or HI may change the balance between the cancer and noncancer endpoints. At some concentrations, the cancer-risk concerns predominate; at other concentrations, noncancer-HI concerns predominate. The user must take care to consider both when adjusting target risks and hazards.

Tables are provided in either MS Excel or in PDF format. The following lists the tables provided and a description of what is contained in each:

- Summary Table - provides a list of contaminants, toxicity values, MCLs and the lesser (more protective) of the cancer and noncancer SLs for resident soil, industrial soil, resident air, industrial air and tapwater.
- Residential Soil Supporting Table - provides a list of contaminants, toxicity values and the cancer and noncancer SLs for resident soil.
- Industrial Soil Supporting Table - provides a list of contaminants, toxicity values and the cancer and noncancer SLs for industrial soil.
- Residential Air Supporting Table - provides a list of contaminants, toxicity values and the cancer and noncancer SLs for resident air.
- Industrial Air Supporting Table - provides a list of contaminants, toxicity values and the cancer and noncancer SLs for industrial air.
- Residential Tapwater Supporting Table - provides a list of contaminants, toxicity values, MCLs and the cancer and noncancer SLs for tapwater.

3.1 Developing a Conceptual Site Model

When using generic SLs at a site, the exposure pathways of concern and site conditions should match those used in developing the SLs presented here. (Note, however, that future uses may not match current uses. Future uses are potential site uses that may occur in the future. At Superfund sites, future uses should be considered as well as current uses. RAGS Part A, Chapter 6, provides guidance on selecting future-use receptors.) Thus, it is necessary to develop a conceptual site model (CSM) to identify likely contaminant source areas, exposure pathways, and potential receptors. This information can be used to determine the applicability of SLs at the site and the need for additional information. The final CSM diagram represents linkages among contaminant sources, release mechanisms, exposure pathways, and routes and receptors based on historical information. It summarizes the understanding of the contamination problem. A separate CSM for ecological receptors can be useful. Part 2 and Attachment A of the Soil Screening Guidance for Superfund: Users Guide (EPA 1996) contains the steps for developing a CSM.

As a final check, the CSM should address the following questions:

Are there potential ecological concerns?

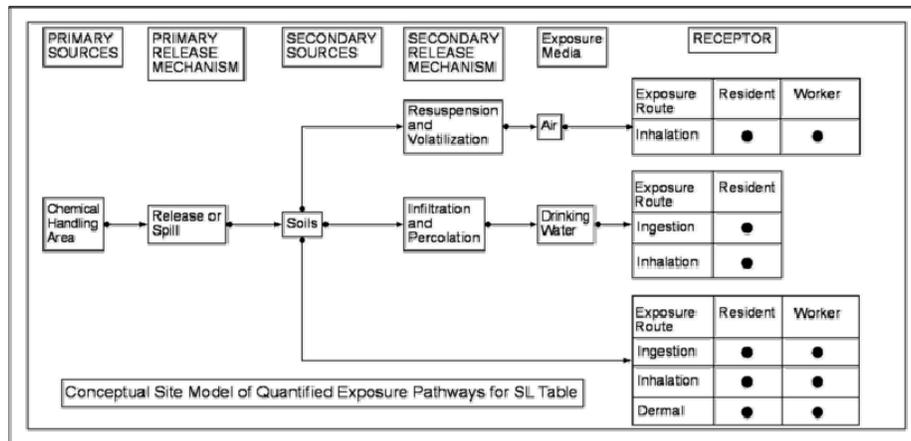
Is there potential for land use other than those used in the SL calculations (i.e., residential and commercial/industrial)?

Are there other likely human exposure pathways that were not considered in development of the SLs?

Are there unusual site conditions (e.g. large areas of contamination, high fugitive dust levels, potential for indoor air contamination)?

The SLs and later PRGs may need to be adjusted to reflect the answers to these questions.

Below is a potential CSM of the quantified pathways addressed in the SL Tables.



3.2 Background

EPA may be concerned with two types of background at sites: naturally occurring and anthropogenic. Natural background is usually limited to metals whereas anthropogenic (i.e. human-made) "background" includes both organic and inorganic contaminants.

Please note that the SL tables, which are purely risk-based, may yield SLs lower than naturally occurring background concentrations of some chemicals in some areas. However, background considerations may be incorporated into the assessment and investigation of sites, as acknowledged in existing EPA guidance. Background levels should be addressed as they are for other contaminants at CERCLA sites. For further information see EPA's guidance [Role of Background in the CERCLA Cleanup Program](#), April 2002, (OSWER 9285.6-07P) and [Guidance for Comparing Background and Chemical Concentration in Soil for CERCLA Sites](#), September 2002, (OSWER 9285.7-41).

Generally EPA does not clean up below natural background. In some cases, the predictive risk-based models generate SL concentrations that lie within or even below typical background concentrations for the same element or compound. Arsenic, aluminum, iron and manganese are common elements in soils that have background levels that may exceed risk-based SLs. This does not mean that these metals cannot be site-related, or that these metals should automatically be attributed to background. Attribution of chemicals to background is a site-specific decision; consult your regional risk assessor.

Where anthropogenic "background" levels exceed SLs and EPA has determined that a response action is necessary and feasible, EPA's goal will be to develop a comprehensive response to the widespread contamination. This will often require coordination with different authorities that have jurisdiction over the sources of contamination in the area.

3.3 Potential Problems

As with any risk based screening table or tool, the potential exists for misapplication. In most cases, this results from not understanding the intended use of the SLs or PRGs. In order to prevent misuse of the SLs, the following should be avoided:

- Applying SLs to a site without adequately developing a conceptual site model that identifies relevant exposure pathways and exposure scenarios.
- Not considering the effects from the presence of multiple contaminants, where appropriate.
- Use of the SLs as cleanup levels without adequate consideration of the other NCP remedy selection criteria on CERCLA sites.
- Use of SL as cleanup levels without verifying numbers with a toxicologist or regional risk assessor.
- Use of outdated SLs when tables have been superseded by more recent values.
- Not considering the effects of additivity when screening multiple chemicals.
- Applying inappropriate target risks or changing a cancer target risk without considering its effect on noncancer, or vice versa.
- Not performing additional screening for pathways not included in these SLs (e.g., vapor intrusion, fish consumption).
- Adjusting SLs upward by factors of 10 or 100 without consulting a toxicologist or regional risk assessor.

4. Technical Support Documentation

The SLs consider human exposure to individual contaminants in air, drinking water and soil. The equations and technical discussion are aimed at developing risk-based SLs or PRGs. The following text presents the land use equations and their exposure routes. [Table 1](#) presents the definitions of the variables and their default values. Any alternative values or assumptions used in developing SLs on a site should be presented with supporting rationale in the decision document on CERCLA sites.

4.1 Residential Soil

4.1.1 Noncancer

The residential soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{\text{res-sol-nc-ing}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right) \times \text{BW}_c \text{ (15 Kg)}}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \frac{1}{\text{Rfd}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)} \times \text{IRS}_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

inhalation of particulates emitted from soil,

$$SL_{\text{res-sol-nc-inh}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right)}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \text{ET}_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{\text{Rfc} \left(\frac{\text{mg}}{\text{m}^3} \right)} \times \left(\frac{1}{\text{Vf}_s \left(\frac{\text{m}^3}{\text{Kg}} \right)} + \frac{1}{\text{PEF}_w \left(\frac{\text{m}^3}{\text{Kg}} \right)} \right)}$$

dermal contact with soil,

$$SL_{\text{res-sol-nc-der}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right) \times \text{BW}_c \text{ (15 Kg)}}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \frac{1}{\left(\text{Rfd}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right) \times \text{GIABS} \right)} \times \text{SA}_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times \text{ABS}_d \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Total.

$$SL_{\text{res-sol-nc-tot}} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{\text{res-sol-nc-ing}}} + \frac{1}{SL_{\text{res-sol-nc-der}}} + \frac{1}{SL_{\text{res-sol-nc-inh}}}}$$

4.1.2 Carcinogenic

The residential soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{\text{res-sol-ca-ing}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\text{CSF}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{IFS}_{\text{adj}} \left(\frac{114 \text{ mg-Year}}{\text{Kg-day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$\text{IFS}_{\text{adj}} \left(\frac{114 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{\text{ED}_c \text{ (6 years)} \times \text{IRS}_c \left(\frac{200 \text{ mg}}{\text{day}} \right)}{\text{BW}_c \text{ (15 Kg)}} + \frac{\text{ED}_r \text{ -ED}_c \text{ (24 years)} \times \text{IRS}_a \left(\frac{100 \text{ mg}}{\text{day}} \right)}{\text{BW}_a \text{ (70 Kg)}}$$

inhalation of particulates emitted from soil,

$$SL_{\text{res-sol-ca-inh}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\text{IUR} \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \left(\frac{1}{\text{Vf}_s \left(\frac{\text{m}^3}{\text{Kg}} \right)} + \frac{1}{\text{PEF}_w \left(\frac{\text{m}^3}{\text{Kg}} \right)} \right) \times \text{ED}_r \text{ (30 years)} \times \text{ET}_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right)}$$

dermal contact with soil,

$$SL_{\text{res-sol-ca-der}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\left(\frac{\text{CSF}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1}}{\text{GIABS}} \right) \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{DFS}_{\text{adj}} \left(\frac{361 \text{ mg-Year}}{\text{Kg-day}} \right) \times \text{ABS}_d \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$\text{DFS}_{\text{adj}} \left(\frac{361 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{\text{ED}_c \text{ (6 years)} \times \text{SA}_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right)}{\text{BW}_c \text{ (15 Kg)}} + \frac{\text{ED}_r \text{ -ED}_c \text{ (24 years)} \times \text{SA}_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_a \left(\frac{0.07 \text{ mg}}{\text{cm}^2} \right)}{\text{BW}_a \text{ (70 Kg)}}$$

Total.

$$SL_{\text{res-sol-ca-tot}} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{\text{res-sol-ca-ing}}} + \frac{1}{SL_{\text{res-sol-ca-der}}} + \frac{1}{SL_{\text{res-sol-ca-inh}}}}$$

4.1.3 Mutagenic

The residential soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{res-sol-mu-ing} (mg/kg) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{CSF_o \left(\frac{mg}{Kg \cdot day} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFSM_{adj} \left(\frac{489.5 \text{ mg} \cdot \text{Year}}{Kg \cdot \text{day}} \right) \times \left(\frac{10^{-6} Kg}{mg} \right)}$$

where:

$$IFSM_{adj} \left(\frac{489.5 \text{ mg} \cdot \text{Year}}{Kg \cdot \text{day}} \right) = \frac{ED_{0-2} (yr) \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times 10}{BW_c (15 \text{ Kg})} + \frac{ED_{2-6} (yr) \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times 3}{BW_c (15 \text{ Kg})} + \frac{ED_{6-16} (yr) \times IRS_a \left(\frac{100 \text{ mg}}{\text{day}} \right) \times 3}{BW_a (70 \text{ Kg})} + \frac{ED_{16-30} (yr) \times IRS_a \left(\frac{100 \text{ mg}}{\text{day}} \right) \times 1}{BW_a (70 \text{ Kg})}$$

inhalation of particulates emitted from soil,

$$SL_{res-sol-mu-inh} (mg/kg) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ET_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\frac{1000 \mu g}{mg} \right) \times \left(\frac{ED_{0-2} (yrs) \times IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times 10}{\left(\frac{1}{VF_s \left(\frac{m^3}{Kg} \right)} + \frac{1}{PEF_w \left(\frac{m^3}{Kg} \right)} \right)} + \frac{ED_{2-6} (yrs) \times IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times 3}{\left(\frac{1}{VF_s \left(\frac{m^3}{Kg} \right)} + \frac{1}{PEF_w \left(\frac{m^3}{Kg} \right)} \right)} + \frac{ED_{6-16} (yrs) \times IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times 3}{\left(\frac{1}{VF_s \left(\frac{m^3}{Kg} \right)} + \frac{1}{PEF_w \left(\frac{m^3}{Kg} \right)} \right)} + \frac{ED_{16-30} (yrs) \times IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times 1}{\left(\frac{1}{VF_s \left(\frac{m^3}{Kg} \right)} + \frac{1}{PEF_w \left(\frac{m^3}{Kg} \right)} \right)} \right)}$$

dermal contact with soil,

$$SL_{res-sol-mu-der} (mg/kg) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{\left(\frac{CSF_o \left(\frac{mg}{Kg \cdot day} \right)^{-1}}{GIABS} \right) \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times DFSM_{adj} \left(\frac{1445 \text{ mg} \cdot \text{Year}}{Kg \cdot \text{day}} \right) \times ABS_d \times \left(\frac{10^{-6} Kg}{mg} \right)}$$

where:

$$DFSM_{adj} \left(\frac{1445 \text{ mg} \cdot \text{Year}}{Kg \cdot \text{day}} \right) = \frac{ED_{0-2} (yr) \times AF_c \left(\frac{0.2 \text{ mg}}{cm^2} \right) \times SA_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times 10}{BW_c (15 \text{ Kg})} + \frac{ED_{2-6} (yr) \times AF_c \left(\frac{0.2 \text{ mg}}{cm^2} \right) \times SA_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times 3}{BW_c (15 \text{ Kg})} + \frac{ED_{6-16} (yr) \times AF_a \left(\frac{0.07 \text{ mg}}{cm^2} \right) \times SA_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times 3}{BW_a (70 \text{ Kg})} + \frac{ED_{16-30} (yr) \times AF_a \left(\frac{0.07 \text{ mg}}{cm^2} \right) \times SA_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times 1}{BW_a (70 \text{ Kg})}$$

Total.

$$SL_{res-sol-mu-tot} (mg/kg) = \frac{1}{\frac{1}{SL_{res-sol-mu-ing}} + \frac{1}{SL_{res-sol-mu-der}} + \frac{1}{SL_{res-sol-mu-inh}}}$$

4.1.4 Vinyl Chloride - Carcinogenic

The residential soil land use equations, presented here, contain the following exposure routes:

incidental ingestion of soil,

$$SL_{res-soil-ca-vc-ing} (mg/kg) = \frac{TR}{\left(\frac{CSF_o \left(\frac{mg}{Kg \cdot day} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFS_{adj} \left(\frac{114 \text{ mg} \cdot \text{yr}}{\text{kg} \cdot \text{d}} \right) \times \left(\frac{10^{-6} Kg}{1 \text{ mg}} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} + \frac{CSF_o \left(\frac{mg}{Kg \cdot day} \right)^{-1} \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} Kg}{1 \text{ mg}} \right)}{BW_c (15 \text{ kg})} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{res-soil-ca-vc-inh} (mg/kg) = \frac{TR}{\left(\frac{IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times EF \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED (30 \text{ years}) \times ET_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\frac{1000 \mu g}{mg} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times VF \left(\frac{m^3}{kg} \right)} + \frac{IUR \left(\frac{\mu g}{m^3} \right)^{-1} \times \left(\frac{1000 \mu g}{mg} \right)}{VF \left(\frac{m^3}{kg} \right)} \right)}$$

dermal contact with soil,

$$SL_{res-soil-ca-vc-der} \text{ (mg/kg)} = \frac{TR}{\left[\frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times DFS_{adj} \left(\frac{361 \text{ mg-yr}}{\text{kg-day}} \right) \times ABS_d \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}{AT_r \left(\frac{365 \text{ days}}{\text{year}} \right) \times LT (70 \text{ years})} + \frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times SA_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times AF_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}{BW_e (15 \text{ kg})} \right]}$$

Total.

$$SL_{res-soil-ca-vc-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{res-soil-ca-vc-ing}} + \frac{1}{SL_{res-soil-ca-vc-der}} + \frac{1}{SL_{res-soil-ca-vc-inh}}}$$

A number of studies have shown that inadvertent ingestion of soil is common among children 6 years old and younger (Calabrese et al. 1989, Davis et al. 1990, Van Wijnen et al. 1990). Therefore, the dose method uses an age-adjusted soil ingestion factor that takes into account the difference in daily soil ingestion rates, body weights, and exposure duration for children from 1 to 6 years old and others from 7 to 30 years old. The equation is presented below. This health-protective approach is chosen to take into account the higher daily rates of soil ingestion in children as well as the longer duration of exposure that is anticipated for a long-term resident. For more on this method, see [RAGS Part B](#).

4.2 Composite Worker Soil

This land use is for developing industrial default screening levels that are presented in the [Generic Tables](#).

4.2.1 Noncancer

The composite worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{w-sol-nc-ing} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} (25 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} (25 \text{ years}) \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times IR_{ow} \left(\frac{100 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{w-sol-nc-inh} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} (25 \text{ years}) \right)}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} (25 \text{ years}) \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)} \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

dermal exposure,

$$SL_{w-sol-nc-der} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} (25 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} (25 \text{ years}) \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times GIABS \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{\text{day}} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Total.

$$SL_{w-sol-nc-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{w-sol-nc-ing}} + \frac{1}{SL_{w-sol-nc-der}} + \frac{1}{SL_{w-sol-nc-inh}}}$$

4.2.2 Carcinogenic

The composite worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{w-sol-ca-ing} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} (25 \text{ years}) \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times IR_{ow} \left(\frac{100 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{w-sol-ca-inh} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} (25 \text{ years}) \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

dermal exposure,

$$SL_{w-sol-ca-der} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right) \times BW_{ow} \text{ (70 Kg)}}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times \left(\frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1}}{GIABS} \right) \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{\text{day}} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Total.

$$SL_{w-sol-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{w-sol-ca-ing}} + \frac{1}{SL_{w-sol-ca-der}} + \frac{1}{SL_{w-sol-ca-inh}}}$$

4.3 Indoor Worker Soil

The indoor worker soil land use is not provided in the Generic Tables but SLs can be created by using the Calculator to modify the exposure parameters for the composite worker to match the equations that follow.

4.3.1 Noncancer

The indoor worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{iw-nc-ing} \text{ (mg/kg)} = \frac{THQ \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{iw} \text{ (25 years)} \right) \times BW_{iw} \text{ (70 Kg)}}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times IR_{iw} \left(\frac{50 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{iw-nc-inh} \text{ (mg/kg)} = \frac{THQ \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{iw} \text{ (25 years)} \right)}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)} \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

Total.

$$SL_{iw-nc-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{iw-nc-ing}} + \frac{1}{SL_{iw-nc-inh}}}$$

4.3.2 Carcinogenic

The indoor worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{iw-ca-ing} \text{ (mg/kg)} = \frac{TR \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right) \times BW_{iw} \text{ (70 Kg)}}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times IR_{iw} \left(\frac{50 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{iw-ca-inh} \text{ (mg/kg)} = \frac{TR \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{EF_{iw} \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

Total.

$$SL_{iw-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{iw-ca-ing}} + \frac{1}{SL_{iw-ca-inh}}}$$

4.4 Outdoor Worker Soil

The outdoor worker soil land use is not provided in the Generic Tables but SLs can be created by using the Calculator to modify the exposure parameters for the composite worker to match the equations that follow.

4.4.1 Noncancer

The outdoor worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{ow-sol-nc-ing} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} \text{ (25 years)} \right) \times BW_{ow} \text{ (70 Kg)}}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times IR_{ow} \left(\frac{100 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{ow-sol-nc-inh} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} \text{ (25 years)} \right)}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)} \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

dermal exposure,

$$SL_{ow-sol-nc-der} \text{ (mg/kg)} = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{ow} \text{ (25 years)} \right) \times BW_{ow} \text{ (70 Kg)}}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times \left(\frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times GIABS \right) \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{\text{day}} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Total.

$$SL_{ow-sol-nc-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{ow-sol-nc-ing}} + \frac{1}{SL_{ow-sol-nc-der}} + \frac{1}{SL_{ow-sol-nc-inh}}}$$

4.4.2 Carcinogenic

The outdoor worker soil land use equation, presented here, contains the following exposure routes:

incidental ingestion of soil,

$$SL_{ow-sol-ca-ing} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right) \times BW_{ow} \text{ (70 Kg)}}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times IR_{ow} \left(\frac{100 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

inhalation of particulates emitted from soil,

$$SL_{ow-sol-ca-inh} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

dermal exposure,

$$SL_{ow-sol-ca-der} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right) \times BW_{ow} \text{ (70 Kg)}}{EF_{ow} \left(\frac{225 \text{ days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times \left(\frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1}}{GIABS} \right) \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{\text{day}} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Total.

$$SL_{ow-sol-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{ow-sol-ca-ing}} + \frac{1}{SL_{ow-sol-ca-der}} + \frac{1}{SL_{ow-sol-ca-inh}}}$$

4.5 Tapwater

The Tapwater calculations do not include the dermal exposure route. It was determined that too many analytes were outside of the EPA Superfund Dermal Risk Assessment Guidance (RAGS Part E)'s Effective Predictive Domain (EPD) to include a dermal permeability constant (Kp). Some of these were significant analytes, such as persistent chlorinated organics, including PCBs. Kp can be determined from the molecular weight and the logKow for organic compounds. Compounds with very high log Kows are outside of the EPD. Section 3.1.2 of [RAGS Part E](#) provides more detail.

4.5.1 Noncarcinogenic

The tapwater land use equation, presented here, contains the following exposure routes:

ingestion of water,

$$SL_{water-nc-ing} \text{ (\mu g/L)} = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r \text{ (30 years)} \right) \times BW_a \text{ (70 Kg)} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r \text{ (30 years)} \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-d}} \right)} \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right)}$$

inhalation of volatiles,

$$SL_{\text{water-nc-inh}} (\mu\text{g/L}) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RFC \left(\frac{\text{mg}}{\text{m}^3} \right)} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}$$

Total.

$$SL_{\text{water-nc-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-nc-ing}}} + \frac{1}{SL_{\text{water-nc-inh}}}}$$

4.5.2 Carcinogenic

The tapwater land use equation, presented here, contains the following exposure routes:

ingestion of water,

$$SL_{\text{water-ca-ing}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times \left(IFW_{\text{adj}} \left(\frac{1.086 \text{ L-Year}}{\text{Kg-day}} \right) \right)}$$

where:

$$IFW_{\text{adj}} \left(\frac{1.086 \text{ L-Year}}{\text{Kg-day}} \right) = \frac{ED_c (6 \text{ years}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right)}{BW_c (15 \text{ Kg})} + \frac{ED_r - ED_c (24 \text{ years}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right)}{BW_a (70 \text{ Kg})}$$

inhalation of volatiles,

$$SL_{\text{water-ca-inh}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}$$

Total.

$$SL_{\text{water-ca-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-ca-ing}}} + \frac{1}{SL_{\text{water-ca-inh}}}}$$

4.5.3 Mutagenic

The tapwater land use equation, presented here, contains the following exposure routes:

ingestion of water,

$$SL_{\text{water-mu-ing}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFWM_{\text{adj}} \left(\frac{3.39 \text{ L-Year}}{\text{Kg-day}} \right)}$$

where:

$$IFWM_{\text{adj}} \left(\frac{3.39 \text{ L-Year}}{\text{Kg-day}} \right) = \frac{ED_{0-2} (\text{yr}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times 10}{BW_c (15 \text{ Kg})} + \frac{ED_{2-6} (\text{yr}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times 3}{BW_c (15 \text{ Kg})} + \frac{ED_{6-16} (\text{yr}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right) \times 3}{BW_a (70 \text{ Kg})} + \frac{ED_{16-30} (\text{yr}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right) \times 1}{BW_a (70 \text{ Kg})}$$

inhalation of volatiles,

$$SL_{\text{water-mu-inh}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\left(ED_{0-2} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 10 \right) + \left(ED_{2-6} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{6-16} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{16-30} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 1 \right) \right)}$$

Total.

$$SL_{\text{water-mu-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-mu-ing}}} + \frac{1}{SL_{\text{water-mu-inh}}}}$$

4.5.4 Vinyl Chloride - Carcinogenic

The tapwater land use equation, presented here, contains the following exposure routes:

ingestion of water,

$$SL_{\text{res-water-ca-vc-ing}} (\mu\text{g/L}) = \frac{TR}{\left[\frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFW_{\text{adj}} \left(\frac{1.086 \text{ L-yr}}{\text{kg-day}} \right) \times \left(\frac{\text{mg}}{1000 \mu\text{g}} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} \right] + \left[\frac{CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times \left(\frac{\text{mg}}{1000 \mu\text{g}} \right)}{BW_c (15 \text{ kg})} \right]}$$

inhalation of volatiles,

$$SL_{\text{res-water-ca-vc-inh}} (\mu\text{g/L}) = \frac{TR}{\left[\frac{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED (30 \text{ years}) \times ET_{\text{pw}} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} \right] + \left[IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right) \right]}$$

Total.

$$SL_{\text{res-water-ca-vc-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{res-water-ca-vc-ing}}} + \frac{1}{SL_{\text{res-water-ca-vc-inh}}}}$$

4.6 Resident Ambient Air

4.6.1 Noncarcinogenic

The Ambient air land use equation, presented here, contains the following exposure routes:

inhalation

$$SL_{\text{res-air-nc}} (\mu\text{g}/\text{m}^3) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{\text{ra}} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RFC \left(\frac{\text{mg}}{\text{m}^3} \right)}}$$

4.6.2 Carcinogenic

The Ambient air land use equation, presented here, contains the following exposure routes:

inhalation

$$SL_{\text{res-air-ca}} (\mu\text{g}/\text{m}^3) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{\text{ra}} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1}}$$

4.6.3 Vinyl Chloride - Carcinogenic

The Ambient air land use equation, presented here, contains the following exposure routes:

inhalation

$$SL_{\text{res-air-ca-vinyl chloride}} (\mu\text{g}/\text{m}^3) = \frac{TR}{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} + \frac{TR}{\left[\frac{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{\text{ra}} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right)}{AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} \right]}}$$

4.6.4 Mutagenic

The Ambient air land use equation, presented here, contains the following exposure routes:

inhalation

$$SL_{\text{res-air-mu}} (\mu\text{g}/\text{m}^3) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ET_{\text{ra}} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left[\left(ED_{0-2} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 10 \right) + \left(ED_{2-6} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{6-16} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{16-30} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 1 \right) \right]}$$

4.7 Worker Ambient Air

4.7.1 Noncarcinogenic

The Ambient air land use equation, presented here, contains the following exposure routes:

Inhalation

$$SL_{w-air-nc} \left(\mu\text{g}/\text{m}^3 \right) = \frac{THQ \times AT_w \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (25 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_w \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_w (25 \text{ years}) \times ET_w \left(\frac{8 \text{ hr}}{24 \text{ hr}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)}}$$

4.7.2 Carcinogenic

The Ambient air land use equation, presented here, contains the following exposure routes:

Inhalation

$$SL_{w-air-ca} \left(\mu\text{g}/\text{m}^3 \right) = \frac{TR \times AT_w \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_w \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_w (25 \text{ years}) \times ET_w \left(\frac{8 \text{ hr}}{24 \text{ hr}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1}}$$

4.8 Ingestion of Fish

The ingestion of fish exposure route is not provided in the Generic Tables but SLs can be created by using the Calculator and the equations that follow:

4.8.1 Noncarcinogenic

The ingestion of fish equation, presented here, contains the following exposure route:

consumption of fish.

$$SL_{res-fsh-nc-ing} \left(\text{mg}/\text{kg} \right) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times BW_a (70 \text{ Kg})}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ year}) \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)} \times IRF_a \left(\frac{5.4 \times 10^4 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

4.8.2 Carcinogenic

The ingestion of fish equation, presented here, contains the following exposure route:

consumption of fish.

$$SL_{res-fsh-ca-ing} \left(\text{mg}/\text{kg} \right) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times BW_a (70 \text{ Kg})}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ year}) \times CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times IRF_a \left(\frac{5.4 \times 10^4 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Note: the consumption rate for fish is not age adjusted for this land use. Also the SL calculated for fish is not for soil, like for the agricultural land uses, but is for fish tissue.

4.9 Soil to Groundwater

These equations are used to calculate screening levels in soil (SSLs) that are protective of groundwater. SSLs are either back-calculated from protective risk-based ground water concentrations or based on MCLs. The SSLs were designed for use during the early stages of a site evaluation when information about subsurface conditions may be limited. Because of this constraint, the equations used are based on conservative, simplifying assumptions about the release and transport of contaminants in the subsurface. Migration of contaminants from soil to groundwater can be envisioned as a two-stage process: (1) release of contaminant in soil leachate and (2) transport of the contaminant through the underlying soil and aquifer to a receptor well. The SSL methodology considers both of these fate and transport mechanisms.

SSLs are provided for metals in the Generic Tables based on Kds from the [Soil Screening Guidance Exhibit C-4](#). According to Appendix C,

"Exhibit C-4 provides pH-specific soil-water partition coefficients (Kd) for metals. Site-specific soil pH measurements can be used to select appropriate Kd values for these metals. Where site-specific soil pH values are not available, values corresponding to a pH of 6.8 should be used."

If a metal is not listed in Exhibit C-4, Kds were taken from [Baes, C. F. 1984](#). Kds for organic compounds are calculated from Koc and the fraction of organic carbon in the soil (foc).Kd for metals are listed below.

Chemical	CAS	Kd	Reference
Aluminum	7429-90-5	1.50E+03	Baes, C.F. 1984
Antimony (metallic)	7440-36-0	4.50E+01	SSG 9355.4-23 July 1996
Arsenic, Inorganic	7440-38-2	2.90E+01	SSG 9355.4-23 July 1996
Barium	7440-39-3	4.10E+01	SSG 9355.4-23 July 1996
Beryllium and compounds	7440-41-7	7.90E+02	SSG 9355.4-23 July 1996
Boron And Borates Only	7440-42-8	3.00E+00	Baes, C.F. 1984
Bromate	15541-45-4	7.50E+00	Baes, C.F. 1984

Cadmium (Diet)	7440-43-9	7.50E+01	SSG 9355.4-23 July 1996
Cadmium (Water)	7440-43-9	7.50E+01	SSG 9355.4-23 July 1996
Chlorine	7782-50-5	2.50E-01	Baes, C.F. 1984
Chromium (III) (Insoluble Salts)	16065-83-1	1.80E+06	SSG 9355.4-23 July 1996
Chromium Salts	0-00-3	8.50E+02	Baes, C.F. 1984
Chromium VI (chromic acid mists)	18540-29-9	1.90E+01	SSG 9355.4-23 July 1996
Chromium VI (particulates)	18540-29-9	1.90E+01	SSG 9355.4-23 July 1996
Chromium, Total (1:6 ratio Cr VI : Cr III)	7440-47-3	1.80E+06	SSG 9355.4-23 July 1996
Cobalt	7440-48-4	4.50E+01	Baes, C.F. 1984
Copper	7440-50-8	3.50E+01	Baes, C.F. 1984
Cyanide (CN-)	57-12-5	9.90E+00	SSG 9355.4-23 July 1996
Fluorine (Soluble Fluoride)	7782-41-4	1.50E+02	Baes, C.F. 1984
Iron	7439-89-6	2.50E+01	Baes, C.F. 1984
Lead and Compounds	7439-92-1	9.00E+02	Baes, C.F. 1984
Lithium	7439-93-2	3.00E+02	Baes, C.F. 1984
Magnesium	7439-95-4	4.50E+00	Baes, C.F. 1984
Manganese (Diet)	7439-96-5	6.50E+01	Baes, C.F. 1984
Manganese (Water)	7439-96-5	6.50E+01	Baes, C.F. 1984
Mercury (elemental)	7439-97-6	5.20E+01	SSG 9355.4-23 July 1996
Mercury, Inorganic Salts	0-01-7	5.20E+01	SSG 9355.4-23 July 1996
Molybdenum	7439-98-7	2.00E+01	Baes, C.F. 1984
Nickel Soluble Salts	7440-02-0	6.50E+01	SSG 9355.4-23 July 1996
Phosphorus, White	7723-14-0	3.50E+00	Baes, C.F. 1984
Selenium	7782-49-2	5.00E+00	SSG 9355.4-23 July 1996
Silver	7440-22-4	8.30E+00	SSG 9355.4-23 July 1996
Sodium	7440-23-5	1.00E+02	Baes, C.F. 1984
Strontium, Stable	7440-24-6	3.50E+01	Baes, C.F. 1984
Thallium (Soluble Salts)	7440-28-0	7.10E+01	SSG 9355.4-23 July 1996
Thorium	0-23-2	1.50E+05	Baes, C.F. 1984
Tin	7440-31-5	2.50E+02	Baes, C.F. 1984
Titanium	7440-32-6	1.00E+03	Baes, C.F. 1984
Uranium (Soluble Salts)	0-23-8	4.50E+02	Baes, C.F. 1984
Vanadium and Compounds	0-06-6	1.00E+03	SSG 9355.4-23 July 1996
Vanadium, Metallic	7440-62-2	1.00E+03	SSG 9355.4-23 July 1996
Zinc (Metallic)	7440-66-6	6.20E+01	SSG 9355.4-23 July 1996
Zirconium	7440-67-7	3.00E+03	Baes, C.F. 1984

Because Kds vary greatly by soil type, it is highly recommended that site-specific Kds be determined and used to develop SSLs.

The more protective of the carcinogenic and noncarcinogenic SLs is selected to calculate the SSL.

4.9.1 Noncarcinogenic Tapwater Equations for SSLs

The tapwater equations, presented in Section 4.4.1, are used to calculate the noncarcinogenic SSLs for volatiles and nonvolatiles. If the contaminant is a volatile, both ingestion and inhalation exposure routes are considered. If the contaminant is not a volatile, only ingestion is considered.

4.9.2 Carcinogenic Tapwater Equations for SSLs

The tapwater equations, presented in Section 4.4.2, are used to calculate the carcinogenic SSLs for volatiles and nonvolatiles. Sections 4.4.3 and 4.4.4 present the mutagenic and vinyl chloride equations, respectively. If the contaminant is a volatile, both ingestion and inhalation exposure routes are considered. If the contaminant is not a volatile, only ingestion is considered.

4.9.3 Method 1 for SSL Determination

Method 1 employs a partitioning equation for migration to groundwater and defaults are provided. This method is used to generate the download default tables.

method 1.

$$SSL \left(\frac{mg}{kg} \right) = C_w \left(\frac{mg}{L} \right) \times K_d \left(\frac{L}{kg} \right) + \left(\frac{\theta_w \left(\frac{L_{water}}{L_{soil}} \right) + \theta_a \left(\frac{L_{air}}{L_{soil}} \right) \times H'}{\rho_b \left(\frac{1.5 \text{ kg}}{L} \right)} \right)$$

where:

$$\theta_a \left(\frac{L_{air}}{L_{soil}} \right) = n \left(\frac{L_{water}}{L_{soil}} \right) - \theta_w \left(\frac{0.3 L_{water}}{L_{soil}} \right);$$

$$n \left(\frac{L_{pore}}{L_{soil}} \right) = 1 - \left(\frac{\rho_b \left(\frac{1.5 \text{ kg}}{L} \right)}{\rho_s \left(\frac{2.65 \text{ kg}}{L} \right)} \right) \text{ and}$$

$$K_d \left(\frac{L}{kg} \right) = K_{oc} \left(\frac{L}{kg} \right) \times f_{oc} \text{ (0.002 unitless)}$$

4.9.4 Method 2 for SSL Determination

Method 2 employs a mass-limit equation for migration to groundwater and site-specific information is required. This method can be used in the calculator portion of this website.

method 2.

$$\text{SSL (mg/kg)} = \frac{C_w \left(\frac{\text{mg}}{\text{L}} \right) \times I \left(\frac{0.18 \text{ m}}{\text{year}} \right) \times \text{ED (70 years)}}{\rho_b \left(\frac{1.5 \text{ kg}}{\text{L}} \right) \times d_s \text{ (m)}}$$

4.9.5 Determination of the Dilution Factor

The SSL values in the download tables are based on a dilution factor of 1. The dilution factor default for the calculator is 20 for 0.5 acre source. If all of the parameters needed to calculate a site-specific dilution factor are known, they may be entered.

dilution factor.

$$\text{Dilution Attenuation Factor} = 1 + \frac{K \left(\frac{\text{m}}{\text{year}} \right) \times i \left(\frac{\text{m}}{\text{m}} \right) \times d \text{ (m)}}{I \left(\frac{0.18 \text{ m}}{\text{year}} \right) \times L \text{ (m)}}$$

where:

$$d \text{ (m)} = \left(0.0112 \times L^2 \text{ (m)} \right)^{0.5} + d_a \times \left[1 - \exp \left(\frac{-L \text{ (m)} \times I \left(\frac{\text{m}}{\text{year}} \right)}{K \left(\frac{\text{m}}{\text{year}} \right) \times i \left(\frac{\text{m}}{\text{m}} \right) \times d_a \text{ (m)}} \right) \right]$$

4.10 Supporting Equations and Parameter Discussion

There are two parts of the above land use equations that require further explanation. They are the inhalation variables: the particulate emission factor (PEF) and the volatilization factor (VF).

4.10.1 Particulate Emission Factor (PEF)

Inhalation of contaminants adsorbed to respirable particles (PM10) was assessed using a default PEF equal to 1.36×10^9 m³/kg. This equation relates the contaminant concentration in soil with the concentration of respirable particles in the air due to fugitive dust emissions from contaminated soils. The generic PEF was derived using default values that correspond to a receptor point concentration of approximately 0.76 μ/m³. The relationship is derived by Cowherd (1985) for a rapid assessment procedure applicable to a typical hazardous waste site, where the surface contamination provides a relatively continuous and constant potential for emission over an extended period of time (e.g., years). This represents an annual average emission rate based on wind erosion that should be compared with chronic health criteria; it is not appropriate for evaluating the potential for more acute exposures. Definitions of the input variables are in [Table 1](#).

With the exception of specific heavy metals, the PEF does not appear to significantly affect most soil screening levels. The equation forms the basis for deriving a generic PEF for the inhalation pathway. For more details regarding specific parameters used in the PEF model, refer to [Soil Screening Guidance: Technical Background Document](#). The use of alternate values on a specific site should be justified and presented in an Administrative Record if considered in CERCLA remedy selection.

$$\text{PEF}_w = \frac{Q}{C_w} \times \frac{3,600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

where

$$\frac{Q}{C_w} = A \times \exp \left[\frac{(\ln A_s - B)^2}{C} \right]$$

Note: the generic PEF evaluates wind-borne emissions and does not consider dust emissions from traffic or other forms of mechanical disturbance that could lead to greater emissions than assumed here.

4.10.2 Volatilization Factor (VF)

The soil-to-air VF is used to define the relationship between the concentration of the contaminant in soil and the flux of the volatilized contaminant to air. VF is calculated from the equation below using chemical-specific properties and either site-measured or default values for soil moisture, dry bulk density, and fraction of organic carbon in soil. The [Soil Screening Guidance: User's Guide](#) describes how to develop site measured values for these parameters.

VF is only calculated for volatile organic compounds (VOCs). VOCs, for the purpose of this guidance, are chemicals with a Henry's Law constant of 1×10^{-5} atm-m³/mole or greater and with a molecular weight of less than 200 g/mole.

$$VF = \frac{\frac{Q}{C_w} \times (3.14 \times D_A \times T)^2 \times 10^{-4} \left(\frac{\text{m}^2}{\text{cm}^2}\right)}{2 \times \rho_b \times D_A}$$

where

$$\frac{Q}{C_w} = A \times \exp\left[\frac{(\ln A_s - B)^2}{C}\right] \text{ and}$$

$$D_A = \frac{\left[\left(\theta_a^{10/3} \times D_{ia} \times H' + \theta_w^{10/3} \times D_{iw}\right) / n^2\right]}{\rho_b \times K_d + \theta_w + \theta_a \times H'}$$

Diffusivity in Water (cm²/s)

Diffusivity in water can be calculated from the chemical's molecular weight and density, using the following correlation equation based on WATER9 (U.S. EPA, 2001):

$$D_{iw} \left(\frac{\text{cm}^2}{\text{s}}\right) = 0.0001518 \times \left(\frac{T^{\circ}\text{C} + 273.16}{298.16}\right) \times \left(\frac{\text{MW} \left(\frac{\text{g}}{\text{mol}}\right)}{\rho \left(\frac{\text{g}}{\text{cm}^3}\right)}\right)^{-0.6}$$

where

T typically = 25 °C

If density is not available,

$$D_{iw} \left(\frac{\text{cm}^2}{\text{s}}\right) = 0.000222 \times (\text{MW})^{-\left(\frac{2}{3}\right)}$$

If density is not available, diffusivity in water can be calculated using the correlation equation based on U.S. EPA (1987). The value for diffusivity in water must be greater than zero. No maximum limit is enforced.

Diffusivity in Air (cm²/s).

Diffusivity in air can be calculated from the chemical's molecular weight and density, using the following correlation equation based on WATER9 (U.S. EPA, 2001):

$$D_{ia} \left(\frac{\text{cm}^2}{\text{s}}\right) = \frac{0.00229 \times (T^{\circ}\text{C} + 273.16)^{1.5} \times \sqrt{0.034 + \frac{1}{\text{MW} \left(\frac{\text{g}}{\text{mol}}\right)} \times \text{MW}_{\text{cor}}}}{\left(\frac{\text{MW} \left(\frac{\text{g}}{\text{mol}}\right)}{2.5 \times \rho \left(\frac{\text{g}}{\text{cm}^3}\right)}\right)^{0.333} + 1.8}$$

where

T typically = 25 °C

$\text{MW}_{\text{cor}} = (1 - 0.000015 \times \text{MW}^2)$ If MW_{cor} is less than 0.4, then MW_{cor} is set to 0.4.

If density is not available,

$$D_{ia} \left(\frac{\text{cm}^2}{\text{s}}\right) = 1.9 \times \left(\text{MW} \left(\frac{\text{g}}{\text{mol}}\right)\right)^{-\left(\frac{2}{3}\right)} \text{ except for dioxins use, } D_{ia} \left(\frac{\text{cm}^2}{\text{s}}\right) = \left(\frac{154}{\text{MW} \left(\frac{\text{g}}{\text{mol}}\right)}\right)^{0.5} \times 0.068$$

If density is not available, diffusivity in air can be calculated using the correlation equation based on U.S. EPA (1987). For dioxins, diffusivity in air can be calculated from the molecular weight using the correlation equation based on EPA's Dioxin Reassessment (U.S. EPA, 2000).

5. Special Considerations

Most of the SLs are readily derived by referring to the above equations. However, there are some cases for which the standard equations do not apply and/or external adjustments to the SLs are recommended. These special case chemicals are discussed below.

5.1 Cadmium

IRIS presents an oral "water" RfD for cadmium for use in assessment of risks to water of 0.0005 mg/kg-day. IRIS also presents an oral "food" RfD for cadmium for use in assessment of risks to soil and biota of 0.001 mg/kg-day. The SLs for Cadmium are based on the oral RfD for "water", which is slightly more conservative (by a factor of 2) than the RfD for "food". Because the SLs are considered screening values, the more conservative RfD is used for cadmium. However, reasonable arguments could be made for applying an RfD for food (instead of the oral RfD for water) for some media such as soils. RAGS Part E, in Exhibit 4-1, presents a GIABS for soil of 2.5% and for water of 5%.

5.2 Lead

EPA has no consensus RfD or CSF for inorganic lead, so it is not possible to calculate SLs as we have done for other chemicals. EPA considers lead to be a special case because of the difficulty in identifying the classic "threshold" needed to develop an RfD.

EPA therefore evaluates lead exposure by using blood-lead modeling, such as the Integrated Exposure-Uptake Biokinetic Model (IEUBK). The EPA Office of Solid Waste has also released a detailed directive on risk assessment and cleanup of residential soil lead. The directive recommends that soil lead levels less than 400 mg/kg are generally safe for residential use. Above that level, the document suggests collecting data and modeling blood-lead levels with the IEUBK model. For the purposes of screening, therefore, 400 mg/kg is recommended for residential soils. For water, we suggest 15 µ/l (the EPA Action Level in water), and for air, the National Ambient Air Quality Standard.

However, caution should be used when both water and soil are being assessed. The IEUBK model shows that if the average soil concentration is 400 mg/kg, an average tap water concentration above 5 µ/L would yield more than 5% of the population above a 10 µ/dL blood-lead level. If the average tap water concentration is 15 µ/L, an average soil concentration greater than 250 mg/kg would yield more than 5% of the population above a 10 µ/dL blood-lead level.

EPA uses a second Adult Lead Model to estimate SLs for an industrial setting. This SL is intended to protect a fetus that may be carried by a pregnant female worker. It is assumed that a cleanup goal that is protective of a fetus will also afford protection for male or female adult workers. The model equations were developed to calculate cleanup goals such that the fetus of a pregnant female worker would not likely have an unsafe concentration of lead in blood.

For more information on EPA's lead models and other lead-related topics, please go to [Addressing Lead at Superfund Sites](#).

5.3 Manganese

The IRIS RfD (0.14 mg/kg-day) includes manganese from all sources, including diet. The author of the IRIS assessment for manganese recommended that the dietary contribution from the normal U.S. diet (an upper limit of 5 mg/day) be subtracted when evaluating non-food (e.g., drinking water or soil) exposures to manganese, leading to a RfD of 0.071 mg/kg-day for non-food items. The explanatory text in IRIS further recommends using a modifying factor of 3 when calculating risks associated with non-food sources due to a number of uncertainties that are discussed in the IRIS file for manganese, leading to a RfD of 0.024 mg/kg-day. This modified RfD has been used in the derivation of some manganese screening levels for soil and water. For more information regarding the Manganese RfD, users are advised to contact the author of the IRIS assessment on Manganese.

5.4 Vanadium Compounds

The oral RfD toxicity value for Vanadium, used in this website, is derived from the IRIS oral RfD for Vanadium Pentoxide by factoring out the molecular weight (MW) of the oxide ion. Vanadium Pentoxide (V2O5) has a molecular weight of 181.88. The two atoms of Vanadium contribute 56% of the MW. Vanadium Pentoxide's oral RfD of 9E-03 multiplied by 56% gives a Vanadium oral RfD of 5.04E-03.

5.5 Uranium

"Uranium Soluble Salts" uses the IRIS oral RfD of 3E-03. For the insoluble salts of Uranium, the oral RfD of 6E-04 may be used from the [Federal Register](#), Thursday December 7, 2000. Part II, Environmental Protection Agency. 40 CFR Parts 9, 141, and 142 - National Primary Drinking Water Regulations; Radionuclides; Final Rule. p 76713.

5.6 Chromium (VI)

It is recommended that valence-specific data for chromium be collected when chromium is likely to be an important contaminant at a site, and when hexavalent chromium (Cr(VI)) may exist. For Cr(VI), IRIS shows an air unit risk of 1.2E-2 per (µ/m³). While the exact ratio of Cr(VI) to Cr(III) in the data used to derive the IRIS air unit risk value is not known, it is likely that both Cr(VI) and Cr(III) were present. The RSLs calculated using the IRIS air unit risk assume that the Cr(VI) to Cr(III) ratio is 1:6. Because of various sources of uncertainty, this assumption may overestimate or underestimate the risk calculated. Users are invited to review the document "Toxicological Review of Hexavalent Chromium" in support of the summary information on Cr(VI) on IRIS to determine whether they believe this ratio applies to their projects and to consider consulting with an EPA regional risk assessor.

In the RSL Table, the Cr(VI) specific value (assuming 100% Cr(VI)) is derived by multiplying the IRIS Cr(VI) value by 7. This is considered to be a health-protective assumption, and is also consistent with the State of California's interpretation of the Mancuso study that forms the basis of Cr(VI)'s estimated cancer potency.

If you are working on a chromium site, you may want to contact the appropriate regulatory officials in your region to determine what their position is on this issue.

The Maximum Contaminant Level (MCL) of 100 µg/L for "Chromium (total)", from the EPA's [MCL](#) listing is applied to the "Chromium, Total" analyte on this website.

The New Jersey Department of Environmental Protection (NJDEP) recently determined that Cr(VI) by ingestion is likely to be carcinogenic in humans. NJDEP derived a new oral cancer slope factor, based on cancer bioassays conducted by the National Toxicology Program (<http://www.state.nj.us/dep/dsr/chromium/soil-cleanup-derivation.pdf>). In addition, EPA's Office of Pesticide Programs (OPP) has concluded that the weight-of-evidence supports that Cr(VI) may act through a mutagenic mode of action following administration via drinking water and has also recommended that Age-Dependent Adjustment Factors (ADAFs) be applied when assessing cancer risks from early-life exposure (< 16 years of age).

Both of these assessments are considered Tier 3 sources and were used to derive the screening levels for Cr(VI). We applied ADAFs for early life exposure via ingestion and inhalation because OPP's proposed mutagenic mode of action for Cr(VI) occurs in all cells, regardless of type. Application of ADAFs for all exposure pathways results in more health-protective screening levels.

5.7 Aminodinitrotoluenes

The IRIS oral RfD of 2E-03 for 2,4-Dinitrotoluene is used as a surrogate for 2-Amino-4,6-Dinitrotoluene and 4-Amino-2,6-Dinitrotoluene.

5.8 PCBs

Aroclor 1016 is considered "lowest risk" and assigned appropriate toxicity values. All other Aroclors are assigned the high risk toxicity values.

5.9 Xylenes

The IRIS oral RfD of 2E-01 for xylene, mixture is used as a surrogate for the 3 xylene congeners. The earlier RfD values for some xylene isomers were withdrawn from our electronic version of HEAST.

5.10 Soil Saturation Limit (C_{sat})

The soil saturation concentration, C_{sat}, corresponds to the contaminant concentration in soil at which the absorptive limits of the soil particles, the solubility limits of the soil pore water, and saturation of soil pore air have been reached. Above this concentration, the soil contaminant may be present in free phase (i.e., nonaqueous phase liquids (NAPLs) for contaminants that are liquid at ambient soil temperatures and pure solid phases for compounds that are solid at ambient soil temperatures).

Equation 4-10 is used to calculate C_{sat} for each volatile contaminant. As an update to RAGS HHEM, Part B (USEPA 1991a), this equation takes into account the amount of contaminant that is in the vapor phase in soil in addition to the amount dissolved in the soil's pore water and sorbed to soil particles.

Chemical-specific C_{sat} concentrations must be compared with each VF-based SL because a basic principle of the SL volatilization model is not applicable when free-phase contaminants are present. How these cases are handled depends on whether the contaminant is liquid or solid at ambient temperatures. Liquid contaminant that have a VF-based SL that exceeds the C_{sat} concentration are set equal to C_{sat} whereas for solids (e.g., PAHs), soil screening decisions are based on the appropriate SLs for other pathways of concern at the site (e.g., ingestion).

$$C_{sat} = \frac{S \left(\frac{mg}{L} \right)}{\rho_b \left(\frac{Kg}{L} \right)} \times \left(K_d \left(\frac{L}{Kg} \right) \times \rho_b \left(\frac{Kg}{L} \right) + \theta_w \left(\frac{L_{water}}{L_{soil}} \right) + H' \times \theta_a \left(\frac{L_{air}}{L_{soil}} \right) \right)$$

where

$$K_d = K_{oc} \left(\frac{L}{Kg} \right) \times f_{oc} \left(\frac{g}{g} \right),$$

$$\theta_a \left(\frac{L_{air}}{L_{soil}} \right) = n \left(\frac{L_{pore}}{L_{soil}} \right) - \theta_w \left(\frac{L_{water}}{L_{soil}} \right) \text{ and}$$

$$n = 1 - \frac{\rho_b \left(\frac{Kg}{L} \right)}{\rho_s \left(\frac{Kg}{L} \right)}$$

5.11 SL Theoretical Ceiling Limit

The ceiling limit of 10+5 mg/kg is equivalent to a chemical representing 10% by weight of the soil sample. At this contaminant concentration (and higher), the assumptions for soil contact may be violated (for example, soil adherence and wind-borne dispersion assumptions) due to the presence of the foreign substance itself.

5.12 Target Risk

With the exceptions described previously in Sections 5.6 and 5.7, SLs are chemical concentrations that correspond to fixed levels of risk (i.e., either a one-in-one million [10⁻⁶] cancer risk or a noncarcinogenic hazard quotient of 1) in soil, air, and water. In most cases, where a substance causes both cancer and noncancer (systemic) effects, the 10⁻⁶ cancer risk will result in a more stringent criteria and consequently this value is presented in the printed copy of the Table. SL concentrations that equate to a 10⁻⁶ cancer risk are indicated by 'ca'. SL concentrations that equate to a hazard quotient of 1 for noncarcinogenic concerns are indicated by 'nc'.

If the SLs are to be used for site screening, it is recommended that both cancer and noncancer-based SLs be used. Both carcinogenic and noncarcinogenic values may be obtained in the Supporting Tables.

Some users of this SL Table may plan to multiply the cancer SL concentrations by 10 or 100 to set 'action levels' for triggering remediation or to set less stringent cleanup levels for a specific site after considering non-risk-based factors such as ambient levels, detection limits, or technological feasibility. This risk management practice recognizes that there may be a range of values that may be 'acceptable' for carcinogenic risk (EPA's risk management range is one-in-a-million [10⁻⁶] to one-in-ten thousand [10⁻⁴]). However, this practice could lead one to overlook serious noncancer health threats and it is strongly recommended that the user consult with a toxicologist or regional risk assessor before doing this. Carcinogens are indicated by an asterisk (*) in the SL Table where the noncancer SLs would be exceeded if the cancer value that is displayed is multiplied by 100. (***) indicate that the noncancer values would be exceeded if the cancer SL were multiplied by 10. There is no range of 'acceptable' noncarcinogenic 'risk' for CERCLA sites. Therefore, the noncancer SLs should not be multiplied by 10 or 100 when setting final cleanup criteria. In the rare case where noncancer SLs are more stringent than cancer SLs set at one-in-one-million risk, a similar approach has been applied (e.g. 'max').

SL concentrations in the printed Table are risk-based, but for soil there are two important exceptions: (1) for several volatile chemicals, SLs may exceed the soil saturation level ('sat') and (2) SLs may exceed a non-risk based 'ceiling limit' concentration of 10+5 mg/kg ('max') for relatively less toxic inorganic and semivolatile contaminants. For more information on the 'sat' value in the SL Table, please see the discussion in Section 5.8. For more information on the 'max' value in the SL Table, please see the discussion in Section 5.9.

With respect to applying a 'ceiling limit' for chemicals other than volatiles, it is recognized that this is not a universally accepted approach. Some within the agency argue that all values should be risk-based to allow for scaling (for example, if the risk-based SL is set at a hazard quotient = 1.0, and the user would like to set the hazard quotient to 0.1 to take into account multiple chemicals, then this is as simple as multiplying the risk-based SL by 1/10th). If scaling is necessary, SL users can do this simply by referring to the Supporting Tables at this website where risk-based soil concentrations are presented for all chemicals.

In spite of the fact that applying a ceiling limit is not a universally accepted approach, this table applies a 'max' soil concentration to the SL Table for the following reasons:

Risk-based SLs for some chemicals in soil exceed unity (>1,000,000 mg/kg), which is not possible.

The ceiling limit of 10+5 mg/kg is equivalent to a chemical representing 10% by weight of the soil sample. At this contaminant concentration (and higher), the assumptions for soil contact may be violated (for example, soil adherence and wind-borne dispersion assumptions) due to the presence of the foreign substance itself.

SLs currently do not address short-term exposures (e.g., pica children and construction workers). Although extremely high soil SLs are likely to represent relatively non-toxic chemicals, such high values may not be justified if in fact more toxicological data were available for evaluating short-term and/or acute exposures.

5.13 Screening Sites with Multiple Contaminants

The screening levels in the tables are calculated under the assumption that only one contaminant is present. Users needing to screen sites with multiple contaminants should consult with their regional risk assessors. The following sections describe how target risks can be changed to screen against multiple contaminants and how the ratio of concentration to RSL can be used to estimate total risk.

5.13.1 Adjusting Target Risk and Target Hazard Quotient

When multiple contaminants are present at a site the target hazard quotient (THQ) may be modified. The following options are among the commonly used methods to modify the THQ:

1. The [calculator](#) on this website can be used to generate SLs based on any THQ or target cancer risk (TR) deemed appropriate by the user. The THQ input to the calculator can be modified from the default of 1. How much it should be modified is a user decision, but it could be based upon the number of contaminants being screened together. For example, if one is screening two contaminants together, then the THQ could be modified to 0.5. If ten contaminants are being screened together, then the THQ could be modified to 0.1. The above example weights each chemical equally; it is also possible to weight the chemicals unequally, as long as the total risk meets the desired goal. The decision of how to weight the chemicals is likely to be site-specific, and it is recommended that this decision be made in consultation with the regional risk assessor.

Note that when the TR or THQ is altered, the relationship between cancer-based and noncancer-based SLs may change. At certain risk levels, the cancer-based number may be more conservative; at different risk levels, the noncancer-based number may be more conservative. The data user needs to consider both cancer and noncancer endpoints.

2. Similar to the above approach of using the calculator to recalculate SLs based on non-default target levels, the values in the screening tables themselves can be addressed directly. Consistent with the above logic, although the EPA Superfund Program has not developed guidance on this, it is not uncommon that Superfund sites are screened at a THQ of 0.1. (The cancer-based SLs are already at a target risk of 1E-6 and are usually not adjusted further in this scenario.) SLs based on a THQ of 0.1 can be derived by dividing a default SL by 10. Again, note that altering the target HQ can change the relationship between cancer-based and noncancer-based screening levels; the data user needs to consider both endpoints. Additional approaches or alternatives may exist. When screening actual or potential Superfund sites, users are encouraged to consult with risk assessors in that EPA Regional Office when evaluating or screening contamination at a site with multiple contaminants to see if they may know of another approach or if they have a preference.

5.13.2 Using RSLs to Sum Risk from Multiple Contaminants

RSLs can be used to estimate the total risk from multiple contaminants at a site as part of a screening procedure used by some regions. This methodology, which does not substitute for a baseline risk assessment, is often called the "sum of the ratios" approach. A step-wise approach follows:

1. Perform an extensive records search and compile existing data.
2. Identify site contaminants in the SL Table. Record the SL concentrations for various media and note whether SL is based on cancer risk (indicated by 'c') or noncancer hazard (indicated by 'n'). Segregate cancer SLs from non-cancer SLs and exclude (but don't eliminate) non-risk based SLs 's' or 'm'.
3. For cancer risk estimates, take the site-specific concentration (maximum or 95th percentile of the upper confidence on the mean (UCL)) and divide by the SL concentrations that are designated for cancer evaluation 'c'. Multiply this ratio by 10⁻⁶ to estimate chemical-specific risk for a reasonable maximum exposure (RME). For multiple pollutants, simply add the risk for each chemical. See equation below.

$$\text{Risk} = \left[\left(\frac{\text{conc}_x}{\text{SL}_x} \right) + \left(\frac{\text{conc}_y}{\text{SL}_y} \right) + \left(\frac{\text{conc}_z}{\text{SL}_z} \right) \right] \times 10^{-6}$$

4. For non-cancer hazard estimates, divide the concentration term by its respective non-cancer SL designated as 'n' and sum the ratios for multiple contaminants. The cumulative ratio represents a non-carcinogenic hazard index (HI). A hazard index of 1 or less is generally considered 'safe'. A ratio greater than 1 suggests further evaluation. Note that carcinogens may also have an associated non-cancer SL that is not listed in the SL Table. To obtain these values, the user should view the Supporting Tables. See equation below.

$$\text{Hazard Index} = \left[\left(\frac{\text{conc}_x}{\text{SL}_x} \right) + \left(\frac{\text{conc}_y}{\text{SL}_y} \right) + \left(\frac{\text{conc}_z}{\text{SL}_z} \right) \right]$$

5.14 Deriving Soil Gas SLs

The air SLs could apply to indoor air from, e.g., a vapor intrusion scenario. To model indoor air concentrations from other media (e.g., soil gas, groundwater), consult with regional experts in vapor intrusion.

For more information on EPA's current understanding of this emerging exposure pathway, please refer to EPA's recent draft guidance Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance) (USEPA 2002) available on the web at: <http://www.epa.gov/osw/hazard/correctiveaction/eis/vapor.htm>.

5.15 Mutagens

Some of the cancer causing analytes in this tool operate by a mutagenic mode of action for carcinogenesis. There is reason to surmise that some chemicals with a mutagenic mode of action, which would be expected to cause irreversible changes to DNA, would exhibit a greater effect in early-life versus later-life exposure. Cancer risk to children in the context of the U.S. Environmental Protection Agency's cancer guidelines (U.S. EPA, 2005) includes both early-life exposures that may result in the occurrence of cancer during childhood and early-life exposures that may contribute to cancers later in life. In keeping with this guidance, separate cancer risk equations are presented for mutagens. The mutagen vinyl chloride has a unique set of equations. Consult [Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens, EPA/630/R-03/003E, March 2005](#) for further information.

<http://www.epa.gov/oswer/riskassessment/sqhandbook/chemicals.htm> provides more detailed information about which contaminants are considered carcinogenic by a mutagenic mode of action. In addition to the previous document's list of these contaminants, Chromium VI is also now considered carcinogenic by a mutagenic mode of action.

6. Using the Calculator

The [Calculator](#) can be used to generate site-specific SLs or PRGs. The calculator requires the user to make some simple selections. To use the calculator Select a landuse. Next, select whether you want Default or Site-specific SLs. Selecting default screening levels will reproduce the results in the generic [Generic Tables](#). Selecting Site-Specific

will allow you to change exposure parameters. Now pick your analytes. To pick several in a row, depress the left mouse button and drag, then release. Or hold the Ctrl key down and select multiple analytes that are not in a row. Select the output option. Hit the retrieve button. If you selected Site-Specific, the next page allows you to change exposure parameters. Hit the retrieve button. SLs are being calculated. The first table presents the input parameters that were selected. The next table contains the screening levels. This table can be too big to print. The easiest way to manage this table is to move it to a spreadsheet or a database. To copy this table, hold the left mouse key down and drag across the entire table. when done, press Ctrl c to copy. Switch to a spreadsheet and press Ctrl v to paste.

To watch a brief video that explains how to get results into a spreadsheet. click [here](#) (large file) or [here](#) for smaller file.

Table 1. Standard Default Factors

Symbol	Definition (units)	Default	Reference
SLs			
SLres-air-ca	Resident Air Carcinogenic (μm^3)	Contaminant-specific	Determined in this calculator
SLres-air-ca-vinyl chloride	Resident Air Carcinogenic Vinyl Chloride (μm^3)	Vinyl Chloride-specific	Determined in this calculator
SLres-air-mu	Resident Air Mutagenic (μm^3)	Mutagen-specific	Determined in this calculator
SLres-air-nc	Resident Air Noncarcinogenic (μm^3)	Contaminant-specific	Determined in this calculator
SLres-fsh-ca-ing	Resident Fish Carcinogenic (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-fsh-nc-ing	Resident Fish Noncarcinogenic (mg/kg)	Contaminant-specific	Determined in this calculator
SLwater-ca-ing	Resident Tapwater Groundwater Carcinogenic Ingestion (μL)	Contaminant-specific	Determined in this calculator
SLwater-ca-inh	Resident Tapwater Groundwater Carcinogenic Inhalation (μL)	Contaminant-specific	Determined in this calculator
SLwater-ca-tot	Resident Tapwater Groundwater Carcinogenic Total (μL)	Contaminant-specific	Determined in this calculator
SLres-water-ca-vc-ing	Resident Tapwater Groundwater Carcinogenic Vinyl Chloride Ingestion (μL)	Contaminant-specific	Determined in this calculator
SLres-water-ca-vc-inh	Resident Tapwater Groundwater Carcinogenic Vinyl Chloride Inhalation (μL)	Contaminant-specific	Determined in this calculator
SLres-water-ca-vc-tot	Resident Tapwater Groundwater Carcinogenic Vinyl Chloride Total (μL)	Contaminant-specific	Determined in this calculator
SLwater-mu-ing	Resident Tapwater Groundwater Mutagenic Ingestion (μL)	Contaminant-specific	Determined in this calculator
SLwater-mu-inh	Resident Tapwater Groundwater Mutagenic Inhalation (μL)	Mutagen-specific	Determined in this calculator
SLwater-mu-tot	Resident Tapwater Groundwater Mutagenic Total (μL)	Contaminant-specific	Determined in this calculator
SLwater-nc-ing	Resident Tapwater Groundwater Noncarcinogenic Ingestion (μL)	Contaminant-specific	Determined in this calculator
SLwater-nc-inh	Resident Tapwater Groundwater Noncarcinogenic Inhalation (μL)	Mutagen-specific	Determined in this calculator
SLwater-nc-tot	Resident Tapwater Groundwater Noncarcinogenic Total (μL)	Contaminant-specific	Determined in this calculator
SLres-sol-ca-ing	Resident Soil Carcinogenic Ingestion (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-ca-der	Resident Soil Carcinogenic Dermal (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-ca-inh	Resident Soil Carcinogenic Inhalation (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-ca-tot	Resident Soil Carcinogenic Total (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-soil-ca-vc-ing	Resident Soil Carcinogenic Vinyl Chloride Ingestion (mg/kg)	Vinyl Chloride - specific	Determined in this calculator
SLres-soil-ca-vc-der	Resident Soil Carcinogenic Vinyl Chloride Dermal (mg/kg)	Vinyl Chloride-specific	Determined in this calculator
SLres-soil-ca-vc-inh	Resident Soil Carcinogenic Vinyl Chloride Inhalation (mg/kg)	Vinyl Chloride-specific	Determined in this calculator
SLres-soil-ca-vc-tot	Resident Soil Carcinogenic Vinyl Chloride Total (mg/kg)	Vinyl Chloride-specific	Determined in this calculator
SLres-sol-mu-ing	Resident Soil Mutagenic Ingestion (mg/kg)	Mutagen-specific	Determined in this calculator
SLres-sol-mu-der	Resident Soil Mutagenic Dermal (mg/kg)	Mutagen-specific	Determined in this calculator
SLres-sol-mu-inh	Resident Soil Mutagenic Inhalation (mg/kg)	Mutagen-specific	Determined in this calculator
SLres-sol-mu-tot	Resident Soil Mutagenic Total (mg/kg)	Mutagen-specific	Determined in this calculator
SLres-sol-nc-ing	Resident Soil Noncarcinogenic Ingestion (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-nc-der	Resident Soil Noncarcinogenic Dermal (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-nc-inh	Resident Soil Noncarcinogenic Inhalation (mg/kg)	Contaminant-specific	Determined in this calculator
SLres-sol-nc-tot	Resident Soil Noncarcinogenic Total (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-ca-ing	Worker Soil Carcinogenic Ingestion (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-ca-der	Worker Soil Carcinogenic Dermal (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-ca-inh	Worker Soil Carcinogenic Inhalation (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-ca-tot	Worker Soil Carcinogenic Total (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-nc-ing	Worker Soil Noncarcinogenic Ingestion (mg/kg)	Contaminant-specific	Determined in this calculator

SLw-sol-nc-der	Worker Soil Noncarcinogenic Dermal (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-nc-inh	Worker Soil Noncarcinogenic Inhalation (mg/kg)	Contaminant-specific	Determined in this calculator
SLw-sol-nc-tot	Worker Soil Noncarcinogenic Total (mg/kg)	Contaminant-specific	Determined in this calculator
Toxicity Values			
RfDo	Chronic Oral Reference Dose (mg/kg-day)	Contaminant-specific	EPA Superfund hierarchy
RfC	Chronic Inhalation Reference Concentration (mg/m3)	Contaminant-specific	EPA Superfund hierarchy
CSFo	Chronic oral Slope Factor (mg/kg-day)-1	Contaminant-specific	EPA Superfund hierarchy
IUR	Chronic Inhalation Unit Risk (μ /m3)-1	Contaminant-specific	EPA Superfund hierarchy
Miscellaneous Variables			
TR	target risk	1×10^{-6}	Determined in this calculator
THQ	target hazard quotient	1	Determined in this calculator
K	Andelman Volatilization Factor (L/m3)	0.5	U.S. EPA 1991b (pg. 20)
ATr	Averaging time - resident (days/year)	365	U.S. EPA 1989 (pg. 6-23)
ATow	Averaging time - worker (days/year)	365	U.S. EPA 1989 (pg. 6-23)
LT	Lifetime (years)	70	U.S. EPA 1989 (pg. 6-22)
Ingestion, and Dermal Contact Rates			
IRWc	Drinking Water Ingestion Rate - Child (L/day)	1	
IRWa	Drinking Water Ingestion Rate - Adult (L/day)	2	U.S. EPA 1989 (Exhibit 6-11)
IFWadj	Drinking Water Ingestion Rate - Age-adjusted (L-year/kg-day)	1.086	Calculated using the aged adjusted intake factors equation
IFWMadj	Mutagenic Drinking Water Ingestion Rate - Age-adjusted (L-year/kg-day)	3.39	Calculated using the aged adjusted intake factors equation
IRSc	Resident Soil Ingestion Rate - Child (mg/day)	200	U.S. EPA 1991a (pg. 15)
IRSa	Resident Soil Ingestion Rate - Adult (mg/day)	100	U.S. EPA 1991a (pg. 15)
IFSadj	Resident Soil Ingestion Rate - Age-adjusted (mg-year/kg-day)	114	Calculated using the aged adjusted intake factors equation
IFSMadj	Mutagenic Resident Soil Ingestion Rate - Age-adjusted (mg-year/kg-day)	489.5	Calculated using the aged adjusted intake factors equation
IRFa	Fish Ingestion Rate (mg/day)	5.4×10^4	U.S. EPA 1991a (pg. 15)
SAC	Resident soil surface area - child (cm2)	2800	U.S. EPA 2002 (Exhibit 1-2)
SAa	Resident soil surface area - adult (cm2)	5700	U.S. EPA 2002 (Exhibit 1-2)
AFc	Resident soil adherence factor-child (mg/cm2)	0.2	U.S. EPA 2002 (Exhibit 1-2)
AFa	Resident soil adherence factor-adult (mg/cm2)	0.07	U.S. EPA 2002 (Exhibit 1-2)
DFSadj	Resident soil dermal contact factor- age-adjusted (mg-year/kg-day)	361	Calculated using the aged adjusted intake factors equation
DFSMadj	Mutagenic Resident soil dermal contact factor- age-adjusted (mg-year/kg-day)	1445	Calculated using the aged adjusted intake factors equation
SAow	Worker soil surface area - adult (cm2)	3300	U.S. EPA 2002 (Exhibit 1-2)
AFow	Worker soil adherence factor-child (mg/cm2)	0.2	U.S. EPA 2002 (Exhibit 1-2)
ABSd	Fraction of contaminant absorbed dermally from soil (unitless)	Contaminant-specific	U.S. EPA 2004 (Exhibit 3-4)
GIABS	Fraction of contaminant absorbed in gastrointestinal tract (unitless) Note: if the GIABS is >50% then it is set to 100% for the calculation of dermal toxicity values.	Contaminant-specific	U.S. EPA 2004 (Exhibit 4-1)
Exposure Frequency, Exposure Duration, and Exposure Time Variables			
Efr	Exposure Frequency - residential (days/yr)	350	U.S. EPA 1991a (pg. 15)
EFow	Exposure Frequency - worker (days/yr)	250	U.S. EPA 1991a (pg. 15)
EDr	Exposure Duration - resident (yr)	30	U.S. EPA 1991a (pg. 15)
EDc	Exposure Duration - child resident (yr)	6	U.S. EPA 1991a (pg. 15)
EDow	Exposure Duration - worker (yr)	25	U.S. EPA 1991a (pg. 15)
ET ra	Exposure Time - resident air (hr/hr)	1	24 hrs per 24 hr Day
Soil to Groundwater SSL Factor Variables			
I	Infiltration Rate (m/year)	0.18	U.S. EPA. 1996a (pg. 31)
L	source length parallel to ground water flow (m)	site-specific	U.S. EPA. 1996a (pg. 31)
i	hydraulic gradient (m/m)	site-specific	U.S. EPA. 1996a (pg. 31)
K	aquifer hydraulic conductivity (m/year)	site-specific	U.S. EPA. 1996a (pg. 31)
θ_w	water-filled soil porosity (Lwater/Lsoil)	0.3	U.S. EPA. 1996a (pg. 31)
θ_a	air-filled soil porosity (Lair/Lsoil)	$= n - \theta_w$	U.S. EPA. 1996a (pg. 31)
n	total soil porosity (Lpore/Lsoil)	$= 1 - (\rho_b / \rho_s)$	U.S. EPA. 1996a (pg. 31)
ρ_s	soil particle density (Kg/L)	2.65	U.S. EPA. 1996a (pg. 31)
ρ_b	dry soil bulk density (kg/L)	1.5	U.S. EPA. 1996a (pg. 31)
H'	Dimensionless Henry Law Constant (unitless)	analyte-specific	EPI Suite
Kd	soil-water partition coefficient (L/kg)	$= Koc * f_{oc}$ for organics	U.S. EPA. 1996a (pg. 31)
Koc	soil organic carbon/water partition coefficient (L/kg)	analyte-specific	EPI Suite
foc	fraction organic carbon in soil (g/g)	0.002	U.S. EPA. 1996a (pg. 31)
da	aquifer thickness (m)	site-specific	U.S. EPA. 1996a (pg. 31)
ds	depth of source (m)	site-specific	U.S. EPA. 1996a (pg. 31)
d	mixing zone depth (m)	site-specific	U.S. EPA. 1996a (pg. 31)
Particulate Emission Factor Variables			
PEF	Particulate Emission Factor - Minneapolis (m3/kg)	1.36×10^9 (region-specific)	Determined in this calculator
Q/C	Inverse of the Mean Concentration at the Center of a 0.5-Acre-Square Source (g/m2-s per kg/m3)	93.77 (region-specific)	Determined in this calculator

V	Fraction of Vegetative Cover (unitless)	0.5	U.S. EPA 1996a (pg. 23)
Um	Mean Annual Wind Speed (m/s)	4.69	U.S. EPA 1996a (pg. 23)
Ut	Equivalent Threshold Value of Wind Speed at 7m (m/s)	11.32	U.S. EPA 1996a (pg. 23)
F(x)	Function Dependent on Um /Ut (unitless)	0.194	U.S. EPA 1996a (pg. 23)
A	Dispersion constant unitless	PEF and region-specific	U.S. EPA 2002 (pg. D-6 to D-8)
As	Areal extent of the site or contamination (acres)	0.5 (range 0.5 to 500)	U.S. EPA 2002 (pg. D-2)
B	Dispersion constant unitless	PEF and region-specific	U.S. EPA 2002 (pg. D-6 to D-8)
C	Dispersion constant unitless	PEF and region-specific	U.S. EPA 2002 (pg. D-6 to D-8)
Volatilization Factor and Soil Saturation Limit Variables			
VF	Volatilization Factor - Los Angeles (m3/kg)	Contaminant-specific	U.S. EPA. 1996b (pg. 24)
Q/Cw	Inverse of the Mean Concentration at the Center of a 0.5-Acre-Square Source (g/m2-s per kg/m3)	68.81	U.S. EPA. 1996b (pg. 24)
DA	Apparent Diffusivity (cm2/s)	Contaminant-specific	U.S. EPA. 1996b (pg. 24)
T	Exposure interval (s)	9.5 × 108	U.S. EPA. 1996b (pg. 24)
P _b	Dry soil bulk density (g/cm3)	1.5	U.S. EPA. 1996b (pg. 24)
θ _a	Air-filled soil porosity (Lair/Lsoil) (n - θ _w)	0.28	U.S. EPA. 1996b (pg. 24)
n	Total soil porosity (L _{pore} /Lsoil) (1 - (P _b /P _s))	0.43	U.S. EPA. 1996b (pg. 24)
θ _w	Water-filled soil porosity (L _{water} /Lsoil)	0.15	U.S. EPA. 1996b (pg. 24)
P _s	Soil particle density (g/cm3)	2.65	U.S. EPA. 1996b (pg. 24)
S	Water Solubility Limit (mg/L)	Contaminant-specific	EPI Suite
Dia	Diffusivity in air (cm2/s)	Contaminant-specific	U.S. EPA. 2001
H'	Dimensionless Henry's Law Constant	Contaminant-specific	EPI Suite
Diw	Diffusivity in water (cm2/s)	Contaminant-specific	U.S. EPA. 2001
Kd	Soil-water partition coefficient (L/Kg) (Koc×foc)	Contaminant-specific	U.S. EPA. 1996b (pg. 24)
Koc	Soil organic carbon-water partition coefficient (L/Kg)	Contaminant-specific	EPI Suite
foc	Organic carbon content of soil (g/g)	0.006	U.S. EPA. 1996b (pg. 24)

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Equations

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Noncarcinogenic

Ingestion

$$SL_{\text{res-sol-nc-ing}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right) \times \text{BW}_c \text{ (15 Kg)}}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \frac{1}{\text{RfD}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)} \times \text{IRS}_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Dermal

$$SL_{\text{res-sol-nc-der}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right) \times \text{BW}_c \text{ (15 Kg)}}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \frac{1}{\left(\text{RfD}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right) \times \text{GIABS} \right)} \times \text{SA}_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times \text{ABS}_d \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Inhalation

$$SL_{\text{res-sol-nc-inh}} \text{ (mg/kg)} = \frac{\text{THQ} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{ED}_c \text{ (6 years)} \right)}{\text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{ED}_c \text{ (6 year)} \times \text{ET}_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{\text{RfC} \left(\frac{\text{mg}}{\text{m}^3} \right)} \times \left(\frac{1}{\text{VF}_s \left(\frac{\text{m}^3}{\text{Kg}} \right)} + \frac{1}{\text{PEF}_w \left(\frac{\text{m}^3}{\text{Kg}} \right)} \right)}$$

Total

$$SL_{\text{res-sol-nc-tot}} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{\text{res-sol-nc-ing}}} + \frac{1}{SL_{\text{res-sol-nc-der}}} + \frac{1}{SL_{\text{res-sol-nc-inh}}}}$$

Carcinogenic

Ingestion

$$SL_{\text{res-sol-ca-ing}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\text{CSF}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{IFS}_{\text{adj}} \left(\frac{114 \text{ mg-Year}}{\text{Kg-day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$\text{IFS}_{\text{adj}} \left(\frac{114 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{\text{ED}_c \text{ (6 years)} \times \text{IRS}_c \left(\frac{200 \text{ mg}}{\text{day}} \right)}{\text{BW}_c \text{ (15 Kg)}} + \frac{\text{ED}_r \text{ -ED}_c \text{ (24 years)} \times \text{IRS}_a \left(\frac{100 \text{ mg}}{\text{day}} \right)}{\text{BW}_a \text{ (70 Kg)}}$$

Dermal

$$SL_{\text{res-sol-ca-der}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\left(\frac{\text{CSF}_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1}}{\text{GIABS}} \right) \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \text{DFS}_{\text{adj}} \left(\frac{361 \text{ mg-Year}}{\text{Kg-day}} \right) \times \text{ABS}_d \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$\text{DFS}_{\text{adj}} \left(\frac{361 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{\text{ED}_c \text{ (6 years)} \times \text{SA}_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right)}{\text{BW}_c \text{ (15 Kg)}} + \frac{\text{ED}_r \text{ -ED}_c \text{ (24 years)} \times \text{SA}_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times \text{AF}_a \left(\frac{0.07 \text{ mg}}{\text{cm}^2} \right)}{\text{BW}_a \text{ (70 Kg)}}$$

Inhalation

$$SL_{\text{res-sol-ca-inh}} \text{ (mg/kg)} = \frac{\text{TR} \times \text{AT}_r \left(\frac{365 \text{ days}}{\text{year}} \times \text{LT} \text{ (70 years)} \right)}{\text{IUR} \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \text{EF}_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times \left(\frac{1}{\text{VF}_s \left(\frac{\text{m}^3}{\text{Kg}} \right)} + \frac{1}{\text{PEF}_w \left(\frac{\text{m}^3}{\text{Kg}} \right)} \right) \times \text{ED}_r \text{ (30 years)} \times \text{ET}_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right)}$$

Total

$$SL_{res-sol-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{res-sol-ca-ing}} + \frac{1}{SL_{res-sol-ca-der}} + \frac{1}{SL_{res-sol-ca-inh}}}$$

Mutagenic

Ingestion

$$SL_{res-sol-mu-ing} \text{ (mg/kg)} = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFSM_{adj} \left(\frac{489.5 \text{ mg-Year}}{\text{Kg-day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$IFSM_{adj} \left(\frac{489.5 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{ED_{0-2} \text{ (yr)} \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times 10}{BW_c \text{ (15 Kg)}} + \frac{ED_{2-6} \text{ (yr)} \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times 3}{BW_c \text{ (15 Kg)}} + \frac{ED_{6-16} \text{ (yr)} \times IRS_a \left(\frac{100 \text{ mg}}{\text{day}} \right) \times 3}{BW_a \text{ (70 Kg)}} + \frac{ED_{16-30} \text{ (yr)} \times IRS_a \left(\frac{100 \text{ mg}}{\text{day}} \right) \times 1}{BW_a \text{ (70 Kg)}}$$

Dermal

$$SL_{res-sol-mu-der} \text{ (mg/kg)} = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{\left(\frac{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1}}{GIABS} \right) \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times DFSM_{adj} \left(\frac{1445 \text{ mg-Year}}{\text{Kg-day}} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{\text{mg}} \right)}$$

where:

$$DFSM_{adj} \left(\frac{1445 \text{ mg-Year}}{\text{Kg-day}} \right) = \frac{ED_{0-2} \text{ (yr)} \times AF_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times SA_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times 10}{BW_c \text{ (15 Kg)}} + \frac{ED_{2-6} \text{ (yr)} \times AF_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times SA_c \left(\frac{2800 \text{ cm}^2}{\text{day}} \right) \times 3}{BW_c \text{ (15 Kg)}} + \frac{ED_{6-16} \text{ (yr)} \times AF_a \left(\frac{0.07 \text{ mg}}{\text{cm}^2} \right) \times SA_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times 3}{BW_a \text{ (70 Kg)}} + \frac{ED_{16-30} \text{ (yr)} \times AF_a \left(\frac{0.07 \text{ mg}}{\text{cm}^2} \right) \times SA_a \left(\frac{5700 \text{ cm}^2}{\text{day}} \right) \times 1}{BW_a \text{ (70 Kg)}}$$

Inhalation

$$SL_{res-sol-mu-inh} \text{ (mg/kg)} = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ET_{rs} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{ED_{0-2} \text{ (yrs)} \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 10}{\left(\frac{ED_{2-6} \text{ (yrs)} \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right)} + \left(\frac{ED_{6-16} \text{ (yrs)} \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3}{\left(\frac{ED_{16-30} \text{ (yrs)} \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 1 \right)} \right) \times \left(\frac{1}{VF_s \left(\frac{\text{m}^3}{\text{Kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{Kg}} \right)} \right)}$$

Total

$$SL_{res-sol-mu-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{res-sol-mu-ing}} + \frac{1}{SL_{res-sol-mu-der}} + \frac{1}{SL_{res-sol-mu-inh}}}$$

Vinyl Chloride

Ingestion

$$SL_{res-soil-ca-vc-ing} \text{ (mg/kg)} = \frac{TR}{\left(\frac{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFS_{adj} \left(\frac{114 \text{ mg-yr}}{\text{kg-d}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)} \right) + \left(\frac{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times IRS_c \left(\frac{200 \text{ mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}{BW_c \text{ (15 kg)}} \right)}$$

Dermal

$$SL_{res-soil-ca-vc-der} (mg/kg) = \frac{TR}{\left(\frac{CSF_o \left(\frac{mg}{kg-day} \right)^{-1}}{GIABS} \times EF_r \left(\frac{350 \text{ days}}{year} \right) \times DFS_{adj} \left(\frac{361 \text{ mg-yr}}{kg-day} \right) \times ABS_d \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right) \times AT_r \left(\frac{365 \text{ days}}{year} \right) \times LT (70 \text{ years})} + \frac{CSF_o \left(\frac{mg}{kg-day} \right)^{-1}}{GIABS} \times SA_c \left(\frac{2800 \text{ cm}^2}{day} \right) \times AF_c \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}{BW_e (15 \text{ kg})}$$

Inhalation

$$SL_{res-soil-ca-vc-inh} (mg/kg) = \frac{TR}{\left(\frac{IUR \left(\frac{\mu g}{m^3} \right)^{-1}}{VF} \times EF \left(\frac{350 \text{ days}}{year} \right) \times ED (30 \text{ years}) \times ET_{rs} \left(\frac{24 \text{ hours}}{day} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\frac{1000 \mu g}{mg} \right) \right) \times AT \left(\frac{365 \text{ days}}{year} \right) \times LT (70 \text{ years}) \times VF \left(\frac{m^3}{kg} \right)} + \left(\frac{IUR \left(\frac{\mu g}{m^3} \right)^{-1}}{VF} \times \left(\frac{1000 \mu g}{mg} \right) \right)$$

Total

$$SL_{res-soil-ca-vc-tot} (mg/kg) = \frac{1}{\frac{1}{SL_{res-soil-ca-vc-ing}} + \frac{1}{SL_{res-soil-ca-vc-der}} + \frac{1}{SL_{res-soil-ca-vc-inh}}}$$

Outdoor Worker Soil Equations

Noncarcinogenic

Ingestion

$$SL_{w-sol-nc-ing} (mg/kg) = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{year} \times ED_{ow} (25 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{year} \right) \times ED_{ow} (25 \text{ years}) \times \frac{1}{RfD_o \left(\frac{mg}{kg-day} \right)} \times IR_{ow} \left(\frac{100 \text{ mg}}{day} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Dermal

$$SL_{w-sol-nc-der} (mg/kg) = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{year} \times ED_{ow} (25 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{year} \right) \times ED_{ow} (25 \text{ years}) \times \left(\frac{1}{RfD_o \left(\frac{mg}{kg-day} \right) \times GIABS} \right) \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{day} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Inhalation

$$SL_{w-sol-nc-inh} (mg/kg) = \frac{THQ \times AT_{ow} \left(\frac{365 \text{ days}}{year} \times ED_{ow} (25 \text{ years}) \right)}{EF_{iw} \left(\frac{250 \text{ days}}{year} \right) \times ED_{ow} (25 \text{ years}) \times ET_{ws} \left(\frac{8 \text{ hours}}{day} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RfC \left(\frac{mg}{m^3} \right)} \times \left(\frac{1}{VF_s \left(\frac{m^3}{kg} \right)} + \frac{1}{PEF_w \left(\frac{m^3}{kg} \right)} \right)}$$

Total

$$SL_{w-sol-nc-tot} (mg/kg) = \frac{1}{\frac{1}{SL_{w-sol-nc-ing}} + \frac{1}{SL_{w-sol-nc-der}} + \frac{1}{SL_{w-sol-nc-inh}}}$$

Carcinogenic

Ingestion

$$SL_{w-sol-ca-ing} (mg/kg) = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{year} \times LT (70 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{year} \right) \times ED_{ow} (25 \text{ years}) \times CSF_o \left(\frac{mg}{kg-day} \right)^{-1} \times IR_{ow} \left(\frac{100 \text{ mg}}{day} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Dermal

$$SL_{w-sol-ca-der} (mg/kg) = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{year} \times LT (70 \text{ years}) \right) \times BW_{ow} (70 \text{ Kg})}{EF_{iw} \left(\frac{250 \text{ days}}{year} \right) \times ED_{ow} (25 \text{ years}) \times \left(\frac{CSF_o \left(\frac{mg}{kg-day} \right)^{-1}}{GIABS} \right) \times SA_{ow} \left(\frac{3300 \text{ cm}^2}{day} \right) \times AF_{ow} \left(\frac{0.2 \text{ mg}}{\text{cm}^2} \right) \times ABS_d \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Inhalation

$$SL_{w-sol-ca-inh} \text{ (mg/kg)} = \frac{TR \times AT_{ow} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{EF_{iw} \left(250 \frac{\text{days}}{\text{year}} \right) \times ED_{ow} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{1}{V_f \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

Total

$$SL_{w-sol-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{w-sol-ca-ing}} + \frac{1}{SL_{w-sol-ca-der}} + \frac{1}{SL_{w-sol-ca-inh}}}$$

Indoor Worker Soil Equations

Noncarcinogenic

Ingestion

$$SL_{iw-nc-ing} \text{ (mg/kg)} = \frac{THQ \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{iw} \text{ (25 years)} \right) \times BW_{iw} \text{ (70 Kg)}}{EF_{iw} \left(250 \frac{\text{days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-day}} \right)} \times IR_{iw} \left(50 \frac{\text{mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Inhalation

$$SL_{iw-nc-inh} \text{ (mg/kg)} = \frac{THQ \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times ED_{iw} \text{ (25 years)} \right)}{EF_{iw} \left(250 \frac{\text{days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times RfC \left(\frac{\text{mg}}{\text{m}^3} \right) \times \left(\frac{1}{V_f \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

Total

$$SL_{iw-nc-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{iw-nc-ing}} + \frac{1}{SL_{iw-nc-inh}}}$$

Carcinogenic

Ingestion

$$SL_{iw-ca-ing} \text{ (mg/kg)} = \frac{TR \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right) \times BW_{iw} \text{ (70 Kg)}}{EF_{iw} \left(250 \frac{\text{days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times IR_{iw} \left(50 \frac{\text{mg}}{\text{day}} \right) \times \left(\frac{10^{-6} \text{ Kg}}{1 \text{ mg}} \right)}$$

Inhalation

$$SL_{iw-ca-inh} \text{ (mg/kg)} = \frac{TR \times AT_{iw} \left(\frac{365 \text{ days}}{\text{year}} \times LT \text{ (70 years)} \right)}{EF_{iw} \left(250 \frac{\text{days}}{\text{year}} \right) \times ED_{iw} \text{ (25 years)} \times ET_{ws} \left(\frac{8 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right) \times \left(\frac{1}{V_f \left(\frac{\text{m}^3}{\text{kg}} \right)} + \frac{1}{PEF_w \left(\frac{\text{m}^3}{\text{kg}} \right)} \right)}$$

Total

$$SL_{iw-ca-tot} \text{ (mg/kg)} = \frac{1}{\frac{1}{SL_{iw-ca-ing}} + \frac{1}{SL_{iw-ca-inh}}}$$

Tap Water Equations

Noncarcinogenic

Ingestion

$$SL_{water-nc-ing} \text{ (\mu g/L)} = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r \text{ (30 years)} \right) \times BW_a \text{ (70 Kg)} \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(350 \frac{\text{days}}{\text{year}} \right) \times ED_r \text{ (30 years)} \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{kg-d}} \right)} \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right)}$$

Inhalation

$$SL_{\text{water-nc-inh}} (\mu\text{g/L}) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{Rfc \left(\frac{\text{mg}}{\text{m}^3} \right)} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}$$

Total

$$SL_{\text{water-nc-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-nc-ing}}} + \frac{1}{SL_{\text{water-nc-inh}}}}$$

Carcinogenic

Ingestion

$$SL_{\text{water-ca-ing}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times CSF_o \left(\frac{\text{mg}}{\text{kg-day}} \right)^{-1} \times \left(IFW_{adj} \left(\frac{1.086 \text{ L-Year}}{\text{Kg-day}} \right) \right)}$$

where:

$$IFW_{adj} \left(\frac{1.086 \text{ L-Year}}{\text{Kg-day}} \right) = \frac{ED_c (6 \text{ years}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right)}{BW_c (15 \text{ Kg})} + \frac{ED_r - ED_c (24 \text{ years}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right)}{BW_a (70 \text{ Kg})}$$

Inhalation

$$SL_{\text{water-ca-inh}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}$$

Total

$$SL_{\text{water-ca-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-ca-ing}}} + \frac{1}{SL_{\text{water-ca-inh}}}}$$

Vinyl Chloride

Ingestion

$$SL_{\text{res-water-ca-vc-ing}} (\mu\text{g/L}) = \frac{TR}{\left(\frac{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFW_{adj} \left(\frac{1.086 \text{ L-yr}}{\text{kg-day}} \right) \times \left(\frac{\text{mg}}{1000 \mu\text{g}} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} \right) + \left(\frac{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times \left(\frac{\text{mg}}{1000 \mu\text{g}} \right)}{BW_c (15 \text{ kg})} \right)}$$

Inhalation

$$SL_{\text{res-water-ca-vc-inh}} (\mu\text{g/L}) = \frac{TR}{\left(\frac{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times EF \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED (30 \text{ years}) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right)}{AT \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)} \right) + \left(IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right) \right)}$$

Total

$$SL_{\text{res-water-ca-vc-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{res-water-ca-vc-ing}}} + \frac{1}{SL_{\text{res-water-ca-vc-inh}}}}$$

Mutagenic

Ingestion

$$SL_{\text{water-mu-ing}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times IFWM_{adj} \left(\frac{3.39 \text{ L-Year}}{\text{Kg-day}} \right)}$$

where:

$$IFWM_{adj} \left(\frac{3.39 \text{ L-Year}}{\text{Kg-day}} \right) = \frac{ED_{0-2} (\text{yr}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times 10}{BW_c (15 \text{ Kg})} + \frac{ED_{2-6} (\text{yr}) \times IRW_c \left(\frac{1 \text{ L}}{\text{day}} \right) \times 3}{BW_c (15 \text{ Kg})} + \frac{ED_{6-16} (\text{yr}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right) \times 3}{BW_a (70 \text{ Kg})} + \frac{ED_{16-30} (\text{yr}) \times IRW_a \left(\frac{2 \text{ L}}{\text{day}} \right) \times 1}{BW_a (70 \text{ Kg})}$$

Inhalation

$$SL_{\text{water-mu-inh}} (\mu\text{g/L}) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times K \left(\frac{0.5 \text{ L}}{\text{m}^3} \right) \times ET_{rw} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\left(ED_{0-2} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 10 \right) + \left(ED_{2-6} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{6-16} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{16-30} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 1 \right) \right)}$$

Total

$$SL_{\text{water-mu-tot}} (\mu\text{g/L}) = \frac{1}{\frac{1}{SL_{\text{water-mu-ing}}} + \frac{1}{SL_{\text{water-mu-inh}}}}$$

Ambient Air Equations

Resident

Noncarcinogenic

Inhalation

$$SL_{\text{res-air-nc}} (\mu\text{g/m}^3) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{ra} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)}}$$

Carcinogenic

Inhalation

$$SL_{\text{res-air-ca}} (\mu\text{g/m}^3) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{ra} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1}}$$

Mutagenic

Inhalation

$$SL_{\text{res-air-mu}} (\mu\text{g/m}^3) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ET_{ra} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right) \times \left(\left(ED_{0-2} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 10 \right) + \left(ED_{2-6} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{6-16} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 3 \right) + \left(ED_{16-30} (\text{yrs}) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times 1 \right) \right)}$$

Vinyl Chloride

Inhalation

$$SL_{\text{res-air-ca-vinyl chloride}} (\mu\text{g/m}^3) = \frac{TR}{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} + \frac{IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1} \times EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ years}) \times ET_{ra} \left(\frac{24 \text{ hours}}{\text{day}} \right) \times \left(\frac{1 \text{ day}}{24 \text{ hours}} \right)}{AT_r \left(\frac{365 \text{ days}}{\text{year}} \right) \times LT (70 \text{ years})}}$$

Worker

Noncarcinogenic

Inhalation

$$SL_{\text{w-air-nc}} (\mu\text{g/m}^3) = \frac{THQ \times AT_w \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (25 \text{ years}) \right) \times \left(\frac{1000 \mu\text{g}}{\text{mg}} \right)}{EF_w \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_w (25 \text{ years}) \times ET_w \left(\frac{8 \text{ hr}}{24 \text{ hr}} \right) \times \frac{1}{RfC \left(\frac{\text{mg}}{\text{m}^3} \right)}}$$

Carcinogenic

Inhalation

$$SL_{w-air-ca} \left(\mu\text{g}/\text{m}^3 \right) = \frac{TR \times AT_w \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right)}{EF_w \left(\frac{250 \text{ days}}{\text{year}} \right) \times ED_w (25 \text{ years}) \times ET_w \left(\frac{8 \text{ hr}}{24 \text{ hr}} \right) \times IUR \left(\frac{\mu\text{g}}{\text{m}^3} \right)^{-1}}$$

Fish Ingestion Equations

Noncarcinogenic

$$SL_{res-fsh-nc-ing} \left(\text{mg}/\text{kg} \right) = \frac{THQ \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times ED_r (30 \text{ years}) \right) \times BW_a (70 \text{ Kg})}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ year}) \times \frac{1}{RfD_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)} \times IRF_a \left(\frac{5.4 \times 10^4 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Carcinogenic

$$SL_{res-fsh-ca-ing} \left(\text{mg}/\text{kg} \right) = \frac{TR \times AT_r \left(\frac{365 \text{ days}}{\text{year}} \times LT (70 \text{ years}) \right) \times BW_a (70 \text{ Kg})}{EF_r \left(\frac{350 \text{ days}}{\text{year}} \right) \times ED_r (30 \text{ year}) \times CSF_o \left(\frac{\text{mg}}{\text{Kg-day}} \right)^{-1} \times IRF_a \left(\frac{5.4 \times 10^4 \text{ mg}}{\text{day}} \right) \times \frac{10^{-6} \text{ Kg}}{1 \text{ mg}}}$$

Supporting Equations

Wind Particulate Emission Factor

$$PEF_w = \frac{Q}{C_w} \times \frac{3,600}{0.036 \times (1-V) \times (U_m/U_t)^3 \times F(x)}$$

where

$$\frac{Q}{C_w} = A \times \exp \left[\frac{(\ln A_s - B)^2}{C} \right]$$

Wind Volatilization Factor

$$VF = \frac{\frac{Q}{C_w} \times (3.14 \times D_A \times T)^{\frac{1}{2}} \times 10^{-4} \left(\frac{\text{m}^2}{\text{cm}^2} \right)}{2 \times \rho_b \times D_A}$$

where

$$\frac{Q}{C_w} = A \times \exp \left[\frac{(\ln A_s - B)^2}{C} \right] \text{ and}$$

$$D_A = \frac{\left[\left(\theta_a^{10/3} \times D_{ia} \times H' + \theta_w^{10/3} \times D_{iw} \right) / n^2 \right]}{\rho_b \times K_d + \theta_w + \theta_a \times H'}$$

Soil Saturation Limit

$$C_{sat} = \frac{S \left(\frac{\text{mg}}{\text{L}} \right)}{\rho_b \left(\frac{\text{Kg}}{\text{L}} \right)} \times \left(K_d \left(\frac{\text{L}}{\text{Kg}} \right) \times \rho_b \left(\frac{\text{Kg}}{\text{L}} \right) + \theta_w \left(\frac{\text{L}_{water}}{\text{L}_{soil}} \right) + H' \times \theta_a \left(\frac{\text{L}_{air}}{\text{L}_{soil}} \right) \right)$$

where

$$K_d = K_{oc} \left(\frac{\text{L}}{\text{Kg}} \right) \times f_{oc} \left(\frac{\text{g}}{\text{g}} \right),$$

$$\theta_a \left(\frac{\text{L}_{air}}{\text{L}_{soil}} \right) = n \left(\frac{\text{L}_{pore}}{\text{L}_{soil}} \right) - \theta_w \left(\frac{\text{L}_{water}}{\text{L}_{soil}} \right) \text{ and}$$

$$n = 1 - \frac{\rho_b \left(\frac{\text{Kg}}{\text{L}} \right)}{\rho_s \left(\frac{\text{Kg}}{\text{L}} \right)}$$

Diffusivity in Water

$$D_{iw} \left(\frac{\text{cm}^2}{\text{s}} \right) = 0.0001518 \times \left(\frac{T^{\circ}\text{C} + 273.16}{298.16} \right) \times \left(\frac{\text{MW} \left(\frac{\text{g}}{\text{mol}} \right)}{\rho \left(\frac{\text{g}}{\text{cm}^3} \right)} \right)^{-0.6}$$

where

T typically = 25°C

If density is not available,

$$D_{iw} \left(\frac{\text{cm}^2}{\text{s}} \right) = 0.000222 \times (\text{MW})^{-\left(\frac{2}{3}\right)}$$

Diffusivity in Air

$$D_{ia} \left(\frac{\text{cm}^2}{\text{s}} \right) = \frac{0.00229 \times (T^{\circ}\text{C} + 273.16)^{1.5} \times \left[0.034 + \frac{1}{\text{MW} \left(\frac{\text{g}}{\text{mol}} \right)} \times \text{MW}_{\text{cor}} \right]}{\left(\frac{\text{MW} \left(\frac{\text{g}}{\text{mol}} \right)}{2.5 \times \rho \left(\frac{\text{g}}{\text{cm}^3} \right)} \right)^{0.333} + 1.8}$$

where

T typically = 25°C

$\text{MW}_{\text{cor}} = (1 - 0.000015 \times \text{MW}^2)$ If MW_{cor} is less than 0.4, then MW_{cor} is set to 0.4.

If density is not available,

$$D_{ia} \left(\frac{\text{cm}^2}{\text{s}} \right) = 1.9 \times \left(\text{MW} \left(\frac{\text{g}}{\text{mol}} \right) \right)^{-\left(\frac{2}{3}\right)} \text{ except for dioxins use, } D_{ia} \left(\frac{\text{cm}^2}{\text{s}} \right) = \left(\frac{154}{\text{MW} \left(\frac{\text{g}}{\text{mol}} \right)} \right)^{0.5} \times 0.068$$

Soil to Groundwater Equations

Method 1

$$\text{SSL (mg/kg)} = C_w \left(\frac{\text{mg}}{\text{L}} \right) \times \left[K_d \left(\frac{\text{L}}{\text{kg}} \right) + \left(\frac{\theta_w \left(\frac{\text{L}_{\text{water}}}{\text{L}_{\text{soil}}} \right) + \theta_a \left(\frac{\text{L}_{\text{air}}}{\text{L}_{\text{soil}}} \right) \times H'}{\rho_b \left(\frac{1.5 \text{ kg}}{\text{L}} \right)} \right) \right]$$

where:

$$\theta_a \left(\frac{\text{L}_{\text{air}}}{\text{L}_{\text{soil}}} \right) = n \left(\frac{\text{L}_{\text{water}}}{\text{L}_{\text{soil}}} \right) - \theta_w \left(\frac{0.3 \text{ L}_{\text{water}}}{\text{L}_{\text{soil}}} \right);$$

$$n \left(\frac{\text{L}_{\text{pore}}}{\text{L}_{\text{soil}}} \right) = 1 - \left(\frac{\rho_b \left(\frac{1.5 \text{ kg}}{\text{L}} \right)}{\rho_s \left(\frac{2.65 \text{ kg}}{\text{L}} \right)} \right) \text{ and}$$

$$K_d \left(\frac{\text{L}}{\text{kg}} \right) = K_{oc} \left(\frac{\text{L}}{\text{kg}} \right) \times f_{oc} \text{ (0.002 unitless)}$$

Method 2

$$\text{SSL (mg/kg)} = \frac{C_w \left(\frac{\text{mg}}{\text{L}} \right) \times I \left(\frac{0.18 \text{ m}}{\text{year}} \right) \times \text{ED (70 years)}}{\rho_b \left(\frac{1.5 \text{ kg}}{\text{L}} \right) \times d_s \text{ (m)}}$$

Dilution Factor

$$\text{Dilution Attenuation Factor} = 1 + \frac{K \left(\frac{\text{m}}{\text{year}} \right) \times i \left(\frac{\text{m}}{\text{m}} \right) \times d(\text{m})}{I \left(\frac{0.18 \text{ m}}{\text{year}} \right) \times L(\text{m})}$$

where:

$$d(\text{m}) = \left(0.0112 \times L^2(\text{m}) \right)^{0.5} + d_a \times \left[1 - \exp \left(\frac{-L(\text{m}) \times I \left(\frac{\text{m}}{\text{year}} \right)}{K \left(\frac{\text{m}}{\text{year}} \right) \times i \left(\frac{\text{m}}{\text{m}} \right) \times d_a(\text{m})} \right) \right]$$

http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/equations.htm
Last updated on Wednesday, December 29, 2010

TABLE G-4A

Construction Worker Particulate Emission Factor
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

PEF Equations:

$$\frac{Q}{C_{Sr}} = A \times \exp \left[\frac{(\ln A_{site} - B)^2}{C} \right]$$

Equation 5-6 (EPA, 2002)

$$PEF_{SC} = \frac{Q}{C_{Sr}} \times \frac{1}{F_D} \frac{T \times A_R}{556 \times (W/3)^{0.4} \times \left(\frac{365 \text{ d/yr} - p}{365 \text{ d/yr}} \right) \times \sum VKT}$$

Equation 5-5 (EPA, 2002)

$$F_D = 0.1852 + \frac{5.3537}{t_c} + \frac{-9.6318}{t_c^2}$$

Equation E-16 (EPA, 2002)

PEF and Box Model Input Parameters

Parameter	Definition	Value	Units	Source
Q/C _{Sr}	Inverse ratio of the geometric mean air concentration to the emission flux at the center of a square source	20.5	m	Calculated
A	Constant	12.9351	unitless	Default (Eqn. 5-6)
B	Constant	5.7383	unitless	Default (Eqn. 5-6)
C	Constant	71.7711	unitless	Default (Eqn. 5-6)
A _{site}	Areal extent of site contamination	1.0	acres	Site-specific
PEF _{SC}	Subchronic road particulate emission factor	0.0E+00	m ³ /kg	Calculated
F _D	Dispersion correction factor	0.188	unitless	Calculated
t _c	Duration of construction (250 days for 8 hr/day)	2,000	hr	Assumed
T	Total time over which construction occurs (t _c x 3600 s/hr)	7,200,000	s	Assumed
A _R	Surface area of contaminated road segment (square root of site surface contamination configured as a square x default width of road segment of 20 ft)	0.00	m ²	Calculated
W	Mean weight of vehicle	8	tons	Assumed
p	Number of days with at least 0.01 inches of precipitation (based on measured 2005 data)	60	days/yr	Exhibit 5-2. (EPA, 2002)
VKT	Sum of fleet vehicle kilometers traveled during the exposure	160.0	km	Assumed ⁽¹⁾

Notes:

⁽¹⁾Assumption: While the exposure area are large, intensive construction activities on any given day would happen on 1 acre site. A road transecting a one acre site has a length of approximately 212 feet. 212 feet x 250 days x 10 trips/day = 530,000 feet = 100 miles = 160 km (all conversion are approximate). Source: EPA, 2002b. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, EPA Office of Solid Waste and Emergency Response. OSWER 9355.4-24. December.

TABLE G-4B

Construction Worker Exposure Factors
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Definition	Parameter	Value	Units
Target Excess Lifetime Cancer Risk (ELCR)	TR	1E-06	Unitless
Target Hazard Quotient (HQ)	THQ	1	Unitless
Adult Body Weight (BW)	BW _a	70	kg
Averaging Time (AT) Carcinogens	AT _c	70	yr
Exposure Frequency (EF)	EF	250	days/yr
Construction Worker Exposure Duration (ED)	ED _a	1	yr
Soil Ingestion Rate (IRS)	IRS _c	330	mg/day
Surface Area (SA)	SA _c	3,300	cm ² /day
Soil-to-Skin Adherence Factor (AF)	AF _c	0.3	mg/cm ²
Particulate Emission Factor (PEF)	PEF	2.76E+06	m ³ /kg

Notes:

kg = kilogram

yr = year

mg/day = milligram per day

cm²/day = square centimeter per day

mg/cm² = milligram per square centimeter

m³/kg = cubic meter per kilogram

TABLE G-4C
 Construction Worker Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	Non-Cancer RBSLs (mg/kg)				Cancer RBSLs (mg/kg)			
	Total	Ingestion	Dermal	Inhalation	Total	Ingestion	Dermal	Inhalation
Benz[a]anthracene	na	na	na	na	2.13E+01	2.97E+01	7.61E+01	7.70E+03
Benzo[a]pyrene	na	na	na	na	2.13E+00	2.97E+00	7.61E+00	7.70E+02
Benzo[b]fluoranthene	na	na	na	na	2.13E+01	2.97E+01	7.61E+01	7.70E+03
Indeno[1,2,3-cd]pyrene	na	na	na	na	2.13E+01	2.97E+01	7.61E+01	7.70E+03
Naphthalene	5.63E+02	6.19E+03	1.59E+04	6.44E+02	4.42E+02	na	na	4.42E+02
Benzene	3.56E+02	1.24E+03	na	5.00E+02	1.08E+02	3.94E+02	na	1.50E+02
1,4-Dichlorobenzene	1.39E+04	2.17E+04	na	3.91E+04	2.89E+02	4.01E+03	na	3.11E+02
Ethylbenzene	1.43E+04	3.10E+04	na	2.67E+04	5.41E+02	1.97E+03	na	7.46E+02
Tetrachloroethylene	1.52E+03	3.10E+03	na	2.99E+03	3.07E+01	4.01E+01	na	1.31E+02
Trichloroethylene	na	na	na	na	3.32E+02	3.67E+03	na	3.65E+02
1,2,4-Trimethylbenzene	2.60E+02	na	na	2.60E+02	na	na	na	na
Mercury (Elemental)	2.28E+01	4.96E+01	na	4.21E+01	na	na	na	na

Notes:

na = not applicable

TABLE G-5A

Johnson-Ettinger Modeling—Physical Properties and Toxicity Factors
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Diffusivity		Henry's Law Constant		Enthalpy of Vaporization		Critical Temperature (°K)	Molecular Weight (MW) (g/mol)	Unit Risk Factor (URF) (mg/m ³) ⁻¹	Reference Concentration (RfC) (mg/m ³)
		Diffusivity in Air D _a (cm ² /s)	Diffusivity in Water D _w (cm ² /s)	at Reference Temperature H (atm·m ³ /mol)	Henry's Law Constant Reference Temperature T _R (°C)	at the Normal Boiling Point DH _{v,b} (cal/mol)	Normal Boiling Point T _b (°K)				
Carbon tetrachloride	56235	7.80E-02	8.80E-06	3.03E-02	25	7,127	349.90	556.60	153.82	1.5E-05	1.9E-01
Chlordane	57749	1.18E-02	4.37E-06	4.85E-05	25	14,000	624.24	885.73	409.78	1.0E-04	7.0E-04
gamma-HCH (Lindane)	58899	1.42E-02	7.34E-06	1.40E-05	25	15,000	596.55	839.36	290.83	3.1E-04	0.0E+00
Ethyl ether	60297	7.82E-02	8.61E-06	3.29E-02	25	6,338	307.50	466.74	74.12	0.0E+00	0.0E+00
Dieldrin	60571	1.25E-02	4.74E-06	1.51E-05	25	17,000	613.32	842.25	380.91	4.6E-03	0.0E+00
Acetone	67641	1.24E-01	1.14E-05	3.87E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Chloroform	67663	1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.8E-02
Hexachloroethane	67721	2.50E-03	6.80E-06	3.88E-03	25	9,510	458.00	695.00	236.74	4.0E-06	0.0E+00
Benzene	71432	8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02
1,1,1-Trichloroethane	71556	7.80E-02	8.80E-06	1.72E-02	25	7,136	347.24	545.00	133.40	0.0E+00	5.0E+00
Methoxychlor	72435	1.56E-02	4.46E-06	1.58E-05	25	16,000	651.02	848.49	345.66	0.0E+00	0.0E+00
DDE	72559	1.44E-02	5.87E-06	2.09E-05	25	15,000	636.44	860.38	318.03	0.0E+00	0.0E+00
Methyl bromide	74839	7.28E-02	1.21E-05	6.22E-03	25	5,714	276.71	467.00	94.94	0.0E+00	5.0E-03
Methyl chloride (chloromethane)	74873	1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	50.49	1.8E-06	9.0E-02
Hydrogen cyanide	74908	1.93E-01	2.10E-05	1.33E-04	25	6,676	299.00	456.70	27.03	0.0E+00	3.0E-03
Methylene bromide	74953	4.30E-02	8.44E-06	8.59E-04	25	7,868	370.00	583.00	173.83	0.0E+00	0.0E+00
Chloroethane (ethyl chloride)	75003	2.71E-01	1.15E-05	8.80E-03	25	5,879	285.30	460.40	64.51	0.0E+00	1.0E+01
Vinyl chloride (chloroethene)	75014	1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	62.50	4.4E-06	1.0E-01
Acetonitrile	75058	1.28E-01	1.66E-05	3.45E-05	25	7,110	354.60	545.50	41.05	0.0E+00	6.0E-02
Acetaldehyde	75070	1.24E-01	1.41E-05	7.87E-05	25	6,157	293.10	466.00	44.05	2.2E-06	9.0E-03
Methylene chloride	75092	1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	84.93	4.7E-07	1.1E+00
Carbon disulfide	75150	1.04E-01	1.00E-05	3.02E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Ethylene oxide	75218	1.04E-01	1.45E-05	5.54E-04	25	6,104	283.60	469.00	44.05	8.8E-05	0.0E+00
Bromoform	75252	1.49E-02	1.03E-05	5.88E-04	25	9,479	422.35	696.00	252.75	1.1E-06	0.0E+00
Bromodichloromethane	75274	2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	0.0E+00	0.0E+00
2-Chloropropane	75296	8.88E-02	1.01E-05	1.45E-02	25	6,286	308.70	485.00	78.54	0.0E+00	0.0E+00
1,1-Dichloroethane	75343	7.42E-02	1.05E-05	5.61E-03	25	6,895	330.55	523.00	98.96	1.6E-06	0.0E+00
1,1-Dichloroethylene	75354	9.00E-02	1.04E-05	2.60E-02	25	6,247	304.75	576.05	96.94	0.0E+00	2.0E-01
Chlorodifluoromethane	75456	1.01E-01	1.28E-05	2.70E-02	25	4,836	232.40	369.30	86.47	0.0E+00	5.0E+01
Trichlorofluoromethane	75694	8.70E-02	9.70E-06	9.68E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Dichlorodifluoromethane	75718	6.65E-02	9.92E-06	3.42E-01	25	9,421	343.20	384.95	120.92	0.0E+00	2.0E-01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.80E-02	8.20E-06	4.80E-01	25	6,463	320.70	487.30	187.38	0.0E+00	3.0E+01
Heptachlor	76448	1.12E-02	5.69E-06	1.48E+00	25	13,000	603.69	846.31	373.32	1.3E-03	0.0E+00
Hexachlorocyclopentadiene	77474	1.61E-02	7.21E-06	2.69E-02	25	10,931	512.15	746.00	272.77	0.0E+00	2.0E-04
Isobutanol	78831	8.60E-02	9.30E-06	1.18E-05	25	10,936	381.04	547.78	74.12	0.0E+00	0.0E+00
1,2-Dichloropropane	78875	7.82E-02	8.73E-06	2.79E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
Methylethylketone (2-butanone)	78933	8.08E-02	9.80E-06	5.58E-05	25	7,481	352.50	536.78	72.11	0.0E+00	5.0E+00
1,1,2-Trichloroethane	79005	7.80E-02	8.80E-06	9.11E-04	25	8,322	386.15	602.00	133.41	1.6E-05	0.0E+00
Trichloroethylene	79016	7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	131.39	2.0E-06	0.0E+00
Methyl acetate	79209	1.04E-01	1.00E-05	1.18E-04	25	7,260	329.80	506.70	74.09	0.0E+00	0.0E+00
1,1,2,2-Tetrachloroethane	79345	7.10E-02	7.90E-06	3.44E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
2-Nitropropane	79469	9.23E-02	1.01E-05	1.23E-04	25	8,383	393.20	594.00	89.09	2.7E-03	2.0E-02
Methylmethacrylate	80626	7.70E-02	8.60E-06	3.36E-04	25	8,975	373.50	567.00	100.13	0.0E+00	7.0E-01
Acenaphthene	83329	4.21E-02	7.69E-06	1.55E-04	25	12,155	550.54	803.15	154.21	0.0E+00	0.0E+00
Fluorene	86737	3.63E-02	7.88E-06	6.34E-05	25	12,666	570.44	870.00	166.22	0.0E+00	0.0E+00
Hexachloro-1,3-butadiene	87683	5.61E-02	6.16E-06	8.13E-03	25	10,206	486.15	738.00	260.76	2.2E-05	0.0E+00
o-Nitrotoluene	88722	5.87E-02	8.67E-06	1.25E-05	25	12,239	495.00	720.00	137.15	0.0E+00	0.0E+00
Naphthalene	91203	5.90E-02	7.50E-06	4.82E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
2-Methylnaphthalene	91576	5.22E-02	7.75E-06	5.17E-04	25	12,600	514.26	761.00	142.21	0.0E+00	0.0E+00
Biphenyl	92524	4.04E-02	8.15E-06	2.99E-04	25	10,890	529.10	789.00	154.21	0.0E+00	0.0E+00
o-Xylene	95476	8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	7.0E-01
1,2-Dichlorobenzene	95501	6.90E-02	7.90E-06	1.90E-03	25	9,700	453.57	705.00	147.00	0.0E+00	2.0E-01

TABLE G-5A

Johnson-Ettinger Modeling—Physical Properties and Toxicity Factors
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Henry's Law Constant			Henry's Law Constant Reference Temperature T _R (°C)	Enthalpy of Vaporization		Critical Temperature T _C (°K)	Molecular Weight (MW) (g/mol)	Unit Risk Factor (URF) (mg/m ³) ⁻¹	Reference Concentration (RfC) (mg/m ³)
		Diffusivity in Air D _a (cm ² /s)	Diffusivity in Water D _w (cm ² /s)	at Reference Temperature H (atm·m ³ /mol)		at the Normal Boiling Point DH _{v,b} (cal/mol)	Normal Boiling Point T _b (°K)				
2-Chlorophenol	95578	5.01E-02	9.46E-06	3.90E-04	25	9,572	447.53	675.00	128.56	0.0E+00	0.0E+00
1,2,4-Trimethylbenzene	95636	6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2,3-Trichloropropane	96184	7.10E-02	7.90E-06	4.08E-04	25	9,171	430.00	652.00	147.43	0.0E+00	0.0E+00
Methyl acrylate	96333	9.76E-02	1.02E-05	1.87E-04	25	7,749	353.70	536.00	86.10	0.0E+00	0.0E+00
Ethylmethacrylate	97632	6.53E-02	8.37E-06	8.40E-04	25	10,957	390.00	571.00	114.14	0.0E+00	0.0E+00
tert-Butylbenzene	98066	5.65E-02	8.02E-06	1.19E-02	25	8,980	442.10	1220.00	134.22	0.0E+00	0.0E+00
Cumene	98828	6.50E-02	7.10E-06	1.46E-02	25	10,335	425.56	631.10	120.19	0.0E+00	4.0E-01
Acetophenone	98862	6.00E-02	8.73E-06	1.07E-05	25	11,732	475.00	709.50	120.15	0.0E+00	0.0E+00
Nitrobenzene	98953	7.60E-02	8.60E-06	2.39E-05	25	10,566	483.95	719.00	123.11	0.0E+00	2.0E-03
Ethylbenzene	100414	7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Styrene	100425	7.10E-02	8.00E-06	2.74E-03	25	8,737	418.31	636.00	104.15	0.0E+00	1.0E+00
Benzylchloride	100447	7.50E-02	7.80E-06	4.14E-04	25	8,773	452.00	685.00	126.58	0.0E+00	1.0E-03
Benzaldehyde	100527	7.21E-02	9.07E-06	2.37E-05	25	11,658	452.00	695.00	106.13	0.0E+00	0.0E+00
n-Propylbenzene	103651	6.01E-02	7.83E-06	1.07E-02	25	9,123	432.20	630.00	120.19	0.0E+00	0.0E+00
n-Butylbenzene	104518	5.70E-02	8.12E-06	1.31E-02	25	9,290	456.46	660.50	134.22	0.0E+00	0.0E+00
p-Xylene	106423	7.69E-02	8.44E-06	7.64E-03	25	8,525	411.52	616.20	106.17	0.0E+00	7.0E-01
1,4-Dichlorobenzene	106467	6.90E-02	7.90E-06	2.39E-03	25	9,271	447.21	684.75	147.00	1.1E-05	8.0E-01
1,2-Dibromoethane (ethylene dibromide)	106934	2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03
1,3-Butadiene	106990	2.49E-01	1.08E-05	7.34E-02	25	5,370	268.60	425.00	54.09	3.0E-05	2.0E-03
Acrolein	107028	1.05E-01	1.22E-05	1.22E-04	25	6,731	325.60	506.00	56.10	0.0E+00	2.0E-05
1,2-Dichloroethane	107062	1.04E-01	9.90E-06	9.77E-04	25	7,643	356.65	561.00	98.96	2.6E-05	2.4E+00
Acrylonitrile	107131	1.22E-01	1.34E-05	1.03E-04	25	7,786	350.30	519.00	53.06	6.8E-05	2.0E-03
Vinyl acetate	108054	8.50E-02	9.20E-06	5.10E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.50E-02	7.80E-06	1.38E-04	25	8,243	389.50	571.00	100.16	0.0E+00	3.0E+00
m-Xylene	108383	7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	7.0E-01
m,p-Xylene	108383/1	7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	0.0E+00
1,3,5-Trimethylbenzene	108678	6.02E-02	8.67E-06	5.87E-03	25	9,321	437.89	637.25	120.20	0.0E+00	6.0E-03
Methylcyclohexane	108872	7.35E-02	8.52E-06	1.03E-01	25	7,474	373.90	572.20	98.21	0.0E+00	0.0E+00
Toluene	108883	8.70E-02	8.60E-06	6.62E-03	25	7,930	383.78	591.79	92.14	0.0E+00	5.0E+00
Chlorobenzene	108907	7.30E-02	8.70E-06	3.69E-03	25	8,410	404.87	632.40	112.56	0.0E+00	5.0E-02
1-Chlorobutane	109693	8.26E-02	1.00E-05	1.69E-02	25	7,263	351.60	542.00	92.58	0.0E+00	0.0E+00
Furan	110009	1.04E-01	1.22E-05	5.39E-03	25	6,477	304.60	490.20	68.08	0.0E+00	0.0E+00
Hexane	110543	2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
Cyclohexane	110827	8.00E-02	9.00E-06	8.20E+00	25	7,967	353.90	553.40	84.00	0.0E+00	6.0E+00
Bis(2-chloroethyl)ether	111444	6.92E-02	7.53E-06	1.80E-05	25	10,803	451.15	659.79	143.11	3.3E-04	0.0E+00
Endosulfan	115297	1.15E-02	4.55E-06	1.12E-05	25	14,000	674.43	942.94	406.92	0.0E+00	0.0E+00
Hexachlorobenzene	118741	5.42E-02	5.91E-06	1.32E-03	25	14,447	582.55	825.00	284.78	4.6E-04	0.0E+00
1,2,4-Trichlorobenzene	120821	3.00E-02	8.23E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	4.0E-03
Crotonaldehyde (2-butenal)	123739	9.56E-02	1.07E-05	1.95E-05	25	9	375.20	568.00	70.09	0.0E+00	0.0E+00

TABLE G-5A

Johnson-Ettinger Modeling—Physical Properties and Toxicity Factors
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Diffusivity		Henry's Law Constant		Enthalpy of Vaporization			Molecular Weight (MW) (g/mol)	Unit Risk Factor (URF) (mg/m ³) ⁻¹	Reference Concentration (RfC) (mg/m ³)
		Diffusivity in Air D _a (cm ² /s)	Diffusivity in Water D _w (cm ² /s)	at Reference Temperature H (atm·m ³ /mol)	Henry's Law Constant Reference Temperature T _R (°C)	at the Normal Boiling Point DH _{v,b} (cal/mol)	Normal Boiling Point T _b (°K)	Critical Temperature T _c (°K)			
Chlorodibromomethane	124481	1.96E-02	1.05E-05	7.81E-04	25	5,900	416.14	678.20	208.28	0.0E+00	0.0E+00
Methacrylonitrile	126987	1.12E-01	1.32E-05	2.46E-04	25	7,600	363.30	554.00	67.10	0.0E+00	7.0E-04
2-Chloro-1,3-butadiene (chloroprene)	126998	8.58E-02	1.03E-05	1.20E-02	25	8,075	332.40	525.00	88.54	0.0E+00	7.0E-03
Tetrachloroethylene	127184	7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	165.83	5.9E-06	2.7E-01
Pyrene	129000	2.72E-02	7.24E-06	1.10E-05	25	14,370	667.95	936.00	202.26	0.0E+00	0.0E+00
Dibenzofuran	132649	2.38E-02	6.00E-06	1.26E-05	25	66,400	560.00	824.00	168.19	0.0E+00	0.0E+00
sec-Butylbenzene	135988	5.70E-02	8.12E-06	1.39E-02	25	88,730	446.50	679.00	134.22	0.0E+00	0.0E+00
Ethylacetate	141786	7.32E-02	9.70E-06	1.38E-04	25	7,634	350.26	523.30	88.12	0.0E+00	0.0E+00
cis-1,2-Dichloroethylene	156592	7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	96.94	0.0E+00	0.0E+00
trans-1,2-Dichloroethylene	156605	7.07E-02	1.19E-05	9.36E-03	25	6,717	320.85	516.50	96.94	0.0E+00	6.0E-02
Benzo(b)fluoranthene	205992	2.26E-02	5.56E-06	1.11E-04	25	17,000	715.90	969.27	252.32	1.1E-04	0.0E+00
Chrysene	218019	2.48E-02	6.21E-06	9.44E-05	25	16,455	714.15	979.00	228.30	1.1E-05	0.0E+00
Aldrin	309002	1.32E-02	4.86E-06	1.70E-04	25	15,000	603.01	839.37	364.92	4.9E-03	0.0E+00
alpha-HCH (alpha-BHC)	319846	1.42E-02	7.34E-06	1.06E-05	25	15,000	596.55	839.36	290.83	1.8E-03	0.0E+00
1,3-Dichlorobenzene	541731	6.92E-02	7.86E-06	3.09E-03	25	9,230	446.00	684.00	147.00	0.0E+00	0.0E+00
1,3-Dichloropropene	542756	6.26E-02	1.00E-05	1.77E-02	25	7,900	381.15	587.38	110.97	4.0E-06	2.0E-02
Bromoethene (Bromomethane used as Surrogate)	593602	7.28E-02	1.21E-05	6.22E-03	25	5,714	276.71	467.00	106.96	0.0E+00	5.0E-03
1,1,1,2-Tetrachloroethane	630206	7.10E-02	7.90E-06	2.41E-03	25	9,768	403.50	624.00	167.85	7.4E-06	0.0E+00
MTBE	1634044	1.02E-01	1.05E-05	6.23E-04	25	6,678	328.30	497.10	88.15	2.6E-07	3.0E+00
Mercury (elemental)	7439976	3.07E-02	6.30E-06	1.07E-02	25	14,127	629.88	1750.00	200.59	0.0E+00	3.0E-04

SG-ADV
 Version 3.1; 02/04

Reset to
 Defaults

MORE
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ENTER	ENTER	ENTER	ENTER			ENTER	ENTER
Depth below grade to bottom of enclosed	Soil gas sampling depth	Average soil temperature,	Totals must add up to value of Ls (cell F24)			Soil stratum A SCS soil type	User-defined stratum A soil vapor
15 L_f (cm)	below grade, L_s (cm)	temperature, T_s (°C)	Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)	OR	0.00000001 k_v (cm ²)
15	152.4	22	152	0	0	LS	

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ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Stratum A SCS soil type	Stratum A soil dry bulk density,	Stratum A soil total porosity,	Stratum A soil water-filled porosity,	Stratum B SCS soil type	Stratum B soil dry bulk density,	Stratum B soil total porosity,	Stratum B soil water-filled porosity,	Stratum C SCS soil type	Stratum C soil dry bulk density,	Stratum C soil total porosity,	Stratum C soil water-filled porosity,
Lookup Soil Parameters	ρ_b^A (g/cm ³)	n^A (unitless)	θ_w^A (cm ³ /cm ³)	Lookup Soil Parameters	ρ_b^B (g/cm ³)	n^B (unitless)	θ_w^B (cm ³ /cm ³)	Lookup Soil Parameters	ρ_b^C (g/cm ³)	n^C (unitless)	θ_w^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	LS	1.62	0.39	0.076

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ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Enclosed space floor thickness,	Soil-bldg. pressure differential,	Enclosed space floor length,	Enclosed space floor width,	Enclosed space height,	Floor-wall seam crack width,	Indoor air exchange rate,	Average vapor flow rate into bldg. OR 5.00E+00
L_{crack} (cm)	ΔP (g/cm-s ²)	L_B (cm)	W_B (cm)	H_B (cm)	w (cm)	ER (1/h)	Q_{soil} (L/m)
10	40	1000	1000	244	0.1	1	5

ENTER	ENTER	ENTER	ENTER
Averaging time for carcinogens, AT_C (yrs)	Averaging time for noncarcinogens, AT_{NC} (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)
70	25	25	250

END

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Seperation L _t (cm)	Stratum A Soil Air-filled Porosity q _a ^A (cm ³ /cm ³)	Stratum B Soil Air-filled Porosity q _a ^B (cm ³ /cm ³)	Stratum C Soil Air- filled q _a ^C (cm ³ /cm ³)	Stratum A Effective Total Fluid Saturation S _{ie} (cm ³ /cm ³)	Stratum A Soil Intrinsic Permeability k ⁱ (cm ²)	Stratum A Soil Relative Air Permeability k _{rg} (cm ²)	Stratum A Soil Effective Vapor Permeability k _v (cm ²)	Floor-wall Seam Perimeter X _{crack} (cm)	Soil Gas Concentra tion (mg/m ³)	Building Ventilation Rate Q _{building} (cm ³ /s)	Enclosed Space Below Grade A _B (cm ²)	Crack-to Total Area Ratio h (unitless)
Carbon tetrachloride	56235	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chlordane	57749	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
gamma-HCH (Lindane)	58899	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Ethyl ether	60297	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Dieldrin	60571	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acetone	67641	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chloroform	67663	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hexachloroethane	67721	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Benzene	71432	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1,1-Trichloroethane	71556	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methoxychlor	72435	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
DDE	72559	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methyl bromide	74839	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methyl chloride (chloromethane)	74873	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hydrogen cyanide	74908	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylene bromide	74953	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chloroethane (ethyl chloride)	75003	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Vinyl chloride (chloroethene)	75014	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acetonitrile	75058	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acetaldehyde	75070	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylene chloride	75092	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Carbon disulfide	75150	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Ethylene oxide	75218	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Bromoform	75252	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Bromodichloromethane	75274	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
2-Chloropropane	75296	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1-Dichloroethane	75343	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1-Dichloroethylene	75354	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chlorodifluoromethane	75456	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Trichlorofluoromethane	75694	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Dichlorodifluoromethane	75718	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Heptachlor	76448	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hexachlorocyclopentadiene	77474	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Isobutanol	78831	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2-Dichloropropane	78875	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylethylketone (2-butanone)	78933	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1,2-Trichloroethane	79005	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Trichloroethylene	79016	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methyl acetate	79209	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1,2,2-Tetrachloroethane	79345	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
2-Nitropropane	79469	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylmethacrylate	80626	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acenaphthene	83329	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Fluorene	86737	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hexachloro-1,3-butadiene	87683	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
o-Nitrotoluene	88722	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature H _{TS} (atm·m ³ /mol)	Henry's Law Constant at Ave. Soil Temperature H' _{TS} (unitless)	Vapor Viscosity at Ave. Soil Temperature M _{TS} (g/cm·s)	A Effective Diffusion Coefficient DeffA (cm ² /s)	B Effective Diffusion Coefficient DeffB (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _c (cm ² /s)	Overall Effective Diffusion Coefficient DeffT (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Concentration C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate Into Building Q _{soil} (cm ³ /s)
Carbon tetrachloride	56235	7.88E+08	15	7,736	2.66E-02	1.10E+00	1.79E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	137.4	15	1.00E+00	0.10	8.33E+01
Chlordane	57749	7.88E+08	15	19,481	3.47E-05	1.43E-03	1.79E-04	1.64E-03	0.00E+00	0.00E+00	1.64E-03	137.4	15	1.00E+00	0.10	8.33E+01
gamma-HCH (Lindane)	58899	7.88E+08	15	20,883	9.76E-06	4.03E-04	1.79E-04	1.99E-03	0.00E+00	0.00E+00	1.99E-03	137.4	15	1.00E+00	0.10	8.33E+01
Ethyl ether	60297	7.88E+08	15	6,517	2.94E-02	1.22E+00	1.79E-04	1.09E-02	0.00E+00	0.00E+00	1.09E-02	137.4	15	1.00E+00	0.10	8.33E+01
Dieldrin	60571	7.88E+08	15	24,298	9.93E-06	4.10E-04	1.79E-04	1.75E-03	0.00E+00	0.00E+00	1.75E-03	137.4	15	1.00E+00	0.10	8.33E+01
Acetone	67641	7.88E+08	15	7,410	3.41E-05	1.41E-03	1.79E-04	1.72E-02	0.00E+00	0.00E+00	1.72E-02	137.4	15	1.00E+00	0.10	8.33E+01
Chloroform	67663	7.88E+08	15	7,429	3.22E-03	1.33E-01	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
Hexachloroethane	67721	7.88E+08	15	11,551	3.18E-03	1.31E-01	1.79E-04	3.47E-04	0.00E+00	0.00E+00	3.47E-04	137.4	15	1.00E+00	0.10	8.33E+01
Benzene	71432	7.88E+08	15	7,998	4.83E-03	1.99E-01	1.79E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1,1-Trichloroethane	71556	7.88E+08	15	7,754	1.50E-02	6.20E-01	1.79E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methoxychlor	72435	7.88E+08	15	24,411	1.04E-05	4.28E-04	1.79E-04	2.18E-03	0.00E+00	0.00E+00	2.18E-03	137.4	15	1.00E+00	0.10	8.33E+01
DDE	72559	7.88E+08	15	21,926	1.44E-05	5.94E-04	1.79E-04	2.01E-03	0.00E+00	0.00E+00	2.01E-03	137.4	15	1.00E+00	0.10	8.33E+01
Methyl bromide	74839	7.88E+08	15	5,529	5.66E-03	2.34E-01	1.79E-04	1.01E-02	0.00E+00	0.00E+00	1.01E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methyl chloride (chloromethane)	74873	7.88E+08	15	4,603	8.13E-03	3.36E-01	1.79E-04	1.75E-02	0.00E+00	0.00E+00	1.75E-02	137.4	15	1.00E+00	0.10	8.33E+01
Hydrogen cyanide	74908	7.88E+08	15	6,736	1.18E-04	4.88E-03	1.79E-04	2.69E-02	0.00E+00	0.00E+00	2.69E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methylene bromide	74953	7.88E+08	15	8,752	7.39E-04	3.05E-02	1.79E-04	5.97E-03	0.00E+00	0.00E+00	5.97E-03	137.4	15	1.00E+00	0.10	8.33E+01
Chloroethane (ethyl chloride)	75003	7.88E+08	15	5,764	7.97E-03	3.29E-01	1.79E-04	3.76E-02	0.00E+00	0.00E+00	3.76E-02	137.4	15	1.00E+00	0.10	8.33E+01
Vinyl chloride (chloroethene)	75014	7.88E+08	15	4,864	2.48E-02	1.02E+00	1.79E-04	1.47E-02	0.00E+00	0.00E+00	1.47E-02	137.4	15	1.00E+00	0.10	8.33E+01
Acetonitrile	75058	7.88E+08	15	7,850	3.02E-05	1.25E-03	1.79E-04	1.78E-02	0.00E+00	0.00E+00	1.78E-02	137.4	15	1.00E+00	0.10	8.33E+01
Acetaldehyde	75070	7.88E+08	15	6,131	7.08E-05	2.93E-03	1.79E-04	1.72E-02	0.00E+00	0.00E+00	1.72E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methylene chloride	75092	7.88E+08	15	6,906	1.94E-03	8.01E-02	1.79E-04	1.40E-02	0.00E+00	0.00E+00	1.40E-02	137.4	15	1.00E+00	0.10	8.33E+01
Carbon disulfide	75150	7.88E+08	15	6,588	2.70E-02	1.11E+00	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
Ethylene oxide	75218	7.88E+08	15	5,975	5.00E-04	2.07E-02	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
Bromoform	75252	7.88E+08	15	10,764	4.89E-04	2.02E-02	1.79E-04	2.07E-03	0.00E+00	0.00E+00	2.07E-03	137.4	15	1.00E+00	0.10	8.33E+01
Bromodichloromethane	75274	7.88E+08	15	8,546	1.38E-03	5.69E-02	1.79E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	137.4	15	1.00E+00	0.10	8.33E+01
2-Chloropropane	75296	7.88E+08	15	6,453	1.29E-02	5.34E-01	1.79E-04	1.23E-02	0.00E+00	0.00E+00	1.23E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1-Dichloroethane	75343	7.88E+08	15	7,317	4.94E-03	2.04E-01	1.79E-04	1.03E-02	0.00E+00	0.00E+00	1.03E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1-Dichloroethylene	75354	7.88E+08	15	6,313	2.34E-02	9.65E-01	1.79E-04	1.25E-02	0.00E+00	0.00E+00	1.25E-02	137.4	15	1.00E+00	0.10	8.33E+01
Chlorodifluoromethane	75456	7.88E+08	15	3,903	2.52E-02	1.04E+00	1.79E-04	1.41E-02	0.00E+00	0.00E+00	1.41E-02	137.4	15	1.00E+00	0.10	8.33E+01
Trichlorofluoromethane	75694	7.88E+08	15	6,018	8.73E-02	3.60E+00	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	8.33E+01
Dichlorodifluoromethane	75718	7.88E+08	15	8,025	2.98E-01	1.23E+01	1.79E-04	9.24E-03	0.00E+00	0.00E+00	9.24E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	15	6,814	4.27E-01	1.76E+01	1.79E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	137.4	15	1.00E+00	0.10	8.33E+01
Heptachlor	76448	7.88E+08	15	18,199	1.08E+00	4.46E+01	1.79E-04	1.56E-03	0.00E+00	0.00E+00	1.56E-03	137.4	15	1.00E+00	0.10	8.33E+01
Hexachlorocyclopentadiene	77474	7.88E+08	15	14,139	2.11E-02	8.72E-01	1.79E-04	2.24E-03	0.00E+00	0.00E+00	2.24E-03	137.4	15	1.00E+00	0.10	8.33E+01
Isobutanol	78831	7.88E+08	15	12,907	9.43E-06	3.89E-04	1.79E-04	1.20E-02	0.00E+00	0.00E+00	1.20E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,2-Dichloropropane	78875	7.88E+08	15	8,500	2.41E-03	9.97E-02	1.79E-04	1.09E-02	0.00E+00	0.00E+00	1.09E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methylethylketone (2-butanone)	78933	7.88E+08	15	8,269	4.84E-05	2.00E-03	1.79E-04	1.12E-02	0.00E+00	0.00E+00	1.12E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1,2-Trichloroethane	79005	7.88E+08	15	9,441	7.75E-04	3.20E-02	1.79E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	137.4	15	1.00E+00	0.10	8.33E+01
Trichloroethylene	79016	7.88E+08	15	8,407	8.89E-03	3.67E-01	1.79E-04	1.10E-02	0.00E+00	0.00E+00	1.10E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methyl acetate	79209	7.88E+08	15	7,751	1.03E-04	4.26E-03	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1,2,2-Tetrachloroethane	79345	7.88E+08	15	10,420	2.88E-04	1.19E-02	1.79E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	137.4	15	1.00E+00	0.10	8.33E+01
2-Nitropropane	79469	7.88E+08	15	9,727	1.04E-04	4.29E-03	1.79E-04	1.28E-02	0.00E+00	0.00E+00	1.28E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methylmethacrylate	80626	7.88E+08	15	10,183	2.82E-04	1.17E-02	1.79E-04	1.07E-02	0.00E+00	0.00E+00	1.07E-02	137.4	15	1.00E+00	0.10	8.33E+01
Acenaphthene	83329	7.88E+08	15	15,976	1.18E-04	4.85E-03	1.79E-04	5.85E-03	0.00E+00	0.00E+00	5.85E-03	137.4	15	1.00E+00	0.10	8.33E+01
Fluorene	86737	7.88E+08	15	16,112	4.81E-05	1.99E-03	1.79E-04	5.05E-03	0.00E+00	0.00E+00	5.05E-03	137.4	15	1.00E+00	0.10	8.33E+01
Hexachloro-1,3-butadiene	87683	7.88E+08	15	12,587	6.55E-03	2.70E-01	1.79E-04	7.79E-03	0.00E+00	0.00E+00	7.79E-03	137.4	15	1.00E+00	0.10	8.33E+01
o-Nitrotoluene	88722	7.88E+08	15	15,710	9.52E-06	3.93E-04	1.79E-04	8.18E-03	0.00E+00	0.00E+00	8.18E-03	137.4	15	1.00E+00	0.10	8.33E+01

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Effective Diffusion Coefficient D _{crack} (cm ² /s)	Area of crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pef) (unitless)	Source Indoor Attenuation Coefficient a (unitless)	Source Building Concentration C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Concentration RfC (mg/m ³)
Carbon tetrachloride	56235	7.88E+08	1.08E-02	4.00E+02	3.33E+83	6.16E-04	6.16E-04	1.5E-05	1.9E-01
Chlordane	57749	7.88E+08	1.64E-03	4.00E+02	#NUM!	1.62E-04	1.62E-04	1.0E-04	7.0E-04
gamma-HCH (Lindane)	58899	7.88E+08	1.99E-03	4.00E+02	#NUM!	1.92E-04	1.92E-04	3.1E-04	NA
Ethyl ether	60297	7.88E+08	1.09E-02	4.00E+02	2.03E+83	6.16E-04	6.16E-04	NA	NA
Dieldrin	60571	7.88E+08	1.75E-03	4.00E+02	#NUM!	1.71E-04	1.71E-04	4.6E-03	NA
Acetone	67641	7.88E+08	1.72E-02	4.00E+02	3.22E+52	7.56E-04	7.56E-04	NA	3.1E+01
Chloroform	67663	7.88E+08	1.44E-02	4.00E+02	4.38E+62	7.03E-04	7.03E-04	2.3E-05	9.8E-02
Hexachloroethane	67721	7.88E+08	3.47E-04	4.00E+02	#NUM!	3.83E-05	3.83E-05	4.0E-06	NA
Benzene	71432	7.88E+08	1.22E-02	4.00E+02	1.07E+74	6.53E-04	6.53E-04	7.8E-06	3.0E-02
1,1,1-Trichloroethane	71556	7.88E+08	1.08E-02	4.00E+02	3.33E+83	6.16E-04	6.16E-04	NA	5.0E+00
Methoxychlor	72435	7.88E+08	2.18E-03	4.00E+02	#NUM!	2.06E-04	2.06E-04	NA	NA
DDE	72559	7.88E+08	2.01E-03	4.00E+02	#NUM!	1.93E-04	1.93E-04	NA	NA
Methyl bromide	74839	7.88E+08	1.01E-02	4.00E+02	3.07E+89	5.94E-04	5.94E-04	NA	5.0E-03
Methyl chloride (chloromethane)	74873	7.88E+08	1.75E-02	4.00E+02	5.06E+51	7.60E-04	7.60E-04	1.8E-06	9.0E-02
Hydrogen cyanide	74908	7.88E+08	2.69E-02	4.00E+02	4.77E+33	8.77E-04	8.77E-04	NA	3.0E-03
Methylene bromide	74953	7.88E+08	5.97E-03	4.00E+02	3.14E+151	4.38E-04	4.38E-04	NA	NA
Chloroethane (ethyl chloride)	75003	7.88E+08	3.76E-02	4.00E+02	1.10E+24	9.55E-04	9.55E-04	NA	1.0E+01
Vinyl chloride (chloroethene)	75014	7.88E+08	1.47E-02	4.00E+02	2.88E+61	7.09E-04	7.09E-04	4.4E-06	1.0E-01
Acetonitrile	75058	7.88E+08	1.78E-02	4.00E+02	7.07E+50	7.65E-04	7.65E-04	NA	6.0E-02
Acetaldehyde	75070	7.88E+08	1.72E-02	4.00E+02	3.31E+52	7.56E-04	7.56E-04	2.2E-06	9.0E-03
Methylene chloride	75092	7.88E+08	1.40E-02	4.00E+02	3.17E+64	6.95E-04	6.95E-04	4.7E-07	1.1E+00
Carbon disulfide	75150	7.88E+08	1.44E-02	4.00E+02	4.38E+62	7.03E-04	7.03E-04	NA	7.0E-01
Ethylene oxide	75218	7.88E+08	1.44E-02	4.00E+02	4.34E+62	7.03E-04	7.03E-04	8.8E-05	NA
Bromoform	75252	7.88E+08	2.07E-03	4.00E+02	#NUM!	1.98E-04	1.98E-04	1.1E-06	NA
Bromodichloromethane	75274	7.88E+08	4.14E-03	4.00E+02	4.01E+218	3.41E-04	3.41E-04	NA	NA
2-Chloropropane	75296	7.88E+08	1.23E-02	4.00E+02	2.31E+73	6.55E-04	6.55E-04	NA	NA
1,1-Dichloroethane	75343	7.88E+08	1.03E-02	4.00E+02	6.30E+87	6.00E-04	6.00E-04	1.6E-06	NA
1,1-Dichloroethylene	75354	7.88E+08	1.25E-02	4.00E+02	2.43E+72	6.60E-04	6.60E-04	NA	2.0E-01
Chlorodifluoromethane	75456	7.88E+08	1.41E-02	4.00E+02	2.05E+64	6.96E-04	6.96E-04	NA	5.0E+01
Trichlorofluoromethane	75694	7.88E+08	1.21E-02	4.00E+02	7.62E+74	6.49E-04	6.49E-04	NA	7.0E-01
Dichlorodifluoromethane	75718	7.88E+08	9.24E-03	4.00E+02	9.24E+97	5.67E-04	5.67E-04	NA	2.0E-01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	1.08E-02	4.00E+02	3.33E+83	6.16E-04	6.16E-04	NA	3.0E+01
Heptachlor	76448	7.88E+08	1.56E-03	4.00E+02	#NUM!	1.55E-04	1.55E-04	1.3E-03	NA
Hexachlorocyclopentadiene	77474	7.88E+08	2.24E-03	4.00E+02	#NUM!	2.11E-04	2.11E-04	NA	2.0E-04
Isobutanol	78831	7.88E+08	1.20E-02	4.00E+02	3.68E+75	6.46E-04	6.46E-04	NA	NA
1,2-Dichloropropane	78875	7.88E+08	1.09E-02	4.00E+02	2.03E+83	6.16E-04	6.16E-04	1.0E-05	4.0E-03
Methylethylketone (2-butanone)	78933	7.88E+08	1.12E-02	4.00E+02	3.84E+80	6.27E-04	6.27E-04	NA	5.0E+00
1,1,2-Trichloroethane	79005	7.88E+08	1.08E-02	4.00E+02	3.31E+83	6.16E-04	6.16E-04	1.6E-05	NA
Trichloroethylene	79016	7.88E+08	1.10E-02	4.00E+02	2.92E+82	6.20E-04	6.20E-04	2.0E-06	NA
Methyl acetate	79209	7.88E+08	1.44E-02	4.00E+02	4.26E+62	7.03E-04	7.03E-04	NA	NA
1,1,1,2-Tetrachloroethane	79345	7.88E+08	9.86E-03	4.00E+02	5.61E+91	5.87E-04	5.87E-04	5.8E-05	NA
2-Nitropropane	79469	7.88E+08	1.28E-02	4.00E+02	3.68E+70	6.67E-04	6.67E-04	2.7E-03	2.0E-02
Methylmethacrylate	80626	7.88E+08	1.07E-02	4.00E+02	3.98E+84	6.12E-04	6.12E-04	NA	7.0E-01
Acenaphthene	83329	7.88E+08	5.85E-03	4.00E+02	4.93E+154	4.32E-04	4.32E-04	NA	NA
Fluorene	86737	7.88E+08	5.05E-03	4.00E+02	1.97E+179	3.91E-04	3.91E-04	NA	NA
Hexachloro-1,3-butadiene	87683	7.88E+08	7.79E-03	4.00E+02	1.34E+116	5.15E-04	5.15E-04	2.2E-05	NA
o-Nitrotoluene	88722	7.88E+08	8.18E-03	4.00E+02	4.12E+110	5.30E-04	5.30E-04	NA	NA

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Seperation L _t (cm)	Stratum A Soil	Stratum B	Stratum C	Stratum A	Stratum A	Stratum A	Stratum A Soil Effective Vapor Permeability k _v (cm ²)	Floor-wall Seam Perimeter X _{crack} (cm)	Soil Gas Concentration (mg/m ³)	Building Ventilation Rate Q _{building} (cm ³ /s)	Enclosed	Crack-to Total Area Ratio h (unitless)
				Air-filled Porosity q _a ^A (cm ³ /cm ³)	Soil Air-filled Porosity q _a ^B (cm ³ /cm ³)	Soil Air-filled Porosity q _a ^C (cm ³ /cm ³)	Effective Total Fluid Saturation S _{ie} (cm ³ /cm ³)	Soil Intrinsic Permeability k ⁱ (cm ²)	Soil Relative Air Permeability k _{rg} (cm ²)					Space Below Grade A _B (cm ²)	
Naphthalene	91203	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
2-Methylnaphthalene	91576	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Biphenyl	92524	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
o-Xylene	95476	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2-Dichlorobenzene	95501	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
2-Chlorophenol	95578	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2,4-Trimethylbenzene	95636	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2,3-Trichloropropane	96184	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methyl acrylate	96333	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Cumene	98828	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acetophenone	98862	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Nitrobenzene	98953	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Ethylbenzene	100414	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Styrene	100425	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Benzylchloride	100447	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Benzaldehyde	100527	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
n-Propylbenzene	103651	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
n-Butylbenzene	104518	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
p-Xylene	106423	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,4-Dichlorobenzene	106467	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,3-Butadiene	106990	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acrolein	107028	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2-Dichloroethane	107062	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Acrylonitrile	107131	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Vinyl acetate	108054	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
m-Xylene	108383	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
m,p-Xylene	108383/1	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,3,5-Trimethylbenzene	108678	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methylcyclohexane	108872	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Toluene	108883	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chlorobenzene	108907	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1-Chlorobutane	109693	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Furan	110009	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hexane	110543	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Cyclohexane	110827	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Bis(2-chloroethyl)ether	111444	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Endosulfan	115297	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Hexachlorobenzene	118741	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,2,4-Trichlorobenzene	120821	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Crotonaldehyde (2-butenal)	123739	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chlorodibromomethane	124481	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Methacrylonitrile	126987	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Tetrachloroethylene	127184	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Pyrene	129000	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature H _{TS} (atm-m ³ /mol)	Henry's Law Constant at Ave. Soil Temperature H' _{TS} (unitless)	Vapor Viscosity at Ave. Soil Temperature M _{TS} (g/cm-s)	A Effective Diffusion Coefficient DeffA (cm ² /s)	B Effective Diffusion Coefficient DeffB (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _c (cm ² /s)	Overall Effective Diffusion Coefficient DeffT (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Concentration C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate Into Building Q _{soil} (cm ³ /s)
Naphthalene	91203	7.88E+08	15	12,789	3.87E-04	1.60E-02	1.79E-04	8.19E-03	0.00E+00	0.00E+00	8.19E-03	137.4	15	1.00E+00	0.10	8.33E+01
2-Methylnaphthalene	91576	7.88E+08	15	16,083	3.92E-04	1.62E-02	1.79E-04	7.25E-03	0.00E+00	0.00E+00	7.25E-03	137.4	15	1.00E+00	0.10	8.33E+01
Biphenyl	92524	7.88E+08	15	13,901	2.36E-04	9.73E-03	1.79E-04	5.61E-03	0.00E+00	0.00E+00	5.61E-03	137.4	15	1.00E+00	0.10	8.33E+01
o-Xylene	95476	7.88E+08	15	10,268	4.34E-03	1.79E-01	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,2-Dichlorobenzene	95501	7.88E+08	15	11,566	1.55E-03	6.42E-02	1.79E-04	9.58E-03	0.00E+00	0.00E+00	9.58E-03	137.4	15	1.00E+00	0.10	8.33E+01
2-Chlorophenol	95578	7.88E+08	15	11,599	3.20E-04	1.32E-02	1.79E-04	6.96E-03	0.00E+00	0.00E+00	6.96E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,2,4-Trimethylbenzene	95636	7.88E+08	15	11,541	5.04E-03	2.08E-01	1.79E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,2,3-Trichloropropane	96184	7.88E+08	15	10,942	3.38E-04	1.40E-02	1.79E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	137.4	15	1.00E+00	0.10	8.33E+01
Methyl acrylate	96333	7.88E+08	15	8,596	1.62E-04	6.67E-03	1.79E-04	1.36E-02	0.00E+00	0.00E+00	1.36E-02	137.4	15	1.00E+00	0.10	8.33E+01
Cumene	98828	7.88E+08	15	12,475	1.18E-02	4.87E-01	1.79E-04	9.03E-03	0.00E+00	0.00E+00	9.03E-03	137.4	15	1.00E+00	0.10	8.33E+01
Acetophenone	98862	7.88E+08	15	14,560	8.31E-06	3.43E-04	1.79E-04	8.36E-03	0.00E+00	0.00E+00	8.36E-03	137.4	15	1.00E+00	0.10	8.33E+01
Nitrobenzene	98953	7.88E+08	15	13,236	1.91E-05	7.88E-04	1.79E-04	1.06E-02	0.00E+00	0.00E+00	1.06E-02	137.4	15	1.00E+00	0.10	8.33E+01
Ethylbenzene	100414	7.88E+08	15	10,017	6.62E-03	2.73E-01	1.79E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	137.4	15	1.00E+00	0.10	8.33E+01
Styrene	100425	7.88E+08	15	10,317	2.30E-03	9.49E-02	1.79E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	137.4	15	1.00E+00	0.10	8.33E+01
Benzylchloride	100447	7.88E+08	15	10,626	3.45E-04	1.42E-02	1.79E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	137.4	15	1.00E+00	0.10	8.33E+01
Benzaldehyde	100527	7.88E+08	15	13,984	1.87E-05	7.71E-04	1.79E-04	1.00E-02	0.00E+00	0.00E+00	1.00E-02	137.4	15	1.00E+00	0.10	8.33E+01
n-Propylbenzene	103651	7.88E+08	15	11,212	8.79E-03	3.63E-01	1.79E-04	8.35E-03	0.00E+00	0.00E+00	8.35E-03	137.4	15	1.00E+00	0.10	8.33E+01
n-Butylbenzene	104518	7.88E+08	15	11,696	1.07E-02	4.43E-01	1.79E-04	7.92E-03	0.00E+00	0.00E+00	7.92E-03	137.4	15	1.00E+00	0.10	8.33E+01
p-Xylene	106423	7.88E+08	15	10,107	6.42E-03	2.65E-01	1.79E-04	1.07E-02	0.00E+00	0.00E+00	1.07E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,4-Dichlorobenzene	106467	7.88E+08	15	11,119	1.98E-03	8.17E-02	1.79E-04	9.58E-03	0.00E+00	0.00E+00	9.58E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	15	10,051	6.24E-04	2.58E-02	1.79E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,3-Butadiene	106990	7.88E+08	15	5,030	6.73E-02	2.78E+00	1.79E-04	3.46E-02	0.00E+00	0.00E+00	3.46E-02	137.4	15	1.00E+00	0.10	8.33E+01
Acrolein	107028	7.88E+08	15	7,120	1.08E-04	4.45E-03	1.79E-04	1.46E-02	0.00E+00	0.00E+00	1.46E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,2-Dichloroethane	107062	7.88E+08	15	8,390	8.46E-04	3.49E-02	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
Acrylonitrile	107131	7.88E+08	15	8,678	8.85E-05	3.66E-03	1.79E-04	1.69E-02	0.00E+00	0.00E+00	1.69E-02	137.4	15	1.00E+00	0.10	8.33E+01
Vinyl acetate	108054	7.88E+08	15	8,588	4.40E-04	1.82E-02	1.79E-04	1.18E-02	0.00E+00	0.00E+00	1.18E-02	137.4	15	1.00E+00	0.10	8.33E+01
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	15	9,700	1.17E-04	4.81E-03	1.79E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	137.4	15	1.00E+00	0.10	8.33E+01
m-Xylene	108383	7.88E+08	15	10,114	6.16E-03	2.54E-01	1.79E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	137.4	15	1.00E+00	0.10	8.33E+01
m,p-Xylene	108383/1	7.88E+08	15	10,114	6.16E-03	2.54E-01	1.79E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,3,5-Trimethylbenzene	108678	7.88E+08	15	11,521	4.82E-03	1.99E-01	1.79E-04	8.36E-03	0.00E+00	0.00E+00	8.36E-03	137.4	15	1.00E+00	0.10	8.33E+01
Methylcyclohexane	108872	7.88E+08	15	8,451	8.90E-02	3.67E+00	1.79E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	137.4	15	1.00E+00	0.10	8.33E+01
Toluene	108883	7.88E+08	15	9,023	5.67E-03	2.34E-01	1.79E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	137.4	15	1.00E+00	0.10	8.33E+01
Chlorobenzene	108907	7.88E+08	15	9,681	3.13E-03	1.29E-01	1.79E-04	1.01E-02	0.00E+00	0.00E+00	1.01E-02	137.4	15	1.00E+00	0.10	8.33E+01
1-Chlorobutane	109693	7.88E+08	15	7,983	1.47E-02	6.09E-01	1.79E-04	1.15E-02	0.00E+00	0.00E+00	1.15E-02	137.4	15	1.00E+00	0.10	8.33E+01
Furan	110009	7.88E+08	15	6,588	4.81E-03	1.99E-01	1.79E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	137.4	15	1.00E+00	0.10	8.33E+01
Hexane	110543	7.88E+08	15	7,576	1.46E+00	6.03E+01	1.79E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	137.4	15	1.00E+00	0.10	8.33E+01
Cyclohexane	110827	7.88E+08	15	8,737	7.06E+00	2.91E+02	1.79E-04	1.11E-02	0.00E+00	0.00E+00	1.11E-02	137.4	15	1.00E+00	0.10	8.33E+01
Bis(2-chloroethyl)ether	111444	7.88E+08	15	13,431	1.43E-05	5.89E-04	1.79E-04	9.63E-03	0.00E+00	0.00E+00	9.63E-03	137.4	15	1.00E+00	0.10	8.33E+01
Endosulfan	115297	7.88E+08	15	20,088	7.92E-06	3.27E-04	1.79E-04	1.61E-03	0.00E+00	0.00E+00	1.61E-03	137.4	15	1.00E+00	0.10	8.33E+01
Hexachlorobenzene	118741	7.88E+08	15	19,852	9.37E-04	3.87E-02	1.79E-04	7.53E-03	0.00E+00	0.00E+00	7.53E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,2,4-Trichlorobenzene	120821	7.88E+08	15	13,092	1.13E-03	4.67E-02	1.79E-04	4.17E-03	0.00E+00	0.00E+00	4.17E-03	137.4	15	1.00E+00	0.10	8.33E+01
Crotonaldehyde (2-butenal)	123739	7.88E+08	15	10	1.95E-05	8.04E-04	1.79E-04	1.33E-02	0.00E+00	0.00E+00	1.33E-02	137.4	15	1.00E+00	0.10	8.33E+01
Chlorodibromomethane	124481	7.88E+08	15	6,708	6.96E-04	2.87E-02	1.79E-04	2.72E-03	0.00E+00	0.00E+00	2.72E-03	137.4	15	1.00E+00	0.10	8.33E+01
Methacrylonitrile	126987	7.88E+08	15	8,508	2.13E-04	8.79E-03	1.79E-04	1.56E-02	0.00E+00	0.00E+00	1.56E-02	137.4	15	1.00E+00	0.10	8.33E+01
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	15	8,594	1.03E-02	4.27E-01	1.79E-04	1.19E-02	0.00E+00	0.00E+00	1.19E-02	137.4	15	1.00E+00	0.10	8.33E+01
Tetrachloroethylene	127184	7.88E+08	15	9,431	1.56E-02	6.45E-01	1.79E-04	1.00E-02	0.00E+00	0.00E+00	1.00E-02	137.4	15	1.00E+00	0.10	8.33E+01
Pyrene	129000	7.88E+08	15	20,543	7.71E-06	3.18E-04	1.79E-04	3.81E-03	0.00E+00	0.00E+00	3.81E-03	137.4	15	1.00E+00	0.10	8.33E+01

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Effective Diffusion Coefficient D _{crack} (cm ² /s)	Area of crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pef) (unitless)	Source Indoor Attenuation Coefficient a (unitless)	Source Building Concentration C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Concentration RfC (mg/m ³)
Naphthalene	91203	7.88E+08	8.19E-03	4.00E+02	2.58E+110	5.30E-04	5.30E-04	3.4E-05	3.0E-03
2-Methylnaphthalene	91576	7.88E+08	7.25E-03	4.00E+02	6.21E+124	4.94E-04	4.94E-04	NA	NA
Biphenyl	92524	7.88E+08	5.61E-03	4.00E+02	1.68E+161	4.20E-04	4.20E-04	NA	NA
o-Xylene	95476	7.88E+08	1.21E-02	4.00E+02	7.61E+74	6.49E-04	6.49E-04	NA	7.0E-01
1,2-Dichlorobenzene	95501	7.88E+08	9.58E-03	4.00E+02	2.60E+94	5.78E-04	5.78E-04	NA	2.0E-01
2-Chlorophenol	95578	7.88E+08	6.96E-03	4.00E+02	1.04E+130	4.82E-04	4.82E-04	NA	NA
1,2,4-Trimethylbenzene	95636	7.88E+08	8.42E-03	4.00E+02	3.19E+107	5.38E-04	5.38E-04	NA	7.0E-03
1,2,3-Trichloropropane	96184	7.88E+08	9.86E-03	4.00E+02	5.63E+91	5.87E-04	5.87E-04	NA	NA
Methyl acrylate	96333	7.88E+08	1.36E-02	4.00E+02	5.50E+66	6.84E-04	6.84E-04	NA	NA
Cumene	98828	7.88E+08	9.03E-03	4.00E+02	1.68E+100	5.60E-04	5.60E-04	NA	4.0E-01
Acetophenone	98862	7.88E+08	8.36E-03	4.00E+02	1.49E+108	5.37E-04	5.37E-04	NA	NA
Nitrobenzene	98953	7.88E+08	1.06E-02	4.00E+02	4.08E+85	6.08E-04	6.08E-04	NA	2.0E-03
Ethylbenzene	100414	7.88E+08	1.04E-02	4.00E+02	7.29E+86	6.04E-04	6.04E-04	2.5E-06	1.0E+00
Styrene	100425	7.88E+08	9.86E-03	4.00E+02	5.70E+91	5.87E-04	5.87E-04	NA	1.0E+00
Benzylchloride	100447	7.88E+08	1.04E-02	4.00E+02	7.20E+86	6.04E-04	6.04E-04	NA	1.0E-03
Benzaldehyde	100527	7.88E+08	1.00E-02	4.00E+02	1.68E+90	5.92E-04	5.92E-04	NA	NA
n-Propylbenzene	103651	7.88E+08	8.35E-03	4.00E+02	2.50E+108	5.36E-04	5.36E-04	NA	NA
n-Butylbenzene	104518	7.88E+08	7.92E-03	4.00E+02	1.96E+114	5.20E-04	5.20E-04	NA	NA
p-Xylene	106423	7.88E+08	1.07E-02	4.00E+02	5.21E+84	6.11E-04	6.11E-04	NA	7.0E-01
1,4-Dichlorobenzene	106467	7.88E+08	9.58E-03	4.00E+02	2.60E+94	5.78E-04	5.78E-04	1.1E-05	8.0E-01
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	3.01E-03	4.00E+02	1.45E+300	2.68E-04	2.68E-04	6.0E-04	9.0E-03
1,3-Butadiene	106990	7.88E+08	3.46E-02	4.00E+02	1.46E+26	9.37E-04	9.37E-04	3.0E-05	2.0E-03
Acrolein	107028	7.88E+08	1.46E-02	4.00E+02	1.07E+62	7.06E-04	7.06E-04	NA	2.0E-05
1,2-Dichloroethane	107062	7.88E+08	1.44E-02	4.00E+02	4.37E+62	7.03E-04	7.03E-04	2.6E-05	2.4E+00
Acrylonitrile	107131	7.88E+08	1.69E-02	4.00E+02	2.43E+53	7.51E-04	7.51E-04	6.8E-05	2.0E-03
Vinyl acetate	108054	7.88E+08	1.18E-02	4.00E+02	4.36E+76	6.42E-04	6.42E-04	NA	2.0E-01
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	1.04E-02	4.00E+02	7.02E+86	6.04E-04	6.04E-04	NA	3.0E+00
m-Xylene	108383	7.88E+08	9.72E-03	4.00E+02	1.17E+93	5.82E-04	5.82E-04	NA	7.0E-01
m,p-Xylene	108383/1	7.88E+08	9.72E-03	4.00E+02	1.17E+93	5.82E-04	5.82E-04	NA	NA
1,3,5-Trimethylbenzene	108678	7.88E+08	8.36E-03	4.00E+02	1.65E+108	5.36E-04	5.36E-04	NA	6.0E-03
Methylcyclohexane	108872	7.88E+08	1.02E-02	4.00E+02	4.32E+88	5.97E-04	5.97E-04	NA	NA
Toluene	108883	7.88E+08	1.21E-02	4.00E+02	7.62E+74	6.49E-04	6.49E-04	NA	5.0E+00
Chlorobenzene	108907	7.88E+08	1.01E-02	4.00E+02	1.75E+89	5.95E-04	5.95E-04	NA	5.0E-02
1-Chlorobutane	109693	7.88E+08	1.15E-02	4.00E+02	7.43E+78	6.33E-04	6.33E-04	NA	NA
Furan	110009	7.88E+08	1.44E-02	4.00E+02	4.38E+62	7.03E-04	7.03E-04	NA	NA
Hexane	110543	7.88E+08	2.78E-02	4.00E+02	3.75E+32	8.85E-04	8.85E-04	NA	7.0E-01
Cyclohexane	110827	7.88E+08	1.11E-02	4.00E+02	2.72E+81	6.23E-04	6.23E-04	NA	6.0E+00
Bis(2-chloroethyl)ether	111444	7.88E+08	9.63E-03	4.00E+02	9.76E+93	5.79E-04	5.79E-04	3.3E-04	NA
Endosulfan	115297	7.88E+08	1.61E-03	4.00E+02	#NUM!	1.60E-04	1.60E-04	NA	NA
Hexachlorobenzene	118741	7.88E+08	7.53E-03	4.00E+02	1.57E+120	5.05E-04	5.05E-04	4.6E-04	NA
1,2,4-Trichlorobenzene	120821	7.88E+08	4.17E-03	4.00E+02	1.40E+217	3.42E-04	3.42E-04	NA	4.0E-03
Crotonaldehyde (2-butenal)	123739	7.88E+08	1.33E-02	4.00E+02	1.15E+68	6.78E-04	6.78E-04	NA	NA
Chlorodibromomethane	124481	7.88E+08	2.72E-03	4.00E+02	#NUM!	2.48E-04	2.48E-04	NA	NA
Methacrylonitrile	126987	7.88E+08	1.56E-02	4.00E+02	1.01E+58	7.26E-04	7.26E-04	NA	7.0E-04
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	1.19E-02	4.00E+02	8.49E+75	6.45E-04	6.45E-04	NA	7.0E-03
Tetrachloroethylene	127184	7.88E+08	1.00E-02	4.00E+02	3.04E+90	5.91E-04	5.91E-04	5.9E-06	2.7E-01
Pyrene	129000	7.88E+08	3.81E-03	4.00E+02	5.60E+237	3.20E-04	3.20E-04	NA	NA

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Seperation L _t (cm)	Stratum A Soil	Stratum B	Stratum C	Stratum A	Stratum A	Stratum A	Stratum A Soil	Floor-wall	Soil Gas	Building	Enclosed	Crack-to Total Area Ratio h (unitless)
				Air-filled Porosity q _a ^A (cm ³ /cm ³)	Soil Air-filled Porosity q _a ^B (cm ³ /cm ³)	Soil Air- filled q _a ^C (cm ³ /cm ³)	Effective Total Fluid Saturation S _{ie} (cm ³ /cm ³)	Soil Intrinsic Permeability k ⁱ (cm ²)	Soil Relative Air Permeability k _{rg} (cm ²)	Effective Vapor Permeability k _v (cm ²)	Seam Perimeter X _{crack} (cm)	Concentra tion (mg/m ³)	Ventilation Rate Q _{building} (cm ³ /s)	Space Below Grade A _B (cm ²)	
Dibenzofuran	132649	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
sec-Butylbenzene	135988	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Ethylacetate	141786	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
cis-1,2-Dichloroethylene	156592	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
trans-1,2-Dichloroethylene	156605	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Benzo(b)fluoranthene	205992	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Chrysene	218019	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Aldrin	309002	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
alpha-HCH (alpha-BHC)	319846	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,3-Dichlorobenzene	541731	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,3-Dichloropropene	542756	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Bromoethene (Bromomethane used as Surrogate)	593602	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
1,1,1,2-Tetrachloroethane	630206	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
MTBE	1634044	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04
Mercury (elemental)	7439976	7.88E+08	137.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature H _{TS} (atm·m ³ /mol)	Henry's Law Constant at Ave. Soil Temperature H'TS (unitless)	Vapor Viscosity at Ave. Soil Temperature M _{TS} (g/cm-s)	A Effective Diffusion Coefficient DeffA (cm ² /s)	B Effective Diffusion Coefficient DeffB (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _c (cm ² /s)	Overall Effective Diffusion Coefficient DeffT (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Concentration C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate Into Building Q _{soil} (cm ³ /s)
Dibenzofuran	132649	7.88E+08	15	86,878	2.83E-06	1.17E-04	1.79E-04	3.37E-03	0.00E+00	0.00E+00	3.37E-03	137.4	15	1.00E+00	0.10	8.33E+01
sec-Butylbenzene	135988	7.88E+08	15	106,848	2.22E-03	9.15E-02	1.79E-04	7.92E-03	0.00E+00	0.00E+00	7.92E-03	137.4	15	1.00E+00	0.10	8.33E+01
Ethylacetate	141786	7.88E+08	15	8,478	1.19E-04	4.91E-03	1.79E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	137.4	15	1.00E+00	0.10	8.33E+01
cis-1,2-Dichloroethylene	156592	7.88E+08	15	7,612	3.57E-03	1.47E-01	1.79E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	137.4	15	1.00E+00	0.10	8.33E+01
trans-1,2-Dichloroethylene	156605	7.88E+08	15	7,008	8.30E-03	3.43E-01	1.79E-04	9.82E-03	0.00E+00	0.00E+00	9.82E-03	137.4	15	1.00E+00	0.10	8.33E+01
Benzo(b)fluoranthene	205992	7.88E+08	15	25,392	7.16E-05	2.96E-03	1.79E-04	3.14E-03	0.00E+00	0.00E+00	3.14E-03	137.4	15	1.00E+00	0.10	8.33E+01
Chrysene	218019	7.88E+08	15	24,277	6.22E-05	2.57E-03	1.79E-04	3.45E-03	0.00E+00	0.00E+00	3.45E-03	137.4	15	1.00E+00	0.10	8.33E+01
Aldrin	309002	7.88E+08	15	21,115	1.18E-04	4.87E-03	1.79E-04	1.83E-03	0.00E+00	0.00E+00	1.83E-03	137.4	15	1.00E+00	0.10	8.33E+01
alpha-HCH (alpha-BHC)	319846	7.88E+08	15	20,883	7.39E-06	3.05E-04	1.79E-04	2.00E-03	0.00E+00	0.00E+00	2.00E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,3-Dichlorobenzene	541731	7.88E+08	15	11,050	2.56E-03	1.06E-01	1.79E-04	9.61E-03	0.00E+00	0.00E+00	9.61E-03	137.4	15	1.00E+00	0.10	8.33E+01
1,3-Dichloropropene	542756	7.88E+08	15	8,969	1.51E-02	6.25E-01	1.79E-04	8.69E-03	0.00E+00	0.00E+00	8.69E-03	137.4	15	1.00E+00	0.10	8.33E+01
Bromoethene (Bromomethane used as Surrogate)	593602	7.88E+08	15	5,529	5.66E-03	2.34E-01	1.79E-04	1.01E-02	0.00E+00	0.00E+00	1.01E-02	137.4	15	1.00E+00	0.10	8.33E+01
1,1,1,2-Tetrachloroethane	630206	7.88E+08	15	11,291	1.99E-03	8.21E-02	1.79E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	137.4	15	1.00E+00	0.10	8.33E+01
MTBE	1634044	7.88E+08	15	7,139	5.52E-04	2.28E-02	1.79E-04	1.42E-02	0.00E+00	0.00E+00	1.42E-02	137.4	15	1.00E+00	0.10	8.33E+01
Mercury (elemental)	7439976	7.88E+08	15	15,280	8.25E-03	3.41E-01	1.79E-04	4.26E-03	0.00E+00	0.00E+00	4.26E-03	137.4	15	1.00E+00	0.10	8.33E+01

TABLE G-5C
 Johnson-Ettinger Modeling—Soil Gas (5 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Crack Effective Diffusion Coefficient D _{crack} (cm ² /s)	Area of crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pef) (unitless)	Source Indoor Attenuation Coefficient a (unitless)	Source Building Concentration C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Concentration RfC (mg/m ³)
Dibenzofuran	132649	7.88E+08	3.37E-03	4.00E+02	3.85E+268	2.92E-04	2.92E-04	NA	NA
sec-Butylbenzene	135988	7.88E+08	7.92E-03	4.00E+02	1.96E+114	5.20E-04	5.20E-04	NA	NA
Ethylacetate	141786	7.88E+08	1.02E-02	4.00E+02	9.50E+88	5.96E-04	5.96E-04	NA	NA
cis-1,2-Dichloroethylene	156592	7.88E+08	1.02E-02	4.00E+02	3.27E+88	5.98E-04	5.98E-04	NA	NA
trans-1,2-Dichloroethylene	156605	7.88E+08	9.82E-03	4.00E+02	1.40E+92	5.85E-04	5.85E-04	NA	6.0E-02
Benzo(b)fluoranthene	205992	7.88E+08	3.14E-03	4.00E+02	1.12E+288	2.77E-04	2.77E-04	1.1E-04	NA
Chrysene	218019	7.88E+08	3.45E-03	4.00E+02	2.91E+262	2.97E-04	2.97E-04	1.1E-05	NA
Aldrin	309002	7.88E+08	1.83E-03	4.00E+02	#NUM!	1.78E-04	1.78E-04	4.9E-03	NA
alpha-HCH (alpha-BHC)	319846	7.88E+08	2.00E-03	4.00E+02	#NUM!	1.92E-04	1.92E-04	1.8E-03	NA
1,3-Dichlorobenzene	541731	7.88E+08	9.61E-03	4.00E+02	1.39E+94	5.79E-04	5.79E-04	NA	NA
1,3-Dichloropropene	542756	7.88E+08	8.69E-03	4.00E+02	1.17E+104	5.48E-04	5.48E-04	4.0E-06	2.0E-02
Bromoethene (Bromomethane used as Surrogate)	593602	7.88E+08	1.01E-02	4.00E+02	3.07E+89	5.94E-04	5.94E-04	NA	5.0E-03
1,1,1,2-Tetrachloroethane	630206	7.88E+08	9.86E-03	4.00E+02	5.70E+91	5.87E-04	5.87E-04	7.4E-06	NA
MTBE	1634044	7.88E+08	1.42E-02	4.00E+02	4.15E+63	6.99E-04	6.99E-04	2.6E-07	3.0E+00
Mercury (elemental)	7439976	7.88E+08	4.26E-03	4.00E+02	1.60E+212	3.48E-04	3.48E-04	NA	3.0E-04

TABLE G-5D

Johnson-Ettinger Modeling - Soil Gas (5 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	NonCarcinogenic Risk-based Screening Level (µg/L)
Carbon tetrachloride	56235	4.4E-01	4.5E+02
Chlordane	57749	2.5E-01	6.3E+00
gamma-HCH (Lindane)	58899	6.9E-02	NA
Ethyl ether	60297	NA	NA
Dieldrin	60571	5.2E-03	NA
Acetone	67641	NA	6.0E+04
Chloroform	67663	2.5E-01	2.0E+02
Hexachloroethane	67721	2.7E+01	NA
Benzene	71432	8.0E-01	6.7E+01
1,1,1-Trichloroethane	71556	NA	1.2E+04
Methoxychlor	72435	NA	NA
DDE	72559	NA	NA
Methyl bromide	74839	NA	1.2E+01
Methyl chloride (chloromethane)	74873	3.0E+00	1.7E+02
Hydrogen cyanide	74908	NA	5.0E+00
Methylene bromide	74953	NA	NA
Chloroethane (ethyl chloride)	75003	NA	1.5E+04
Vinyl chloride (chloroethene)	75014	1.3E+00	2.1E+02
Acetonitrile	75058	NA	1.1E+02
Acetaldehyde	75070	2.5E+00	1.7E+01
Methylene chloride	75092	1.3E+01	2.3E+03
Carbon disulfide	75150	NA	1.5E+03
Ethylene oxide	75218	6.6E-02	NA
Bromoform	75252	1.9E+01	NA
Bromodichloromethane	75274	NA	NA
2-Chloropropane	75296	NA	NA
1,1-Dichloroethane	75343	4.3E+00	NA
1,1-Dichloroethylene	75354	NA	4.4E+02
Chlorodifluoromethane	75456	NA	1.0E+05
Trichlorofluoromethane	75694	NA	1.6E+03
Dichlorodifluoromethane	75718	NA	5.2E+02
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	7.1E+04
Heptachlor	76448	2.0E-02	NA
Hexachlorocyclopentadiene	77474	NA	1.4E+00
Isobutanol	78831	NA	NA
1,2-Dichloropropane	78875	6.6E-01	9.5E+00
Methylethylketone (2-butanone)	78933	NA	1.2E+04
1,1,2-Trichloroethane	79005	4.2E-01	NA
Trichloroethylene	79016	3.3E+00	NA
Methyl acetate	79209	NA	NA
1,1,2,2-Tetrachloroethane	79345	1.2E-01	NA
2-Nitropropane	79469	2.3E-03	4.4E+01
Methylmethacrylate	80626	NA	1.7E+03
Acenaphthene	83329	NA	NA
Fluorene	86737	NA	NA
Hexachloro-1,3-butadiene	87683	3.6E-01	NA
o-Nitrotoluene	88722	NA	NA
Naphthalene	91203	2.3E-01	8.3E+00
2-Methylnaphthalene	91576	NA	NA
Biphenyl	92524	NA	NA

TABLE G-5D

Johnson-Ettinger Modeling - Soil Gas (5 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	NonCarcinogenic Risk-based Screening Level (µg/L)
o-Xylene	95476	NA	1.6E+03
1,2-Dichlorobenzene	95501	NA	5.1E+02
2-Chlorophenol	95578	NA	NA
1,2,4-Trimethylbenzene	95636	NA	1.9E+01
1,2,3-Trichloropropane	96184	NA	NA
Methyl acrylate	96333	NA	NA
Ethylmethacrylate	97632	NA	NA
tert-Butylbenzene	98066	NA	NA
Cumene	98828	NA	1.0E+03
Acetophenone	98862	NA	NA
Nitrobenzene	98953	NA	4.8E+00
Ethylbenzene	100414	2.7E+00	2.4E+03
Styrene	100425	NA	2.5E+03
Benzylchloride	100447	NA	2.4E+00
Benzaldehyde	100527	NA	NA
n-Propylbenzene	103651	NA	NA
n-Butylbenzene	104518	NA	NA
p-Xylene	106423	NA	1.7E+03
1,4-Dichlorobenzene	106467	6.4E-01	2.0E+03
1,2-Dibromoethane (ethylene dibromide)	106934	2.5E-02	4.9E+01
1,3-Butadiene	106990	1.5E-01	3.1E+00
Acrolein	107028	NA	4.1E-02
1,2-Dichloroethane	107062	2.2E-01	5.0E+03
Acrylonitrile	107131	8.0E-02	3.9E+00
Vinyl acetate	108054	NA	4.5E+02
Methylisobutylketone (4-methyl-2-pentanone)	108101	NA	7.3E+03
m-Xylene	108383	NA	1.8E+03
m,p-Xylene	108383/1	NA	NA
1,3,5-Trimethylbenzene	108678	NA	1.6E+01
Methylcyclohexane	108872	NA	NA
Toluene	108883	NA	1.1E+04
Chlorobenzene	108907	NA	1.2E+02
1-Chlorobutane	109693	NA	NA
Furan	110009	NA	NA
Hexane	110543	NA	1.2E+03
Cyclohexane	110827	NA	1.4E+04
Bis(2-chloroethyl)ether	111444	2.1E-02	NA
Endosulfan	115297	NA	NA
Hexachlorobenzene	118741	1.8E-02	NA
1,2,4-Trichlorobenzene	120821	NA	1.7E+01
Crotonaldehyde (2-butenal)	123739	NA	NA
Chlorodibromomethane	124481	NA	NA
Methacrylonitrile	126987	NA	1.4E+00
2-Chloro-1,3-butadiene (chloroprene)	126998	NA	1.6E+01
Tetrachloroethylene	127184	1.2E+00	6.7E+02
Pyrene	129000	NA	NA
Dibenzofuran	132649	NA	NA
sec-Butylbenzene	135988	NA	NA
Ethylacetate	141786	NA	NA

TABLE G-5D

Johnson-Ettinger Modeling - Soil Gas (5 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	NonCarcinogenic Risk-based Screening Level (µg/L)
cis-1,2-Dichloroethylene	156592	NA	NA
trans-1,2-Dichloroethylene	156605	NA	1.5E+02
Benzo(b)fluoranthene	205992	1.3E-01	NA
Chrysene	218019	1.2E+00	NA
Aldrin	309002	4.7E-03	NA
alpha-HCH (alpha-BHC)	319846	1.2E-02	NA
1,3-Dichlorobenzene	541731	NA	NA
1,3-Dichloropropene	542756	1.9E+00	5.3E+01
Bromoethene (Bromomethane used as Surrogate)	593602	NA	1.2E+01
1,1,1,2-Tetrachloroethane	630206	9.4E-01	NA
MTBE	1634044	2.3E+01	6.3E+03
Mercury (elemental)	7439976	NA	1.3E+00

Notes:

µg/L = microgram per liter

NA = not available

SG-ADV
 Version 3.1; 02/04

Reset to
 Defaults

MORE
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Soil Gas Concentration Data

ENTER Depth below grade to bottom of enclosed 15 L_F (cm)	ENTER Soil gas sampling depth below grade, L_S (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Totals must add up to value of L_s (cell F24)			ENTER Soil stratum A SCS soil type soil vapor permeability)	ENTER User-defined stratum A soil vapor 0.0000001 k_v (cm ²)
			ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	OR	
15	457.2	22	305	152	0	LS	

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm ³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm ³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	LS	1.62	0.39	0.076

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR 5.00E+00 Q_{soil} (L/m)
10	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

TABLE G-5F

Johnson-Ettinger Modeling—Soil Gas (15 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration	Source-building Separation	Stratum A Soil Air-filled Porosity	Stratum B Soil Air-filled Porosity	Stratum C Soil Air-filled Porosity	Stratum A Effective Total Fluid Saturation	Stratum A Soil Intrinsic Permeability	Stratum A Soil Relative air Permeability	Stratum A Soil Effective Vapor Permeability	Floor-wall Seam Perimeter	Soil Gas Concentration	Building Ventilation Rate	Enclosed Space Below Grade	Crack-to-Total Area Ratio	Crack Depth Below Grade	Enthalpy of Vaporization at Ave. Soil Temperature	Henry's Law Constant at Ave. Soil Temperature	Henry's Law Constant at Ave. Soil Temperature
		t (sec)	L _T (cm)	q _a ^A (cm ³ /cm ³)	q _a ^B (cm ³ /cm ³)	q _a ^C (cm ³ /cm ³)	S _{fb} (cm ³ /cm ³)	k _i (cm ²)	k _{rg} (cm ²)	k _v (cm ²)	X _{crack} (cm)	(mg/m ³)	Q _{building} (cm ³ /s)	A _B (cm ²)	h (unitless)	Z _{crack} (cm)	DH _{v,TS} (cal/mol)	H _{TS} (atm-m ³ /mol)	H' _{TS} (unitless)
Carbon tetrachloride	56235	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,736	2.66E-02	1.10E+00
Chlordane	57749	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	19,481	3.47E-05	1.43E-03
gamma-HCH (Lindane)	58899	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,883	9.76E-06	4.03E-04
Ethyl ether	60297	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,517	2.94E-02	1.22E+00
Dieldrin	60571	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	24,298	9.93E-06	4.10E-04
Acetone	67641	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,410	3.41E-05	1.41E-03
Chloroform	67663	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,429	3.22E-03	1.33E-01
Hexachloroethane	67721	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,551	3.18E-03	1.31E-01
Benzene	71432	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,998	4.83E-03	1.99E-01
1,1,1-Trichloroethane	71556	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,754	1.50E-02	6.20E-01
Methoxychlor	72435	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	24,411	1.04E-05	4.28E-04
DDE	72559	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	21,926	1.44E-05	5.94E-04
Methyl bromide	74839	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,529	5.66E-03	2.34E-01
Methyl chloride (chloromethane)	74873	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	4,603	8.13E-03	3.36E-01
Hydrogen cyanide	74908	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,736	1.18E-04	4.88E-03
Methylene bromide	74953	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,752	7.39E-04	3.05E-02
Chloroethane (ethyl chloride)	75003	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,764	7.97E-03	3.29E-01
Vinyl chloride (chloroethene)	75014	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	4,864	2.48E-02	1.02E+00
Acetonitrile	75058	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,850	3.02E-05	1.25E-03
Acetaldehyde	75070	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,131	7.08E-05	2.93E-03
Methylene chloride	75092	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,906	1.94E-03	8.01E-02
Carbon disulfide	75150	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,588	2.70E-02	1.11E+00
Ethylene oxide	75218	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,975	5.00E-04	2.07E-02
Bromoform	75252	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,764	4.89E-04	2.02E-02
Bromodichloromethane	75274	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,546	1.38E-03	5.69E-02
2-Chloropropane	75296	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,453	1.29E-02	5.34E-01
1,1-Dichloroethane	75343	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,317	4.94E-03	2.04E-01
1,1-Dichloroethylene	75354	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,313	2.34E-02	9.65E-01
Chlorodifluoromethane	75456	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	3,903	2.52E-02	1.04E+00
Trichlorofluoromethane	75694	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,018	8.73E-02	3.60E+00
Dichlorodifluoromethane	75718	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,025	2.98E-01	1.23E+01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,814	4.27E-01	1.76E+01
Heptachlor	76448	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	18,199	1.08E+00	4.46E+01
Hexachlorocyclopentadiene	77474	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	14,139	2.11E-02	8.72E-01
Isobutanol	78831	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,907	9.43E-06	3.89E-04
1,2-Dichloropropane	78875	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,500	2.41E-03	9.97E-02
Methylethylketone (2-butanone)	78933	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,269	4.84E-05	2.00E-03
1,1,2-Trichloroethane	79005	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,441	7.75E-04	3.20E-02
Trichloroethylene	79016	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,407	8.89E-03	3.67E-01
Methyl acetate	79209	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,751	1.03E-04	4.26E-03
1,1,2,2-Tetrachloroethane	79345	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,420	2.88E-04	1.19E-02
2-Nitropropane	79469	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,727	1.04E-04	4.29E-03
Methylmethacrylate	80626	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,183	2.82E-04	1.17E-02
Acenaphthene	83329	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	15,976	1.18E-04	4.85E-03
Fluorene	86737	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	16,112	4.81E-05	1.99E-03
Hexachloro-1,3-butadiene	87683	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,587	6.55E-03	2.70E-01
o-Nitrotoluene	88722	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	15,710	9.52E-06	3.93E-04
Naphthalene	91203	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,789	3.87E-04	1.60E-02
2-Methylnaphthalene	91576	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	16,083	3.92E-04	1.62E-02
Biphenyl	92524	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,901	2.36E-04	9.73E-03

TABLE G-5F
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Vapor Viscosity at Ave. Soil Temperature m _{TS} (g/cm-s)	A Effective Diffusion Coefficient D ^{eff} _A (cm ² /s)	B Effective Diffusion Coefficient D ^{eff} _B (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _C (cm ² /s)	Overall Effective Diffusion Coefficient D ^{eff} _T (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Concentration C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate into Building Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient D ^{crack} (cm ² /s)	Area of Crack A _{crack} (cm ²)	Equivalent Foundation Peclt Number exp(Pe ¹) (unitless)	Source Indoor Attenuation Coefficient a (unitless)	Infinite Source Building Conc. C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Conc. (mg/m ³)
Carbon tetrachloride	56235	7.88E+08	442.2	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	3.03E-04	3.03E-04	1.5E-05	1.9E-01
Chlordane	57749	7.88E+08	442.2	1.79E-04	1.64E-03	1.91E-03	0.00E+00	1.73E-03	442.2	15	1.00E+00	0.10	8.33E+01	1.64E-03	4.00E+02	#NUM!	5.81E-05	5.81E-05	1.0E-04	7.0E-04
gamma-HCH (Lindane)	58899	7.88E+08	442.2	1.79E-04	1.49E-03	2.30E-03	0.00E+00	2.09E-03	442.2	15	1.00E+00	0.10	8.33E+01	1.99E-03	4.00E+02	#NUM!	6.98E-05	6.98E-05	3.1E-04	NA
Ethyl ether	60297	7.88E+08	442.2	1.79E-04	1.09E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	3.04E-04	3.04E-04	NA	NA
Dieldrin	60571	7.88E+08	442.2	1.79E-04	1.75E-03	2.03E-03	0.00E+00	1.84E-03	442.2	15	1.00E+00	0.10	8.33E+01	1.75E-03	4.00E+02	#NUM!	6.17E-05	6.17E-05	4.6E-03	NA
Acetone	67641	7.88E+08	442.2	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.81E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.22E+52	4.21E-04	4.21E-04	NA	3.1E+01
Chloroform	67663	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	3.74E-04	3.74E-04	2.3E-05	9.8E-02
Hexachloroethane	67721	7.88E+08	442.2	1.79E-04	3.47E-04	4.04E-04	0.00E+00	3.65E-04	442.2	15	1.00E+00	0.10	8.33E+01	3.47E-04	4.00E+02	#NUM!	1.28E-05	1.28E-05	4.0E-06	NA
Benzene	71432	7.88E+08	442.2	1.79E-04	1.22E-02	1.42E-02	0.00E+00	1.28E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.22E-02	4.00E+02	1.07E+74	3.32E-04	3.32E-04	7.8E-06	3.0E-02
1,1,1-Trichloroethane	71556	7.88E+08	442.2	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	3.03E-04	3.03E-04	NA	5.0E+00
Methoxychlor	72435	7.88E+08	442.2	1.79E-04	2.18E-03	2.53E-03	0.00E+00	2.29E-03	442.2	15	1.00E+00	0.10	8.33E+01	2.18E-03	4.00E+02	#NUM!	7.59E-05	7.59E-05	NA	NA
DDE	72559	7.88E+08	442.2	1.79E-04	2.01E-03	2.33E-03	0.00E+00	2.11E-03	442.2	15	1.00E+00	0.10	8.33E+01	2.01E-03	4.00E+02	#NUM!	7.04E-05	7.04E-05	NA	NA
Methyl bromide	74839	7.88E+08	442.2	1.79E-04	1.01E-02	1.18E-02	0.00E+00	1.06E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.01E-02	4.00E+02	3.07E+89	2.88E-04	2.88E-04	NA	5.0E-03
Methyl chloride (chloromethane)	74873	7.88E+08	442.2	1.79E-04	1.75E-02	2.04E-02	0.00E+00	1.84E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.75E-02	4.00E+02	5.06E+51	4.25E-04	4.25E-04	1.8E-06	9.0E-02
Hydrogen cyanide	74908	7.88E+08	442.2	1.79E-04	2.69E-02	3.13E-02	0.00E+00	2.82E-02	442.2	15	1.00E+00	0.10	8.33E+01	2.69E-02	4.00E+02	4.77E+33	5.51E-04	5.51E-04	NA	3.0E-03
Methylene bromide	74953	7.88E+08	442.2	1.79E-04	5.97E-03	6.95E-03	0.00E+00	6.28E-03	442.2	15	1.00E+00	0.10	8.33E+01	5.97E-03	4.00E+02	3.14E+151	1.88E-04	1.88E-04	NA	NA
Chloroethane (ethyl chloride)	75003	7.88E+08	442.2	1.79E-04	3.76E-02	4.38E-02	0.00E+00	3.96E-02	442.2	15	1.00E+00	0.10	8.33E+01	3.76E-02	4.00E+02	1.10E+24	6.54E-04	6.54E-04	NA	1.0E+01
Vinyl chloride (chloroethene)	75014	7.88E+08	442.2	1.79E-04	1.47E-02	1.71E-02	0.00E+00	1.55E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.47E-02	4.00E+02	2.88E+61	3.79E-04	3.79E-04	4.4E-06	1.0E-01
Acetonitrile	75058	7.88E+08	442.2	1.79E-04	1.78E-02	2.07E-02	0.00E+00	1.87E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.78E-02	4.00E+02	7.07E+50	4.30E-04	4.30E-04	NA	6.0E-02
Acetaldehyde	75070	7.88E+08	442.2	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.81E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.31E+52	4.21E-04	4.21E-04	2.2E-06	9.0E-03
Methylene chloride	75092	7.88E+08	442.2	1.79E-04	1.40E-02	1.63E-02	0.00E+00	1.47E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.40E-02	4.00E+02	3.17E+64	3.66E-04	3.66E-04	4.7E-07	1.1E+00
Carbon disulfide	75150	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	3.74E-04	3.74E-04	NA	7.0E-01
Ethylene oxide	75218	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.34E+62	3.74E-04	3.74E-04	8.8E-05	NA
Bromoform	75252	7.88E+08	442.2	1.79E-04	2.07E-03	2.41E-03	0.00E+00	2.18E-03	442.2	15	1.00E+00	0.10	8.33E+01	2.07E-03	4.00E+02	#NUM!	7.24E-05	7.24E-05	1.1E-06	NA
Bromodichloromethane	75274	7.88E+08	442.2	1.79E-04	4.14E-03	4.82E-03	0.00E+00	4.35E-03	442.2	15	1.00E+00	0.10	8.33E+01	4.14E-03	4.00E+02	4.01E+218	1.37E-04	1.37E-04	NA	NA
2-Chloropropane	75296	7.88E+08	442.2	1.79E-04	1.23E-02	1.44E-02	0.00E+00	1.30E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.23E-02	4.00E+02	2.31E+73	3.34E-04	3.34E-04	NA	NA
1,1-Dichloroethane	75343	7.88E+08	442.2	1.79E-04	1.03E-02	1.20E-02	0.00E+00	1.08E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.03E-02	4.00E+02	6.30E+87	2.92E-04	2.92E-04	1.6E-06	NA
1,1-Dichloroethylene	75354	7.88E+08	442.2	1.79E-04	1.25E-02	1.45E-02	0.00E+00	1.31E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.25E-02	4.00E+02	2.43E+72	3.37E-04	3.37E-04	NA	2.0E-01
Chlorodifluoromethane	75456	7.88E+08	442.2	1.79E-04	1.41E-02	1.64E-02	0.00E+00	1.48E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.41E-02	4.00E+02	2.05E+64	3.67E-04	3.67E-04	NA	5.0E+01
Trichlorofluoromethane	75694	7.88E+08	442.2	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.27E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	3.29E-04	3.29E-04	NA	7.0E-01
Dichlorodifluoromethane	75718	7.88E+08	442.2	1.79E-04	9.24E-03	1.08E-02	0.00E+00	9.71E-03	442.2	15	1.00E+00	0.10	8.33E+01	9.24E-03	4.00E+02	9.24E+97	2.68E-04	2.68E-04	NA	2.0E-01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	442.2	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	3.03E-04	3.03E-04	NA	3.0E+01
Heptachlor	76448	7.88E+08	442.2	1.79E-04	1.56E-03	1.81E-03	0.00E+00	1.63E-03	442.2	15	1.00E+00	0.10	8.33E+01	1.56E-03	4.00E+02	#NUM!	5.52E-05	5.52E-05	1.3E-03	NA
Hexachlorocyclopentadiene	77474	7.88E+08	442.2	1.79E-04	2.24E-03	2.60E-03	0.00E+00	2.35E-03	442.2	15	1.00E+00	0.10	8.33E+01	2.24E-03	4.00E+02	#NUM!	7.79E-05	7.79E-05	NA	2.0E-04
Isobutanol	78831	7.88E+08	442.2	1.79E-04	1.20E-02	1.39E-02	0.00E+00	1.26E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.20E-02	4.00E+02	3.68E+75	3.27E-04	3.27E-04	NA	NA
1,2-Dichloropropane	78875	7.88E+08	442.2	1.79E-04	1.09E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	3.04E-04	3.04E-04	1.0E-05	4.0E-03
Methylethylketone (2-butanone)	78933	7.88E+08	442.2	1.79E-04	1.12E-02	1.31E-02	0.00E+00	1.18E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.12E-02	4.00E+02	3.84E+80	3.12E-04	3.12E-04	NA	5.0E+00
1,1,2-Trichloroethane	79005	7.88E+08	442.2	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.14E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.31E+83	3.03E-04	3.03E-04	1.6E-05	NA
Trichloroethylene	79016	7.88E+08	442.2	1.79E-04	1.10E-02	1.28E-02	0.00E+00	1.15E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.10E-02	4.00E+02	2.92E+82	3.06E-04	3.06E-04	2.0E-06	NA
Methyl acetate	79209	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.26E+62	3.74E-04	3.74E-04	NA	NA
1,1,2,2-Tetrachloroethane	79345	7.88E+08	442.2	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.04E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.61E+91	2.82E-04	2.82E-04	5.8E-05	NA
2-Nitropropane	79469	7.88E+08	442.2	1.79E-04	1.28E-02	1.49E-02	0.00E+00	1.35E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.28E-02	4.00E+02	3.68E+70	3.43E-04	3.43E-04	2.7E-03	2.0E-02
Methylmethacrylate	80626	7.88E+08	442.2	1.79E-04	1.07E-02	1.24E-02	0.00E+00	1.12E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.07E-02	4.00E+02	3.98E+84	3.00E-04	3.00E-04	NA	7.0E-01
Acenaphthene	83329	7.88E+08	442.2	1.79E-04	5.85E-03	6.81E-03	0.00E+00	6.15E-03	442.2	15	1.00E+00	0.10	8.33E+01	5.85E-03	4.00E+02	4.93E+154	1.85E-04	1.85E-04	NA	NA
Fluorene	86737	7.88E+08	442.2	1.79E-04	5.05E-03	5.87E-03	0.00E+00	5.30E-03	442.2	15	1.00E+00	0.10	8.33E+01	5.05E-03	4.00E+02	1.97E+179	1.63E-04	1.63E-04	NA	NA
Hexachloro-1,3-butadiene	87683	7.88E+08	442.2	1.79E-04	7.79E-03	9.07E-03	0.00E+00	8.19E-03	442.2	15	1.00E+00	0.10	8.33E+01	7.79E-03	4.00E+02	1.34E+116	2.34E-04	2.34E-04	2.2E-05	NA
o-Nitrotoluene	88722	7.88E+08	442.2	1.79E-04	8.18E-03	9.50E-03	0.00E+00	8.59E-03	442.2	15	1.00E+00	0.10	8.33E+01	8.18E-03	4.00E+02	4.12E+110	2.44E-04	2.44E-04	NA	NA
Naphthalene	91203	7.88E+08	442.2	1.79E-04	8.19E-03	9.54E-03	0.00E+00													

TABLE G-5F
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Stratum A Soil	Stratum B Soil	Stratum C Soil	Stratum A Effective	Stratum A Soil	Stratum A Soil	Stratum A Soil	Floor-wall Seam Perimeter X _{crack} (cm)	Soil Gas Concentration (mg/m ³)	Building Ventilation Rate Q _{building} (cm ³ /s)	Enclosed Space Below Grade A _B (cm ²)	Crack-to-Total Area Ratio h (unitless)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature	Henry's Law Constant at Ave. Soil Temperature
				Air-filled Porosity q _a ^A (cm ³ /cm ³)	Air-filled Porosity q _a ^B (cm ³ /cm ³)	Air-filled Porosity q _a ^C (cm ³ /cm ³)	Total Fluid Saturation S _{fb} (cm ³ /cm ³)	Intrinsic Permeability k _i (cm ²)	Relative air Permeability k _{rg} (cm ²)	Effective Vapor Permeability k _v (cm ²)								H _{TS} (atm-m ³ /mol)	H _{TS} (unitless)
o-Xylene	95476	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,268	4.34E-03	1.79E-01
1,2-Dichlorobenzene	95501	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,566	1.55E-03	6.42E-02
2-Chlorophenol	95578	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,599	3.20E-04	1.32E-02
1,2,4-Trimethylbenzene	95636	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,541	5.04E-03	2.08E-01
1,2,3-Trichloropropane	96184	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,942	3.38E-04	1.40E-02
Methyl acrylate	96333	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,596	1.62E-04	6.67E-03
Ethylmethacrylate	97632	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,911	6.73E-04	2.78E-02
tert-Butylbenzene	98066	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,458	1.01E-02	4.17E-01
Cumene	98828	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,475	1.18E-02	4.87E-01
Acetophenone	98862	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	14,560	8.31E-06	3.43E-04
Nitrobenzene	98953	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,236	1.91E-05	7.88E-04
Ethylbenzene	100414	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,017	6.62E-03	2.73E-01
Styrene	100425	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,317	2.30E-03	9.49E-02
Benzylchloride	100447	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,626	3.45E-04	1.42E-02
Benzaldehyde	100527	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,984	1.87E-05	7.71E-04
n-Propylbenzene	103651	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,212	8.79E-03	3.63E-01
n-Butylbenzene	104518	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,696	1.07E-02	4.43E-01
p-Xylene	106423	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,107	6.42E-03	2.65E-01
1,4-Dichlorobenzene	106467	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,119	1.98E-03	8.17E-02
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,051	6.24E-04	2.58E-02
1,3-Butadiene	106990	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,030	6.73E-02	2.78E+00
Acrolein	107028	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,120	1.08E-04	4.45E-03
1,2-Dichloroethane	107062	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,390	8.46E-04	3.49E-02
Acrylonitrile	107131	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,678	8.85E-05	3.66E-03
Vinyl acetate	108054	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,588	4.40E-04	1.82E-02
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,700	1.17E-04	4.81E-03
m-Xylene	108383	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03	2.54E-01
m,p-Xylene	108383/1	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03	2.54E-01
1,3,5-Trimethylbenzene	108678	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,521	4.82E-03	1.99E-01
Methylcyclohexane	108872	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,451	8.90E-02	3.67E+00
Toluene	108883	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,023	5.67E-03	2.34E-01
Chlorobenzene	108907	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,681	3.13E-03	1.29E-01
1-Chlorobutane	109693	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,983	1.47E-02	6.09E-01
Furan	110009	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,588	4.81E-03	1.99E-01
Hexane	110543	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,576	1.46E+00	6.03E+01
Cyclohexane	110827	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,737	7.06E+00	2.91E+02
Bis(2-chloroethyl)ether	111444	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,431	1.43E-05	5.89E-04
Endosulfan	115297	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,088	7.92E-06	3.27E-04
Hexachlorobenzene	118741	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	19,852	9.37E-04	3.87E-02
1,2,4-Trichlorobenzene	120821	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,092	1.13E-03	4.67E-02
Crotonaldehyde (2-butenal)	123739	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10	1.95E-05	8.04E-04
Chlorodibromomethane	124481	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,708	6.96E-04	2.87E-02
Methacrylonitrile	126987	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,508	2.13E-04	8.79E-03
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,594	1.03E-02	4.27E-01
Tetrachloroethylene	127184	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,431	1.56E-02	6.45E-01
Pyrene	129000	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,543	7.71E-06	3.18E-04
Dibenzofuran	132649	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	86,878	2.83E-06	1.17E-04
sec-Butylbenzene	135988	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	106,848	2.22E-03	9.15E-02
Ethylacetate	141786	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,478	1.19E-04	4.91E-03
cis-1,2-Dichloroethylene	156592	7.88E+08	442.2	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,612	3.57E-03	1.47E-01
trans-1,2-Dichloroethylene	156605	7.88E+08	442.2																

TABLE G-5F
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Vapor Viscosity at Ave. Soil Temperature m _{TS} (g/cm-s)	A Effective Diffusion Coefficient D ^{eff} _A (cm ² /s)	B Effective Diffusion Coefficient D ^{eff} _B (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _C (cm ² /s)	Overall Effective Diffusion Coefficient D ^{eff} _T (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Concentration C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate into Building Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient D ^{crack} (cm ² /s)	Area of Crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pe ¹) (unitless)	Source Indoor Attenuation Coefficient a (unitless)	Infinite Source Building Conc. C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Conc. RFC (mg/m ³)
o-Xylene	95476	7.88E+08	442.2	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.27E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.61E+94	3.29E-04	3.29E-04	NA	7.0E-01
1,2-Dichlorobenzene	95501	7.88E+08	442.2	1.79E-04	9.58E-03	1.12E-02	0.00E+00	1.01E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	2.76E-04	2.76E-04	NA	2.0E-01
2-Chlorophenol	95578	7.88E+08	442.2	1.79E-04	6.96E-03	8.10E-03	0.00E+00	7.31E-03	442.2	15	1.00E+00	0.10	8.33E+01	6.96E-03	4.00E+02	1.04E+130	2.14E-04	2.14E-04	NA	NA
1,2,4-Trimethylbenzene	95636	7.88E+08	442.2	1.79E-04	8.42E-03	9.80E-03	0.00E+00	8.85E-03	442.2	15	1.00E+00	0.10	8.33E+01	8.42E-03	4.00E+02	3.19E+107	2.49E-04	2.49E-04	NA	7.0E-03
1,2,3-Trichloropropane	96184	7.88E+08	442.2	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.04E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.63E+91	2.82E-04	2.82E-04	NA	NA
Methyl acrylate	96333	7.88E+08	442.2	1.79E-04	1.36E-02	1.58E-02	0.00E+00	1.42E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.36E-02	4.00E+02	5.50E+66	3.57E-04	3.57E-04	NA	NA
Ethylmethacrylate	97632	7.88E+08	442.2	1.79E-04	9.07E-03	1.06E-02	0.00E+00	9.53E-03	442.2	15	1.00E+00	0.10	8.33E+01	9.07E-03	4.00E+02	5.78E+99	2.65E-04	2.65E-04	NA	NA
tert-Butylbenzene	98066	7.88E+08	442.2	1.79E-04	7.85E-03	9.13E-03	0.00E+00	8.25E-03	442.2	15	1.00E+00	0.10	8.33E+01	7.85E-03	4.00E+02	2.02E+115	2.36E-04	2.36E-04	NA	NA
Cumene	98828	7.88E+08	442.2	1.79E-04	9.03E-03	1.05E-02	0.00E+00	9.49E-03	442.2	15	1.00E+00	0.10	8.33E+01	9.03E-03	4.00E+02	1.68E+100	2.64E-04	2.64E-04	NA	4.0E-01
Acetophenone	98862	7.88E+08	442.2	1.79E-04	8.36E-03	9.71E-03	0.00E+00	8.78E-03	442.2	15	1.00E+00	0.10	8.33E+01	8.36E-03	4.00E+02	1.49E+108	2.48E-04	2.48E-04	NA	NA
Nitrobenzene	98953	7.88E+08	442.2	1.79E-04	1.06E-02	1.23E-02	0.00E+00	1.11E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.06E-02	4.00E+02	4.08E+85	2.98E-04	2.98E-04	NA	2.0E-03
Ethylbenzene	100414	7.88E+08	442.2	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.09E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.29E+86	2.94E-04	2.94E-04	2.5E-06	1.0E+00
Styrene	100425	7.88E+08	442.2	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.04E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.70E+91	2.82E-04	2.82E-04	NA	1.0E+00
Benzylchloride	100447	7.88E+08	442.2	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.09E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.20E+86	2.94E-04	2.94E-04	NA	1.0E-03
Benzaldehyde	100527	7.88E+08	442.2	1.79E-04	1.00E-02	1.17E-02	0.00E+00	1.05E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.00E-02	4.00E+02	1.68E+90	2.86E-04	2.86E-04	NA	NA
n-Propylbenzene	103651	7.88E+08	442.2	1.79E-04	8.35E-03	9.72E-03	0.00E+00	8.77E-03	442.2	15	1.00E+00	0.10	8.33E+01	8.35E-03	4.00E+02	2.50E+108	2.48E-04	2.48E-04	NA	NA
n-Butylbenzene	104518	7.88E+08	442.2	1.79E-04	7.92E-03	9.21E-03	0.00E+00	8.32E-03	442.2	15	1.00E+00	0.10	8.33E+01	7.92E-03	4.00E+02	1.96E+114	2.37E-04	2.37E-04	NA	NA
p-Xylene	106423	7.88E+08	442.2	1.79E-04	1.07E-02	1.24E-02	0.00E+00	1.12E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.07E-02	4.00E+02	5.21E+84	3.00E-04	3.00E-04	NA	7.0E-01
1,4-Dichlorobenzene	106467	7.88E+08	442.2	1.79E-04	9.58E-03	1.12E-02	0.00E+00	1.01E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	2.76E-04	2.76E-04	1.1E-05	8.0E-01
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	442.2	1.79E-04	3.01E-03	3.51E-03	0.00E+00	3.17E-03	442.2	15	1.00E+00	0.10	8.33E+01	3.01E-03	4.00E+02	1.45E+300	1.03E-04	1.03E-04	6.0E-04	9.0E-03
1,3-Butadiene	106990	7.88E+08	442.2	1.79E-04	3.46E-02	4.03E-02	0.00E+00	3.63E-02	442.2	15	1.00E+00	0.10	8.33E+01	3.46E-02	4.00E+02	1.46E+26	6.28E-04	6.28E-04	3.0E-05	2.0E-03
Acrolein	107028	7.88E+08	442.2	1.79E-04	1.46E-02	1.70E-02	0.00E+00	1.53E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.46E-02	4.00E+02	1.07E+62	3.76E-04	3.76E-04	NA	2.0E-05
1,2-Dichloroethane	107062	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.37E+62	3.74E-04	3.74E-04	2.6E-05	2.4E+00
Acrylonitrile	107131	7.88E+08	442.2	1.79E-04	1.69E-02	1.97E-02	0.00E+00	1.78E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.69E-02	4.00E+02	2.43E+53	4.17E-04	4.17E-04	6.8E-05	2.0E-03
Vinyl acetate	108054	7.88E+08	442.2	1.79E-04	1.18E-02	1.37E-02	0.00E+00	1.24E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.18E-02	4.00E+02	4.36E+76	3.23E-04	3.23E-04	NA	2.0E-01
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	442.2	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.09E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.02E+86	2.94E-04	2.94E-04	NA	3.0E+00
m-Xylene	108383	7.88E+08	442.2	1.79E-04	9.72E-03	1.13E-02	0.00E+00	1.02E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	2.79E-04	2.79E-04	NA	7.0E-01
m,p-Xylene	108383/1	7.88E+08	442.2	1.79E-04	9.72E-03	1.13E-02	0.00E+00	1.02E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	2.79E-04	2.79E-04	NA	NA
1,3,5-Trimethylbenzene	108678	7.88E+08	442.2	1.79E-04	8.36E-03	9.73E-03	0.00E+00	8.79E-03	442.2	15	1.00E+00	0.10	8.33E+01	8.36E-03	4.00E+02	1.65E+108	2.48E-04	2.48E-04	NA	6.0E-03
Methylcyclohexane	108872	7.88E+08	442.2	1.79E-04	1.02E-02	1.19E-02	0.00E+00	1.07E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.02E-02	4.00E+02	4.32E+88	2.90E-04	2.90E-04	NA	NA
Toluene	108883	7.88E+08	442.2	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.27E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	3.29E-04	3.29E-04	NA	5.0E+00
Chlorobenzene	108907	7.88E+08	442.2	1.79E-04	1.01E-02	1.18E-02	0.00E+00	1.07E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.01E-02	4.00E+02	1.75E+89	2.88E-04	2.88E-04	NA	5.0E-02
1-Chlorobutane	109693	7.88E+08	442.2	1.79E-04	1.15E-02	1.34E-02	0.00E+00	1.21E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.15E-02	4.00E+02	7.43E+78	3.17E-04	3.17E-04	NA	NA
Furan	110009	7.88E+08	442.2	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.52E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	3.74E-04	3.74E-04	NA	NA
Hexane	110543	7.88E+08	442.2	1.79E-04	2.78E-02	3.23E-02	0.00E+00	2.92E-02	442.2	15	1.00E+00	0.10	8.33E+01	2.78E-02	4.00E+02	3.75E+32	5.61E-04	5.61E-04	NA	7.0E-01
Cyclohexane	110827	7.88E+08	442.2	1.79E-04	1.11E-02	1.29E-02	0.00E+00	1.17E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.11E-02	4.00E+02	2.72E+81	3.09E-04	3.09E-04	NA	6.0E+00
Bis(2-chloroethyl)ether	111444	7.88E+08	442.2	1.79E-04	9.63E-03	1.12E-02	0.00E+00	1.01E-02	442.2	15	1.00E+00	0.10	8.33E+01	9.63E-03	4.00E+02	9.76E+93	2.77E-04	2.77E-04	3.3E-04	NA
Endosulfan	115297	7.88E+08	442.2	1.79E-04	1.61E-03	1.87E-03	0.00E+00	1.69E-03	442.2	15	1.00E+00	0.10	8.33E+01	1.61E-03	4.00E+02	#NUM!	5.71E-05	5.71E-05	NA	NA
Hexachlorobenzene	118741	7.88E+08	442.2	1.79E-04	7.53E-03	8.76E-03	0.00E+00	7.91E-03	442.2	15	1.00E+00	0.10	8.33E+01	7.53E-03	4.00E+02	1.57E+120	2.28E-04	2.28E-04	4.6E-04	NA
1,2,4-Trichlorobenzene	120821	7.88E+08	442.2	1.79E-04	4.17E-03	4.85E-03	0.00E+00	4.38E-03	442.2	15	1.00E+00	0.10	8.33E+01	4.17E-03	4.00E+02	1.40E+217	1.38E-04	1.38E-04	NA	4.0E-03
Crotonaldehyde (2-butenal)	123739	7.88E+08	442.2	1.79E-04	1.33E-02	1.55E-02	0.00E+00	1.40E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.33E-02	4.00E+02	1.15E+68	3.52E-04	3.52E-04	NA	NA
Chlorodibromomethane	124481	7.88E+08	442.2	1.79E-04	2.72E-03	3.17E-03	0.00E+00	2.86E-03	442.2	15	1.00E+00	0.10	8.33E+01	2.72E-03	4.00E+02	#NUM!	9.35E-05	9.35E-05	NA	NA
Methacrylonitrile	126987	7.88E+08	442.2	1.79E-04	1.56E-02	1.82E-02	0.00E+00	1.64E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.56E-02	4.00E+02	1.01E+58	3.94E-04	3.94E-04	NA	7.0E-04
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	442.2	1.79E-04	1.19E-02	1.39E-02	0.00E+00	1.25E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.19E-02	4.00E+02	8.49E+75	3.26E-04	3.26E-04	NA	7.0E-03
Tetrachloroethylene	127184	7.88E+08	442.2	1.79E-04	1.00E-02	1.16E-02	0.00E+00	1.05E-02	442.2	15	1.00E+00	0.10	8.33E+01	1.00E-02	4.00E+02	3.04E+90	2.85E-04	2.85E-04	5.9E-06	2.7E-01
Pyrene	129000	7.88E+08	442.2	1.79E-04	3.81E-03	4.41E-03	0.00E+00	3.99E-03	442.2	15	1.00E+00	0.10	8.33E+01	3.81E-03	4.00E+02	5.60E+237	1.27E-04	1.27E-04	NA	NA
Dibenzofuran	132649	7.88E+08	442.2	1.79E-04	3.37E-03	3.87E-03	0.00E+00	3.53E-03	442.2	15	1.00E+00	0.10	8.33E+01	3.37E-03	4.00E+02	3.85E+268	1.13E-04	1.13E-04	NA	NA
sec-Butylbenzene	135988	7.88E+08	442.2	1.79E-04	7.92E-03															

TABLE G-5G
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	Noncarcinogenic Risk-based Screening Level (µg/L)
Carbon tetrachloride	56235	9.0E-01	9.1E+02
Chlordane	57749	7.0E-01	1.8E+01
gamma-HCH (Lindane)	58899	1.9E-01	NA
Ethyl ether	60297	NA	NA
Dieldrin	60571	1.4E-02	NA
Acetone	67641	NA	1.1E+05
Chloroform	67663	4.8E-01	3.8E+02
Hexachloroethane	67721	8.0E+01	NA
Benzene	71432	1.6E+00	1.3E+02
1,1,1-Trichloroethane	71556	NA	2.4E+04
Methoxychlor	72435	NA	NA
DDE	72559	NA	NA
Methyl bromide	74839	NA	2.5E+01
Methyl chloride (chloromethane)	74873	5.3E+00	3.1E+02
Hydrogen cyanide	74908	NA	7.9E+00
Methylene bromide	74953	NA	NA
Chloroethane (ethyl chloride)	75003	NA	2.2E+04
Vinyl chloride (chloroethene)	75014	2.5E+00	3.9E+02
Acetonitrile	75058	NA	2.0E+02
Acetaldehyde	75070	4.4E+00	3.1E+01
Methylene chloride	75092	2.4E+01	4.4E+03
Carbon disulfide	75150	NA	2.7E+03
Ethylene oxide	75218	1.2E-01	NA
Bromoform	75252	5.1E+01	NA
Bromodichloromethane	75274	NA	NA
2-Chloropropane	75296	NA	NA
1,1-Dichloroethane	75343	8.7E+00	NA
1,1-Dichloroethylene	75354	NA	8.7E+02
Chlorodifluoromethane	75456	NA	2.0E+05
Trichlorofluoromethane	75694	NA	3.1E+03
Dichlorodifluoromethane	75718	NA	1.1E+03
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	1.4E+05
Heptachlor	76448	5.7E-02	NA
Hexachlorocyclopentadiene	77474	NA	3.8E+00
Isobutanol	78831	NA	NA
1,2-Dichloropropane	78875	1.3E+00	1.9E+01
Methylethylketone (2-butanone)	78933	NA	2.3E+04
1,1,2-Trichloroethane	79005	8.4E-01	NA
Trichloroethylene	79016	6.7E+00	NA
Methyl acetate	79209	NA	NA
1,1,2,2-Tetrachloroethane	79345	2.5E-01	NA
2-Nitropropane	79469	4.4E-03	8.5E+01
Methylmethacrylate	80626	NA	3.4E+03
Acenaphthene	83329	NA	NA
Fluorene	86737	NA	NA
Hexachloro-1,3-butadiene	87683	7.9E-01	NA
o-Nitrotoluene	88722	NA	NA

TABLE G-5G
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	Noncarcinogenic Risk-based Screening Level (µg/L)
Naphthalene	91203	4.9E-01	1.8E+01
2-Methylnaphthalene	91576	NA	NA
Biphenyl	92524	NA	NA
o-Xylene	95476	NA	3.1E+03
1,2-Dichlorobenzene	95501	NA	1.1E+03
2-Chlorophenol	95578	NA	NA
1,2,4-Trimethylbenzene	95636	NA	4.1E+01
1,2,3-Trichloropropane	96184	NA	NA
Methyl acrylate	96333	NA	NA
Ethylmethacrylate	97632	NA	NA
tert-Butylbenzene	98066	NA	NA
Cumene	98828	NA	2.2E+03
Acetophenone	98862	NA	NA
Nitrobenzene	98953	NA	9.8E+00
Ethylbenzene	100414	5.6E+00	5.0E+03
Styrene	100425	NA	5.2E+03
Benzylchloride	100447	NA	5.0E+00
Benzaldehyde	100527	NA	NA
n-Propylbenzene	103651	NA	NA
n-Butylbenzene	104518	NA	NA
p-Xylene	106423	NA	3.4E+03
1,4-Dichlorobenzene	106467	1.3E+00	4.2E+03
1,2-Dibromoethane (ethylene dibromide)	106934	6.6E-02	1.3E+02
1,3-Butadiene	106990	2.2E-01	4.6E+00
Acrolein	107028	NA	7.8E-02
1,2-Dichloroethane	107062	4.2E-01	9.4E+03
Acrylonitrile	107131	1.4E-01	7.0E+00
Vinyl acetate	108054	NA	9.0E+02
Methylisobutylketone (4-methyl-2-pentanone)	108101	NA	1.5E+04
m-Xylene	108383	NA	3.7E+03
m,p-Xylene	108383/1	NA	NA
1,3,5-Trimethylbenzene	108678	NA	3.5E+01
Methylcyclohexane	108872	NA	NA
Toluene	108883	NA	2.2E+04
Chlorobenzene	108907	NA	2.5E+02
1-Chlorobutane	109693	NA	NA
Furan	110009	NA	NA
Hexane	110543	NA	1.8E+03
Cyclohexane	110827	NA	2.8E+04
Bis(2-chloroethyl)ether	111444	4.5E-02	NA
Endosulfan	115297	NA	NA
Hexachlorobenzene	118741	3.9E-02	NA
1,2,4-Trichlorobenzene	120821	NA	4.2E+01
Crotonaldehyde (2-butenal)	123739	NA	NA
Chlorodibromomethane	124481	NA	NA
Methacrylonitrile	126987	NA	2.6E+00
2-Chloro-1,3-butadiene (chloroprene)	126998	NA	3.1E+01

TABLE G-5G
 Johnson-Ettinger Modeling—Soil Gas (15 feet) Risk-based Screening Levels
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	Noncarcinogenic Risk-based Screening Level (µg/L)
Tetrachloroethylene	127184	2.4E+00	1.4E+03
Pyrene	129000	NA	NA
Dibenzofuran	132649	NA	NA
sec-Butylbenzene	135988	NA	NA
Ethylacetate	141786	NA	NA
cis-1,2-Dichloroethylene	156592	NA	NA
trans-1,2-Dichloroethylene	156605	NA	3.1E+02
Benzo(b)fluoranthene	205992	3.5E-01	NA
Chrysene	218019	3.2E+00	NA
Aldrin	309002	1.3E-02	NA
alpha-HCH (alpha-BHC)	319846	3.2E-02	NA
1,3-Dichlorobenzene	541731	NA	NA
1,3-Dichloropropene	542756	4.0E+00	1.1E+02
Bromoethene (Bromomethane used as Surrogate)	593602	NA	2.5E+01
1,1,1,2-Tetrachloroethane	630206	2.0E+00	NA
MTBE	1634044	4.3E+01	1.2E+04
Mercury (elemental)	7439976	NA	3.1E+00

Notes:

µg/L = microgram per liter

NA = not available

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Reset to
 Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.00E+00			Benzene

MORE
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ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s ($^{\circ}\text{C}$)	ENTER Totals must add up to value of L_s (cell F24)			ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
200	457	22	Thickness of soil stratum A, h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)	LS		

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	LS	1.62	0.39	0.076

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}\cdot\text{s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	366	0.1	1	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

NOTE:
 Sample Depth = 15 feet

TABLE G-5I
 Johnson-Ettinger Modeling—Soil Gas (15 feet / Basement Scenario) InterCalcs Worksheet
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Exposure duration, t (sec)	Source-building separation, L _T (cm)	Stratum A soil air-filled porosity, q _a ^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, q _a ^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, q _a ^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S _{te} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k _i (cm ²)	Stratum A soil relative air permeability, k _{rg} (cm ²)	Stratum A soil effective vapor permeability, k _v (cm ²)	Floor-wall seam perimeter, X _{crack} (cm)	Soil gas conc. (mg/m ³)	Bldg. ventilation rate, Q _{building} (cm ³ /s)
7.88E+08	257	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	1.02E+05
Area of enclosed space below grade, A _B (cm ²)	Crack-to-total area ratio, h (unitless)	Crack depth below grade, Z _{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, DH _{v,TS} (cal/mol)	Henry's law constant at ave. soil temperature, H _{TS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, H' _{TS} (unitless)	Vapor viscosity at ave. soil temperature, m _{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D ^{eff} _A (cm ² /s)	Stratum B effective diffusion coefficient, D ^{eff} _B (cm ² /s)	Stratum C effective diffusion coefficient, D ^{eff} _C (cm ² /s)	Total overall effective diffusion coefficient, D ^{eff} _T (cm ² /s)	Diffusion path length, L _d (cm)
1.80E+06	2.22E-04	200	7,998	4.83E-03	1.99E-01	1.79E-04	1.22E-02	1.42E-02	0.00E+00	1.33E-02	257
Convection path length, L _p (cm)	Source vapor conc., C _{source} (mg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{soil} (cm ³ /s)	Crack effective diffusion coefficient, D ^{crack} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe ^f) (unitless)	Infinite source indoor attenuation coefficient, a (unitless)	Infinite source bldg. conc., C _{building} (mg/m ³)	Unit risk factor, URF (mg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	
A	1.00E+00	0.10	8.33E+01	1.22E-02	4.00E+02	1.07E+74	4.33E-04	4.33E-04	7.8E-06	3.0E-02	

END

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Soil Gas Concentration Data

ENTER Depth below grade to bottom of enclosed 15 L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_s (°C)	ENTER Totals must add up to value of L_s (cell F24)			ENTER Soil stratum A SCS soil type	ENTER User-defined stratum A soil vapor 0.00000001 k_v (cm ²)
			ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	OR	
15	914.4	22	305	610	0	LS	

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm ³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm ³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	LS	1.62	0.39	0.076

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR 5.00E+00 Q_{soil} (L/m)
10	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

TABLE G-5K
 Johnson-Ettinger Modeling—Soil Gas (30 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Stratum A Soil Air-filled Porosity q _a ^A (cm ³ /cm ³)	Stratum B Soil Air-filled Porosity q _a ^B (cm ³ /cm ³)	Stratum C Soil Air-filled Porosity q _a ^C (cm ³ /cm ³)	Stratum A Effective Total Fluid Saturation S ₁₀ (cm ³ /cm ³)	Stratum A Intrinsic Permeability k _i (cm ²)	Stratum A Relative Air Permeability k _{rg} (cm ²)	Stratum A Effective Vapor Permeability k _v (cm ²)	Floor-wall Seam Perimeter X _{crack} (cm)	Soil Gas Conc. (mg/m ³)	Building Ventilation Rate Q _{building} (cm ³ /s)	Enclosed Space Below grade A _B (cm ²)	Crack-to-total Area Ratio h (unitless)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature H _{TS} (atm-m ³ /mol)	Henry's Law Constant at Ave. Soil Temperature H' _{TS} (unitless)
Carbon tetrachloride	56235	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,736	2.66E-02	1.10E+00
Chlordane	57749	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	19,481	3.47E-05	1.43E-03
gamma-HCH (Lindane)	58899	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,883	9.76E-06	4.03E-04
Ethyl ether	60297	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,517	2.94E-02	1.22E+00
Dieldrin	60571	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	24,298	9.93E-06	4.10E-04
Acetone	67641	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,410	3.41E-05	1.41E-03
Chloroform	67663	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,429	3.22E-03	1.33E-01
Hexachloroethane	67721	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,551	3.18E-03	1.31E-01
Benzene	71432	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,998	4.83E-03	1.99E-01
1,1,1-Trichloroethane	71556	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,754	1.50E-02	6.20E-01
Methoxychlor	72435	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	24,411	1.04E-05	4.28E-04
DDE	72559	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	21,926	1.44E-05	5.94E-04
Methyl bromide	74839	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,529	5.66E-03	2.34E-01
Methyl chloride (chloromethane)	74873	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	4,603	8.13E-03	3.36E-01
Hydrogen cyanide	74908	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,736	1.18E-04	4.88E-03
Methylene bromide	74953	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,752	7.39E-04	3.05E-02
Chloroethane (ethyl chloride)	75003	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,764	7.97E-03	3.29E-01
Vinyl chloride (chloroethene)	75014	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	4,864	2.48E-02	1.02E+00
Acetonitrile	75058	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,850	3.02E-05	1.25E-03
Acetaldehyde	75070	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,131	7.08E-05	2.93E-03
Methylene chloride	75092	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,906	1.94E-03	8.01E-02
Carbon disulfide	75150	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,588	2.70E-02	1.11E+00
Ethylene oxide	75218	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,975	5.00E-04	2.07E-02
Bromoform	75252	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,764	4.89E-04	2.02E-02
Bromodichloromethane	75274	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,546	1.38E-03	5.69E-02
2-Chloropropane	75296	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,453	1.29E-02	5.34E-01
1,1-Dichloroethane	75343	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,317	4.94E-03	2.04E-01
1,1-Dichloroethylene	75354	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,313	2.34E-02	9.65E-01
Chlorodifluoromethane	75456	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	3,903	2.52E-02	1.04E+00
Trichlorofluoromethane	75694	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,018	8.73E-02	3.60E+00
Dichlorodifluoromethane	75718	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,025	2.98E-01	1.23E+01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,814	4.27E-01	1.76E+01
Heptachlor	76448	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	18,199	1.08E+00	4.46E+01
Hexachlorocyclopentadiene	77474	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	14,139	2.11E-02	8.72E-01
Isobutanol	78831	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,907	9.43E-06	3.89E-04
1,2-Dichloropropane	78875	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,500	2.41E-03	9.97E-02
Methylethylketone (2-butanone)	78933	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,269	4.84E-05	2.00E-03
1,1,2-Trichloroethane	79005	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,441	7.75E-04	3.20E-02
Trichloroethylene	79016	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,407	8.89E-03	3.67E-01
Methyl acetate	79209	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,751	1.03E-04	4.26E-03
1,1,2,2-Tetrachloroethane	79345	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,420	2.88E-04	1.19E-02
2-Nitropropane	79469	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,727	1.04E-04	4.29E-03
Methylmethacrylate	80626	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,183	2.82E-04	1.17E-02
Acenaphthene	83329	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	15,976	1.18E-04	4.85E-03
Fluorene	86737	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	16,112	4.81E-05	1.99E-03
Hexachloro-1,3-butadiene	87683	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,587	6.55E-03	2.70E-01
o-Nitrotoluene	88722	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	15,710	9.52E-06	3.93E-04
Naphthalene	91203	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,789	3.87E-04	1.60E-02
2-Methylnaphthalene	91576	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	16,083	3.92E-04	1.62E-02
Biphenyl	92524	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,901	2.36E-04	9.73E-03

TABLE G-5K
 Johnson-Ettinger Modeling—Soil Gas (30 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Vapor Viscosity at Ave. Soil Temperature m _{TS} (g/cm-s)	A Effective Diffusion Coefficient D ^{eff} _A (cm ² /s)	B Effective Diffusion Coefficient D ^{eff} _B (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _C (cm ² /s)	Overall Effective Diffusion Coefficient D ^{eff} _T (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Conc. C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient D ^{crack} (cm ² /s)	Area of Crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pe)	Source Indoor Attenuation Coefficient a (unitless)	Infinite Source Building Conc. C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Conc. RfC (mg/m ³)
Carbon tetrachloride	56235	7.88E+08	899.4	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.78E-04	1.78E-04	1.5E-05	1.9E-01
Chlordane	57749	7.88E+08	899.4	1.79E-04	1.64E-03	1.91E-03	0.00E+00	1.81E-03	899.4	15	1.00E+00	0.10	8.33E+01	1.64E-03	4.00E+02	#NUM!	3.08E-05	3.08E-05	1.0E-04	7.0E-04
gamma-HCH (Lindane)	58899	7.88E+08	899.4	1.79E-04	1.99E-03	2.30E-03	0.00E+00	2.19E-03	899.4	15	1.00E+00	0.10	8.33E+01	1.99E-03	4.00E+02	#NUM!	3.70E-05	3.70E-05	3.1E-04	NA
Ethyl ether	60297	7.88E+08	899.4	1.79E-04	1.09E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	1.78E-04	1.78E-04	NA	NA
Dieldrin	60571	7.88E+08	899.4	1.79E-04	1.75E-03	2.03E-03	0.00E+00	1.93E-03	899.4	15	1.00E+00	0.10	8.33E+01	1.75E-03	4.00E+02	#NUM!	3.26E-05	3.26E-05	4.6E-03	NA
Acetone	67641	7.88E+08	899.4	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.90E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.22E+52	2.61E-04	2.61E-04	NA	3.1E+01
Chloroform	67663	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	2.27E-04	2.27E-04	2.3E-05	9.8E-02
Hexachloroethane	67721	7.88E+08	899.4	1.79E-04	3.47E-04	4.04E-04	0.00E+00	3.84E-04	899.4	15	1.00E+00	0.10	8.33E+01	3.47E-04	4.00E+02	#NUM!	6.64E-06	6.64E-06	4.0E-06	NA
Benzene	71432	7.88E+08	899.4	1.79E-04	1.22E-02	1.42E-02	0.00E+00	1.35E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.22E-02	4.00E+02	1.07E+74	1.97E-04	1.97E-04	7.8E-06	3.0E-02
1,1,1-Trichloroethane	71566	7.88E+08	899.4	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.78E-04	1.78E-04	NA	5.0E+00
Methoxychlor	72435	7.88E+08	899.4	1.79E-04	2.18E-03	2.53E-03	0.00E+00	2.40E-03	899.4	15	1.00E+00	0.10	8.33E+01	2.18E-03	4.00E+02	#NUM!	4.04E-05	4.04E-05	NA	NA
DDE	72559	7.88E+08	899.4	1.79E-04	2.01E-03	2.33E-03	0.00E+00	2.22E-03	899.4	15	1.00E+00	0.10	8.33E+01	2.01E-03	4.00E+02	#NUM!	3.74E-05	3.74E-05	NA	NA
Methyl bromide	74839	7.88E+08	899.4	1.79E-04	1.01E-02	1.18E-02	0.00E+00	1.12E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.01E-02	4.00E+02	3.07E+89	1.68E-04	1.68E-04	NA	5.0E-03
Methyl chloride (chloromethane)	74873	7.88E+08	899.4	1.79E-04	1.75E-02	2.04E-02	0.00E+00	1.93E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.75E-02	4.00E+02	5.06E+51	2.64E-04	2.64E-04	1.8E-06	9.0E-02
Hydrogen cyanide	74908	7.88E+08	899.4	1.79E-04	2.69E-02	3.13E-02	0.00E+00	2.97E-02	899.4	15	1.00E+00	0.10	8.33E+01	2.69E-02	4.00E+02	4.77E+33	3.64E-04	3.64E-04	NA	3.0E-03
Methylene bromide	74953	7.88E+08	899.4	1.79E-04	5.97E-03	6.95E-03	0.00E+00	6.60E-03	899.4	15	1.00E+00	0.10	8.33E+01	5.97E-03	4.00E+02	3.14E+151	1.05E-04	1.05E-04	NA	NA
Chloroethane (ethyl chloride)	75003	7.88E+08	899.4	1.79E-04	3.76E-02	4.38E-02	0.00E+00	4.16E-02	899.4	15	1.00E+00	0.10	8.33E+01	3.76E-02	4.00E+02	1.10E+24	4.55E-04	4.55E-04	NA	1.0E+01
Vinyl chloride (chloroethene)	75014	7.88E+08	899.4	1.79E-04	1.47E-02	1.71E-02	0.00E+00	1.63E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.47E-02	4.00E+02	2.88E+61	2.30E-04	2.30E-04	4.4E-06	1.0E-01
Acetonitrile	75058	7.88E+08	899.4	1.79E-04	1.78E-02	2.07E-02	0.00E+00	1.97E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.78E-02	4.00E+02	7.07E+50	2.68E-04	2.68E-04	NA	6.0E-02
Acetaldehyde	75070	7.88E+08	899.4	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.90E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.31E+52	2.61E-04	2.61E-04	2.2E-06	9.0E-03
Methylene chloride	75092	7.88E+08	899.4	1.79E-04	1.40E-02	1.63E-02	0.00E+00	1.55E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.40E-02	4.00E+02	3.17E+64	2.21E-04	2.21E-04	4.7E-07	1.1E+00
Carbon disulfide	75150	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	2.27E-04	2.27E-04	NA	7.0E-01
Ethylene oxide	75218	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.34E+62	2.27E-04	2.27E-04	8.8E-05	NA
Bromoform	75252	7.88E+08	899.4	1.79E-04	2.07E-03	2.41E-03	0.00E+00	2.29E-03	899.4	15	1.00E+00	0.10	8.33E+01	2.07E-03	4.00E+02	#NUM!	3.85E-05	3.85E-05	1.1E-06	NA
Bromodichloromethane	75274	7.88E+08	899.4	1.79E-04	4.14E-03	4.82E-03	0.00E+00	4.58E-03	899.4	15	1.00E+00	0.10	8.33E+01	4.14E-03	4.00E+02	4.01E+218	7.47E-05	7.47E-05	NA	NA
2-Chloropropane	75296	7.88E+08	899.4	1.79E-04	1.23E-02	1.44E-02	0.00E+00	1.36E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.23E-02	4.00E+02	2.31E+73	1.99E-04	1.99E-04	NA	NA
1,1-Dichloroethane	75343	7.88E+08	899.4	1.79E-04	1.03E-02	1.20E-02	0.00E+00	1.14E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.03E-02	4.00E+02	6.30E+87	1.71E-04	1.71E-04	1.6E-06	NA
1,1-Dichloroethylene	75354	7.88E+08	899.4	1.79E-04	1.25E-02	1.45E-02	0.00E+00	1.38E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.25E-02	4.00E+02	2.43E+72	2.01E-04	2.01E-04	NA	2.0E-01
Chlorodifluoromethane	75456	7.88E+08	899.4	1.79E-04	1.41E-02	1.64E-02	0.00E+00	1.56E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.41E-02	4.00E+02	2.05E+64	2.22E-04	2.22E-04	NA	5.0E+01
Trichlorofluoromethane	75694	7.88E+08	899.4	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.34E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	1.95E-04	1.95E-04	NA	7.0E-01
Dichlorodifluoromethane	75718	7.88E+08	899.4	1.79E-04	9.24E-03	1.08E-02	0.00E+00	1.02E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.24E-03	4.00E+02	9.24E+97	1.55E-04	1.55E-04	NA	2.0E-01
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	7.88E+08	899.4	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.78E-04	1.78E-04	NA	3.0E+01
Heptachlor	76448	7.88E+08	899.4	1.79E-04	1.56E-03	1.81E-03	0.00E+00	1.72E-03	899.4	15	1.00E+00	0.10	8.33E+01	1.56E-03	4.00E+02	#NUM!	2.92E-05	2.92E-05	1.3E-03	NA
Hexachlorocyclopentadiene	77474	7.88E+08	899.4	1.79E-04	2.24E-03	2.60E-03	0.00E+00	2.47E-03	899.4	15	1.00E+00	0.10	8.33E+01	2.24E-03	4.00E+02	#NUM!	4.15E-05	4.15E-05	NA	2.0E-04
Isobutanol	78831	7.88E+08	899.4	1.79E-04	1.20E-02	1.39E-02	0.00E+00	1.32E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.20E-02	4.00E+02	3.68E+75	1.94E-04	1.94E-04	NA	NA
1,2-Dichloropropane	78875	7.88E+08	899.4	1.79E-04	1.09E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	1.78E-04	1.78E-04	1.0E-05	4.0E-03
Methylethylketone (2-butanone)	78933	7.88E+08	899.4	1.79E-04	1.12E-02	1.31E-02	0.00E+00	1.24E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.12E-02	4.00E+02	3.84E+80	1.84E-04	1.84E-04	NA	5.0E+00
1,1,2-Trichloroethane	79005	7.88E+08	899.4	1.79E-04	1.08E-02	1.26E-02	0.00E+00	1.20E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.08E-02	4.00E+02	3.31E+83	1.78E-04	1.78E-04	1.6E-05	NA
Trichloroethylene	79016	7.88E+08	899.4	1.79E-04	1.10E-02	1.28E-02	0.00E+00	1.21E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.10E-02	4.00E+02	2.92E+82	1.80E-04	1.80E-04	2.0E-06	NA
Methyl acetate	79209	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.26E+62	2.27E-04	2.27E-04	NA	NA
1,1,2,2-Tetrachloroethane	79345	7.88E+08	899.4	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.09E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.61E+91	1.64E-04	1.64E-04	5.8E-05	NA
2-Nitropropane	79469	7.88E+08	899.4	1.79E-04	1.28E-02	1.49E-02	0.00E+00	1.42E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.28E-02	4.00E+02	3.68E+70	2.05E-04	2.05E-04	2.7E-03	2.0E-02
Methylmethacrylate	80626	7.88E+08	899.4	1.79E-04	1.07E-02	1.24E-02	0.00E+00	1.18E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.07E-02	4.00E+02	3.98E+84	1.76E-04	1.76E-04	NA	7.0E-01
Acenaphthene	83329	7.88E+08	899.4	1.79E-04	5.85E-03	6.81E-03	0.00E+00	6.47E-03	899.4	15	1.00E+00	0.10	8.33E+01	5.85E-03	4.00E+02	4.93E+154	1.03E-04	1.03E-04	NA	NA
Fluorene	86737	7.88E+08	899.4	1.79E-04	5.05E-03	5.87E-03	0.00E+00	5.58E-03	899.4	15	1.00E+00	0.10	8.33E+01	5.05E-03	4.00E+02	1.97E+179	8.99E-05	8.99E-05	NA	NA
Hexachloro-1,3-butadiene	87683	7.88E+08	899.4	1.79E-04	7.79E-03	9.07E-03	0.00E+00	8.61E-03	899.4	15	1.00E+00	0.10	8.33E+01	7.79E-03	4.00E+02	1.34E+116	1.34E-04	1.34E-04	2.2E-05	NA
o-Nitrotoluene	88722	7.88E+08	899.4	1.79E-04	8.18E-03	9.50E-03	0.00E+00	9.03E-03	899.4	15	1.00E+00	0.10	8.33E+01	8.18E-03	4.00E+02	4.12E+110	1.39E-04	1.39E-04	NA	NA
Naphthalene	91203	7.88E+08	899.4	1.79E-04	8.19E-03	9.54E-03	0.00E+00	9.06E-03												

TABLE G-5K
 Johnson-Ettinger Modeling—Soil Gas (30 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Stratum A Soil Air-filled Porosity q _a ^A (cm ³ /cm ³)	Stratum B Soil Air-filled Porosity q _a ^B (cm ³ /cm ³)	Stratum C Soil Air-filled Porosity q _a ^C (cm ³ /cm ³)	Stratum A Effective Total Fluid Saturation S ₁₀ (cm ³ /cm ³)	Stratum A Soil Intrinsic Permeability k _i (cm ²)	Stratum A Soil Relative Air Permeability k _{rg} (cm ²)	Stratum A Soil Effective Vapor Permeability k _v (cm ²)	Floor-wall Seam Perimeter X _{crack} (cm)	Soil Gas Conc. (mg/m ³)	Building Ventilation Rate Q _{building} (cm ³ /s)	Enclosed Space Below grade A _B (cm ²)	Crack-to-total Area Ratio h (unitless)	Crack Depth Below Grade Z _{crack} (cm)	Enthalpy of Vaporization at Ave. Soil Temperature DH _{v,TS} (cal/mol)	Henry's Law Constant at Ave. Soil Temperature H _{TS} (atm-m ³ /mol)	Henry's Law Constant at Ave. Soil Temperature H' _{TS} (unitless)
o-Xylene	95476	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,268	4.34E-03	1.79E-01
1,2-Dichlorobenzene	95501	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,566	1.55E-03	6.42E-02
2-Chlorophenol	95578	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,599	3.20E-04	1.32E-02
1,2,4-Trimethylbenzene	95636	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,541	5.04E-03	2.08E-01
1,2,3-Trichloropropane	96184	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,942	3.38E-04	1.40E-02
Methyl acrylate	96333	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,596	1.62E-04	6.67E-03
Ethylmethacrylate	97632	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,911	6.73E-04	2.78E-02
tert-Butylbenzene	98066	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,458	1.01E-02	4.17E-01
Cumene	98828	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	12,475	1.18E-02	4.87E-01
Acetophenone	98862	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	14,560	8.31E-06	3.43E-04
Nitrobenzene	98953	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,236	1.91E-05	7.88E-04
Ethylbenzene	100414	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,017	6.62E-03	2.73E-01
Styrene	100425	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,317	2.30E-03	9.49E-02
Benzylchloride	100447	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,626	3.45E-04	1.42E-02
Benzaldehyde	100527	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,984	1.87E-05	7.71E-04
n-Propylbenzene	103651	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,212	8.79E-03	3.63E-01
n-Butylbenzene	104518	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,696	1.07E-02	4.43E-01
p-Xylene	106423	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,107	6.42E-03	2.65E-01
1,4-Dichlorobenzene	106467	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,119	1.98E-03	8.17E-02
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,051	6.24E-04	2.58E-02
1,3-Butadiene	106990	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	5,030	6.73E-02	2.78E+00
Acrolein	107028	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,120	1.08E-04	4.45E-03
1,2-Dichloroethane	107062	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,390	8.46E-04	3.49E-02
Acrylonitrile	107131	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,678	8.85E-05	3.66E-03
Vinyl acetate	108054	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,588	4.40E-04	1.82E-02
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,700	1.17E-04	4.81E-03
m-Xylene	108383	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03	2.54E-01
m,p-Xylene	108383/1	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03	2.54E-01
1,3,5-Trimethylbenzene	108678	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	11,521	4.82E-03	1.99E-01
Methylcyclohexane	108872	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,451	8.90E-02	3.67E+00
Toluene	108883	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,023	5.67E-03	2.34E-01
Chlorobenzene	108907	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,681	3.13E-03	1.29E-01
1-Chlorobutane	109693	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,983	1.47E-02	6.09E-01
Furan	110009	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,588	4.81E-03	1.99E-01
Hexane	110543	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,576	1.46E+00	6.03E+01
Cyclohexane	110827	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,737	7.06E+00	2.91E+02
Bis(2-chloroethyl)ether	111444	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,431	1.43E-05	5.89E-04
Endosulfan	115297	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,088	7.92E-06	3.27E-04
Hexachlorobenzene	118741	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	19,852	9.37E-04	3.87E-02
1,2,4-Trichlorobenzene	120821	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	13,092	1.13E-03	4.67E-02
Crotonaldehyde (2-butenal)	123739	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	10	1.95E-05	8.04E-04
Chlorodibromomethane	124481	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	6,708	6.96E-04	2.87E-02
Methacrylonitrile	126987	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,508	2.13E-04	8.79E-03
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,594	1.03E-02	4.27E-01
Tetrachloroethylene	127184	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	9,431	1.56E-02	6.45E-01
Pyrene	129000	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	20,543	7.71E-06	3.18E-04
Dibenzofuran	132649	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	86,878	2.83E-06	1.17E-04
sec-Butylbenzene	135988	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	106,848	2.22E-03	9.15E-02
Ethylacetate	141786	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	8,478	1.19E-04	4.91E-03
cis-1,2-Dichloroethylene	156592	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00E+00	6.78E+04	1.06E+06	3.77E-04	15	7,612	3.57E-03	1.47E-01
trans-1,2-Dichloroethylene	156605	7.88E+08	899.4	0.314	0.321	0.314	0.079	1.66E-08	0.957	1.59E-08	4,000	1.00							

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 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Exposure Duration t (sec)	Source-building Separation L _T (cm)	Vapor Viscosity at Ave. Soil Temperature m _{TS} (g/cm-s)	A Effective Diffusion Coefficient D ^{eff} _A (cm ² /s)	B Effective Diffusion Coefficient D ^{eff} _B (cm ² /s)	C Effective Diffusion Coefficient D ^{eff} _C (cm ² /s)	Overall Effective Diffusion Coefficient D ^{eff} _T (cm ² /s)	Diffusion Path Length L _d (cm)	Convection Path Length L _p (cm)	Source Vapor Conc. C _{source} (mg/m ³)	Crack Radius r _{crack} (cm)	Average Vapor Flow Rate Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient D ^{crack} (cm ² /s)	Area of Crack A _{crack} (cm ²)	Equivalent Foundation Peclet Number exp(Pe)	Source Indoor Attenuation Coefficient a (unitless)	Infinite Source Building Conc. C _{building} (mg/m ³)	Unit Risk Factor URF (mg/m ³) ⁻¹	Reference Conc. RfC (mg/m ³)
o-Xylene	95476	7.88E+08	899.4	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.34E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.61E+74	1.95E-04	1.95E-04	NA	7.0E-01
1,2-Dichlorobenzene	95501	7.88E+08	899.4	1.79E-04	9.58E-03	1.12E-02	0.00E+00	1.06E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	1.60E-04	1.60E-04	NA	2.0E-01
2-Chlorophenol	95578	7.88E+08	899.4	1.79E-04	6.96E-03	8.10E-03	0.00E+00	7.69E-03	899.4	15	1.00E+00	0.10	8.33E+01	6.96E-03	4.00E+02	1.04E+130	1.21E-04	1.21E-04	NA	NA
1,2,4-Trimethylbenzene	95636	7.88E+08	899.4	1.79E-04	8.42E-03	9.80E-03	0.00E+00	9.30E-03	899.4	15	1.00E+00	0.10	8.33E+01	8.42E-03	4.00E+02	3.19E+107	1.43E-04	1.43E-04	NA	7.0E-03
1,2,3-Trichloropropane	96184	7.88E+08	899.4	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.09E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.63E+91	1.64E-04	1.64E-04	NA	NA
Methyl acrylate	96333	7.88E+08	899.4	1.79E-04	1.36E-02	1.58E-02	0.00E+00	1.50E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.36E-02	4.00E+02	5.50E+66	2.15E-04	2.15E-04	NA	NA
Ethylmethacrylate	97632	7.88E+08	899.4	1.79E-04	9.07E-03	1.06E-02	0.00E+00	1.00E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.07E-03	4.00E+02	5.78E+99	1.53E-04	1.53E-04	NA	NA
tert-Butylbenzene	98066	7.88E+08	899.4	1.79E-04	7.85E-03	9.13E-03	0.00E+00	8.68E-03	899.4	15	1.00E+00	0.10	8.33E+01	7.85E-03	4.00E+02	2.02E+115	1.34E-04	1.34E-04	NA	NA
Cumene	98828	7.88E+08	899.4	1.79E-04	9.03E-03	1.05E-02	0.00E+00	9.98E-03	899.4	15	1.00E+00	0.10	8.33E+01	9.03E-03	4.00E+02	1.68E+100	1.52E-04	1.52E-04	NA	4.0E-01
Acetophenone	98862	7.88E+08	899.4	1.79E-04	8.36E-03	9.71E-03	0.00E+00	9.23E-03	899.4	15	1.00E+00	0.10	8.33E+01	8.36E-03	4.00E+02	1.49E+108	1.42E-04	1.42E-04	NA	NA
Nitrobenzene	98953	7.88E+08	899.4	1.79E-04	1.06E-02	1.23E-02	0.00E+00	1.17E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.06E-02	4.00E+02	4.08E+85	1.74E-04	1.74E-04	NA	2.0E-03
Ethylbenzene	100414	7.88E+08	899.4	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.15E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.29E+86	1.72E-04	1.72E-04	2.5E-06	1.0E+00
Styrene	100425	7.88E+08	899.4	1.79E-04	9.86E-03	1.15E-02	0.00E+00	1.09E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.86E-03	4.00E+02	5.70E+91	1.64E-04	1.64E-04	NA	1.0E+00
Benzylchloride	100447	7.88E+08	899.4	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.15E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.20E+86	1.72E-04	1.72E-04	NA	1.0E-03
Benzaldehyde	100527	7.88E+08	899.4	1.79E-04	1.00E-02	1.17E-02	0.00E+00	1.11E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.00E-02	4.00E+02	1.68E+90	1.67E-04	1.67E-04	NA	NA
n-Propylbenzene	103651	7.88E+08	899.4	1.79E-04	8.35E-03	9.72E-03	0.00E+00	9.23E-03	899.4	15	1.00E+00	0.10	8.33E+01	8.35E-03	4.00E+02	2.50E+108	1.42E-04	1.42E-04	NA	NA
n-Butylbenzene	104518	7.88E+08	899.4	1.79E-04	7.92E-03	9.21E-03	0.00E+00	8.75E-03	899.4	15	1.00E+00	0.10	8.33E+01	7.92E-03	4.00E+02	1.96E+114	1.35E-04	1.35E-04	NA	NA
p-Xylene	106423	7.88E+08	899.4	1.79E-04	1.07E-02	1.24E-02	0.00E+00	1.18E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.07E-02	4.00E+02	5.21E+84	1.76E-04	1.76E-04	NA	7.0E-01
1,4-Dichlorobenzene	106467	7.88E+08	899.4	1.79E-04	9.58E-03	1.12E-02	0.00E+00	1.06E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	1.60E-04	1.60E-04	1.1E-05	8.0E-01
1,2-Dibromoethane (ethylene dibromide)	106934	7.88E+08	899.4	1.79E-04	3.01E-03	3.51E-03	0.00E+00	3.33E-03	899.4	15	1.00E+00	0.10	8.33E+01	3.01E-03	4.00E+02	1.45E+300	5.53E-05	5.53E-05	6.0E-04	9.0E-03
1,3-Butadiene	106990	7.88E+08	899.4	1.79E-04	3.46E-02	4.03E-02	0.00E+00	3.82E-02	899.4	15	1.00E+00	0.10	8.33E+01	3.46E-02	4.00E+02	1.46E+26	4.31E-04	4.31E-04	3.0E-05	2.0E-03
Acrolein	107028	7.88E+08	899.4	1.79E-04	1.46E-02	1.70E-02	0.00E+00	1.61E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.46E-02	4.00E+02	1.07E+62	2.28E-04	2.28E-04	NA	2.0E-05
1,2-Dichloroethane	107062	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.37E+62	2.27E-04	2.27E-04	2.6E-05	2.4E+00
Acrylonitrile	107131	7.88E+08	899.4	1.79E-04	1.69E-02	1.97E-02	0.00E+00	1.87E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.69E-02	4.00E+02	2.43E+53	2.58E-04	2.58E-04	6.8E-05	2.0E-03
Vinyl acetate	108054	7.88E+08	899.4	1.79E-04	1.18E-02	1.37E-02	0.00E+00	1.31E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.18E-02	4.00E+02	4.36E+76	1.92E-04	1.92E-04	NA	2.0E-01
Methylisobutylketone (4-methyl-2-pentanone)	108101	7.88E+08	899.4	1.79E-04	1.04E-02	1.21E-02	0.00E+00	1.15E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.02E+86	1.72E-04	1.72E-04	NA	3.0E+00
m-Xylene	108383	7.88E+08	899.4	1.79E-04	9.72E-03	1.13E-02	0.00E+00	1.07E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	1.62E-04	1.62E-04	NA	7.0E-01
m,p-Xylene	108383/1	7.88E+08	899.4	1.79E-04	9.72E-03	1.13E-02	0.00E+00	1.07E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	1.62E-04	1.62E-04	NA	NA
1,3,5-Trimethylbenzene	108678	7.88E+08	899.4	1.79E-04	8.36E-03	9.73E-03	0.00E+00	9.24E-03	899.4	15	1.00E+00	0.10	8.33E+01	8.36E-03	4.00E+02	1.65E+108	1.42E-04	1.42E-04	NA	6.0E-03
Methylcyclohexane	108872	7.88E+08	899.4	1.79E-04	1.02E-02	1.19E-02	0.00E+00	1.13E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.02E-02	4.00E+02	4.32E+88	1.69E-04	1.69E-04	NA	NA
Toluene	108883	7.88E+08	899.4	1.79E-04	1.21E-02	1.41E-02	0.00E+00	1.34E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	1.95E-04	1.95E-04	NA	5.0E+00
Chlorobenzene	108907	7.88E+08	899.4	1.79E-04	1.01E-02	1.18E-02	0.00E+00	1.12E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.01E-02	4.00E+02	1.75E+89	1.68E-04	1.68E-04	NA	5.0E-02
1-Chlorobutane	109693	7.88E+08	899.4	1.79E-04	1.15E-02	1.34E-02	0.00E+00	1.27E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.15E-02	4.00E+02	7.43E+78	1.87E-04	1.87E-04	NA	NA
Furan	110009	7.88E+08	899.4	1.79E-04	1.44E-02	1.68E-02	0.00E+00	1.60E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	2.27E-04	2.27E-04	NA	NA
Hexane	110543	7.88E+08	899.4	1.79E-04	2.78E-02	3.23E-02	0.00E+00	3.07E-02	899.4	15	1.00E+00	0.10	8.33E+01	2.78E-02	4.00E+02	3.75E+32	3.72E-04	3.72E-04	NA	7.0E-01
Cyclohexane	110827	7.88E+08	899.4	1.79E-04	1.11E-02	1.29E-02	0.00E+00	1.23E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.11E-02	4.00E+02	2.72E+81	1.82E-04	1.82E-04	NA	6.0E+00
Bis(2-chloroethyl)ether	111444	7.88E+08	899.4	1.79E-04	9.63E-03	1.12E-02	0.00E+00	1.06E-02	899.4	15	1.00E+00	0.10	8.33E+01	9.63E-03	4.00E+02	9.76E+93	1.61E-04	1.61E-04	3.3E-04	NA
Endosulfan	115297	7.88E+08	899.4	1.79E-04	1.61E-03	1.87E-03	0.00E+00	1.78E-03	899.4	15	1.00E+00	0.10	8.33E+01	1.61E-03	4.00E+02	#NUM!	3.01E-05	3.01E-05	NA	NA
Hexachlorobenzene	118741	7.88E+08	899.4	1.79E-04	7.53E-03	8.76E-03	0.00E+00	8.32E-03	899.4	15	1.00E+00	0.10	8.33E+01	7.53E-03	4.00E+02	1.57E+120	1.29E-04	1.29E-04	4.6E-04	NA
1,2,4-Trichlorobenzene	120821	7.88E+08	899.4	1.79E-04	4.17E-03	4.85E-03	0.00E+00	4.61E-03	899.4	15	1.00E+00	0.10	8.33E+01	4.17E-03	4.00E+02	1.40E+217	7.52E-05	7.52E-05	NA	4.0E-03
Crotonaldehyde (2-butenal)	123739	7.88E+08	899.4	1.79E-04	1.33E-02	1.55E-02	0.00E+00	1.47E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.33E-02	4.00E+02	1.15E+68	2.11E-04	2.11E-04	NA	NA
Chlorodibromomethane	124481	7.88E+08	899.4	1.79E-04	2.72E-03	3.17E-03	0.00E+00	3.01E-03	899.4	15	1.00E+00	0.10	8.33E+01	2.72E-03	4.00E+02	#NUM!	5.02E-05	5.02E-05	NA	NA
Methacrylonitrile	126987	7.88E+08	899.4	1.79E-04	1.56E-02	1.82E-02	0.00E+00	1.72E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.56E-02	4.00E+02	1.01E+58	2.41E-04	2.41E-04	NA	7.0E-04
2-Chloro-1,3-butadiene (chloroprene)	126998	7.88E+08	899.4	1.79E-04	1.19E-02	1.39E-02	0.00E+00	1.32E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.19E-02	4.00E+02	8.49E+75	1.93E-04	1.93E-04	NA	7.0E-03
Tetrachloroethylene	127184	7.88E+08	899.4	1.79E-04	1.00E-02	1.16E-02	0.00E+00	1.11E-02	899.4	15	1.00E+00	0.10	8.33E+01	1.00E-02	4.00E+02	3.04E+90	1.66E-04	1.66E-04	5.9E-06	2.7E-01
Pyrene	129000	7.88E+08	899.4	1.79E-04	3.81E-03	4.41E-03	0.00E+00	4.19E-03	899.4	15	1.00E+00	0.10	8.33E+01	3.81E-03	4.00E+02	5.60E+237	6.88E-05	6.88E-05	NA	NA
Dibenzofuran	132649	7.88E+08	899.4	1.79E-04	3.37E-03	3.87E-03	0.00E+00	3.69E-03	899.4	15	1.00E+00	0.10	8.33E+01	3.37E-03	4.00E+02	3.85E+268	6.10E-05	6.10E-05	NA	NA
sec-Butylbenzene	135988	7.88E+08	899.4	1.79E-04	7.92E-03	9.21E														

TABLE G-5L
 Johnson-Ettinger Modeling—Soil Gas (30 feet) Risk-based Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	Noncarcinogenic Risk-based Screening Level (µg/L)
Carbon tetrachloride	56235	1.5E+00	1.6E+03
Chlordane	57749	1.3E+00	3.3E+01
gamma-HCH (Lindane)	58899	3.6E-01	NA
Ethyl ether	60297	NA	NA
Dieldrin	60571	2.7E-02	NA
Acetone	67641	NA	1.7E+05
Chloroform	67663	7.8E-01	6.3E+02
Hexachloroethane	67721	1.5E+02	NA
Benzene	71432	2.7E+00	2.2E+02
1,1,1-Trichloroethane	71556	NA	4.1E+04
Methoxychlor	72435	NA	NA
DDE	72559	NA	NA
Methyl bromide	74839	NA	4.3E+01
Methyl chloride (chloromethane)	74873	8.6E+00	5.0E+02
Hydrogen cyanide	74908	NA	1.2E+01
Methylene bromide	74953	NA	NA
Chloroethane (ethyl chloride)	75003	NA	3.2E+04
Vinyl chloride (chloroethene)	75014	4.0E+00	6.3E+02
Acetonitrile	75058	NA	3.3E+02
Acetaldehyde	75070	7.1E+00	5.0E+01
Methylene chloride	75092	3.9E+01	7.3E+03
Carbon disulfide	75150	NA	4.5E+03
Ethylene oxide	75218	2.1E-01	NA
Bromoform	75252	9.6E+01	NA
Bromodichloromethane	75274	NA	NA
2-Chloropropane	75296	NA	NA
1,1-Dichloroethane	75343	1.5E+01	NA
1,1-Dichloroethylene	75354	NA	1.5E+03
Chlorodifluoromethane	75456	NA	3.3E+05
Trichlorofluoromethane	75694	NA	5.2E+03
Dichlorodifluoromethane	75718	NA	1.9E+03
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	2.5E+05
Heptachlor	76448	1.1E-01	NA
Hexachlorocyclopentadiene	77474	NA	7.0E+00
Isobutanol	78831	NA	NA
1,2-Dichloropropane	78875	2.3E+00	3.3E+01
Methylethylketone (2-butanone)	78933	NA	4.0E+04
1,1,2-Trichloroethane	79005	1.4E+00	NA
Trichloroethylene	79016	1.1E+01	NA
Methyl acetate	79209	NA	NA
1,1,2,2-Tetrachloroethane	79345	4.3E-01	NA
2-Nitropropane	79469	7.4E-03	1.4E+02
Methylmethacrylate	80626	NA	5.8E+03
Acenaphthene	83329	NA	NA
Fluorene	86737	NA	NA
Hexachloro-1,3-butadiene	87683	1.4E+00	NA
o-Nitrotoluene	88722	NA	NA
Naphthalene	91203	8.6E-01	3.1E+01
2-Methylnaphthalene	91576	NA	NA

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Chemical	CAS #	Carcinogenic Risk-based Screening Level (µg/L)	Noncarcinogenic Risk-based Screening Level (µg/L)
Biphenyl	92524	NA	NA
o-Xylene	95476	NA	5.2E+03
1,2-Dichlorobenzene	95501	NA	1.8E+03
2-Chlorophenol	95578	NA	NA
1,2,4-Trimethylbenzene	95636	NA	7.1E+01
1,2,3-Trichloropropane	96184	NA	NA
Methyl acrylate	96333	NA	NA
Ethylmethacrylate	97632	NA	NA
tert-Butylbenzene	98066	NA	NA
Cumene	98828	NA	3.8E+03
Acetophenone	98862	NA	NA
Nitrobenzene	98953	NA	1.7E+01
Ethylbenzene	100414	9.5E+00	8.5E+03
Styrene	100425	NA	8.9E+03
Benzylchloride	100447	NA	8.5E+00
Benzaldehyde	100527	NA	NA
n-Propylbenzene	103651	NA	NA
n-Butylbenzene	104518	NA	NA
p-Xylene	106423	NA	5.8E+03
1,4-Dichlorobenzene	106467	2.3E+00	7.3E+03
1,2-Dibromoethane (ethylene dibromide)	106934	1.2E-01	2.4E+02
1,3-Butadiene	106990	3.2E-01	6.8E+00
Acrolein	107028	NA	1.3E-01
1,2-Dichloroethane	107062	6.9E-01	1.5E+04
Acrylonitrile	107131	2.3E-01	1.1E+01
Vinyl acetate	108054	NA	1.5E+03
Methylisobutylketone (4-methyl-2-pentanone)	108101	NA	2.5E+04
m-Xylene	108383	NA	6.3E+03
m,p-Xylene	108383/1	NA	NA
1,3,5-Trimethylbenzene	108678	NA	6.2E+01
Methylcyclohexane	108872	NA	NA
Toluene	108883	NA	3.7E+04
Chlorobenzene	108907	NA	4.3E+02
1-Chlorobutane	109693	NA	NA
Furan	110009	NA	NA
Hexane	110543	NA	2.7E+03
Cyclohexane	110827	NA	4.8E+04
Bis(2-chloroethyl)ether	111444	7.7E-02	NA
Endosulfan	115297	NA	NA
Hexachlorobenzene	118741	6.9E-02	NA
1,2,4-Trichlorobenzene	120821	NA	7.8E+01
Crotonaldehyde (2-butenal)	123739	NA	NA
Chlorodibromomethane	124481	NA	NA
Methacrylonitrile	126987	NA	4.2E+00
2-Chloro-1,3-butadiene (chloroprene)	126998	NA	5.3E+01
Tetrachloroethylene	127184	4.2E+00	2.4E+03
Pyrene	129000	NA	NA
Dibenzofuran	132649	NA	NA

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sec-Butylbenzene	135988	NA	NA
Ethylacetate	141786	NA	NA
cis-1,2-Dichloroethylene	156592	NA	NA
trans-1,2-Dichloroethylene	156605	NA	5.4E+02
Benzo(b)fluoranthene	205992	6.5E-01	NA
Chrysene	218019	5.9E+00	NA
Aldrin	309002	2.4E-02	NA
alpha-HCH (alpha-BHC)	319846	6.1E-02	NA
1,3-Dichlorobenzene	541731	NA	NA
1,3-Dichloropropene	542756	6.9E+00	2.0E+02
Bromoethene (Bromomethane used as Surrogate)	593602	NA	4.3E+01
1,1,1,2-Tetrachloroethane	630206	3.4E+00	NA
MTBE	1634044	7.0E+01	2.0E+04
Mercury (elemental)	7439976	NA	5.7E+00

Notes:

µg/L = microgram per liter

NA = not available

GW-ADV
 Version 3.1; 02/04

Reset to
 Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc. below)

YES

MORE
 ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER ENTER ENTER Totals must add up to value of L_{WT} (cell G28)			ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm ²)
h_A (cm)	Thickness of soil stratum B, (Enter value or 0) h_B (cm)	Thickness of soil stratum C, (Enter value or 0) h_C (cm)								
22	15	1066.8	152.4	914.4		B	S		1.00E-08	

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm ³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm ³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm ³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm ³ /cm ³)
LS	1.62	0.39	0.076	S	1.66	0.375	0.054	C	1.43	0.459	0.215

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	1	5

MORE
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ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	25	25	250	1.0E-06	1

END

Used to calculate risk-based
 groundwater concentration.

TABLE G-5N
 Johnson-Ettinger Modeling - Groundwater (35 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Cas No.	Chemical Name	Exposure Duration t (sec)	Source-Building Separation LT (cm)	Stratum A			Stratum B Soil		Stratum C	Stratum A Soil	Thickness of Capillary Zone Lcz (cm)	Total Porosity in Capillary Zone ncz (cm ³ /cm ³)	Air-filled Porosity in Capillary Zone qa,cz (cm ³ /cm ³)	Water-filled porosity in capillary zone qw,cz (cm ³ /cm ³)	Floor-wall Seam Perimeter Xcrack (cm)	Building Ventilation Rate Qbuilding (cm ³ /s)	Area of Enclosed Space Below Grade AB (cm ²)	Crack-to-Total Area Ratio, h (Unitless)	Crack Depth Below grade, Zcrack (cm)	Enthalpy of Vaporization at Ave. Groundwater Temperature, DHv,TS (cal/mol)	Henry's Law Constant at Ave. Groundwater Temperature, HTS (atm-m ³ /mol)
				Soil Air-filled Porosity qa ^A (cm ³ /cm ³)	Air-filled Porosity qaB (cm ³ /cm ³)	Soil Air-filled Porosity qaC (cm ³ /cm ³)	Effective Vapor Permeability kv (cm ²)	Soil Porosity qaB (cm ³ /cm ³)	Soil Porosity qaC (cm ³ /cm ³)	Soil Porosity qaC (cm ³ /cm ³)											
56235	Carbon tetrachloride	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,736	2.66E-02			
57749	Chlordane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	19,481	3.47E-05			
58899	gamma-HCH (Lindane)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	4.00E-04	15	20,883	9.76E-06			
60297	Ethyl ether	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	6,517	2.94E-02			
60571	Dieldrin	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	24,298	9.93E-06			
67641	Acetone	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	7,410	3.41E-05			
67663	Chloroform	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	7,429	3.22E-03			
67721	Hexachloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	11,551	3.18E-03			
71432	Benzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,998	4.83E-03			
71556	1,1,1-Trichloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.00E+06	4.00E-04	15	7,754	1.50E-02			
72435	Methoxychlor	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	24,411	1.04E-05			
72559	DDE	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	21,926	1.44E-05			
74839	Methyl bromide	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	5,529	5.66E-03			
74873	Methyl chloride (chloromethane)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	4,603	8.13E-03			
74908	Hydrogen cyanide	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,736	1.18E-04			
74953	Methylene bromide	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,752	7.39E-04			
75003	Chloroethane (ethyl chloride)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	5,764	7.97E-03			
75014	Vinyl chloride (chloroethene)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	4,864	2.48E-02			
75058	Acetonitrile	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,850	3.02E-05			
75070	Acetaldehyde	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,131	7.08E-05			
75092	Methylene chloride	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,906	1.94E-03			
75150	Carbon disulfide	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,588	2.70E-02			
75218	Ethylene oxide	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	5,975	5.00E-04			
75252	Bromoform	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,764	4.89E-04			
75274	Bromodichloromethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,546	1.38E-03			
75296	2-Chloropropane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,453	1.29E-02			
75343	1,1-Dichloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,317	4.94E-03			
75354	1,1-Dichloroethylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,313	2.34E-02			
75456	Chlorodifluoromethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	3,903	2.52E-02			
75694	Trichlorofluoromethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,018	8.73E-02			
75718	Dichlorodifluoromethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,025	2.98E-01			
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,814	4.27E-01			
76448	Heptachlor	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	18,199	1.08E+00			
77474	Hexachlorocyclopentadiene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	14,139	2.11E-02			
78831	Isobutanol	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	12,907	9.43E-06			
78875	1,2-Dichloropropane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,500	2.41E-03			
78933	Methylethylketone (2-butanone)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,269	4.84E-05			
79005	1,1,2-Trichloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,441	7.75E-04			
79016	Trichloroethylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,407	8.89E-03			
79209	Methyl acetate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,751	1.03E-04			
79345	1,1,2,2-Tetrachloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,420	2.88E-04			
79469	2-Nitropropane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,727	1.04E-04			
80626	Methylmethacrylate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,183	2.82E-04			
83329	Acenaphthene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	15,976	1.18E-04			
86737	Fluorene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	16,112	4.81E-05			
87683	Hexachloro-1,3-butadiene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	12,587	6.55E-03			

TABLE G-5N
 Johnson-Ettinger Modeling - Groundwater (35 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Cas No.	Chemical Name	Henry's Law Constant at Ave. Groundwater Temperature, H _{TS} (Unitless)	Vapor Viscosity at Ave. Soil Temperature, m _{TS} (g/cm-s)	Stratum A Effective Diffusion Coefficient, D ^{eff} _A (cm ² /s)	Stratum B Effective Diffusion Coefficient, D ^{eff} _B (cm ² /s)	Stratum C Effective Diffusion Coefficient, D ^{eff} _C (cm ² /s)	Capillary Zone Effective Diffusion Coefficient, D ^{eff} _{Cz} (cm ² /s)	Total Overall Effective Diffusion Coefficient, D ^{eff} _T (cm ² /s)	Diffusion Path Length, L _d (cm)	Convection Path Length, L _p (cm)	Source Vapor Conc., C _{source} (mg/m ³)	Crack Radius, r _{crack} (cm)	Average Vapor Flowrate into Building, Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient, D ^{crack} (cm ² /s)	Area of Crack, A _{crack} (cm ²)	Exponent of Equivalent Foundation Peclet Number, exp(Pe ^f) (Unitless)	Infinite Source Indoor Attenuation Coefficient, a (Unitless)	Infinite Source Building Conc., C _{building} (mg/m ³)	Unit Risk Factor, URF (mg/m ³) ⁻¹	Reference Conc., RFC (mg/m ³)
56235	Carbon tetrachloride	1.10E+00	1.79E-04	1.08E-02	1.26E-02	0.00E+00	5.00E-04	8.92E-03	1051.8	15	1.10E+03	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.20E-04	1.31E-01	1.5E-05	1.9E-01
57749	Chlordane	1.43E-03	1.79E-04	1.64E-03	1.91E-03	0.00E+00	2.99E-04	1.72E-03	1051.8	15	1.43E+00	0.10	8.33E+01	1.64E-03	4.00E+02	#NUM!	2.51E-05	3.59E-05	1.0E-04	7.0E-04
58899	gamma-HCH (Lindane)	4.03E-04	1.79E-04	1.99E-03	2.30E-03	0.00E+00	1.43E-03	2.24E-03	1051.8	15	4.03E-01	0.10	8.33E+01	1.99E-03	4.00E+02	#NUM!	3.06E-05	1.23E-05	3.1E-04	NA
60297	Ethyl ether	1.22E+00	1.79E-04	1.09E-02	1.26E-02	0.00E+00	5.01E-04	8.94E-03	1051.8	15	1.22E+03	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	1.14E-04	1.38E-01	NA	NA
60571	Dieldrin	4.10E-04	1.79E-04	1.75E-03	2.03E-03	0.00E+00	9.29E-04	1.95E-03	1051.8	15	4.10E-01	0.10	8.33E+01	1.75E-03	4.00E+02	#NUM!	2.67E-05	1.10E-05	4.6E-03	NA
67641	Acetone	1.41E-03	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.39E-03	1.62E-02	1051.8	15	1.41E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.22E+52	1.92E-04	2.70E-04	NA	3.1E+01
67663	Chloroform	1.33E-01	1.79E-04	1.44E-02	1.68E-02	0.00E+00	6.72E-04	1.19E-02	1051.8	15	1.33E+02	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	1.47E-04	1.96E-02	2.3E-05	9.8E-02
67721	Hexachloroethane	1.31E-01	1.79E-04	3.47E-04	4.04E-04	0.00E+00	1.98E-05	3.03E-04	1051.8	15	1.31E+02	0.10	8.33E+01	3.47E-04	4.00E+02	#NUM!	4.23E-06	5.56E-04	4.0E-06	NA
71432	Benzene	1.99E-01	1.79E-04	1.22E-02	1.42E-02	0.00E+00	5.67E-04	1.01E-02	1051.8	15	1.99E+02	0.10	8.33E+01	1.22E-02	4.00E+02	1.07E+74	1.34E-04	2.66E-02	7.8E-06	3.0E-02
71556	1,1,1-Trichloroethane	6.20E-01	1.79E-04	1.08E-02	1.26E-02	0.00E+00	5.01E-04	8.92E-03	1051.8	15	6.20E+02	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.14E-04	7.04E-02	NA	5.0E+00
72435	Methoxychlor	4.28E-04	1.79E-04	2.18E-03	2.53E-03	0.00E+00	8.65E-04	2.40E-03	1051.8	15	4.28E-01	0.10	8.33E+01	2.18E-03	4.00E+02	#NUM!	3.47E-05	1.49E-05	NA	NA
72559	DDE	5.94E-04	1.79E-04	2.01E-03	2.33E-03	0.00E+00	8.18E-04	2.22E-03	1051.8	15	5.94E-01	0.10	8.33E+01	2.01E-03	4.00E+02	#NUM!	3.21E-05	1.91E-05	NA	NA
74839	Methyl bromide	2.34E-01	1.79E-04	1.01E-02	1.18E-02	0.00E+00	4.70E-04	8.34E-03	1051.8	15	2.34E+02	0.10	8.33E+01	1.01E-02	4.00E+02	3.07E+89	1.13E-04	2.63E-02	NA	5.0E-03
74873	Methyl chloride (chloromethane)	3.36E-01	1.79E-04	1.75E-02	2.04E-02	0.00E+00	8.08E-04	1.44E-02	1051.8	15	3.36E+02	0.10	8.33E+01	1.75E-02	4.00E+02	5.06E+51	1.82E-04	6.12E-02	1.8E-06	9.0E-02
74908	Hydrogen cyanide	4.88E-03	1.79E-04	2.69E-02	3.13E-02	0.00E+00	1.55E-03	2.35E-02	1051.8	15	4.88E+00	0.10	8.33E+01	2.69E-02	4.00E+02	4.77E+33	2.72E-04	1.33E-03	NA	3.0E-03
74953	Methylene bromide	3.05E-02	1.79E-04	5.97E-03	6.95E-03	0.00E+00	2.96E-04	5.01E-03	1051.8	15	3.05E+01	0.10	8.33E+01	5.97E-03	4.00E+02	3.14E+151	7.03E-05	2.15E-03	NA	NA
75003	Chloroethane (ethyl chloride)	3.29E-01	1.79E-04	3.76E-02	4.38E-02	0.00E+00	1.74E-03	3.10E-02	1051.8	15	3.29E+02	0.10	8.33E+01	3.76E-02	4.00E+02	1.10E+24	3.35E-04	1.10E-01	NA	1.0E+01
75014	Vinyl chloride (chloroethene)	1.02E+00	1.79E-04	1.47E-02	1.71E-02	0.00E+00	6.80E-04	1.21E-02	1051.8	15	1.02E+03	0.10	8.33E+01	1.47E-02	4.00E+02	2.88E+61	1.57E-04	1.61E-01	4.4E-06	1.0E-01
75058	Acetonitrile	1.25E-03	1.79E-04	1.78E-02	2.07E-02	0.00E+00	1.80E-03	1.74E-02	1051.8	15	1.25E+00	0.10	8.33E+01	1.78E-02	4.00E+02	7.07E+50	2.13E-04	2.66E-04	NA	6.0E-02
75070	Acetaldehyde	2.93E-03	1.79E-04	1.72E-02	2.00E-02	0.00E+00	1.15E-03	1.56E-02	1051.8	15	2.93E+00	0.10	8.33E+01	1.72E-02	4.00E+02	3.31E+52	1.95E-04	5.70E-04	2.2E-06	9.0E-03
75092	Methylene chloride	8.01E-02	1.79E-04	1.40E-02	1.63E-02	0.00E+00	6.58E-04	1.16E-02	1051.8	15	8.01E+01	0.10	8.33E+01	1.40E-02	4.00E+02	3.17E+64	1.51E-04	1.21E-02	4.7E-07	1.1E+00
75150	Carbon disulfide	1.11E+00	1.79E-04	1.44E-02	1.68E-02	0.00E+00	6.67E-04	1.19E-02	1051.8	15	1.11E+03	0.10	8.33E+01	1.44E-02	4.00E+02	4.38E+62	1.55E-04	1.72E-01	NA	7.0E-01
75218	Ethylene oxide	2.07E-02	1.79E-04	1.44E-02	1.68E-02	0.00E+00	7.18E-04	1.21E-02	1051.8	15	2.07E+01	0.10	8.33E+01	1.44E-02	4.00E+02	4.34E+62	1.57E-04	3.25E-03	8.8E-05	NA
75252	Bromoform	2.02E-02	1.79E-04	2.07E-03	2.41E-03	0.00E+00	1.33E-04	1.85E-03	1051.8	15	2.02E+01	0.10	8.33E+01	2.07E-03	4.00E+02	#NUM!	2.70E-05	5.44E-04	1.1E-06	NA
75274	Bromodichloromethane	5.69E-02	1.79E-04	4.14E-03	4.82E-03	0.00E+00	2.05E-04	3.47E-03	1051.8	15	5.69E+01	0.10	8.33E+01	4.14E-03	4.00E+02	4.01E+218	4.96E-05	2.82E-03	NA	NA
75296	2-Chloropropane	5.34E-01	1.79E-04	1.23E-02	1.44E-02	0.00E+00	5.70E-04	1.02E-02	1051.8	15	5.34E+02	0.10	8.33E+01	1.23E-02	4.00E+02	2.31E+73	1.35E-04	7.19E-02	NA	NA
75343	1,1-Dichloroethane	2.04E-01	1.79E-04	1.03E-02	1.20E-02	0.00E+00	4.79E-04	8.50E-03	1051.8	15	2.04E+02	0.10	8.33E+01	1.03E-02	4.00E+02	6.30E+87	1.15E-04	2.34E-02	1.6E-06	NA
75354	1,1-Dichloroethylene	9.65E-01	1.79E-04	1.25E-02	1.45E-02	0.00E+00	5.77E-04	1.03E-02	1051.8	15	9.65E+02	0.10	8.33E+01	1.25E-02	4.00E+02	2.43E+72	1.36E-04	1.31E-01	NA	2.0E-01
75456	Chlorodifluoromethane	1.04E+00	1.79E-04	1.41E-02	1.64E-02	0.00E+00	6.50E-04	1.16E-02	1051.8	15	1.04E+03	0.10	8.33E+01	1.41E-02	4.00E+02	2.05E+64	1.51E-04	1.57E-01	NA	5.0E+01
75694	Trichlorofluoromethane	3.60E+00	1.79E-04	1.21E-02	1.41E-02	0.00E+00	5.57E-04	9.95E-03	1051.8	15	3.60E+03	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	1.32E-04	4.76E-01	NA	7.0E-01
75718	Dichlorodifluoromethane	1.23E+01	1.79E-04	9.24E-03	1.08E-02	0.00E+00	4.26E-04	7.60E-03	1051.8	15	1.23E+04	0.10	8.33E+01	9.24E-03	4.00E+02	9.24E+97	1.04E-04	1.27E+00	NA	2.0E-01
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	1.76E+01	1.79E-04	1.08E-02	1.26E-02	0.00E+00	5.00E-04	8.92E-03	1051.8	15	1.76E+04	0.10	8.33E+01	1.08E-02	4.00E+02	3.33E+83	1.20E-04	2.11E+00	NA	3.0E+01
76448	Heptachlor	4.46E+01	1.79E-04	1.56E-03	1.81E-03	0.00E+00	7.17E-05	1.28E-03	1051.8	15	4.46E+04	0.10	8.33E+01	1.56E-03	4.00E+02	#NUM!	1.87E-05	8.36E-01	1.3E-03	NA
77474	Hexachlorocyclopentadiene	8.72E-01	1.79E-04	2.24E-03	2.60E-03	0.00E+00	1.04E-04	1.84E-03	1051.8	15	8.72E+02	0.10	8.33E+01	2.24E-03	4.00E+02	#NUM!	2.68E-05	2.34E-02	NA	2.0E-04
78831	Isobutanol	3.89E-04	1.79E-04	1.20E-02	1.39E-02	0.00E+00	2.30E-03	1.26E-02	1051.8	15	3.89E-01	0.10	8.33E+01	1.20E-02	4.00E+02	3.68E+75	1.63E-04	6.34E-05	NA	NA
78875	1,2-Dichloropropane	9.97E-02	1.79E-04	1.09E-02	1.26E-02	0.00E+00	5.07E-04	8.97E-03	1051.8	15	9.97E+01	0.10	8.33E+01	1.09E-02	4.00E+02	2.03E+83	1.20E-04	1.20E-02	1.0E-05	4.0E-03
78933	Methylethylketone (2-butanone)	2.00E-03	1.79E-04	1.12E-02	1.31E-02	0.00E+00	8.78E-04	1.05E-02	1051.8	15	2.00E+00	0.10	8.33E+01	1.12E-02	4.00E+02	3.84E+80	1.38E-04	2.76E-04	NA	5.0E+00
79005	1,1,2-Trichloroethane	3.20E-02	1.79E-04	1.08E-02	1.26E-02	0.00E+00	5.20E-04	9.02E-03	1051.8	15	3.20E+01	0.10	8.33E+01	1.08E-02	4.00E+02	3.31E+83	1.21E-04	3.87E-03	1.6E-05	NA
79016	Trichloroethylene	3.67E-01	1.79E-04	1.10E-02	1.28E-02	0.00E+00	5.08E-04	9.04E-03	1051.8	15	3.67E+02	0.10	8.33E+01	1.10E-02	4.00E+02	2.92E+82	1.21E-04	4.45E-02	2.0E-06	NA
79209	Methyl acetate	4.26E-03	1.79E-04	1.44E-02	1.68E-02	0.00E+00	8.38E-04	1.26E-02	1051.8	15	4.26E+00	0.10	8.33E+01	1.44E-02	4.00E+02	4.26E+62	1.63E-04	6.95E-04	NA	NA
79345	1,1,2,2-Tetrachloroethane	1.19E-02	1.79E-04	9.86E-03	1.15E-02	0.00E+00	5.03E-04	8.35E-03	1051.8	15	1.19E+01	0.10	8.33E+01	9.86E-03	4.00E+02	5.61E+91	1.13E-04	1.34E-03	5.8E-05	NA
79469	2-Nitropropane	4.29E-03	1.79E-04	1.28E-02	1.49E-02	0.00E+00	7.64E-04	1.13E-02	1051.8	15	4.29E+00	0.10	8.33E+01	1.28E-02	4.00E+02	3.68E+70	1.48E-04	6.33E-04	2.7E-03	2.0E-02
80626	Methylmethacrylate	1.17E-02	1.79E-04	1.07E-02	1.24E-02	0.00E+00	5.47E-04	9.06E-03	1051.8	15	1.17E+01	0.10	8.33E+01	1.07E-02	4.00E+02	3.98E+84	1.21E-04	1.42E-03	NA	7.0E-01
83329	Acenaphthene	4.85E-03	1.79E-04	5.85E-03	6.81E-03	0.00E+00	3.86E-04	5.27E-03	1051.8	15	4.85E+00	0.10	8.33E+01	5.85E-03	4.00E+02	4.93E+154	7.37E-05	3.58E-04	NA	NA
86737	Fluorene	1.99E-03	1.79E-04	5.05E-03	5.87E-03	0.00E+00	5.24E-04	4.95E-03	1051.8	15	1.99E+00	0.10	8.33E+01	5.05E-03	4.00E+02	1.97E+179	6.94E-05	1.38E-04	NA	NA
87683	Hexachloro-1,3-butadiene	2.70E-01	1.79E-04	7.79E-03	9.07E-03	0.00E+00	3.61E-04	6.42E-03	1051.8	15	2.70E+02	0.10	8.33E+01	7.79E-03	4.00E+02	1.34E+116	8.86E-05	2.40E-02	2.2E-05	NA

TABLE G-5N
 Johnson-Ettinger Modeling - Groundwater (35 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Cas No.	Chemical Name	Exposure Duration t (sec)	Source-Building Separation LT (cm)	Stratum A			Stratum A Soil Effective Vapor Permeability k_v (cm^2)	Thickness of Capillary Zone Lcz (cm)	Total Porosity in Capillary Zone n_{cz} (cm^3/cm^3)	Air-filled Porosity in Capillary Zone $q_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone $q_{w,cz}$ (cm^3/cm^3)	Floor-wall Seam Perimeter X_{crack} (cm)	Building Ventilation Rate Qbuilding (cm^3/s)	Area of Enclosed Space Below Grade AB (cm^2)	Crack-to-Total Area Ratio, h (Unitless)	Crack Depth Below grade, Z_{crack} (cm)	Enthalpy of Vaporization at Ave. Groundwater Temperature, $DH_{v,TS}$ (cal/mol)	Henry's Law Constant at Ave. Groundwater Temperature, H_{TS} (atm-m ³ /mol)
				Soil Air-filled Porosity q_a^A (cm^3/cm^3)	Stratum B Soil Air-filled Porosity q_{aB} (cm^3/cm^3)	Stratum C Soil Air-filled Porosity q_{aC} (cm^3/cm^3)												
88722	o-Nitrotoluene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	15,710	9.52E-06
91203	Naphthalene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	12,789	3.87E-04
91576	2-Methylnaphthalene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	16,083	3.92E-04
92524	Biphenyl	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	13,901	2.36E-04
95476	o-Xylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,268	4.34E-03
95501	1,2-Dichlorobenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,566	1.55E-03
95578	2-Chlorophenol	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,599	3.20E-04
95636	1,2,4-Trimethylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,541	5.04E-03
96184	1,2,3-Trichloropropane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,942	3.38E-04
96333	Methyl acrylate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,596	1.62E-04
97632	Ethylmethacrylate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	12,911	6.73E-04
98066	tert-Butylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,458	1.01E-02
98828	Cumene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	12,475	1.18E-02
98862	Acetophenone	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	14,560	8.31E-06
98953	Nitrobenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	13,236	1.91E-05
100414	Ethylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,017	6.62E-03
100425	Styrene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,317	2.30E-03
100447	Benzylchloride	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,626	3.45E-04
100527	Benzaldehyde	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	13,984	1.87E-05
103651	n-Propylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,212	8.79E-03
104518	n-Butylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,696	1.07E-02
106423	p-Xylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,107	6.42E-03
106467	1,4-Dichlorobenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,119	1.98E-03
106934	1,2-Dibromoethane (ethylene dibromide)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,051	6.24E-04
106990	1,3-Butadiene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	5,030	6.73E-02
107028	Acrolein	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,120	1.08E-04
107062	1,2-Dichloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,390	8.46E-04
107131	Acrylonitrile	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,678	8.85E-05
108054	Vinyl acetate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,588	4.40E-04
108101	Methylisobutylketone (4-methyl-2-pentanone)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,700	1.17E-04
108383	m-Xylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03
108383/1	m,p-Xylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	10,114	6.16E-03
108678	1,3,5-Trimethylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,521	4.82E-03
108872	Methylcyclohexane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,451	8.90E-02
108883	Toluene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,023	5.67E-03
108907	Chlorobenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,681	3.13E-03
109693	1-Chlorobutane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,983	1.47E-02
124481	Chlorodibromomethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	6,708	6.96E-04
126987	Methacrylonitrile	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,508	2.13E-04
126998	2-Chloro-1,3-butadiene (chloroprene)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,594	1.03E-02
127184	Tetrachloroethylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	9,431	1.56E-02
129000	Pyrene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	20,543	7.71E-06
132649	Dibenzofuran	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	86,878	2.83E-06
135988	sec-Butylbenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	106,848	2.22E-03
141786	Ethylacetate	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,478	1.19E-04
156592	cis-1,2-Dichloroethylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,612	3.57E-03
156605	trans-1,2-Dichloroethylene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	7,008	8.30E-03
205992	Benzo(b)fluoranthene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	25,392	7.16E-05
218019	Chrysene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	24,277	6.22E-05
309002	Aldrin	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	21,115	1.18E-04
319846	alpha-HCH (alpha-BHC)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	20,883	7.39E-06
541731	1,3-Dichlorobenzene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	11,050	2.56E-03
542756	1,3-Dichloropropene	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	8,969	1.51E-02
593602	Bromoethene (Bromomethane used as Surrogate)	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0.375	0.122	0.253	4.000	6.78E+04	1.06E+06	3.77E-04	15	5,529	5.66E-03
630206	1,1,1,2-Tetrachloroethane	7.88E+08	1051.8	0.314	0.321	0.244	1.00E-08	17.05	0									

TABLE G-5N
 Johnson-Ettinger Modeling - Groundwater (35 feet) Input Data
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Cas No.	Chemical Name	Henry's Law Constant at Ave. Groundwater Temperature, H _{TS} (Unitless)	Vapor Viscosity at Ave. Soil Temperature, m _{TS} (g/cm-s)	Stratum A Effective Diffusion Coefficient, D ^{eff} _A (cm ² /s)	Stratum B Effective Diffusion Coefficient, D ^{eff} _B (cm ² /s)	Stratum C Effective Diffusion Coefficient, D ^{eff} _C (cm ² /s)	Capillary Zone Effective Diffusion Coefficient, D ^{eff} _{Cz} (cm ² /s)	Total Overall Effective Diffusion Coefficient, D ^{eff} _T (cm ² /s)	Diffusion Path Length, L _d (cm)	Convection Path Length, L _p (cm)	Source Vapor Conc., C _{source} (mg/m ³)	Crack Radius, r _{crack} (cm)	Average Vapor Flowrate into Building, Q _{soil} (cm ³ /s)	Crack Effective Diffusion Coefficient, D ^{crack} (cm ² /s)	Area of Crack, A _{crack} (cm ²)	Exponent of Equivalent Foundation Peclet Number, exp(Pe ^f) (Unitless)	Infinite Source Indoor Attenuation Coefficient, a (Unitless)	Infinite Source Building Conc., C _{building} (mg/m ³)	Unit Risk Factor, URF (mg/m ³) ⁻¹	Reference Conc., RFC (mg/m ³)
88722	o-Nitrotoluene	3.93E-04	1.79E-04	8.18E-03	9.50E-03	0.00E+00	1.99E-03	8.78E-03	1051.8	15	3.93E-01	0.10	8.33E+01	8.18E-03	4.00E+02	4.12E+110	1.18E-04	4.64E-05	NA	NA
91203	Naphthalene	1.60E-02	1.79E-04	8.19E-03	9.54E-03	0.00E+00	4.12E-04	6.91E-03	1051.8	15	1.60E+01	0.10	8.33E+01	8.19E-03	4.00E+02	2.58E+110	9.48E-05	1.51E-03	3.4E-05	3.0E-03
91576	2-Methylnaphthalene	1.62E-02	1.79E-04	7.25E-03	8.44E-03	0.00E+00	3.69E-04	6.14E-03	1051.8	15	1.62E+01	0.10	8.33E+01	7.25E-03	4.00E+02	6.21E+124	8.49E-05	1.37E-03	NA	NA
92524	Biphenyl	9.73E-03	1.79E-04	5.61E-03	6.53E-03	0.00E+00	3.20E-04	4.89E-03	1051.8	15	9.73E+00	0.10	8.33E+01	5.61E-03	4.00E+02	1.68E+161	6.86E-05	6.68E-04	NA	NA
95476	o-Xylene	1.79E-01	1.79E-04	1.21E-02	1.41E-02	0.00E+00	5.61E-04	9.97E-03	1051.8	15	1.79E+02	0.10	8.33E+01	1.21E-02	4.00E+02	7.61E+74	1.32E-04	2.37E-02	NA	7.0E-01
95501	1,2-Dichlorobenzene	6.42E-02	1.79E-04	9.58E-03	1.12E-02	0.00E+00	4.51E-04	7.93E-03	1051.8	15	6.42E+01	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	1.08E-04	6.91E-03	NA	2.0E-01
95578	2-Chlorophenol	1.32E-02	1.79E-04	6.96E-03	8.10E-03	0.00E+00	3.73E-04	5.97E-03	1051.8	15	1.32E+01	0.10	8.33E+01	6.96E-03	4.00E+02	1.04E+130	8.28E-05	1.09E-03	NA	NA
95636	1,2,4-Trimethylbenzene	2.08E-01	1.79E-04	8.42E-03	9.80E-03	0.00E+00	3.91E-04	6.94E-03	1051.8	15	2.08E+02	0.10	8.33E+01	8.42E-03	4.00E+02	3.19E+107	9.52E-05	1.98E-02	NA	7.0E-03
96184	1,2,3-Trichloropropane	1.40E-02	1.79E-04	9.86E-03	1.15E-02	0.00E+00	4.96E-04	8.32E-03	1051.8	15	1.40E+01	0.10	8.33E+01	9.86E-03	4.00E+02	5.63E+91	1.12E-04	1.57E-03	NA	NA
96333	Methyl acrylate	6.67E-03	1.79E-04	1.36E-02	1.58E-02	0.00E+00	7.37E-04	1.17E-02	1051.8	15	6.67E+00	0.10	8.33E+01	1.36E-02	4.00E+02	5.50E+66	1.52E-04	1.01E-03	NA	NA
97632	Ethylmethacrylate	2.78E-02	1.79E-04	9.07E-03	1.06E-02	0.00E+00	4.40E-04	7.57E-03	1051.8	15	2.78E+01	0.10	8.33E+01	9.07E-03	4.00E+02	5.78E+99	1.03E-04	2.87E-03	NA	NA
98066	tert-Butylbenzene	4.17E-01	1.79E-04	7.85E-03	9.13E-03	0.00E+00	3.63E-04	6.47E-03	1051.8	15	4.17E+02	0.10	8.33E+01	7.85E-03	4.00E+02	2.02E+115	8.92E-05	3.72E-02	NA	NA
98828	Cumene	4.87E-01	1.79E-04	9.03E-03	1.05E-02	0.00E+00	4.17E-04	7.44E-03	1051.8	15	4.87E+02	0.10	8.33E+01	9.03E-03	4.00E+02	1.68E+100	1.01E-04	4.94E-02	NA	4.0E-01
98862	Acetophenone	3.43E-04	1.79E-04	8.36E-03	9.71E-03	0.00E+00	2.25E-03	9.04E-03	1051.8	15	3.43E-01	0.10	8.33E+01	8.36E-03	4.00E+02	1.49E+108	1.21E-04	4.16E-05	NA	NA
98953	Nitrobenzene	7.88E-04	1.79E-04	1.06E-02	1.23E-02	0.00E+00	1.29E-03	1.06E-02	1051.8	15	7.88E-01	0.10	8.33E+01	1.06E-02	4.00E+02	4.08E+85	1.40E-04	1.10E-04	NA	2.0E-03
100414	Ethylbenzene	2.73E-01	1.79E-04	1.04E-02	1.21E-02	0.00E+00	4.82E-04	8.58E-03	1051.8	15	2.73E+02	0.10	8.33E+01	1.04E-02	4.00E+02	7.29E+86	1.16E-04	3.16E-02	2.5E-06	1.0E+00
100425	Styrene	9.49E-02	1.79E-04	9.86E-03	1.15E-02	0.00E+00	4.61E-04	8.15E-03	1051.8	15	9.49E+01	0.10	8.33E+01	9.86E-03	4.00E+02	5.70E+91	1.10E-04	1.05E-02	NA	1.0E+00
100447	Benzylchloride	1.42E-02	1.79E-04	1.04E-02	1.21E-02	0.00E+00	5.21E-04	8.77E-03	1051.8	15	1.42E+01	0.10	8.33E+01	1.04E-02	4.00E+02	7.20E+86	1.18E-04	1.68E-03	NA	1.0E-03
100527	Benzaldehyde	7.71E-04	1.79E-04	1.00E-02	1.17E-02	0.00E+00	1.33E-03	1.02E-02	1051.8	15	7.71E-01	0.10	8.33E+01	1.00E-02	4.00E+02	1.68E+90	1.35E-04	1.04E-04	NA	NA
103651	n-Propylbenzene	3.63E-01	1.79E-04	8.35E-03	9.72E-03	0.00E+00	3.86E-04	6.88E-03	1051.8	15	3.63E+02	0.10	8.33E+01	8.35E-03	4.00E+02	2.50E+108	9.44E-05	3.43E-02	NA	NA
104518	n-Butylbenzene	4.43E-01	1.79E-04	7.92E-03	9.21E-03	0.00E+00	3.66E-04	6.52E-03	1051.8	15	4.43E+02	0.10	8.33E+01	7.92E-03	4.00E+02	1.96E+114	8.99E-05	3.99E-02	NA	NA
106423	p-Xylene	2.65E-01	1.79E-04	1.07E-02	1.24E-02	0.00E+00	4.95E-04	8.80E-03	1051.8	15	2.65E+02	0.10	8.33E+01	1.07E-02	4.00E+02	5.21E+84	1.18E-04	3.14E-02	NA	7.0E-01
106467	1,4-Dichlorobenzene	8.17E-02	1.79E-04	9.58E-03	1.12E-02	0.00E+00	4.49E-04	7.92E-03	1051.8	15	8.17E+01	0.10	8.33E+01	9.58E-03	4.00E+02	2.60E+94	1.08E-04	8.78E-03	1.1E-05	8.0E-01
106934	1,2-Dibromoethane (ethylene dibromide)	2.58E-02	1.79E-04	3.01E-03	3.51E-03	0.00E+00	1.73E-04	2.63E-03	1051.8	15	2.58E+01	0.10	8.33E+01	3.01E-03	4.00E+02	1.45E+300	3.79E-05	9.76E-04	6.0E-04	9.0E-03
106990	1,3-Butadiene	2.78E+00	1.79E-04	3.46E-02	4.03E-02	0.00E+00	1.59E-03	2.85E-02	1051.8	15	2.78E+03	0.10	8.33E+01	3.46E-02	4.00E+02	1.46E+26	3.15E-04	8.75E-01	3.0E-05	2.0E-03
107028	Acrolein	4.45E-03	1.79E-04	1.46E-02	1.70E-02	0.00E+00	8.74E-04	1.29E-02	1051.8	15	4.45E+00	0.10	8.33E+01	1.46E-02	4.00E+02	1.07E+62	1.65E-04	7.36E-04	NA	2.0E-05
107062	1,2-Dichloroethane	3.49E-02	1.79E-04	1.44E-02	1.68E-02	0.00E+00	6.87E-04	1.20E-02	1051.8	15	3.49E+01	0.10	8.33E+01	1.44E-02	4.00E+02	4.37E+62	1.56E-04	5.44E-03	2.6E-05	2.4E+00
107131	Acrylonitrile	3.66E-03	1.79E-04	1.69E-02	1.97E-02	0.00E+00	1.05E-03	1.51E-02	1051.8	15	3.66E+00	0.10	8.33E+01	1.69E-02	4.00E+02	2.43E+53	1.89E-04	6.92E-04	6.8E-05	2.0E-03
108054	Vinyl acetate	1.82E-02	1.79E-04	1.18E-02	1.37E-02	0.00E+00	5.82E-04	9.90E-03	1051.8	15	1.82E+01	0.10	8.33E+01	1.18E-02	4.00E+02	4.36E+76	1.31E-04	2.39E-03	NA	2.0E-01
108101	Methylisobutylketone (4-methyl-2-pentanone)	4.81E-03	1.79E-04	1.04E-02	1.21E-02	0.00E+00	5.99E-04	9.10E-03	1051.8	15	4.81E+00	0.10	8.33E+01	1.04E-02	4.00E+02	7.02E+86	1.22E-04	5.86E-04	NA	3.0E+00
108383	m-Xylene	2.54E-01	1.79E-04	9.72E-03	1.13E-02	0.00E+00	4.51E-04	8.01E-03	1051.8	15	2.54E+02	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	1.09E-04	2.76E-02	NA	7.0E-01
108383/1	m,p-Xylene	2.54E-01	1.79E-04	9.72E-03	1.13E-02	0.00E+00	4.51E-04	8.01E-03	1051.8	15	2.54E+02	0.10	8.33E+01	9.72E-03	4.00E+02	1.17E+93	1.09E-04	2.76E-02	NA	NA
108678	1,3,5-Trimethylbenzene	1.99E-01	1.79E-04	8.36E-03	9.73E-03	0.00E+00	3.89E-04	6.90E-03	1051.8	15	1.99E+02	0.10	8.33E+01	8.36E-03	4.00E+02	1.65E+108	9.47E-05	1.88E-02	NA	6.0E-03
108872	Methylcyclohexane	3.67E+00	1.79E-04	1.02E-02	1.19E-02	0.00E+00	4.71E-04	8.40E-03	1051.8	15	3.67E+03	0.10	8.33E+01	1.02E-02	4.00E+02	4.32E+88	1.13E-04	4.17E-01	NA	NA
108883	Toluene	2.34E-01	1.79E-04	1.21E-02	1.41E-02	0.00E+00	5.60E-04	9.96E-03	1051.8	15	2.34E+02	0.10	8.33E+01	1.21E-02	4.00E+02	7.62E+74	1.32E-04	3.10E-02	NA	5.0E+00
108907	Chlorobenzene	1.29E-01	1.79E-04	1.01E-02	1.18E-02	0.00E+00	4.72E-04	8.37E-03	1051.8	15	1.29E+02	0.10	8.33E+01	1.01E-02	4.00E+02	1.75E+89	1.13E-04	1.46E-02	NA	5.0E-02
109693	1-Chlorobutane	6.09E-01	1.79E-04	1.15E-02	1.34E-02	0.00E+00	5.30E-04	9.45E-03	1051.8	15	6.09E+02	0.10	8.33E+01	1.15E-02	4.00E+02	7.43E+78	1.26E-04	7.67E-02	NA	NA
124481	Chlorodibromomethane	2.87E-02	1.79E-04	2.72E-03	3.17E-03	0.00E+00	1.52E-04	2.36E-03	1051.8	15	2.87E+01	0.10	8.33E+01	2.72E-03	4.00E+02	#NUM!	3.41E-05	9.81E-04	NA	NA
126987	Methacrylonitrile	8.79E-03	1.79E-04	1.56E-02	1.82E-02	0.00E+00	8.29E-04	1.33E-02	1051.8	15	8.79E+00	0.10	8.33E+01	1.56E-02	4.00E+02	1.01E+58	1.71E-04	1.50E-03	NA	7.0E-04
126998	2-Chloro-1,3-butadiene (chloroprene)	4.27E-01	1.79E-04	1.19E-02	1.39E-02	0.00E+00	5.51E-04	9.82E-03	1051.8	15	4.27E+02	0.10	8.33E+01	1.19E-02	4.00E+02	8.49E+75	1.30E-04	5.57E-02	NA	7.0E-03
127184	Tetrachloroethylene	6.45E-01	1.79E-04	1.00E-02	1.16E-02	0.00E+00	4.62E-04	8.23E-03	1051.8	15	6.45E+02	0.10	8.33E+01	1.00E-02	4.00E+02	3.04E+90	1.11E-04	7.18E-02	5.9E-06	2.7E-01
129000	Pyrene	3.18E-04	1.79E-04	3.81E-03	4.41E-03	0.00E+00	1.84E-03	4.22E-03	1051.8	15	3.18E-01	0.10	8.33E+01	3.81E-03	4.00E+02	5.60E+237	5.98E-05	1.90E-05	NA	NA
132649	Dibenzofuran	1.17E-04	1.79E-04	3.37E-03	3.87E-03	0.00E+00	3.92E-03	3.80E-03	1051.8	15	1.17E-01	0.10	8.33E+01	3.37E-03	4.00E+02	3.85E+268	5.40E-05	6.31E-06	NA	NA
135988	sec-Butylbenzene	9.15E-02	1.79E-04	7.92E-03	9.21E-03	0.00E+00	3.72E-04	6.55E-03	1051.8	15	9.15E+01	0.10	8.33E+01	7.92E-03	4.00E+02	1.96E+114	9.02E-05	8.25E-03	NA	NA
141786	Ethylacetate	4.91E-03	1.79E-04	1.02E-02	1.18E-02	0.00E+00	6.14E-04	8.98E-03	1051.8	15	4.91E+00	0.10	8.33E+01	1.02E-02	4.00E+02	9.50E+88	1.20E-04	5.92E-04	NA	NA
156592	cis-1,2-Dichloroethylene	1.47E-01	1.79E-04	1.02E-02	1.19E-02	0.00E+00	4.77E-04	8.44E-03	1051.8	15	1.47E+02	0.10	8.33E+01	1.02E-02	4.00E+02	3.27E+88	1.14E-04	1.68E-02	NA	NA
156605	trans-1,2-Dichloroethylene	3.43E-01	1.79E-04	9.82E-03	1.14E-02															

TABLE G-50

Johnson-Ettinger Modeling—Groundwater (35 feet) Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

CAS NO.	Chemical Name	Indoor Exposure Groundwater Concentration Carcinogen (mg/L)	Indoor Exposure Groundwater Concentration Noncarcinogen (mg/L)
56235	Carbon tetrachloride	2.1E+00	2.1E+03
57749	Chlordane	1.1E+03	2.8E+04
58899	gamma-HCH (Lindane)	1.1E+03	NA
60297	Ethyl ether	NA	NA
60571	Dieldrin	8.1E+01	NA
67641	Acetone	NA	1.7E+08
67663	Chloroform	9.1E+00	7.3E+03
67721	Hexachloroethane	1.8E+03	NA
71432	Benzene	2.0E+01	1.6E+03
71556	1,1,1-Trichloroethane	NA	1.0E+05
72435	Methoxychlor	NA	NA
72559	DDE	NA	NA
74839	Methyl bromide	NA	2.8E+02
74873	Methyl chloride (chloromethane)	3.7E+01	2.1E+03
74908	Hydrogen cyanide	NA	3.3E+03
74953	Methylene bromide	NA	NA
75003	Chloroethane (ethyl chloride)	NA	1.3E+05
75014	Vinyl chloride (chloroethene)	5.8E+00	9.1E+02
75058	Acetonitrile	NA	3.3E+05
75070	Acetaldehyde	3.3E+03	2.3E+04
75092	Methylene chloride	7.2E+02	1.3E+05
75150	Carbon disulfide	NA	5.9E+03
75218	Ethylene oxide	1.4E+01	NA
75252	Bromoform	6.8E+03	NA
75274	Bromodichloromethane	NA	NA
75296	2-Chloropropane	NA	NA
75343	1,1-Dichloroethane	1.1E+02	NA
75354	1,1-Dichloroethylene	NA	2.2E+03
75456	Chlorodifluoromethane	NA	4.6E+05
75694	Trichlorofluoromethane	NA	2.1E+03
75718	Dichlorodifluoromethane	NA	2.3E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethane	NA	2.1E+04
76448	Heptachlor	3.8E-03	NA
77474	Hexachlorocyclopentadiene	NA	1.2E+01
78831	Isobutanol	NA	NA
78875	1,2-Dichloropropane	3.4E+01	4.9E+02
78933	Methylethylketone (2-butanone)	NA	2.6E+07
79005	1,1,2-Trichloroethane	6.6E+01	NA
79016	Trichloroethylene	4.6E+01	NA
79209	Methyl acetate	NA	NA
79345	1,1,2,2-Tetrachloroethane	5.3E+01	NA
79469	2-Nitropropane	2.4E+00	4.6E+04
80626	Methylmethacrylate	NA	7.2E+05
83329	Acenaphthene	NA	NA
86737	Fluorene	NA	NA
87683	Hexachloro-1,3-butadiene	7.8E+00	NA
88722	o-Nitrotoluene	NA	NA
91203	Naphthalene	7.9E+01	2.9E+03
91576	2-Methylnaphthalene	NA	NA
92524	Biphenyl	NA	NA
95476	o-Xylene	NA	4.3E+04
95501	1,2-Dichlorobenzene	NA	4.2E+04
95578	2-Chlorophenol	NA	NA
95636	1,2,4-Trimethylbenzene	NA	5.2E+02
96184	1,2,3-Trichloropropane	NA	NA

TABLE G-50

Johnson-Ettinger Modeling—Groundwater (35 feet) Screening Levels
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

CAS NO.	Chemical Name	Indoor Exposure Groundwater Concentration Carcinogen (mg/L)	Indoor Exposure Groundwater Concentration Noncarcinogen (mg/L)
96333	Methyl acrylate	NA	NA
97632	Ethylmethacrylate	NA	NA
98066	tert-Butylbenzene	NA	NA
98828	Cumene	NA	1.2E+04
98862	Acetophenone	NA	NA
98953	Nitrobenzene	NA	2.7E+04
100414	Ethylbenzene	5.2E+01	4.6E+04
100425	Styrene	NA	1.4E+05
100447	Benzylchloride	NA	8.7E+02
100527	Benzaldehyde	NA	NA
103651	n-Propylbenzene	NA	NA
104518	n-Butylbenzene	NA	NA
106423	p-Xylene	NA	3.3E+04
106467	1,4-Dichlorobenzene	4.2E+01	1.3E+05
106934	1,2-Dibromoethane (ethylene dibromide)	7.0E+00	1.3E+04
106990	1,3-Butadiene	1.6E-01	3.3E+00
107028	Acrolein	NA	4.0E+01
107062	1,2-Dichloroethane	2.9E+01	6.4E+05
107131	Acrylonitrile	8.7E+01	4.2E+03
108054	Vinyl acetate	NA	1.2E+05
108101	Methylisobutylketone (4-methyl-2-pentanone)	NA	7.5E+06
108383	m-Xylene	NA	3.7E+04
108383/1	m,p-Xylene	NA	NA
108678	1,3,5-Trimethylbenzene	NA	4.7E+02
108872	Methylcyclohexane	NA	NA
108883	Toluene	NA	2.4E+05
108907	Chlorobenzene	NA	5.0E+03
109693	1-Chlorobutane	NA	NA
124481	Chlorodibromomethane	NA	NA
126987	Methacrylonitrile	NA	6.8E+02
126998	2-Chloro-1,3-butadiene (chloroprene)	NA	1.8E+02
127184	Tetrachloroethylene	9.7E+00	5.5E+03
129000	Pyrene	NA	NA
132649	Dibenzofuran	NA	NA
135988	sec-Butylbenzene	NA	NA
141786	Ethylacetate	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA
156605	trans-1,2-Dichloroethylene	NA	2.3E+03
205992	Benzo(b)fluoranthene	2.9E+02	NA
218019	Chrysene	3.0E+03	NA
309002	Aldrin	6.7E+00	NA
319846	alpha-HCH (alpha-BHC)	2.3E+02	NA
541731	1,3-Dichlorobenzene	NA	NA
542756	1,3-Dichloropropene	1.7E+01	4.8E+02
593602	Bromoethene (Bromomethane used as Surrogate)	NA	2.8E+02
630206	1,1,1,2-Tetrachloroethane	6.1E+01	NA
1634044	MTBE	4.5E+03	1.2E+06
7439976	Mercury (elemental)	NA	2.6E+01

Notes:

mg/L = milligram per liter

NA = not available

Appendix H
Offsite Exposure Area Risk Estimates

Offsite Exposure Area Risk Estimates

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TABLE H-1

Offsite Exposure Area Summary Stats and Initial Screening for Soil

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (mg/kg)	Lowest RSL (mg/kg)	Max. Conc. > RSL	RSL Type
1,2,4-TRIMETHYLBENZENE	95-63-6	0	2	0%	--	62	No	Residential Soil SL Noncancer
1,4-DICHLOROBENZENE	106-46-7	0	2	0%	--	2.4	No	Residential Soil SL Cancer
BENZENE	71-43-2	0	2	0%	--	1.1	No	Residential Soil SL Cancer
BENZO(A)ANTHRACENE	56-55-3	0	2	0%	--	0.15	No	Residential Soil SL Cancer
BENZO(A)PYRENE	50-32-8	0	2	0%	--	0.015	No	Residential Soil SL Cancer
BENZO(B)FLUORANTHENE	205-99-2	0	2	0%	--	0.15	No	Residential Soil SL Cancer
ETHYLBENZENE	100-41-4	0	2	0%	--	5.4	No	Residential Soil SL Cancer
INDENO(1,2,3-CD)PYRENE	193-39-5	0	2	0%	--	0.15	No	Residential Soil SL Cancer
NAPHTHALENE	91-20-3	0	2	0%	--	3.6	No	Residential Soil SL Cancer
TETRACHLOROETHENE	127-18-4	0	2	0%	--	0.55	No	Residential Soil SL Cancer
TRICHLOROETHENE	79-01-6	0	2	0%	--	2.8	No	Residential Soil SL Cancer

NOTES:

CAS = Chemical Abstract Services

mg/kg = milligram per kilogram

Max. Conc. = maximum concentration

MCL = maximum contaminant level

RSL = regional screening level

SL = screening level

-- = chemical not detected

TABLE H-2

Exposure Area Summary Stats and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Sub-unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	RSL Type
SRG	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	119	0%	--		Residential Tap Water SL Cancer
SRG	1,1,2-TRICHLOROETHANE	79-00-5	0	119	0%	--		Residential Tap Water SL Cancer
SRG	1,1-DICHLOROETHANE	75-34-3	86	146	59%	15	Yes	Residential Tap Water SL Cancer
SRG	1,1-DICHLOROETHENE	75-35-4	85	145	59%	23	Yes	Residential Tap Water MCL
SRG	1,2,4-TRIMETHYLBENZENE	95-63-6	1	119	1%	3.8		Residential Tap Water SL Noncancer
SRG	1,2-DICHLOROETHANE	107-06-2	1	145	1%	0.5	Yes	Residential Tap Water SL Cancer
SRG	1,4-DICHLOROBENZENE	106-46-7	0	118	0%	--		Residential Tap Water SL Cancer
SRG	BENZENE	71-43-2	3	139	2%	5.6	Yes	Residential Tap Water SL Cancer
SRG	BROMODICHLOROMETHANE	75-27-4	3	139	2%	7.8	Yes	Residential Tap Water SL Cancer
SRG	CHLORODIBROMOMETHANE	124-48-1	1	119	1%	3.9	Yes	Residential Tap Water SL Cancer
SRG	CHLOROFORM	67-66-3	38	139	27%	12	Yes	Residential Tap Water SL Cancer
SRG	CHROMIUM	7440-47-3	0	1	0%	--		Residential Tap Water MCL
SRG	CIS-1,2-DICHLOROETHENE	156-59-2	98	146	67%	130	Yes	Residential Tap Water MCL
SRG	ETHYLBENZENE	100-41-4	3	119	3%	8.2	Yes	Residential Tap Water SL Cancer
SRG	IRON	7439-89-6	0	2	0%	--		Residential Tap Water SL Noncancer
SRG	METHYL TERT-BUTYL ETHER	1634-04-4	0	119	0%	--		Residential Tap Water SL Cancer
SRG	METHYLENE CHLORIDE	75-09-2	0	119	0%	--		Residential Tap Water SL Cancer
SRG	NAPHTHALENE	91-20-3	1	114	1%	9.2	Yes	Residential Tap Water SL Cancer
SRG	TETRACHLOROETHENE	127-18-4	90	146	62%	14	Yes	Residential Tap Water SL Cancer
SRG	TRICHLOROETHENE	79-01-6	141	146	97%	330	Yes	Residential Tap Water SL Cancer
SRG	VINYL CHLORIDE	75-01-4	1	146	1%	0.5	Yes	Residential Tap Water SL Cancer
SRG	XYLENES, TOTAL	1330-20-7	3	135	2%	6.1		Residential Tap Water SL Noncancer
Basin Fill	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	82	0%	--		Residential Tap Water SL Cancer
Basin Fill	1,1,2-TRICHLOROETHANE	79-00-5	0	82	0%	--		Residential Tap Water SL Cancer
Basin Fill	1,1-DICHLOROETHANE	75-34-3	79	124	64%	25	Yes	Residential Tap Water SL Cancer
Basin Fill	1,1-DICHLOROETHENE	75-35-4	89	124	72%	55	Yes	Residential Tap Water MCL
Basin Fill	1,2,4-TRIMETHYLBENZENE	95-63-6	0	82	0%	--		Residential Tap Water SL Noncancer
Basin Fill	1,2-DICHLOROETHANE	107-06-2	0	121	0%	--		Residential Tap Water SL Cancer
Basin Fill	1,4-DICHLOROBENZENE	106-46-7	0	82	0%	--		Residential Tap Water SL Cancer
Basin Fill	BENZENE	71-43-2	1	119	1%	1.1	Yes	Residential Tap Water SL Cancer
Basin Fill	BROMODICHLOROMETHANE	75-27-4	2	119	2%	4.9	Yes	Residential Tap Water SL Cancer
Basin Fill	CHLORODIBROMOMETHANE	124-48-1	1	82	1%	2	Yes	Residential Tap Water SL Cancer
Basin Fill	CHLOROFORM	67-66-3	17	119	14%	3.5	Yes	Residential Tap Water SL Cancer
Basin Fill	CIS-1,2-DICHLOROETHENE	156-59-2	102	124	82%	280	Yes	Residential Tap Water MCL
Basin Fill	ETHYLBENZENE	100-41-4	3	82	4%	3.4	Yes	Residential Tap Water SL Cancer

TABLE H-2

Exposure Area Summary Stats and Initial Screening for Groundwater

Focused Human Health Risk Assessment Report

Honeywell 34th Street Facility, Phoenix, Arizona

Hydrostratigraphic Sub-unit	Analyte	CAS Number	Number of Detections	Number of Samples	Detection Frequency	Maximum Detection (µg/L)	Max. Conc. > RSL	RSL Type
Basin Fill	METHYL TERT-BUTYL ETHER	1634-04-4	0	82	0%	--		Residential Tap Water SL Cancer
Basin Fill	METHYLENE CHLORIDE	75-09-2	0	82	0%	--		Residential Tap Water SL Cancer
Basin Fill	NAPHTHALENE	91-20-3	2	70	3%	2.9	Yes	Residential Tap Water SL Cancer
Basin Fill	TETRACHLOROETHENE	127-18-4	45	124	36%	8.2	Yes	Residential Tap Water SL Cancer
Basin Fill	TRICHLOROETHENE	79-01-6	110	123	89%	430	Yes	Residential Tap Water SL Cancer
Basin Fill	VINYL CHLORIDE	75-01-4	0	124	0%	--		Residential Tap Water SL Cancer
Basin Fill	XYLENES, TOTAL	1330-20-7	2	107	2%	5.2		Residential Tap Water SL Noncancer
Bedrock	1,1,2,2-TETRACHLOROETHANE	79-34-5	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	1,1,2-TRICHLOROETHANE	79-00-5	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	1,1-DICHLOROETHANE	75-34-3	7	23	30%	19	Yes	Residential Tap Water SL Cancer
Bedrock	1,1-DICHLOROETHENE	75-35-4	10	23	43%	28	Yes	Residential Tap Water MCL
Bedrock	1,2,4-TRIMETHYLBENZENE	95-63-6	0	20	0%	--		Residential Tap Water SL Noncancer
Bedrock	1,2-DICHLOROETHANE	107-06-2	0	21	0%	--		Residential Tap Water SL Cancer
Bedrock	1,4-DICHLOROBENZENE	106-46-7	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	BENZENE	71-43-2	4	20	20%	1.8	Yes	Residential Tap Water SL Cancer
Bedrock	BROMODICHLOROMETHANE	75-27-4	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	CHLORODIBROMOMETHANE	124-48-1	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	CHLOROFORM	67-66-3	3	20	15%	0.69	Yes	Residential Tap Water SL Cancer
Bedrock	CIS-1,2-DICHLOROETHENE	156-59-2	11	23	48%	30		Residential Tap Water MCL
Bedrock	ETHYLBENZENE	100-41-4	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	METHYL TERT-BUTYL ETHER	1634-04-4	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	METHYLENE CHLORIDE	75-09-2	0	20	0%	--		Residential Tap Water SL Cancer
Bedrock	NAPHTHALENE	91-20-3	0	12	0%	--		Residential Tap Water SL Cancer
Bedrock	TETRACHLOROETHENE	127-18-4	6	23	26%	4.8	Yes	Residential Tap Water SL Cancer
Bedrock	TRICHLOROETHENE	79-01-6	18	23	78%	110	Yes	Residential Tap Water SL Cancer
Bedrock	VINYL CHLORIDE	75-01-4	4	23	17%	1.2	Yes	Residential Tap Water SL Cancer
Bedrock	XYLENES, TOTAL	1330-20-7	0	12	0%	--		Residential Tap Water SL Noncancer

Notes:

µg/L = microgram per liter

CAS = Chemical Abstract Services

Max. Conc. = maximum concentration

MCL = maximum contaminant level

RSL = regional screening level

SL = screening level

SRG = salt river gravels

-- = chemical not detected

TABLE H-3
Offsite Exposure Area Exposure Point Concentrations for Groundwater
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

COPC	CAS Number	Detection Count	Sample Count	Detection Frequency	Maximum Detection (µg/L)	UCL Value	UCL Type	EPC	EPC Type
SRG sub-unit									
1,1-DICHLOROETHANE	75-34-3	86	146	59%	15	5.1	95% KM (t) UCL	5.1	UCL
1,1-DICHLOROETHENE	75-35-4	85	145	59%	23	5.9	95% KM (t) UCL	5.9	UCL
1,2-DICHLOROETHANE	107-06-2	1	145	1%	0.5	--	Not Processed - Too Few Unique Detected Values	0.5	Maximum Detection
BENZENE	71-43-2	3	139	2%	5.6	1.3	95% KM (t) UCL	1.3	UCL
BROMODICHLOROMETHANE	75-27-4	3	139	2%	7.8	0.39	95% KM (t) UCL	0.39	UCL
CHLORODIBROMOMETHANE	124-48-1	1	119	1%	3.9	--	Not Processed - Too Few Unique Detected Values	3.9	Maximum Detection
CHLOROFORM	67-66-3	38	139	27%	12	1.9	97.5% KM (Chebyshev) UCL	1.9	UCL
CIS-1,2-DICHLOROETHENE	156-59-2	98	146	67%	130	14	95% KM (Percentile Bootstrap) UCL	14	UCL
ETHYLBENZENE	100-41-4	3	119	3%	8.2	2.7	95% KM (t) UCL	2.7	UCL
NAPHTHALENE	91-20-3	1	114	1%	9.2	--	Not Processed - Too Few Unique Detected Values	9.2	Maximum Detection
TETRACHLOROETHENE	127-18-4	90	146	62%	14	3	95% KM (BCA) UCL	3	UCL
TRICHLOROETHENE	79-01-6	141	146	97%	330	57	95% KM (Chebyshev) UCL	57	UCL
VINYL CHLORIDE	75-01-4	1	146	1%	0.5	--	Not Processed - Too Few Unique Detected Values	0.5	Maximum Detection
Basin Fill sub-unit									
1,1-DICHLOROETHANE	75-34-3	79	124	64%	25	6.5	95% KM (Percentile Bootstrap) UCL	6.5	UCL
1,1-DICHLOROETHENE	75-35-4	89	124	72%	55	12	95% KM (Percentile Bootstrap) UCL	12	UCL
BENZENE	71-43-2	1	119	1%	1.1	--	Not Processed - Too Few Unique Detected Values	1.1	Maximum Detection
BROMODICHLOROMETHANE	75-27-4	2	119	2%	4.9	2.3	97.5% KM (Chebyshev) UCL	2.3	UCL
CHLORODIBROMOMETHANE	124-48-1	1	82	1%	2	--	Not Processed - Too Few Unique Detected Values	2	Maximum Detection
CHLOROFORM	67-66-3	17	119	14%	3.5	0.95	95% KM (t) UCL	0.95	UCL
CIS-1,2-DICHLOROETHENE	156-59-2	102	124	82%	280	44	95% KM (Chebyshev) UCL	44	UCL
ETHYLBENZENE	100-41-4	3	82	4%	3.4	2.1	95% KM (t) UCL	2.1	UCL
NAPHTHALENE	91-20-3	2	70	3%	2.9	2	95% KM (t) UCL	2	UCL
TETRACHLOROETHENE	127-18-4	45	124	36%	8.2	1.7	95% KM (t) UCL	1.7	UCL
TRICHLOROETHENE	79-01-6	110	123	89%	430	110	95% KM (Chebyshev) UCL	110	UCL

TABLE H-3
 Offsite Exposure Area Exposure Point Concentrations for Groundwater
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

COPC	CAS Number	Detection Count	Sample Count	Detection Frequency	Maximum Detection (µg/L)	UCL Value	UCL Type	EPC	EPC Type
Bedrock									
1,1-DICHLOROETHANE	75-34-3	7	23	30%	19	19	99% KM (Chebyshev) UCL	19	UCL
1,1-DICHLOROETHENE	75-35-4	10	23	43%	28	28	99% KM (Chebyshev) UCL	28	UCL
BENZENE	71-43-2	4	20	20%	1.8	1.3	95% KM (t) UCL	1.3	UCL
CHLOROFORM	67-66-3	3	20	15%	0.69	0.6	95% KM (t) UCL	0.6	UCL
TETRACHLOROETHENE	127-18-4	6	23	26%	4.8	2.1	95% KM (t) UCL	2.1	UCL
TRICHLOROETHENE	79-01-6	18	23	78%	110	120	99% KM (Chebyshev) UCL	120	UCL
VINYL CHLORIDE	75-01-4	4	23	17%	1.2	1	95% KM (t) UCL	1	UCL

Notes:
 µg/L = microgram per liter
 CAS = Chemical Abstract Service
 COPC = chemical of potential concern
 SRG = salt river gravels
 UCL = upper confidence limit
 -- = not applicable

TABLE H-4

Offsite Exposure Area Exposure Point Concentrations
 for Groundwater-To-Indoor Air (in µg/L)
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Analyte Name	Location ID	ASE-29A	ASE-33A	ASE-60A	ASE-61A	ASE-70A	ASE-71A	ASE-72A	ASE-73A	ASE-76A	ASE-77A	ASE-81A	ASE-85A	ASE-86A	BC-12	BC-16	BC-17	BC-3
1,1,1-TRICHLOROETHANE																		
1,1-DICHLOROETHANE				0.75	0.9		11	10	6.5	8.2	12		7.9	7.5				
1,1-DICHLOROETHENE			8.6	1.9	2.6	17	3.4	13	9.1	11	11	11	14	23		15	5.6	11
1,2,4-TRIMETHYLBENZENE																		
1,2-DICHLOROETHANE																		
BENZENE											1.2				1.7			
BROMODICHLOROMETHANE		2.1			0.21											7.8		
CHLOROBENZENE				0.18	0.16													
CHLORODIBROMOMETHANE		2															3.9	
CHLOROFORM		3.2	2.1	4.6	1.3	2.8		2			2.5	2.4	2	2.9		12	2.3	2
CIS-1,2-DICHLOROETHENE			37	1.1		64	18	34	22		48	36	31	130		61	18	40
ETHYLBENZENE										2.6	3.3							
ISOPROPYLBENZENE																		
NAPHTHALENE																		
N-PROPYLBENZENE				0.15	0.18													
TETRACHLOROETHENE			2.5	2	2.2	7.8	2	7	3.5		12	5.4	4.9	14		7.5	5.1	6.7
TOLUENE				0.15	0.17													
TRANS-1,2-DICHLOROETHENE								2.2										
TRICHLOROETHENE		2.7	85	110	22	120	71	190	52	9	140	50	120	330	8	110	34	67
VINYL CHLORIDE																		
XYLENES, TOTAL										3.9	4.8							

Notes:

ID = identification

µg/L = microgram per liter

TABLE H-4

Offsite Exposure Area Exposure Point Concentrations
for Groundwater-To-Indoor Air (in µg/L)
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Analyte Name	Location ID	BC-9	BR-5	DM-518-OB1	EW-06	EW-S	NW-8S	PHXA-06
1,1,1-TRICHLOROETHANE			0.5	0.5				
1,1-DICHLOROETHANE		9.8	0.5	5.3	9	15	14	13
1,1-DICHLOROETHENE			10	14	8	17	15	12
1,2,4-TRIMETHYLBENZENE								3.8
1,2-DICHLOROETHANE			0.5	0.5				
BENZENE								5.6
BROMODICHLOROMETHANE					1.2			
CHLOROBENZENE								
CHLORODIBROMOMETHANE								
CHLOROFORM					1.8	1.2	1.9	1.1
CIS-1,2-DICHLOROETHENE		16	45	77	2.9	23	47	4.5
ETHYLBENZENE								8.2
ISOPROPYLBENZENE								2
NAPHTHALENE								9.2
N-PROPYLBENZENE								2
TETRACHLOROETHENE		1.3	7.3	11	1.4	5	7.4	1.5
TOLUENE								
TRANS-1,2-DICHLOROETHENE			0.99	0.5				
TRICHLOROETHENE		84	88	260	22	85	160	11
VINYL CHLORIDE			0.5	0.5				
XYLENES, TOTAL								6.1

Notes:

ID = identification

µg/L = microgram per liter

TABLE H-5

Summary of Hypothetical Risk and Hazard Estimates for Groundwater Used as Tap Water in the Offsite Exposure Area
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

			Hypothetical Residential Exposure Scenario for Groundwater Used as Tapwater							
			Cancer - ELCR				Noncancer - HQ			
COPC	Selected EPC Type	Selected EPC (µg/L)	Ingestion	Inhalation	Total	Percent Contribution	Ingestion	Inhalation	Total	Percent Contribution
Salt River Gravels sub-unit										
1,1-DICHLOROETHANE	UCL	5.1	4.2E-07	1.7E-06	2.1E-06	1%	6.9E-04		6.9E-04	0%
1,1-DICHLOROETHENE	UCL	5.9					3.3E-03	1.4E-02	1.7E-02	1%
1,2-DICHLOROETHANE	Max. Conc.	0.5	6.8E-07	2.6E-06	3.3E-06	2%	6.8E-04	9.8E-05	7.8E-04	0%
BENZENE	UCL	1.3	1.1E-06	2.1E-06	3.2E-06	2%	8.7E-03	2.1E-02	3.0E-02	2%
BROMODICHLOROMETHANE	UCL	0.39	3.6E-07	3.0E-06	3.3E-06	2%	5.4E-04		5.4E-04	0%
CHLORODIBROMOMETHANE	Max. Conc.	3.9	4.9E-06	2.2E-05	2.6E-05	13%	5.3E-03		5.3E-03	0%
CHLOROFORM	UCL	1.9	8.8E-07	9.2E-06	1.0E-05	5%	5.2E-03	9.7E-03	1.5E-02	1%
CIS-1,2-DICHLOROETHENE	UCL	14					1.9E-01		1.9E-01	11%
ETHYLBENZENE	UCL	2.7	4.5E-07	1.4E-06	1.8E-06	1%	7.4E-04	1.3E-03	2.1E-03	0%
NAPHTHALENE	Max. Conc.	9.2		6.6E-05	6.6E-05	32%	1.3E-02	1.5E+00	1.5E+00	84%
TETRACHLOROETHENE	UCL	3	2.5E-05	3.7E-06	2.7E-05	13%	8.1E-03	5.3E-03	1.4E-02	1%
TRICHLOROETHENE	UCL	57	5.2E-06	2.4E-05	2.9E-05	14%				
VINYL CHLORIDE	Max. Conc.	0.5	2.9E-05	1.6E-06	3.1E-05	15%	4.5E-03	2.4E-03	6.9E-03	0%
		TOTALS	7E-05	1E-04	2E-04		2E-01	2E+00	2E+00	
Basin Fill sub-unit										
1,1-DICHLOROETHANE	UCL	6.5	5.4E-07	2.2E-06	2.7E-06	2%	8.9E-04		8.9E-04	0%
1,1-DICHLOROETHENE	UCL	12					6.7E-03	2.9E-02	3.5E-02	3%
BENZENE	Max. Conc.	1.1	9.2E-07	1.8E-06	2.7E-06	2%	7.3E-03	1.7E-02	2.5E-02	2%
BROMODICHLOROMETHANE	UCL	2.3	2.1E-06	1.8E-05	1.9E-05	15%	3.2E-03		3.2E-03	0%
CHLORODIBROMOMETHANE	Max. Det.	2	2.5E-06	1.1E-05	1.3E-05	10%	2.7E-03		2.7E-03	0%
CHLOROFORM	UCL	0.95	4.3E-07	4.5E-06	5.0E-06	4%	2.6E-03	4.7E-03	7.3E-03	1%
CIS-1,2-DICHLOROETHENE	UCL	44					6.0E-01		6.0E-01	59%
ETHYLBENZENE	UCL	2.1	3.4E-07	1.1E-06	1.4E-06	1%	5.6E-04	9.9E-04	1.6E-03	0%
NAPHTHALENE	UCL	2		1.5E-05	1.5E-05	11%	2.8E-03	3.2E-01	3.3E-01	33%
TETRACHLOROETHENE	UCL	1.7	1.4E-05	2.1E-06	1.6E-05	12%	4.6E-03	3.0E-03	7.8E-03	1%
TRICHLOROETHENE	UCL	110	1.0E-05	4.6E-05	5.5E-05	43%				
		TOTALS	3E-05	1E-04	1E-04		6E-01	4E-01	1E+00	
Bedrock										
1,1-DICHLOROETHANE	UCL	19	1.6E-06	6.5E-06	8.1E-06	5%	2.7E-03		2.7E-03	2%
1,1-DICHLOROETHENE	UCL	28					1.6E-02	6.7E-02	8.3E-02	57%
BENZENE	UCL	1.3	1.1E-06	2.2E-06	3.3E-06	2%	8.9E-03	2.1E-02	3.0E-02	21%
CHLOROFORM	UCL	0.6	2.7E-07	2.9E-06	3.2E-06	2%	1.6E-03	3.0E-03	4.6E-03	3%
TETRACHLOROETHENE	UCL	2.1	1.7E-05	2.5E-06	1.9E-05	12%	5.6E-03	3.7E-03	9.5E-03	7%
TRICHLOROETHENE	UCL	120	1.1E-05	5.0E-05	5.9E-05	38%				
VINYL CHLORIDE	UCL	1	6.0E-05	3.2E-06	6.4E-05	41%	9.3E-03	4.9E-03	1.4E-02	10%
		TOTALS	9E-05	7E-05	2E-04		4E-02	1E-01	1E-01	

Notes:
 µg/L = microgram per liter
 COPC = chemical of potential concern
 ELCR = excess lifetime cancer risk
 EPC = exposure point concentration
 HQ = hazard quotient
 Max. Conc. = maximum concentration
 UCL = upper confidence limit

TABLE H-6

Summary of Risk Estimates for Groundwater in the Offsite Exposure Area
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Exposure Route	ELCR	Risk Drivers	Hazard Index	Risk Drivers
Salt River Gravels sub-unit				
Ingestion	7E-05	Naphthalene (32%); Vinyl Chloride (15%); Trichloroethene (14%); Tetrachloroethene (13%); Chlorodibromomethane (13%)	2E-01	Naphthalene (84%); cis-1,2- Dichloroethene (11%)
Inhalation	1E-04		2E+00	
Total	2E-04		2E+00	
Basin Fill sub-unit				
Ingestion	3E-05	Trichloroethene (43%); Bromodichloromethane (15%); Tetrachloroethene (12%); Naphthalene (11%); Chlorodibromomethane (10%)	6E-01	cis-1,2-Dichloroethene (59%); Naphthalene (33%)
Inhalation	1E-04		4E-01	
Total	1E-04		1E+00	
Bedrock				
Ingestion	3E-05	Naphthalene (42%); Tetrachloroethene (29%); Chloroform (17%)	3E-02	Naphthalene (94%)
Inhalation	6E-05		8E-01	
Total	8E-05		8E-01	

Notes:

ELCR = excess lifetime cancer risk

TABLE H-7

Summary of Risk Estimates in the Offsite Exposure Area
Focused Human Health Risk Assessment Report
Honeywell 34th Street Facility, Phoenix, Arizona

Potential Receptor	Maximum ELCR	Maximum HI
Groundwater ⁽¹⁾		
Resident	2E-04	2E+00
Groundwater-to-Indoor Air		
Resident	7E-05	1E-01
Industrial/Construction Worker	3E-06	7E-03

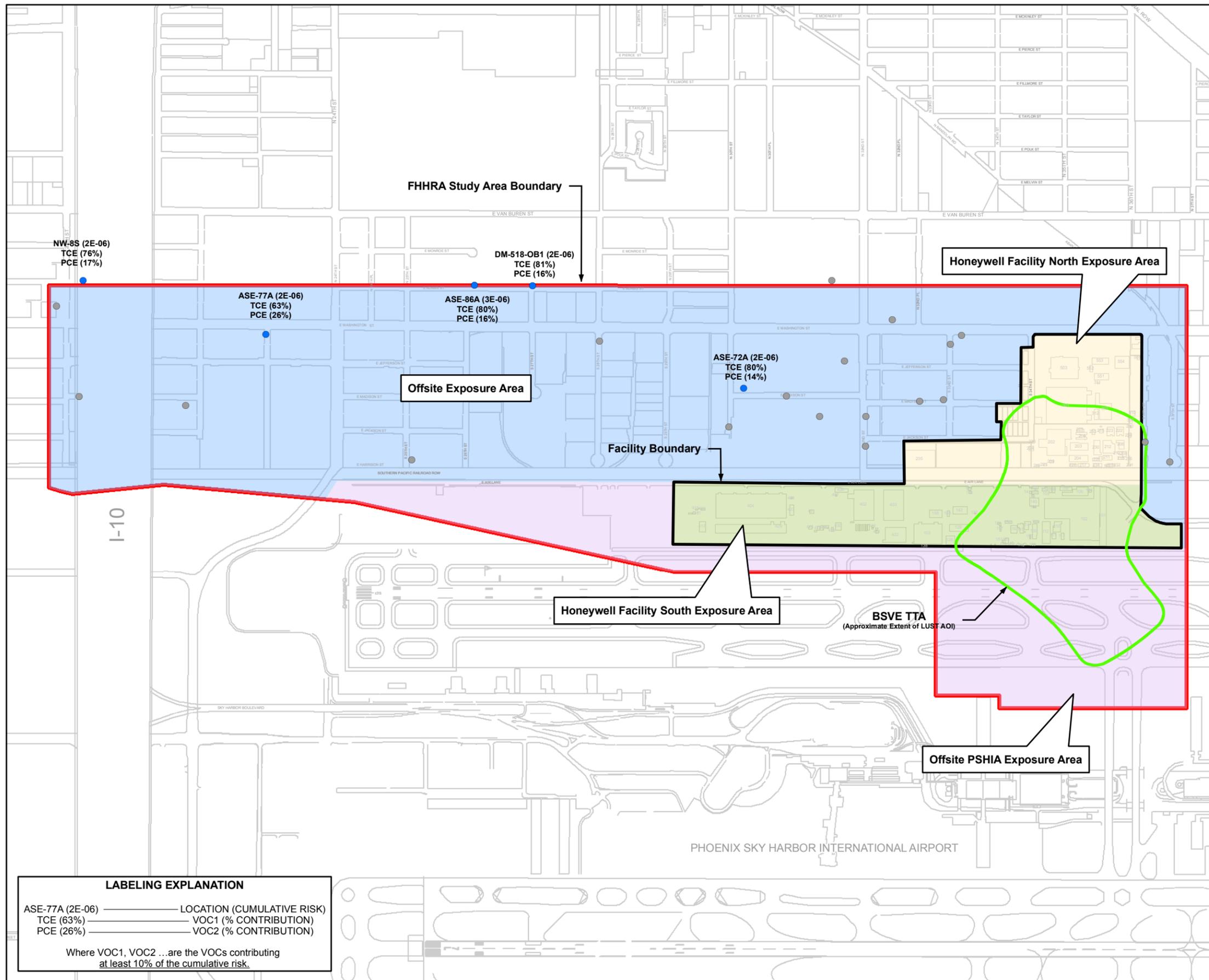
Notes:

ELCR = excess lifetime cancer risk

HI = hazard index

Risks and hazards exceeding their respective target criteria are in **bold** text.

⁽¹⁾ All max groundwater risks/hazards are in the Salt River Gravel sub-unit.



- LEGEND**
- ELCR ≤ 1E-06
 - ELCR > 1E-06 to ≤ 1E-05
 - BSVE Target Treatment Area (TTA)
 - Honeywell 34th Street Facility
 - Honeywell Facility North Exposure Area
 - Honeywell Facility South Exposure Area
 - Offsite PSHIA Exposure Area
 - Offsite Exposure Area
 - FHHRA Study Area
 - 404 Honeywell Buildings
 - Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:
- Refer to Figure Index for abbreviation/acronym definitions
 - The screening level results presented on this figure were based on:
 - The maximum concentrations from groundwater samples collected near the water table between 1/01/05 and 9/10/08; and
 - The groundwater to indoor air risk-based screening levels for an industrial worker exposure scenario are presented in Appendix G-5.
 - No location had a non-cancer hazard index greater than one.

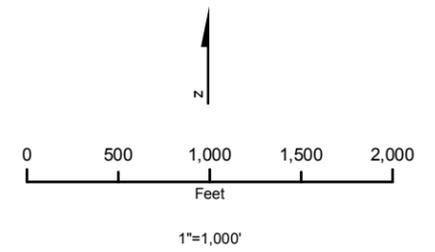
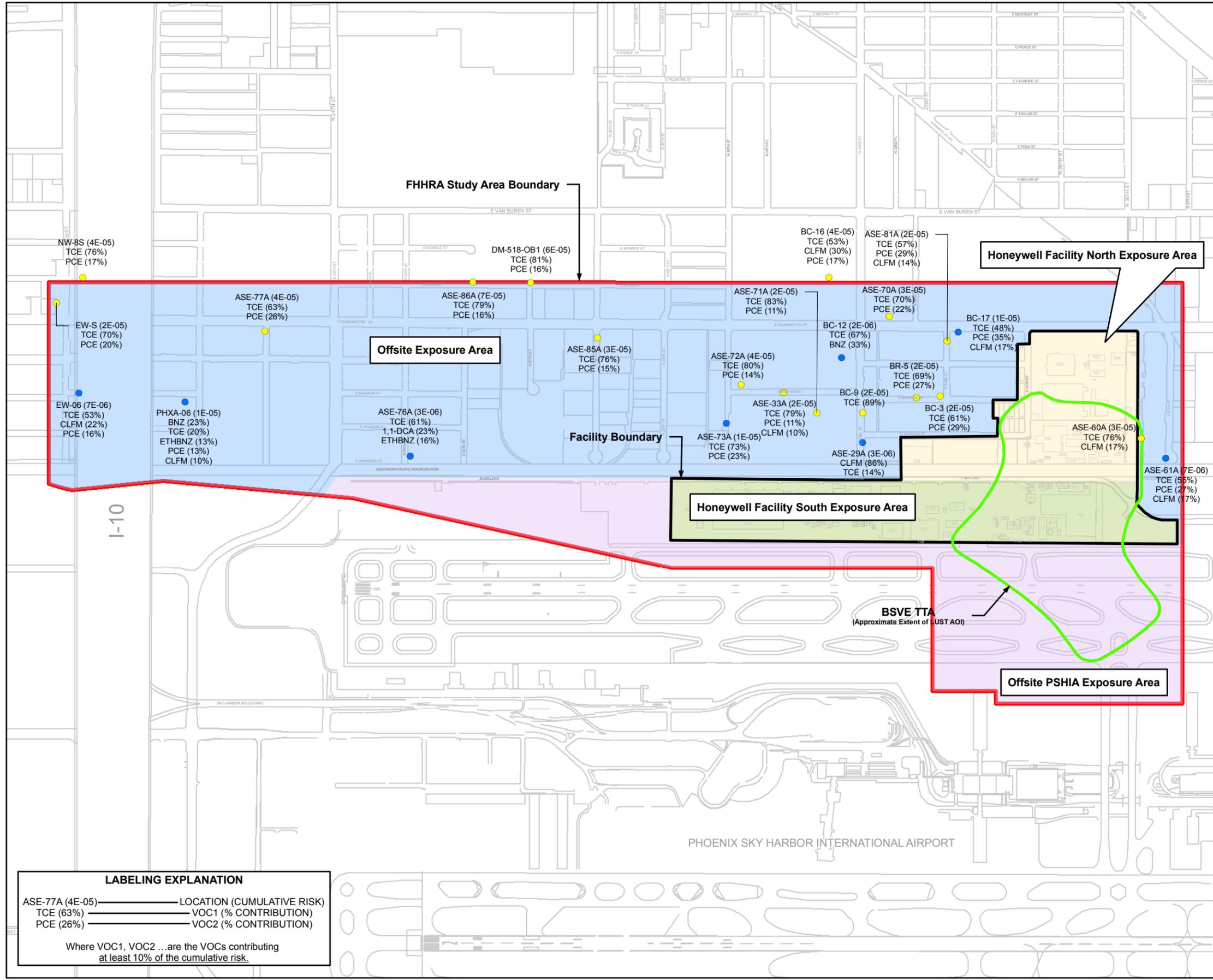


FIGURE H-1
OFFSITE EXPOSURE AREA
SCREENING LEVEL CUMULATIVE
CANCER RISKS FOR GROUNDWATER
TO INDUSTRIAL INDOOR AIR
 Honeywell 34th Street Facility
 Phoenix, Arizona

LABELING EXPLANATION

ASE-77A (2E-06)	LOCATION (CUMULATIVE RISK)
TCE (63%)	VOC1 (% CONTRIBUTION)
PCE (26%)	VOC2 (% CONTRIBUTION)

Where VOC1, VOC2 ... are the VOCs contributing at least 10% of the cumulative risk.



- LEGEND**
- ELCR > 1E-06 to ≤ 1E-05
 - ELCR > 1E-05 to ≤ 1E-04
 - ▭ Honeywell 34th Street Facility
 - ▭ FHHRA Study Area
 - ▭ BSVE Target Treatment Area (TTA)
 - ▭ Honeywell Facility North Exposure Area
 - ▭ Honeywell Facility South Exposure Area
 - ▭ Offsite PSHIA Exposure Area
 - ▭ Offsite Exposure Area
 - 404 Honeywell Buildings
 - Street and Airport Features

Originator: Andrew O'Malley	<i>Andrew O'Malley</i> (Signature)
Checked by: Corey Schwabenlander	<i>Corey Schwabenlander</i> (Signature)
Approved by STC or PM: Loren Lund	<i>Loren Lund</i> (Signature)

- Notes:**
1. Refer to Figure Index for abbreviation/acronym definitions
 2. The screening level results presented on this figure were based on:
 - a. The maximum concentrations from groundwater samples collected near the water table between 1/01/05 and 9/10/08; and
 - b. The groundwater to indoor air risk-based screening levels for an industrial worker exposure scenario are presented in Appendix G-5.
 3. No location had a non-cancer hazard index greater than one.

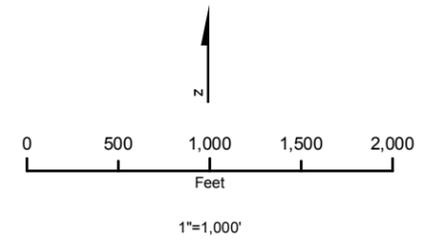


FIGURE H-2
OFFSITE EXPOSURE AREA
SCREENING LEVEL CUMULATIVE
CANCER RISKS FOR GROUNDWATER
TO RESIDENTIAL INDOOR AIR
 Honeywell 34th Street Facility
 Phoenix, Arizona

LABELING EXPLANATION

ASE-77A (4E-05) — LOCATION (CUMULATIVE RISK)
 TCE (63%) — VOC1 (% CONTRIBUTION)
 PCE (26%) — VOC2 (% CONTRIBUTION)

Where VOC1, VOC2 ... are the VOCs contributing at least 10% of the cumulative risk.

Appendix I
Preliminary Air Exchange Rates
for Select Buildings

APPENDIX I

Preliminary Air Exchange

Contents

Table I-1 Preliminary Air Exchange Rates for Select Buildings

TABLE I-1

Preliminary Air Exchange Rates for Select Buildings
 Focused Human Health Risk Assessment Report
 Honeywell 34th Street Facility, Phoenix, Arizona

Building	Age of Equipment	Air Conditioning Air Flow Rate	Percent Outside Air	AC Ventilation Outside Air Flow Rate	Evaporative Cooling Ventilation Flow Rate (100% outside air)	Process Exhaust	Outside Air Supply	Floor Area	Floor Height	No. of Floors	Volume	Air Exchange Rate	Notes
		CFM	%	CFM	CFM	CFM	CFM	ft ²	ft ²		ft ³	1/hr	
		C	D	= C * D	F	G	= E + F	I	J		= I * J	= H/L*60	
101	1951 - 1956	108,000	10%	10,800	0	2,000	10,800	34,711	10	2	694,220	0.9	
102	1951 - 1985	390,000	10%	39,000	0	30,000	39,000	183,038	12	2	4,392,912	0.5	Approximate first floor height
110	1956	16,000	10%	1,600	18,000	20,000	19,600	6,960	12	1	83,520	14	
114	1961	20,000	10%	2,000	30,000	35,000	32,000	3,825	12	1	45,900	42	Approximate first floor height
202	1954	31,000	10%	3,100	147,000	0	150,100	69,868	10	2	1,397,360	6	Ceilings are 10' to 22' high
301	1960 - 1981	282,000	10%	28,200	0	0	28,200	18,157	15	2	544,710	3	
302	1979	60,000	10%	6,000	3,000	7,800	9,000	23,241	12	2	557,784	1	

Notes:

CFM = cubic feet per minute

ft² = square feet

hr = hour