Human Health Risks for Native American Subsistence Use of the Umatilla Chemical Depot (UMCD)

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Version 1.0

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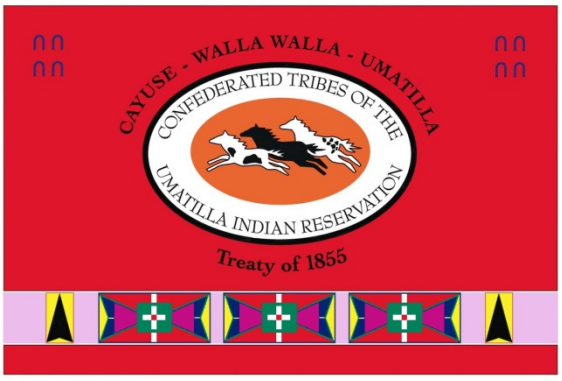

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1 Executive Summary

This report describes results of the risk assessment analysis for Area of Concern 15 detailed in the closure plan for the Umatilla Chemical Agent Disposal Facility (URS, 2013). Soil samples were collected from the Umatilla Chemical Depot (UMCD) in three areas. The first area (the baseline area) encompassed the lands to the west and south of the incinerator site and represent the area predicted to be least impacted by air deposition from the incinerator. The second area was immediately downwind of the incinerator and within an area designated for future industrial use (AOC-15A). The third area (AOC-15B) was further downwind from the incinerator and within the lands designated for habitat preservation. Individual samples were analyzed for a list of chemical species that were known to have been a component of the emissions from the UMCDF. These individual results were used to separately compute central tendency concentrations (95% Upper Confidence Limits, or UCL95) for each chemical species within the three sampling areas. These UCL95 values were applied to the risk analysis logic detailed in the closure plan to determine if further regulatory action was warranted for either AOC-15 areas.

In general, most of the measured inorganic species and dioxin and furans were present in AOC-15 soils at higher concentrations than in the baseline soils. Sixteen of the twenty inorganic compounds included in this study exhibited higher UCL95 values in either AOC-15A or AOC-15B than in the baseline soils. These sixteen species were vanadium, zinc, chromium, nickel, cobalt, lead, tin, boron, antimony, arsenic, cadmium, selenium, beryllium, silver, thallium, and mercury. Similarly, sixteen of the seventeen dioxin and furan compounds showed higher concentrations in one or more the AOC-15 data sets when compared to the corresponding baseline values. No dominant trend was evident in the PCB data.

A comparison was made of the concentrations of the inorganic elements included in this study with those reported by the Oregon Department of Environmental Quality for central and eastern Oregon soils is provided in Table 4-1 and Figure 4-6 (ODEQ, 2013). The comparison revealed that all UCL95 results were within the range defined by the regional maximum and minimum values except for Cadmium (Cd) in both AOC-15A and AOC-15B.

Risk analysis using the AOC-15A data revealed that only arsenic was present above both the baseline UCL95 and the industrial risk-based closure performance standard. Further analysis showed that both the individual contribution of arsenic to cancer and noncancer risks and the cumulative impacts of all measured COCs in AOC-15A were below typical regulatory action levels. No further corrective action is necessary for AOC-15A.

Application of baseline soil UCL95 concentrations to the Native American subsistence scenario results in an adult cancer risk and Hazard Index of 6.1×10^{-5} and 1.3, respectively. The risks to Native American children are 7.0×10^{-6} (cancer risk) and 1.4 (Hazard Index). Naturally occurring metals were the top contributors to both cancer and non-cancer risks for both adults and children. Arsenic was the highest contributor to cancer risk and Manganese to non-cancer risk.

Risk analysis using the Native American subsistence scenario with AOC-15B UCL95 concentrations results in an adult cancer risk and Hazard Index of 7.5×10^{-5} and 1.8, respectively. The risks to Native American children are 8.6×10^{-6} (cancer risk) and 2.0 (Hazard Index). Greater than 98% of the cancer risk results from lead and arsenic. Cadmium and manganese are the largest two contributors to noncancer risk.

The UMCDF closure plan establishes the need for additional regulatory intervention if incremental risk exceeds predefined action levels. Incremental risk is defined in the closure plan as the difference between results in AOC-15B and the baseline data. The cumulative incremental adult cancer risk for AOC-15B is 2×10^{-5} which is also above the regulatory action level of 1×10^{-5}. Approximately 94% of the increase in cancer risk resulted from the increase in arsenic concentration. Arsenic also exceeded the individual compound regulatory incremental risk level of 1×10^{-6}. Based on the closure plan decision process the ODEQ[1] will need to determine if further corrective actions are needed for AOC-15B. During these deliberations the ODEQ should consider the arsenic levels within AOC-15B in the broader context of all arsenic data for the UMCD and the region. Evaluation of natural variations along with potential historical sources of arsenic should also be part of these deliberations.

[1] ODEQ denote the Oregon Department of Environmental Quality.

2 Introduction

The Umatilla Chemical Depot (UMCD) was originally established by the U.S. Army in northeast Oregon as an ordnance facility for storing conventional munitions in 1941. The UMCD is comprised of 19,729 acres of which approximately 17,000 acres is government owned and the remainder is private lands which have restricted easements (U.S. Army 1996). During its now 70-year history, The UMCD has supported multiple war efforts, including the Korean Conflict, Vietnam, Grenada, Panama, Operation Desert Shield, and Operation Desert Storm. Besides its conventional ammunition and general supply missions, the depot received a new mission in 1962 – receiving and storing chemical ammunition. Between 1962 and 1969, the depot received various types of ammunition with the chemical nerve agents VX and GB, and the mustard blister agent HD (called mustard gas). A list of the chemical weapons stockpiled at the UMCD by 2000 is listed in Table 2-1.

Table 2-1: Chemical Weapons Stockpile at the Start of Weapons

Munitions	Agent	UMCDF Stockpile (Number of Munitions)
155mm projectile, M121A1	GB	47,406
155mm projectile, M121A1	VX	32,313
8-inch projectile, M426	GB	14,246
8-in projectile, M426	VX	3,752
M55 rocket	GB	91,375
M55 rocket	VX	14,513
M56 rocket warhead	GB	67
M56 rocket warhead	VX	6
M23 land mine	VX	11,685
MC-1 bomb (750 pounds)	GB	2,418
MK-94 bomb (500 pounds)	GB	27
Spray tanks	VX	156
Ton container	HD	2,635
Ton container	GB	4
Ton container	VX	1

Source: 2004 Risk Assessment Work Plan

In the mid-1980s, Congress directed the Army to dispose of the nation's aging chemical weapons stockpile. In 1988 the UMCD was placed on the Department of Defense Base Realignment and Closure list to review the future of the facility. It was decided that the base would be realigned and remain open until the chemical stockpile at the facility was destroyed. On April 25, 1997, the United States Senate ratified the Chemical Weapons Convention, an international treaty mandating stockpile destruction. In June 1997, construction started on the Umatilla Chemical Agent Disposal Facility (UMCDF) – the facility that would destroy the chemical ammunition stored at the UMCD. Construction was substantially complete in August 2001 and weapons destruction began 2004 and concluded in 2011. Subsequent decontamination, decommissioning, and closure activities for the UMCDF are scheduled to conclude in 2015 and the final closure of the entire facility under the Base Realignment and Closure Act will occur soon after.

Management of the transition of the closed facility will be managed by a local organization with representation from the local community. This organization, the Local Reuse Authority published an Army approved reuse plan in 2010 that serves as a guide for zoning and disposition

of the property. A mix of land uses including continued military use by the Oregon National Guard, industrial development, and habitat preservation are all part of the planed reuse of the facility (Figure 2-1).

Proper cleanup and closure of all portions of the UMCD are an important part in the reuse process. Clean-up and closure of the UMCD by the Army has been an ongoing activity since 1988 when the facility was first placed on the BRAC closure list. Cleanup from past operations under CERCLA[2] was initiated at that time and is still continuing under a Federal Facilities Agreement signed in October of 1989 by the Army, EPA[3], and ODEQ[4]. Closure of hazardous waste storage activities at the facility, including the clean closure of the numerous igloos spread throughout the facility, is also an on-going process under the UMCD RCRA[5] hazardous waste storage permit administered by the ODEQ. Finally, the on-site incinerator and surrounding lands are currently being closed under a separate RCRA hazardous waste treatment, storage, and disposal permit, administered by the ODEQ. In addition to these regulatory bodies the CTUIR[6] is providing policy and technical expertise to the closure process to ensure coordination between the three cleanup and closure activities so that the land and its natural resources are suitable for their intended use.

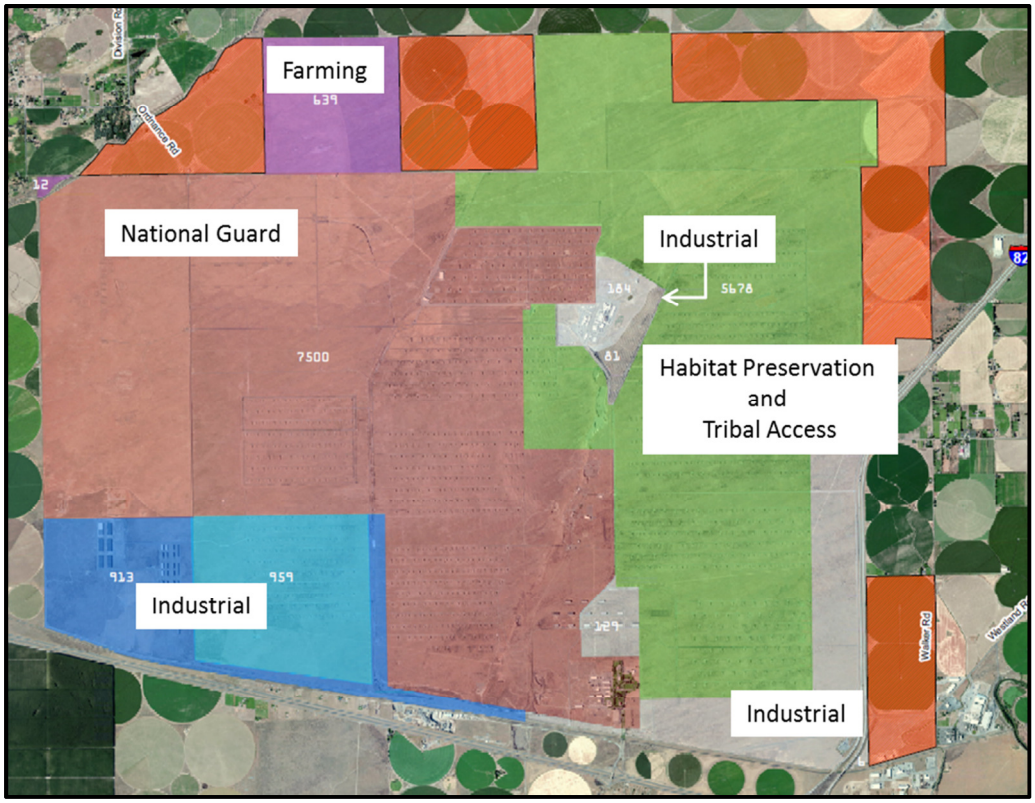

Figure 2-1: Land reuse plan for the UMCD. The orange areas are privately owned lands that currently have deed restrictions associated with the UMCD.

[2] CERCLA denotes the Comprehensive Environmental Response, Compensation, and Liability Act.
[3] EPA denotes the United States Environmental Protection Agency.
[4] ODEQ denotes the Oregon Department of Environmental Quality.
[5] RCRA denotes the Resource Conservation and Recovery Act.
[6] CTUIR denotes the Confederated Tribes of the Umatilla Indian Reservation.

The people of the CTUIR have an ancient relationship with the lands and resources throughout the Columbia Plateau, including within the UMCD. This fact is well documented by the extensive archaeological record, traditional stories, and oral histories. Usual and accustomed fishing sites, villages and camps, religious, funerary and other spiritual sites, plant gathering areas, grazing, and other sites are known to exist on, or near in this area. For this reason, the resources on the UMCD must be protected and preserved in a manner that meets the United States (US) Trust responsibility to the CTUIR which was established in the Treaty of 1855. The US government must protect the interests of the CTUIR by ensuring that lands, water, soil, air, biological, and cultural resources are clean and safe to use. The US government must also ensure to the CTUIR that, after cleanup, human health is not adversely affected from chemical and physical impacts that are related to operations or management of the UMCD site. It is for the above mentioned reasons that the CTUIR has undertaken the risk assessment efforts outlined in this report.

3 Methods

3.1 *Overview of the UMCDF Closure Risk Evaluation Process*

Closure of the Umatilla Chemical Disposal Facility and ultimately the Umatilla Chemical Depot poses a unique human health risk assessment challenge. Activities that have caused potential risk impacts are regulated under three separate permits and the responsibility for increased risk must be assigned accordingly. The three regulating mechanisms are the UMCD Hazardous Waste Storage RCRA Permit, the UMCDF Hazardous Waste Treatment, Storage, and Disposal RCRA Permit, and the UMCD CERCLA Federal Facilities Agreement.

In this analysis the delineation of the UMCDF portion of Human Health risk was accomplished by sampling for incineration by-products of the UMCDF in both upwind and downwind locations. Theoretically, the downwind location can be considered to represent the area impacted by the incinerator while the upwind area would be considered as having received minimal impact. This scenario is depicted in Figure 1 which shows the region of high deposition predicted using the EPA approved AERMOD model as implemented by Lakes Environmental (Lakes Environmental, 2012). Plume deposition was calculated using the on-site wind data during the first eight years of UMCDF operations and physical properties of the effluent plumes measured during trial burns at the facility (CTUIR, 2008).

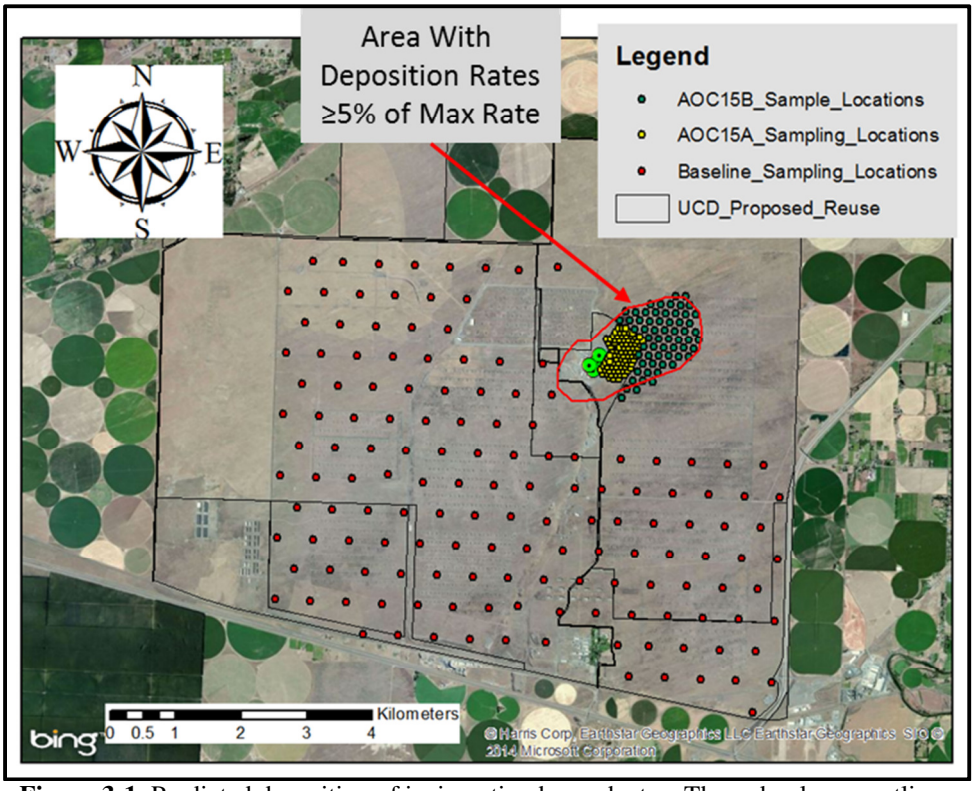

Figure 3-1: Predicted deposition of incineration byproducts. The red polygon outlines the region with predicted annual deposition rates greater than or equal to 5% of the maximum rate. Upwind (baseline) and downwind (AOC-15A and AOC-15B) sampling areas are depicted in the figure by the point markers indicating sampling locations. The bright green markers indicate the former locations of the UMCDF exhaust stacks.

To evaluate the risk in the upwind area (hereafter termed the baseline area), and risk in the downwind area (hereafter termed Area of Concern 15, or AOC-15), the ODEQ, the CTUIR, and the Army set forth a sampling and analysis strategy described in Appendix E of the October 2011 draft UMCDF closure plan (URS, 2011). In this sampling plan the UMCD lands were divided into two sub-areas. The baseline area represented the portion of the depot lands that were predicted to generally be upwind from the incinerator and thus less impacted by incineration emissions. This area is denoted in Figure 3-1 as the region covered by the red circles. Note that the western most portion of the UMDC was not included in the sampling area since this land was heavily impacted by past munition disposal activities. In the 2011 draft closure plan the entire remainder of the UMCD (northeast quadrant) was to be sampled. This strategy was modified in the 2013 closure plan to focus on the area where deposition was predicted to be the highest (URS, 2013). This area (termed AOC-15) was further divided into two subareas. The first subarea is the area most likely to have been impacted by UMCDF operations based on known wind patterns, but whose boundaries are within the area to be closed using an industrial standard (AOC-15A). The second portion (AOC-15B) represents the portion of the UMCD that lies downwind of the incinerator, but outside of the area slated for closure to an industrial standard. The land within the AOC-15B are part of the area designated for a wildlife preserve and will be used by Native Americans for traditional activities.

A similar sampling and analysis protocol was implanted for near surface soils within each of the three sampling areas. The resulting data was used to compute soil concentrations representing the central tendency of the sampling data each compound of concern (COC). The upper 95% confidence limit (UCL95) was used as the parameter representing the central tendency of each data set (See Section 3.4). These UCL95 values served as the input soil concentrations for the human health risk calculations.

Human health risks were computed for AOC-15A and AOC-15B based on the intended land use after closure. Analysis of AOC-15A risk was based on approved industrial exposure point concentrations (URS, 2013). Figure 3-3 depicts the analysis logic for AOC-15A defined in the approved closure plan (URS, 2013). Briefly, the maximum measured value for AOC-15A for each COC is first compared with the risk-based industrial closure performance standard (CPS). Compounds whose maximum is greater than the CPS will have the corresponding UCL95 value computed and compared to the baseline soil data. If the AOC-15A UCL95 is greater than the baseline soil UCL95 then the UCL95 value is compared to the industrial CPS. If the AOC15-A UCL95 is greater than the CPS and risk action levels are exceeded then further cleanup actions will likely be required. Note that the closure plan did not define the risk action levels for AOC-15A. It is assumed in this analysis that the risk action levels defined in the closure plan for incremental risk in AOC-15B also apply to total risk in AOC-15A. These levels are 1×10^{-6} (cancer risk) and 1.0 (hazard quotient) for individual compound and 1×10^{-5} (cancer risk) and 1.0 (hazard index) for cumulative risk.

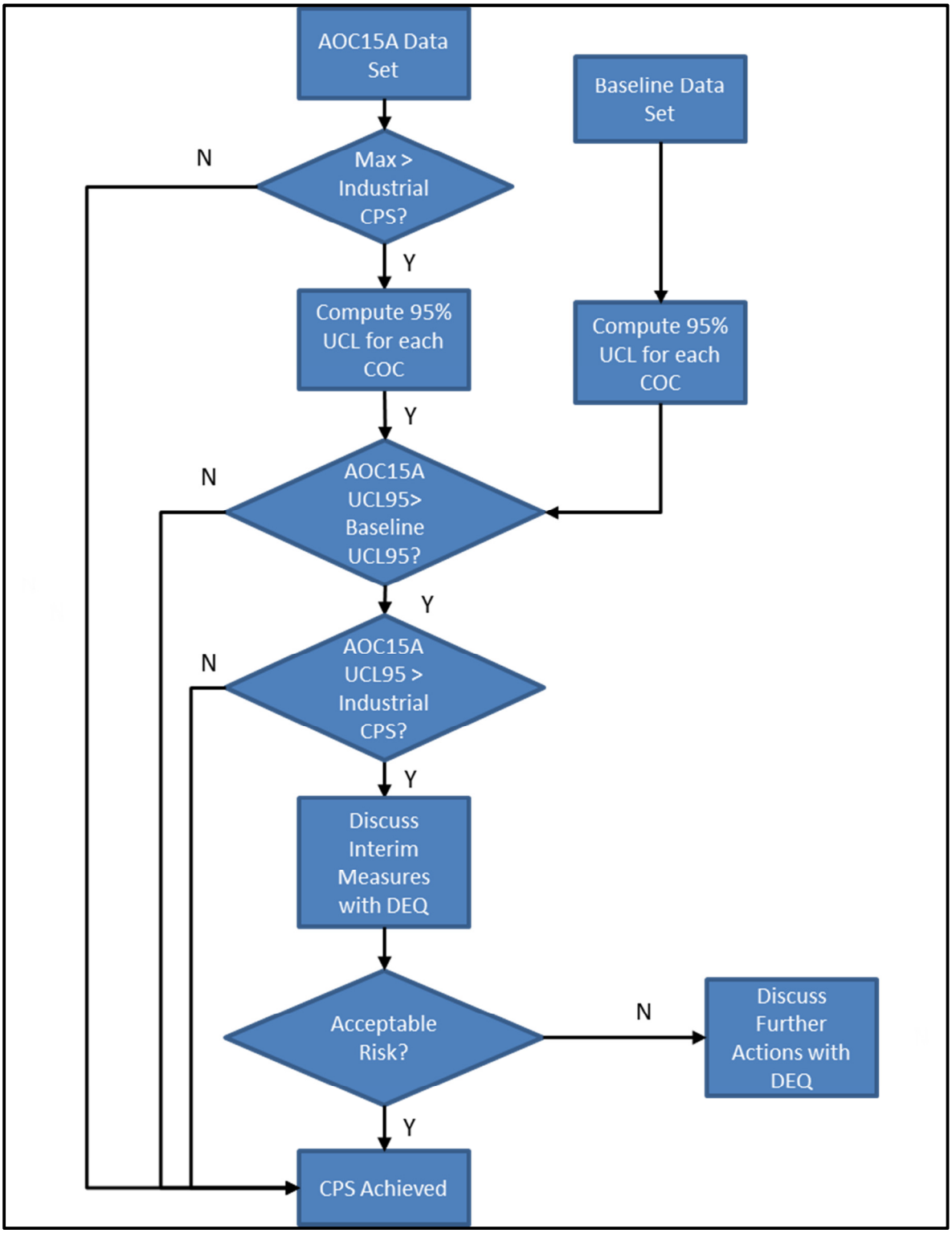

Figure 3-3: Logic diagram depicting the analysis process for determining whether corrective action by the UMCDF is necessary or justified for AOC-15A.

Figure 3-4 provides a logic diagram of the method applied to assess both total human health risk and the incremental increase in risk attributed to the UMCDF in AOC-15B (URS, 2013). Incremental risk is defined as follows:

$$\Delta CR = CR_{AOC15B} - CR_{baseline} \quad (1)$$

$$\Delta HI = HI_{AOC15B} - HI_{baseline} \quad (2)$$

$$\Delta HQ = HQ_{AOC15B} - HQ_{baseline} \quad (3)$$

Where $\boldsymbol{\Delta CR}$ is the incremental human health cancer risk attributable to UMCDF operations, $\boldsymbol{CR_{baseline}}$ is the total cancer risk associated with the baseline sampling area and $\boldsymbol{CR_{AOC15B}}$ is the total cancer risk associated with soil samples taken within AOC-15B. Similarly, $\boldsymbol{\Delta HI}$, $\boldsymbol{HI_{baseline}}$, and $\boldsymbol{HI_{AOC15B}}$ are the incremental human health hazard index, baseline hazard index, and AOC-15B hazard index. A definition identical to Equation 3 was also applied to the individual compound hazard quotient (HQ).

In the first part of the process depicted in Figure 3-4 the individual risks associated with each compounds of concern (COC) in AOC-15B were compared to the action levels of 1×10^{-6} for cancer risk and 1.0 for the hazard quotient. For those COC that exceed an action level the incremental risk was computed and compared to the action levels to determine if the amount of risk attributed to UMCDF deposition was responsible for the exceedance. In addition the cumulative risk and incremental cumulative risk for the AOC-15B data set was also evaluated and compared to the cumulative action levels of 1×10^{-5} for cancer risk and 1 for the hazard index. A regulatory decision would be required if either an individual compound incremental risk, or a cumulative incremental risk, is above their respective action levels.

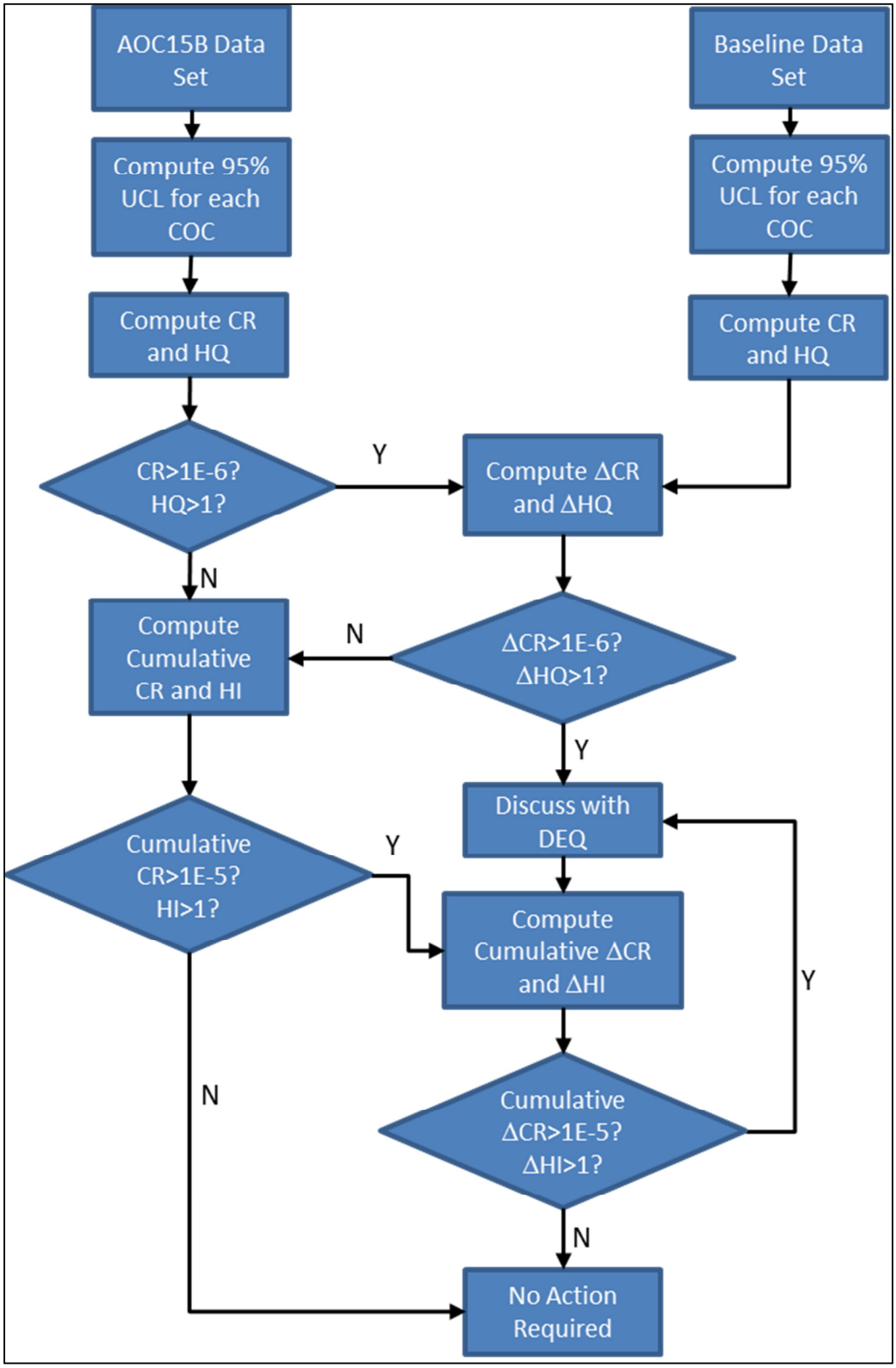

Figure 3-4: Logic diagram depicting the analysis process for determining whether corrective action by the UMCDF is necessary or justified to allow safe Tribal use of AOC-15B. The acronyms CR, HQ, and HI denote cancer risk, hazard quotient, and hazard index, respectively.

3.2 *Computation of the 95% Upper Confidence Limits*

A UCL95 value for each COC was computed using Version 4.1.01 of the EPA's PROUCL software. PROUCL relies on state-of-the-art parametric and nonparametric methods to compute UCL values. These methods can be used on full-uncensored data sets without nondetects and also on data sets with non-detect observations. Some of the methods applied by PROUCL (e.g., Kaplan-Meier method, ROS methods) are specifically applicable to the type of data set generated in this work. Specifically, left-censored data sets having multiple detection limits.

Non-detected values were incorporated into the PROUCL analysis using the built-in function for marking data entries as a detected or non-detected value and then supplying an entry-specific detection limit for the non-detected values. PROUCL defaults to the largest specified detection limit for analytes with multiple detection limit values. The method detection limit (MDL) for each sample/contaminant combination was used as the detection limit. This choice for the detection limit differs from that used by the Army in their analysis of the AOC-15B data. Army staff applied the level of quantitation as the detection limit. In the opinion of the CTUIR staff, using the level of quantitation as the detection limit overestimates the UCL95 and hence the human health risk. More information on the methods applied in PROUCL for estimating UCL95 values for data sets with non-detects can be found in the PROUCL Version 4.1.00 Technical Guide (USEPA, 2010).

3.3 *Risk Modeling*

3.3.1 Native American Exposure Scenarios

Table 3-1 provides an overview of the exposure pathways evaluated in this analysis. Exposure was assumed to occur solely through contact with soil and food grown in, or on, the same soils. Inhalation pathways were excluded since there are no airborne sources of contaminants other than resuspended dust which EPA guidance suggests is insignificant (USEPA, 2005). Similarly, water exposure pathways such as drinking, bathing, swimming, and sweat lodge use are assumed to occur with uncontaminated materials since there are no surface waters on or near the depot.

Table 3-1: Exposure Pathways Evaluated

Exposure Pathway	Native American Adult	Native American Child
Inhalation of vapors and particles [a]	No	No
Ingestion of soil and dust	Yes	Yes
Dermal contact with soil	Yes	Yes
Ingestion of surface water [b]	No	No
Dermal contact with surface water [b]	No	No
Ingestion of local above ground produce [d]	Yes	Yes
Ingestion of local below ground produce [d]	Yes	Yes
Ingestion of local animals	Yes	Yes
Ingestion of local fish [c]	Yes	Yes
Inhalation and dermal adsorption during sweat lodge use [b]	No	No

[a] Analysis assumes the UMCDF has been closed and dismantled.
[b] Water exposure pathways have not been included since there is no surface water available on-site.
[c] Fish consumption is assumed, but since there are no sources of fish on the depot the fraction of contaminated fish is equated to 0.0.
[d] Only root uptake was included as a source for contamination of above ground and below ground produce.

Risk analysis was completed using the same IRAP-h (Version 3.1) software package applied in the 2008 CTUIR Post-Trial Burn Human Health Risk Assessment (CTUIR 2008). This software is designed to implement the EPA's human health risk assessment protocol for hazardous waste combustion facilities and simulates the impacts of point source air emissions on environmental media COC concentrations (EPA 2005). In this process the transport and deposition of air emissions over time are simulated and time-averaged and maximum soil and water concentrations are computed. These soil and water concentrations are then used in the EPA-based equations to compute COC concentrations in biota and the dose that occurs from ingestion of these materials as well as dose resulting from direct exposure.

For the purpose of this analysis where the source of contamination starts with soils, the modeled "point source emissions rate" within IRAP-h for each COC was adjusted to generate a soil concentration at the assumed exposure point that matched the measured UCL95 values. For cancer risk the average soil concentration is used in the estimation process and this value was the concentration matched to the UCL95 values (EPA 2005). For the hazard quotient and hazard index the maximum soil concentration is used in computing risk and so this value was the concentration matched to the UCL95 values (EPA 2005). Appendix C and D provide the fictitious emission rates and air deposition properties used to generate the correct soil concentration for each exposure scenario.

Tables 3-2 and 3-3 provide the risk scenario parameters and site parameters used by the IRAP-h model. Values adjusted to exclude water exposure pathways and inhalation pathways are footnoted in Table 3-2. Values adjusted to eliminate airborne pathways for contamination of aboveground produce are footnoted in Table 3-3.

Table 3-2: Exposure Scenario Parameters

Parameter	Unit	Native Adult	Native Child
Adherence factor of soil to skin	mg-soil/cm^2-event	0.1	0.2
Averaging time for carcinogens	yr	70	70
Averaging time for noncarcinogens	yr	70	6
Consumption rate of BEEF (WILD GAME for Natives)	kg/kg-day FW	0.00198	0.00131
Body weight	kg	70	15
Consumption rate of POULTRY (FOWL for Natives)	kg/kg-day FW	0.000154	0.000105
Consumption rate of ABOVEGROUND PRODUCE	kg/kg-day DW	0.00124	0.00124
Consumption rate of BELOWGROUND PRODUCE	kg/kg-day DW	0.000706	0.000706
Consumption rate of DRINKING WATER	L/day	3	1.5
Consumption rate of Protected Above Ground Produce	kg/kg-day DW	0.00183	0.00183
Consumption rate of SOIL	kg/d	0.0002	0.0002
Exposure duration	yr	70	6
Exposure frequency	day/yr	365	365
Exposure frequency of bathing	day/year	0 [a]	0 [a]
Exposure frequency during sweat lodge use	events/year	0 [a]	0
Exposure frequency of dermal contact with soil	events/year	365	365
Exposure frequency of swimming	day/year	0 [a]	0 [a]
Consumption rate of EGGS	kg/kg-day FW	0.0003	0.000216
Exposure time during sweat lodge use	hr/event	2	0
Event frequency of dermal contact with water and soil	events/day	1	1
The number of sweat lodge use	events/day	1	1
Fraction contaminated ABOVEGRD PRODUCE	--	1	1
Fraction of contaminated DRINKING WATER	--	0 [a]	0 [a]
Fraction contaminated SOIL	--	1	1
Consumption rate of FISH	kg/kg-day FW	0.00849	0.00598
Fraction of contaminated FISH	--	0 [a]	0 [a]
Consumption rate of GOAT	kg/kg-day FW	0	0
Inhalation exposure duration	yr	0 [a]	0 [a]
Inhalation exposure frequency	day/yr	365	365
Inhalation exposure time	hr/day	24	24
Fraction of contaminated BEEF (WILD GAME for Natives)	--	1	1
Fraction of contaminated POULTRY (FOWL for Natives)	--	1	1
Fraction of contaminated EGGS	--	1	1
Fraction of contaminated GOAT	--	1	1
Fraction of contaminated MILK	--	1	1
Fraction of contaminated PORK	--	1	1
Inhalation rate	m^3/hr	1.25	0.5
Consumption rate of MILK	kg/kg-day FW	0.0044	0.0073
Consumption rate of PORK	kg/kg-day FW	0	0
Skin surface area available for contact with soil	cm^2	5700	2800
Skin surface area available for contact with water	cm^2	18000	6600
Body surface area available for contact during a sweat	m^2	1.8	0
Time period at the beginning of combustion	yr	0	0
Length of exposure duration	yr	70	6

[a] Value set to zero to exclude the associated exposure pathway from the analysis.

Table 3-3: Site Parameters Required by IRAP-h.

Description	Units	Value
Soil dry bulk density	g/cm^3	1.5
Forage fraction grown on contaminated soil eaten by CATTLE	--	1
Grain fraction grown on contaminated soil eaten by CATTLE	--	1
Silage fraction grown on contaminated eaten by CATTLE	--	1
Qty of forage eaten by CATTLE each day	kg DW/day	11.3
Qty of grain eaten by CATTLE each day	kg DW/day	0.47
Qty of silage eaten by CATTLE each day	kg DW/day	0
Grain fraction grown on contaminated soil eaten by CHICKEN	--	1
Qty of grain eaten by CHICKEN each day	kg DW/day	0.2
Average annual evapotranspiration	cm/yr	81.3
Duration of bathing event	hr/event	0.58
Duration of swimming event	hr/event	1
Fish lipid content	--	0.07
Fraction of CHICKEN's diet that is soil	--	0.11
Fraction of skin area (SA) in contact with water during a sweat	--	1
Universal gas constant	atm-m^3/mol-K	0.0000821
Forage fraction grown on contaminated soil eaten by GOAT	--	1
Grain fraction grown on contaminated soil eaten by GOAT	--	1
Silage fraction grown on contaminated eaten by GOAT	--	1
Qty of forage eaten by GOAT each day	kg DW/day	0.98
Qty of grain eaten by GOAT each day	kg DW/day	0.041
Qty of silage eaten by GOAT each day	kg DW/day	0
Average annual irrigation	cm/yr	55
Plant surface loss coefficient	yr^{-1}	18
Fraction of mercury emissions NOT lost to the global cycle	--	0.48
Fraction of mercury speciated into methyl mercury in produce	--	0.22
Fraction of mercury speciated into methyl mercury in soil	--	0.02
Forage fraction grown contaminated soil, eaten by MILK CATTLE	--	1
Grain fraction grown contaminated soil, eaten by MILK CATTLE	--	1
Silage fraction grown contaminated soil, eaten by MILK CATTLE	--	1
Qty of forage eaten by MILK CATTLE each day	kg DW/day	17.3
Qty of grain eaten by MILK CATTLE each day	kg DW/day	3
Qty of silage eaten by MILK CATTLE each day	kg DW/day	0
Averaging time	yr	1
Body weight of infant	kg	9.4
Exposure duration of infant to breast milk	yr	1
Proportion of ingested dioxin that is stored in fat	--	0.9
Proportion of mothers weight that is fat	--	0.3
Fraction of fat in breast milk	--	0.04
Fraction of ingested contaminant that is absorbed	--	0.9
Half-life of dioxin in adults	days	2560
Ingestion rate of breast milk	kg/day	0.688
Viscosity of air corresponding to air temp.	g/cm-s	0.000181
Average annual precipitation	cm/yr	21.59
Fraction of grain grown on contaminated soil eaten by PIGS	--	1
Fraction of silage grown on contaminated soil and eaten by PIGS	--	1
Qty of grain eaten by PIGS each day	kg DW/day	3.3

Description	Units	Value
Qty of silage eaten by PIGS each day	kg DW/day	1.4
Qty of soil eaten by CATTLE	kg/day	0.5
Qty of soil eaten by CHICKEN	kg/day	0.022
Qty of soil eaten by GOAT	kg/day	0.04
Qty of soil eaten by DAIRY CATTLE	kg/day	0.4
Qty of soil eaten by PIGS	kg/day	0.37
Average annual runoff	cm/yr	2.54
Density of air	g/cm^3	0.0012
Solids particle density	g/cm^3	2.7
Interception fraction - edible portion ABOVEGROUND	--	0 [a]
Interception fraction - edible portion FORAGE	--	0 [a]
Interception fraction - edible portion SILAGE	--	0 [a]
Radius of sweat lodge	m	1
Ambient air temperature	K	285
Temperature correction factor	--	1.026
Soil volumetric water content	mL/cm^3	0.244
Length of plant exposure to deposition - ABOVEGROUND	Yr	0.16
Length of plant exposure to deposition - FORAGE	Yr	0.12
Length of plant exposure to deposition - SILAGE	Yr	0.16
Average annual wind speed	m/s	3.9
Dry deposition velocity	cm/s	0.5
Volume of water used in a sweat lodge (nonvolatile)	liters	0.34
Volume of water used in a sweat lodge (volatile)	liters	4
Wind velocity	m/s	4.5
Yield/standing crop biomass - edible portion ABOVEGROUND	$kg\ DW/m^2$	2.24
Yield/standing crop biomass - edible portion FORAGE	$kg\ DW/m^2$	0.24
Yield/standing crop biomass - edible portion SILAGE	$kg\ DW/m^2$	0.8
Soil mixing zone depth	cm	2
Empirical Correlation Factor for ABOVEGROUND PRODUCE (Vg_ag)	--	0 [a,b]
Empirical Correlation Factor for FORAGE (Vg_ag_forage)	--	0 [a,b]
Empirical Correlation Factor for SILAGE (Vg_ag_silage)	--	0 [a,b]

[a] Value set to zero to eliminate contamination of plant materials by air deposition.
[b] Values for Vg_ag are input in IRAP-h under the Receptor menu in the "COPC-Site Parameter" tab. These values are stored in the SITECOPC.db file for each contaminant. This data base file was carefully reviewed to ensure an entry of 0 was associated with each occurrence of Vg_ag, Vg_ag_forage, and Vg_ag_silage.

3.3.2 Industrial Exposure Scenario

Table 3-4 provides an overview of the exposure pathways evaluated for industrial exposure. Exposure was assumed to occur solely through contact with soil. Inhalation pathways were excluded since there are no air sources of contaminants other than dust which is generally recognized to be an insignificant exposure pathway (USEPA, 2005). Similarly, water exposure pathways such as drinking, bathing, and swimming, are assumed to occur with uncontaminated materials.

Risk analysis was completed using the AOC-15A UCL95 values in a manner similar to that described previously for the Native American exposure scenarios.

Table 3-5 provides the industrial scenario risk scenario parameters used by the IRAP-h model. The site parameters are identical to those presented in Table 3-3. Values adjusted to exclude water, food, and inhalation exposure pathways are footnoted in Table 3-5.

Table 3-4: Exposure Pathways Evaluated for an Industrial Worker.

Exposure Pathway	**On-Site Worker**
Inhalation of vapors and particles [a]	No
Ingestion of soil and dust	Yes
Dermal contact with soil	Yes
Ingestion of surface water	No
Dermal contact with surface water	No
Ingestion of local below ground produce	No
Ingestion of local animals	No
Ingestion of local fish	No
Ingestion of breast milk	No

[a] Analysis assumes the UMCDF has been closed and dismantled.

Table 3-5: Exposure Scenario Parameters for Industrial Workers

Parameter	Unit	Industrial Worker
Adherence factor of soil to skin	mg-soil/cm^2-event	0.1 [b]
Averaging time for carcinogens	yr	70
Averaging time for noncarcinogens	yr	25
Consumption rate of BEEF (WILD GAME for Natives)	kg/kg-day FW	0
Body weight	kg	70
Consumption rate of POULTRY (FOWL for Natives)	kg/kg-day FW	0 [a]
Consumption rate of ABOVEGROUND PRODUCE	kg/kg-day DW	0 [a]
Consumption rate of BELOWGROUND PRODUCE	kg/kg-day DW	0 [a]
Consumption rate of DRINKING WATER	L/day	2
Consumption rate of PROTECTED ABOVEGROUND PRODUCE	kg/kg-day DW	0 [a]
Consumption rate of SOIL	kg/d	0.0001 [b]
Exposure duration	yr	25
Exposure frequency	day/yr	250
Exposure frequency of bathing	day/year	0 [a]
Exposure frequency of dermal contact with soil	events/year	250
Exposure frequency of swimming	day/year	0 [a]
Consumption rate of EGGS	kg/kg-day FW	0 [a]
Event frequency of dermal contact with water and soil	events/day	1
Fraction contaminated ABOVEGRD PRODUCE	--	0 [a]
Fraction of contaminated DRINKING WATER	--	0 [a]
Fraction contaminated SOIL	--	1
Consumption rate of FISH	kg/kg-day FW	0 [a]
Fraction of contaminated FISH	--	0 [a]
Consumption rate of GOAT	kg/kg-day FW	0 [a]
Inhalation exposure duration	yr	0 [a]
Inhalation exposure frequency	day/yr	250
Inhalation exposure time	hr/day	8
Fraction of contaminated BEEF (WILD GAME for Natives)	--	0 [a]
Fraction of contaminated POULTRY (FOWL for Natives)	--	0 [a]
Fraction of contaminated EGGS	--	0 [a]
Fraction of contaminated GOAT	--	0 [a]
Fraction of contaminated MILK	--	0 [a]
Fraction of contaminated PORK	--	0 [a]
Inhalation rate	m^3/hr	1.5 [c]
Consumption rate of MILK	kg/kg-day FW	0
Consumption rate of PORK	kg/kg-day FW	0
Skin surface area available for contact with soil	cm^2	3300 [b]
Skin surface area available for contact with water	cm^2	0 [a]
Body surface area available for contact during a sweat	m^2	0
Time period at the beginning of combustion	yr	0
Length of exposure duration	yr	25

[a] Value set to zero to exclude the associated exposure pathway from the analysis.
[b] Reasonable Maximum Exposure value proposed by Oregon Department of Environmental Quality for an occupational worker (ODEQ, 2010).
[c] Value used in the UMCDF Risk Assessment Work Plan (ODEQ, 2004).

3.3.3 COPC Toxicity and Fate and Transport Database

The COPC database containing the chemical and toxicological input parameters used by IRAP-h is provided in Appendix B. All values within this data set are identical to those used by others to evaluate UMCDF human health risk (Ecology and Environment, 2008). Chemical and toxicological data for elements and compounds not included in the 2008 evaluation were developed in a manner identical to that described in the 2008 evaluation.

3.4 *Soil Sampling*

3.4.1 Baseline Area

The baseline surface soil sampling map is shown in Figure 3-5. The baseline soil sampling area encompassed the western, central, and southern sections of the UMCD and was chosen since air dispersion modeling using local meteorological data indicates that these regions were likely less impacted by UMCDF emissions than the areas to the northeast (AOC-15A and AOC-15B). This fact is indicated by the local wind pattern data summarized in Figure 3-6 for the periods between 1997 and 2000 (pre-operations) and 2004 through 2008 (time of active UMCDF operations). The similarity in the results for the two, five-year periods indicate that the average wind direction for the area is generally to the northeast and that this pattern has not significantly varied.

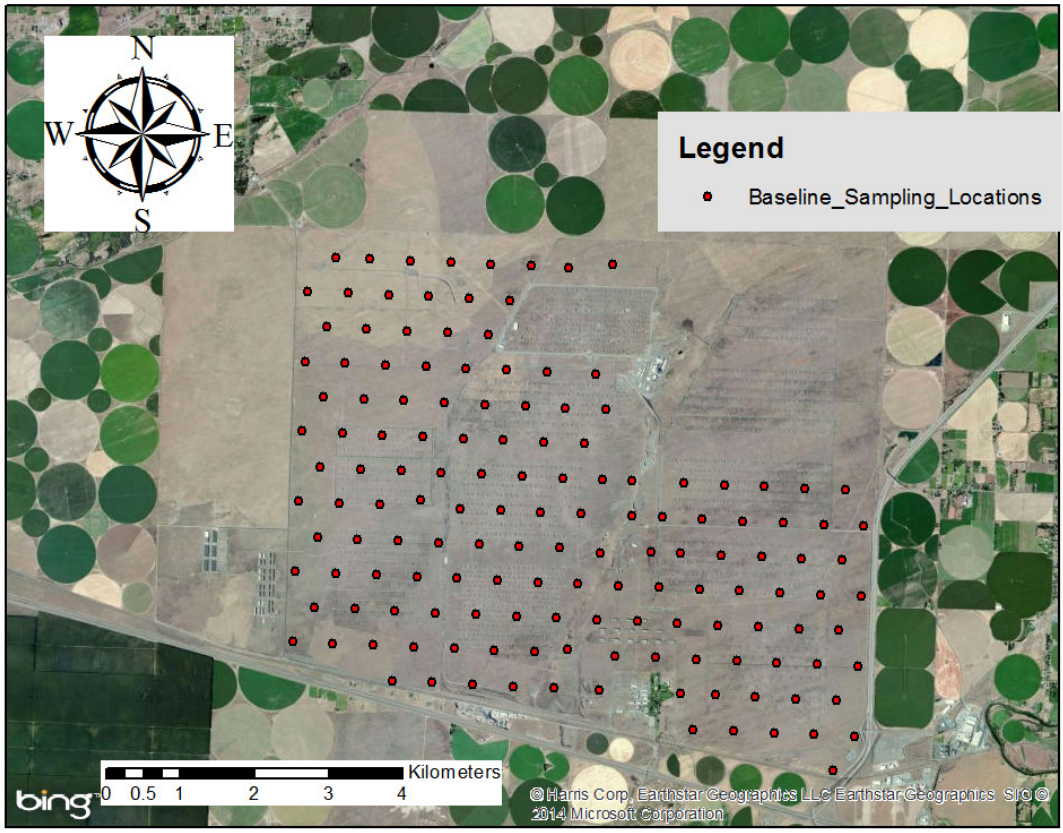

Figure 3-5: Soil sampling locations (red dots) for determining the baseline level of contamination on the UMCD.

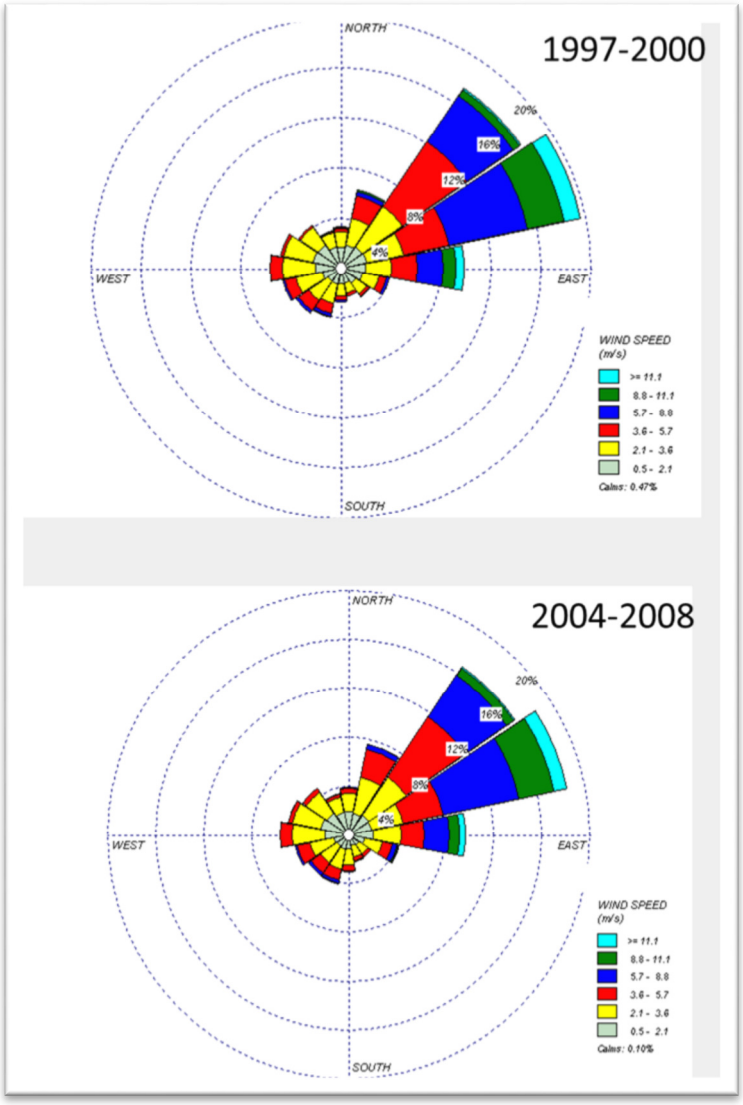

Figure 3-6: UMCDF wind speed and direction data (direction represented as "blowing-to") for the five -year periods between 1997 and 2000 and between 2004 and 2008. Similarities in the data for the two periods indicate stable local wind patterns.

The specific sampling locations shown in Figure 3-5 were chosen using a uniform grid pattern with individual sample locations adjusted where necessary to avoid known past contamination and developed locations such as roadways, buildings, and parking areas.

All sampling in the baseline area was conducted by contractors to the United States Army. Sampling methods followed the general procedures detailed in the October 2011 proposed UMCDF closure plan (URS, 2011). Sampling results are provided in Appendix A.

Table 3-6 provides a complete list of the chemical species that were selected for analysis. These elements and compounds correspond to those detected in more than one UMCDF Agent Trial Burn (ATB) run at a concentration greater than the reporting limit. The list of dioxins/furans was expanded to include all 17 potential incineration by-products because of their high toxicity.

It should be noted, however, that only one dioxin compound (1,2,3,4,6,7,8,9 octachlorodibenzo-p-dioxin) was found to be present in the ATB tests.

The baseline sampling effort yielded 147 independent soil concentration measurements for each analyte; the UCL95 values were computed by PROUCL using all 147 measurements. PROUCL applies a number of different methods and statistical distributions to the data and then reports the UCL95 that it considers the most reliable. The UCL95 listed in Tables 3-4 are those recommended by PROUCL. Note that the largest recommended UCL95 was used if more than one value was recommended by PROUCL. Compounds are denoted as not detected (ND) if they were never detected, or if only one questionable result (indicated by a "J" annotation in the data provided by the analytical laboratory) was reported. The UCL95 values reported in Table 3-6 were the soil concentration used to estimate human health risk.

Table 3-6: Upper 95% Confidence Limits (UCL95) for the baseline soil sampling data set

CAS [m] Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
Dioxins				
3268-87-9	1,2,3,4,6,7,8,9-OCDD	2.80E-05	143	95% KM(BCA) [a]
35822-46-9	1,2,3,4,6,7,8-HpCDD	2.40E-06	139	95% KM(BCA)
39227-28-6	1,2,3,4,7,8-HxCDD	7.00E-08	9	95% KM (%bootstrap) [b]
57653-85-7	1,2,3,6,7,8-HxCDD	1.10E-07	25	95% KM(t) [e]
19408-74-3	1,2,3,7,8,9-HxCDD	1.00E-07	22	95% KM(t)
40321-76-4	1,2,3,7,8-PeCDD	ND	1	ND [c]
1746-01-6	2,3,7,8-TCDD	8.70E-08	2	KM(Chebyshev), 95% [d]
Furans				
39001-02-0	1,2,3,4,6,7,8,9-OCDF	6.10E-07	25	95% KM(BCA)
67562-39-4	1,2,3,4,6,7,8-HpCDF	4.00E-07	24	95% KM (%bootstrap)
55673-89-7	1,2,3,4,7,8,9-HpCDF	1.40E-07	3	95% KM (%bootstrap)
70648-26-9	1,2,3,4,7,8-HxCDF	6.20E-08	18	95% KM(t)
57117-44-9	1,2,3,6,7,8-HxCDF	4.90E-08	31	95% KM(t)
72918-21-9	1,2,3,7,8,9-HxCDF	ND	0	ND
57117-41-6	1,2,3,7,8-PeCDF	2.00E-07	5	95% KM (%bootstrap)
60851-34-5	2,3,4,6,7,8-HxCDF	ND	1	ND, Single J-flagged value
57117-31-4	2,3,4,7,8-PeCDF	ND	1	ND, Single J-flagged value
51207-31-9	2,3,7,8-TCDF	ND	1	ND, Single J-flagged value
Inorganic Elements				
7440-36-0	Antimony (Sb)	1.94E-01	147	Student-t [f]
7440-38-2	Arsenic (As)	1.19E+00	147	Student-t
7440-39-3	Barium (Ba)	8.70E+01	147	Student-t
7440-41-7	Beryllium (Be)	2.51E-01	147	Student-t
7440-42-8	Boron (B)	5.30E-01	25	95% KM(t)
7440-43-9	Cadmium (Cd)	1.05E-01	60	95% KM (%bootstrap)
7440-47-3	Chromium (Cr)	7.19E+00	147	Student-t
18540-29-9	Chromium, Hexavalent	NM	NM	NM [g]
7440-48-4	Cobalt (Co)	6.84E+00	147	Gamma [h]
7440-50-8	Copper (Cu)	9.85E+00	147	Student-t
7439-92-1	Lead (Pb)	4.72E+00	147	Student-t
7439-96-5	Manganese (Mn)	3.33E+02	147	Student-t
7439-97-6	Mercury (Hg)	6.07E-03	116	95% KM (%bootstrap)
7440-02-0	Nickel (Ni)	7.86E+00	147	Student-t
7723-14-0	Phosphorus (P)	9.62E+02	147	Student-t
7782-49-2	Selenium (Se)	2.33E-01	147	Student-t
7440-22-4	Silver (Ag)	1.25E-01	15	95% KM (%bootstrap)
7440-28-0	Thallium (Tl)	6.54E-02	147	Gamma [h]
7440-31-5	Tin (Sn)	1.06E+00	61	95% KM(t)
7440-62-2	Vanadium (V)	5.49E+01	147	Student-t
7440-66-6	Zinc (Zn)	4.09E+01	147	Student-t

CAS [m] Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
Polychlorinated Biphenyls				
35065-29-3	PCB 180	4.20E-06	123	95% KM(BCA)
39635-31-9	PCB 189	2.47E-07	4	95% KM(t)
32598-14-4	PCB 105	3.70E-06	45	95% KM(BCA)
31508-00-6	PCB 118	2.90E-06	61	95% KM(t)
32598-13-3	PCB 77	9.30E-07	27	95% KM(BCA)
70362-50-4	PCB 81	2.80E-07	4	95% KM(t)
25512-42-9	Total Di-PCB	6.40E-06	129	Chebyshev, sd, 95% [i]
27323-18-8	Total Mono-PCB	5.30E-07	50	Chebyshev, sd, 95%
25429-29-2	Total Penta-PCB	2.80E-05	147	Chebyshev, sd, 95%
26914-33-0	Total Tetra-PCB	1.30E-05	128	Chebyshev, sd, 95%
25323-68-6	Total Tri-PCB	5.40E-06	141	Student-t
Semivolatile Organic Compounds				
98-86-2	Acetophenone	ND	0	ND
100-52-7	Benzaldehyde	ND	0	ND
65-85-0	Benzoic acid	2.51E-01	2	95% KM(t)
100-51-6	Benzyl alcohol	ND	0	ND
117-81-7	bis(2-Ethylhexyl) phthalate	ND	0	ND
85-68-7	Butyl benzyl phthalate	ND	1	ND, Single J-flagged value
84-66-2	Diethyl phthalate	4.29E-02	10	95% KM(BCA)
84-74-2	Di-n-butyl phthalate	ND	0	ND
108-95-2	Phenol	ND	0	ND
Volatile Organic Compounds				
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0	ND
106-99-0	1,3-Butadiene	ND	0	ND
106-46-7	1,4-Dichlorobenzene	ND	0	ND
78-93-3	2-Butanone (MEK)	ND	0	ND
67-64-1	Acetone	ND	0	ND
71-43-2	Benzene	ND	0	ND
75-27-4	Bromodichloromethane	ND	0	ND
74-96-4	Bromoethane	ND	0	ND
74-83-9	Bromomethane	ND	0	ND
75-15-0	Carbon disulfide	ND	0	ND
56-23-5	Carbon tetrachloride	ND	0	ND
67-66-3	Chloroform	ND	0	ND
74-87-3	Chloromethane	ND	0	ND
124-48-1	Dibromochloromethane	ND	0	ND
75-71-8	Dichlorodifluoromethane (Freon-12)	ND	0	ND
100-41-4	Ethylbenzene	ND	0	ND
110-54-3	Hexane	ND	0	ND
74-88-4	Iodomethane	ND	0	ND
75-09-2	Methylene chloride	ND	0	ND
179601-23-1	m-Xylene and p-Xylene	ND	1	ND, Single J-flagged value
95-47-6	o-Xylene	ND	0	ND

CAS [m] Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
100-42-5	Styrene	ND	0	ND
108-88-3	Toluene	2.30E-04	17	95% KM (%bootstrap)
79-01-6	Trichloroethene	ND	0	ND
75-69-4	Trichlorofluoromethane (Freon-11)	ND	0	ND
75-01-4	Vinyl chloride	ND	0	ND
1330-20-7	m,p,o-Xylene	ND	0	ND

[a] UCL95 based on Kaplan-Meier using a bias-corrected accelerated bootstrap method.
[b] UCL95 based upon Kaplan-Meier estimates using the percentile bootstrap method.
[c] ND denotes the COC was not detected in any sample.
[d] UCL95 based on Kaplan-Meier estimates using the Chebyshev inequality.
[e] UCL95 based on Kaplan-Meier estimates using the Student's t-distribution cutoff value.
[f] UCL95 based on the Student's t-distribution method.
[g] NM denotes the parameter was not measured in in the baseline data.
[h] UCL95 based on the Gamma regression on order statistics method using the gamma approximate-UCL method.
[i] UCL95 based on the Chebyshev inequality method using the sample mean and sample standard deviation.
[k] UCL95 based upon Kaplan-Meier estimates using the jackknife method.
[l] UCL95 based on the modified-t statistic (adjusted for skewness).
[m] CAS denotes the chemical abstract number.

3.4.2 Area of Concern 15

The area potentially impacted by UMCDF emissions is located in the upper right in Figure 3-1 (northeast quadrant of the UMCD). Figure 3-7 provides a closer view of this area and depicts AOC-15 and its two subareas. Subarea AOC-15A is located within an area that is to be zoned for industrial development and will be closed to industrial standards. Subarea AOC-15B is located within a wildlife habitat area that is anticipated to be used for traditional Tribal activities such as hunting and the gathering of plant materials for human consumption. Closure of this area will rely on Tribal substance risk standards and the evaluation logic depicted in Figure 3-4.

The specific sampling locations shown in Figure 3-7 were chosen using a uniform grid pattern with individual sample locations adjusted where necessary to avoid both known areas of past contamination as well as developed locations such as roadways, buildings, and parking areas. A total of 91 sampling points were contained within AOC-15A and 63 sampling points in AOC-15B.

All sampling in AOC-15 was conducted by contractors to the United States Army. Sampling methods followed the general procedures detailed in UMCDF closure plan (URS, 2013). Sampling results are provided in Appendix A.

Tables 3-7 and 3-8 provide the UCL95 results for AOC-15A and AOC-15B, respectively. As with the baseline data set, all sampling points were included in the UCL95 computations. The UCL95 values listed in Tables 3-7 and 3-8 are those recommended by PROUCL (Version 4.1.01). If more than one value was recommended by PROUCL then the largest recommended value is reported in these tables. Compounds are denoted in the tables as not detected (ND) if they were never detected, or if only one questionable result (indicated by a "J" annotation) was reported. The UCL95 values reported in Tables 3-7 and 3-8 were the soil concentration used to estimate human health risk.

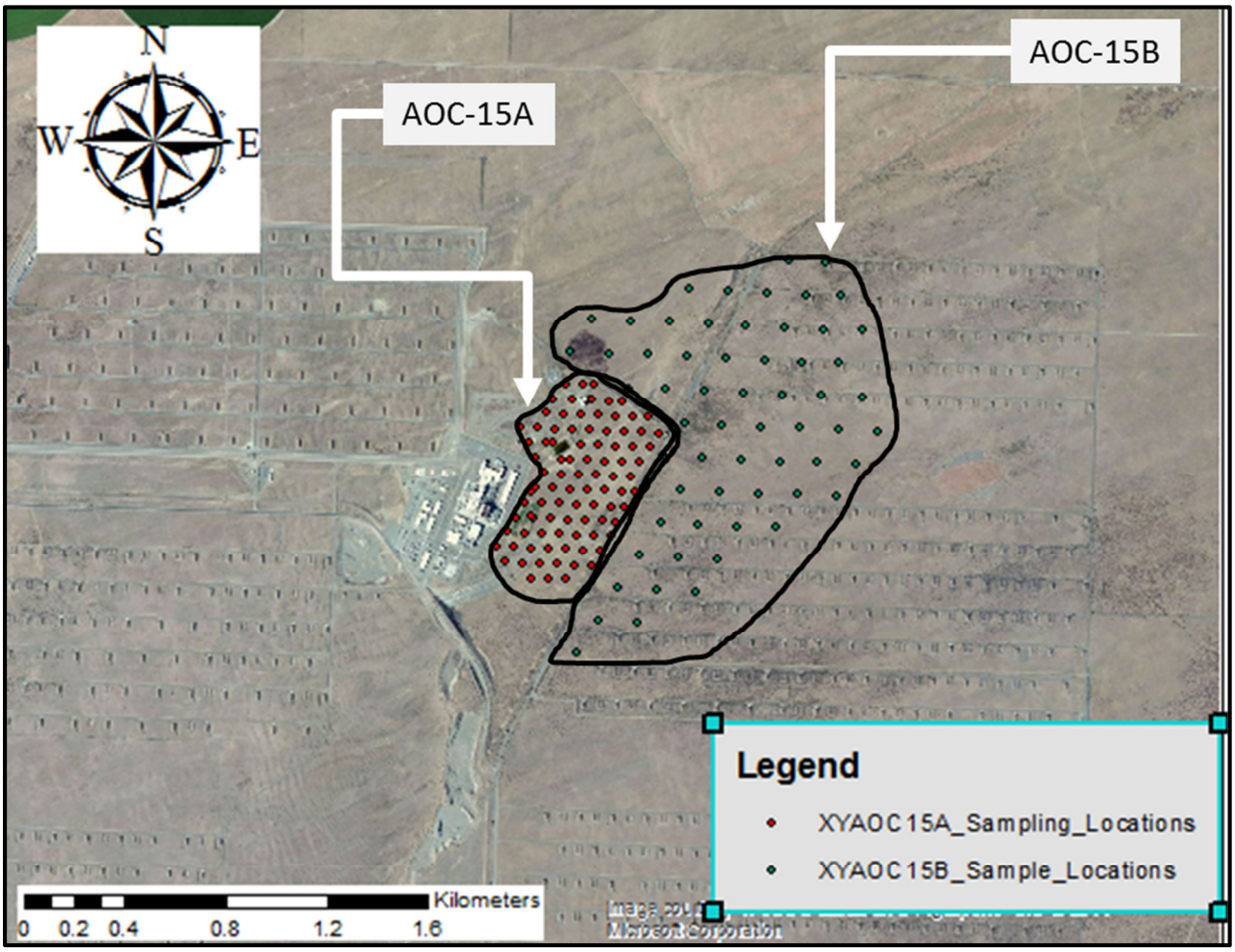

Figure 3-7: UMCDF areas AOC-15A and AOC-15B sampling points. The former UMCDF is depicted to the SW of the sampling areas.

Table 3-7: Upper 95% Confidence Limits (UCL95) for the Area of Concern 15A soil sampling data set.

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
Dioxins				
3268-87-9	1,2,3,4,6,7,8,9-OCDD	2.31E-04	70	95% KM(Chebyshev) [d]
35822-46-9	1,2,3,4,6,7,8-HpCDD	1.43E-05	39	95% KM (BCA) [a]
39227-28-6	1,2,3,4,7,8-HxCDD	1.24E-07	20	95% KM (BCA)
57653-85-7	1,2,3,6,7,8-HxCDD	3.85E-07	50	95% KM (%bootstrap) [b]
19408-74-3	1,2,3,7,8,9-HxCDD	2.57E-07	47	95% KM (%bootstrap)
40321-76-4	1,2,3,7,8-PeCDD	1.12E-06	2	95% KM(Jackknife) [k]
1746-01-6	2,3,7,8-TCDD	6.15E-07	2	95% KM (%bootstrap)
Furans				
39001-02-0	1,2,3,4,6,7,8,9-OCDF	7.66E-06	42	95% KM (BCA)
67562-39-4	1,2,3,4,6,7,8-HpCDF	7.60E-06	29	95% KM(Chebyshev)
55673-89-7	1,2,3,4,7,8,9-HpCDF	2.45E-07	15	95% KM (BCA)

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
70648-26-9	1,2,3,4,7,8-HxCDF	2.61E-06	21	95% KM(Chebyshev)
57117-44-9	1,2,3,6,7,8-HxCDF	3.01E-07	26	95% KM (BCA)
72918-21-9	1,2,3,7,8,9-HxCDF	2.03E-07	3	95% KM(Chebyshev)
57117-41-6	1,2,3,7,8-PeCDF	1.15E-07	3	95% KM(t) [e]
60851-34-5	2,3,4,6,7,8-HxCDF	1.34E-07	13	95% KM(t)
57117-31-4	2,3,4,7,8-PeCDF	2.06E-07	6	95% KM(t)
51207-31-9	2,3,7,8-TCDF	4.49E-08	9	95% KM(t)
Inorganic Elements				
7440-36-0	Antimony (Sb)	1.90E+00	3	95% KM (%bootstrap)
7440-38-2	Arsenic (As)	1.75E+00	91	95% Modified-t [l]
7440-39-3	Barium (Ba)	8.37E+01	91	95% Student's-t [f]
7440-41-7	Beryllium (Be)	2.74E-01	91	95% Modified-t
7440-42-8	Boron (B)	1.96E+00	8	95% KM (BCA)
7440-43-9	Cadmium (Cd)	7.83E-01	91	95% Student's-t
7440-47-3	Chromium (Cr)	8.85E+00	91	95% Modified-t
18540-29-9	Chromium, Hexavalent	ND	0	ND [c]
7440-48-4	Cobalt (Co)	7.20E+00	91	95% Modified-t
7440-50-8	Copper (Cu)	8.21E+00	91	95% Modified-t
7439-92-1	Lead (Pb)	7.09E+00	91	95% Modified-t
7439-96-5	Manganese (Mn)	3.16E+02	91	95% Modified-t
7439-97-6	Mercury (Hg)	1.12E-02	17	95% KM (BCA)
7440-02-0	Nickel (Ni)	7.88E+00	91	95% Modified-t
7723-14-0	Phosphorus (P)	7.75E+02	91	95% Modified-t
7782-49-2	Selenium (Se)	4.45E-01	91	95% Gamma [h]
7440-22-4	Silver (Ag)	1.37E-01	91	95% Modified-t
7440-28-0	Thallium (Tl)	6.64E-02	81	95% KM (BCA)
7440-31-5	Tin (Sn)	4.00E+00	82	95% KM(t)
7440-62-2	Vanadium (V)	5.91E+01	91	95% Modified-t
7440-66-6	Zinc (Zn)	4.91E+01	91	95% Modified-t
Polychlorinated Biphenyls				
35065-29-3	PCB 180	1.01E-05	44	95% KM (%bootstrap)
39635-31-9	PCB 189	ND	0	ND
32598-14-4	PCB 105	1.93E-06	50	95% KM (%bootstrap)
31508-00-6	PCB 118	4.31E-06	68	95% KM (BCA)
32598-13-3	PCB 77	4.93E-07	8	95% KM (%bootstrap)
70362-50-4	PCB 81	ND	1	ND, Single J-flagged value
25512-42-9	Total Di-PCB	1.70E-05	38	95% KM (%bootstrap)
27323-18-8	Total Mono-PCB	3.96E-06	9	95% KM (%bootstrap)
25429-29-2	Total Penta-PCB	3.78E-05	49	95% KM (%bootstrap)
26914-33-0	Total Tetra-PCB	1.84E-05	18	95% KM (%bootstrap)
25323-68-6	Total Tri-PCB	2.59E-05	38	95% KM (%bootstrap)
Semivolaitle Organic Compounds				
98-86-2	Acetophenone	ND	0	ND
100-52-7	Benzaldehyde	ND	0	ND

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
65-85-0	Benzoic acid	ND	0	ND
100-51-6	Benzyl alcohol	ND	0	ND
117-81-7	bis(2-Ethylhexyl) phthalate	ND	0	ND
85-68-7	Butyl benzyl phthalate	ND	0	ND
84-66-2	Diethyl phthalate	ND	0	ND
84-74-2	Di-n-butyl phthalate	ND	1	ND, Single J-flagged value
108-95-2	Phenol	ND	0	ND
Volatile Organic Compounds				
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0	ND
106-99-0	1,3-Butadiene	ND	0	ND
106-46-7	1,4-Dichlorobenzene	ND	0	ND
78-93-3	2-Butanone (MEK)	ND	0	ND
67-64-1	Acetone	ND	0	ND
71-43-2	Benzene	ND	0	ND
75-27-4	Bromodichloromethane	ND	0	ND
74-96-4	Bromoethane	ND	0	ND
74-83-9	Bromomethane	ND	0	ND
75-15-0	Carbon disulfide	ND	0	ND
56-23-5	Carbon tetrachloride	ND	0	ND
67-66-3	Chloroform	ND	0	ND
74-87-3	Chloromethane	ND	0	ND
124-48-1	Dibromochloromethane	ND	0	ND
75-71-8	Dichlorodifluoromethane (Freon-12)	ND	0	ND
100-41-4	Ethylbenzene	ND	1	ND, Single J-flagged value
110-54-3	Hexane	ND	0	ND
74-88-4	Iodomethane	ND	0	ND
75-09-2	Methylene chloride	ND	0	ND
179601-23-1	m-Xylene and p-Xylene	ND	0	ND
95-47-6	o-Xylene	ND	0	ND
100-42-5	Styrene	3.69E-04	3	95% KM(t)
108-88-3	Toluene	ND	0	ND
79-01-6	Trichloroethene	ND	0	ND
75-69-4	Trichlorofluoromethane (Freon-11)	ND	0	ND
75-01-4	Vinyl chloride	ND	0	ND
1330-20-7	m,p,o-Xylene	ND	0	ND

[a] UCL95 based on Kaplan-Meier using a bias-corrected accelerated bootstrap method.
[b] UCL95 based upon Kaplan-Meier estimates using the percentile bootstrap method.
[c] ND denotes the COC was not detected in any sample.
[d] UCL95 based on Kaplan-Meier estimates using the Chebyshev inequality.
[e] UCL95 based on Kaplan-Meier estimates using the Student's t-distribution cutoff value.
[f] UCL95 based on the Student's t-distribution method.
[h] UCL95 based on the Gamma regression on order statistics method using the gamma approximate-UCL method.
[i] UCL95 based on the Chebyshev inequality method using the sample mean and sample standard deviation.
[k] UCL95 based upon Kaplan-Meier estimates using the jackknife method.
[l] UCL95 based on the modified-t statistic (adjusted for skewness).

Table 3-8: Upper 95% Confidence Limits (UCL95) for the Area of Concern 15B soil sampling data set

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
Dioxins				
3268-87-9	1,2,3,4,6,7,8,9-OCDD	3.10E-05	31	95% KM(%Bootstrap) [b]
35822-46-9	1,2,3,4,6,7,8-HpCDD	2.10E-06	23	95% KM (BCA) [a]
39227-28-6	1,2,3,4,7,8-HxCDD	5.70E-08	19	95% KM (t) [e]
57653-85-7	1,2,3,6,7,8-HxCDD	1.30E-07	50	95% KM (BCA)
19408-74-3	1,2,3,7,8,9-HxCDD	8.90E-08	41	95% KM(%Bootstrap)
40321-76-4	1,2,3,7,8-PeCDD	8.60E-08	2	95% KM(%Bootstrap)
1746-01-6	2,3,7,8-TCDD	1.30E-07	2	95% KM(%Bootstrap)
Furans				
39001-02-0	1,2,3,4,6,7,8,9-OCDF	5.90E-06	28	95% KM (Chebyshev) [d]
67562-39-4	1,2,3,4,6,7,8-HpCDF	5.90E-06	1	Single detected value used
55673-89-7	1,2,3,4,7,8,9-HpCDF	5.80E-08	6	95% KM(%Bootstrap)
70648-26-9	1,2,3,4,7,8-HxCDF	8.60E-08	29	95% KM(%Bootstrap)
57117-44-9	1,2,3,6,7,8-HxCDF	5.90E-08	27	95% KM(%Bootstrap)
72918-21-9	1,2,3,7,8,9-HxCDF	3.50E-08	5	95% KM(%Bootstrap)
57117-41-6	1,2,3,7,8-PeCDF	ND [c]	1	ND, Single J-flagged value
60851-34-5	2,3,4,6,7,8-HxCDF	7.70E-08	21	95% KM(%Bootstrap)
57117-31-4	2,3,4,7,8-PeCDF	3.30E-08	8	95% KM (t)
51207-31-9	2,3,7,8-TCDF	3.50E-08	9	95% KM(%Bootstrap)
Inorganic Elements				
7440-36-0	Antimony (Sb)	ND	1	ND, Single J-flagged value
7440-38-2	Arsenic (As)	1.46E+00	63	95% Modified-t [l]
7440-39-3	Barium (Ba)	8.50E+01	63	95% Student's-t [f]
7440-41-7	Beryllium (Be)	2.90E-01	63	95% Student's-t
7440-42-8	Boron (B)	1.52E+00	6	95% KM (t)
7440-43-9	Cadmium (Cd)	7.66E-01	63	95% Student's-t
7440-47-3	Chromium (Cr)	8.83E+00	63	95% Student's-t
18540-29-9	Chromium, Hexavalent	7.40E-02	2	95% KM(%Bootstrap)
7440-48-4	Cobalt (Co)	7.25E+00	63	95% Student's-t
7440-50-8	Copper (Cu)	8.03E+00	63	95% Student's-t
7439-92-1	Lead (Pb)	4.45E+00	63	95% Modified-t
7439-96-5	Manganese (Mn)	3.20E+02	63	95% Approximate Gamma [h]
7439-97-6	Mercury (Hg)	1.10E-02	3	95% KM(%Bootstrap)
7440-02-0	Nickel (Ni)	7.83E+00	63	95% Student's-t
7723-14-0	Phosphorus (P)	7.40E+02	63	95% Modified-t
7782-49-2	Selenium (Se)	3.73E-01	0	95% Modified-t
7440-22-4	Silver (Ag)	1.40E-01	63	95% Student's-t
7440-28-0	Thallium (Tl)	6.99E-02	62	95% KM(%Bootstrap)
7440-31-5	Tin (Sn)	1.61E+00	63	95% Modified-t
7440-62-2	Vanadium (V)	6.01E+01	63	95% Student's-t
7440-66-6	Zinc (Zn)	4.78E+01	63	95% Modified-t

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
Polychlorinated Biphenyls				
35065-29-3	PCB 180	4.60E-06	17	95% KM(%Bootstrap)
39635-31-9	PCB 189	6.00E-07	3	95% KM (t)
32598-14-4	PCB 105	1.10E-06	33	95% KM(%Bootstrap)
31508-00-6	PCB 118	2.50E-06	25	95% KM (t)
32598-13-3	PCB 77	3.10E-07	13	95% KM(%Bootstrap)
70362-50-4	PCB 81	ND	0	ND
25512-42-9	Total Di-PCB	ND	0	ND
27323-18-8	Total Mono-PCB	ND	1	ND, Single J-flagged value
25429-29-2	Total Penta-PCB	2.10E-05	5	95% KM (Chebyshev) UCL
26914-33-0	Total Tetra-PCB	ND	1	ND
25323-68-6	Total Tri-PCB	ND	0	ND
Semivolatile Organic Compounds				
98-86-2	Acetophenone	ND	0	ND
100-52-7	Benzaldehyde	ND	0	ND
65-85-0	Benzoic acid	ND	0	ND
100-51-6	Benzyl alcohol	ND	0	ND
117-81-7	bis(2-Ethylhexyl) phthalate	ND	0	ND
85-68-7	Butyl benzyl phthalate	ND	0	ND
84-66-2	Diethyl phthalate	ND	0	ND
84-74-2	Di-n-butyl phthalate	ND	0	ND
108-95-2	Phenol	ND	0	ND
Volatile Organic Compounds				
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0	ND
106-99-0	1,3-Butadiene	ND	0	ND
106-46-7	1,4-Dichlorobenzene	ND	0	ND
78-93-3	2-Butanone (MEK)	ND	0	ND
67-64-1	Acetone	ND	0	ND
71-43-2	Benzene	ND	0	ND
75-27-4	Bromodichloromethane	ND	0	ND
74-96-4	Bromoethane	ND	0	ND
74-83-9	Bromomethane	ND	0	ND
75-15-0	Carbon disulfide	ND	0	ND
56-23-5	Carbon tetrachloride	ND	0	ND
67-66-3	Chloroform	ND	0	ND
74-87-3	Chloromethane	ND	0	ND
124-48-1	Dibromochloromethane	ND	0	ND
75-71-8	Dichlorodifluoromethane (Freon-12)	ND	0	ND
100-41-4	Ethylbenzene	ND	0	ND
110-54-3	Hexane	ND	0	ND
74-88-4	Iodomethane	ND	0	ND
75-09-2	Methylene chloride	ND	0	ND
179601-23-1	m-Xylene and p-Xylene	ND	0	ND
95-47-6	o-Xylene	ND	0	ND

CAS Number	Name	UCL95 (ug/kg)	Number of Detects	UCL Source
100-42-5	Styrene	ND	0	ND
108-88-3	Toluene	ND	0	ND
79-01-6	Trichloroethene	ND	0	ND
75-69-4	Trichlorofluoromethane (Freon-11)	4.50E-04	2	95% KM(%Bootstrap)
75-01-4	Vinyl chloride	ND	0	ND
1330-20-7	m,p,o-Xylene	ND	0	ND

[a] UCL95 based on Kaplan-Meier using a bias-corrected accelerated bootstrap method.
[b] UCL95 based upon Kaplan-Meier estimates using the percentile bootstrap method.
[c] ND denotes the COC was not detected in any sample.
[d] UCL95 based on Kaplan-Meier estimates using the Chebyshev inequality.
[e] UCL95 based on Kaplan-Meier estimates using the Student's t-distribution cutoff value.
[f] UCL95 based on the Student's t-distribution method.
[h] UCL95 based on the Gamma regression on order statistics method using the gamma approximate-UCL method.
[l] UCL95 based on the modified-t statistic (adjusted for skewness).

4 Results

4.1 *Comparison of Soil Concentrations*

4.1.1 Inorganic Compounds

Figures 4-1 through 4-5 compare the UCL95 values for inorganic species from each of the three sampling areas. Species are grouped based on similar concentrations to allow multiple species to be included on each graph while still observing trends.

In general most of the measured inorganic species were present in AOC-15 soils at higher concentrations than in the baseline soils. Sixteen of the 20 inorganic compounds included in this study exhibited higher UCL95 values in either AOC-15A or AOC-15B than in the baseline soils. These 16 species were vanadium, zinc, chromium, nickel, cobalt, lead, tin, boron, antimony, arsenic, cadmium, selenium, beryllium, silver, thallium, and mercury. Only four compounds; phosphorous, manganese, barium, and copper; had baseline UCL95 values above those in both AOC-15 data sets.

A comparison of the concentrations of the inorganic elements included in this study with those reported by the Oregon Department of Environmental Quality for central and eastern Oregon soils is provided in Table 4-1 and Figure 4-6 (ODEQ, 2013). Phosphorous, tin, and boron are not included in either Table 4-1 or Figure 4-6 since regional soil data for these compounds was not reported. Examination of the presented information reveals that all the baseline UCL95 results are within the range defined by the regional maximum and minimum values. All AOC-15 results are also within the regional range with the exception of Cadmium (Cd). UCL95 values for Cd in AOC-15A (0.78 mg/kg) and AOC-15B (0.77 mg/kg) were both above the reported regional maximum value of 0.59 mg/kg.

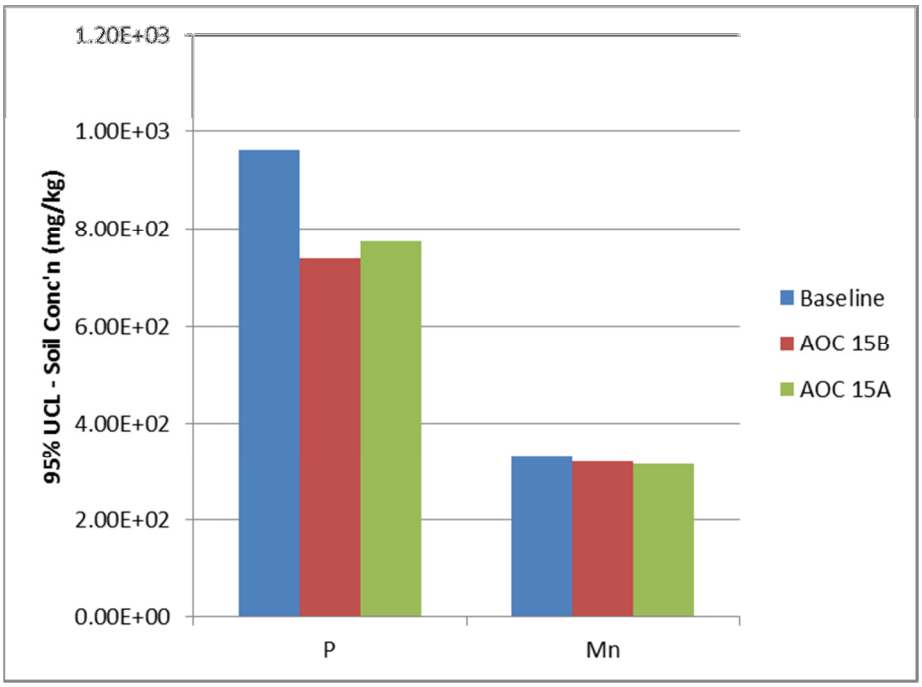

Figure 4-1: UCL95 values for phosphorous (P) and manganese (Mn) for the three sampling areas.

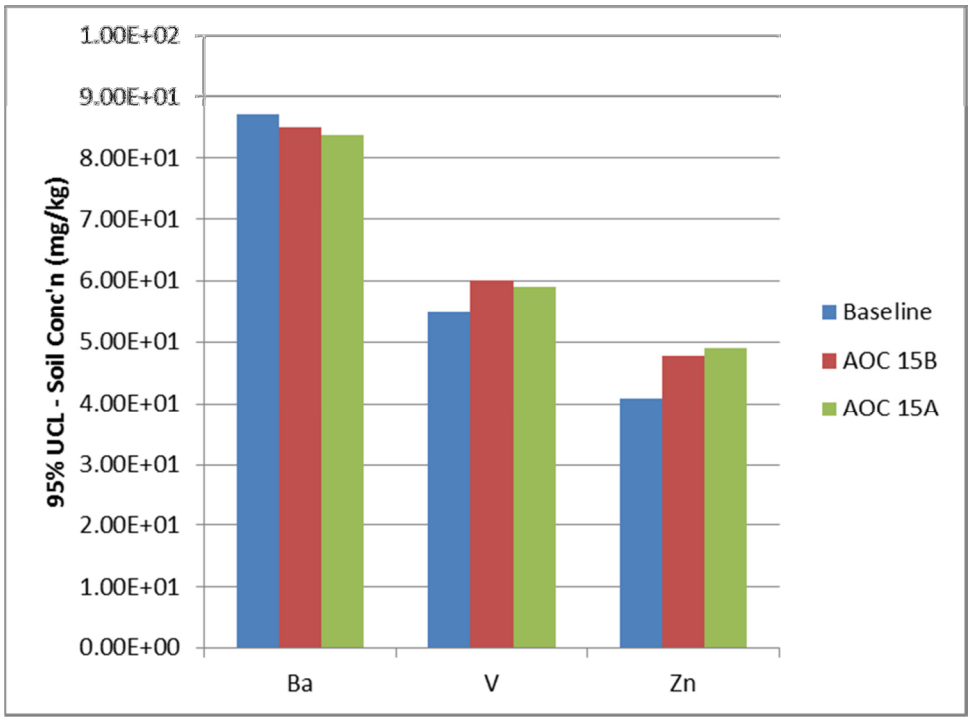

Figure 4-2: UCL95 values for barium (Ba), vanadium (V), and zinc (Zn) for the three sampling areas.

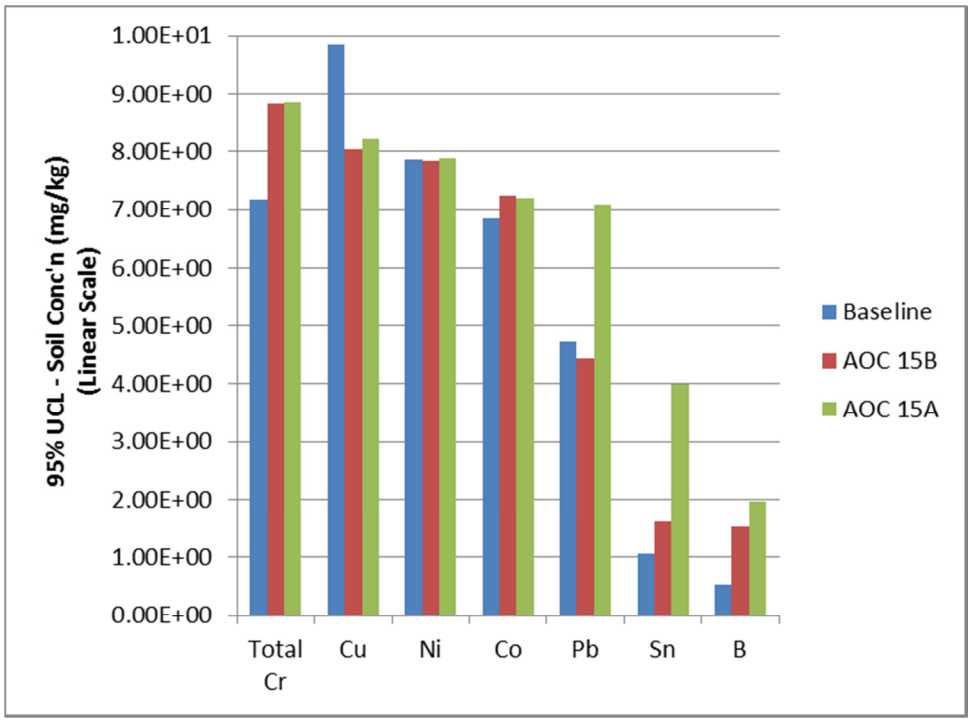

Figure 4-3: UCL95 values for chromium (Cr), copper (Cu), nickel (Ni), cobalt (Co), lead (Pb), tin (Sn), and boron (B) for the three sampling areas.

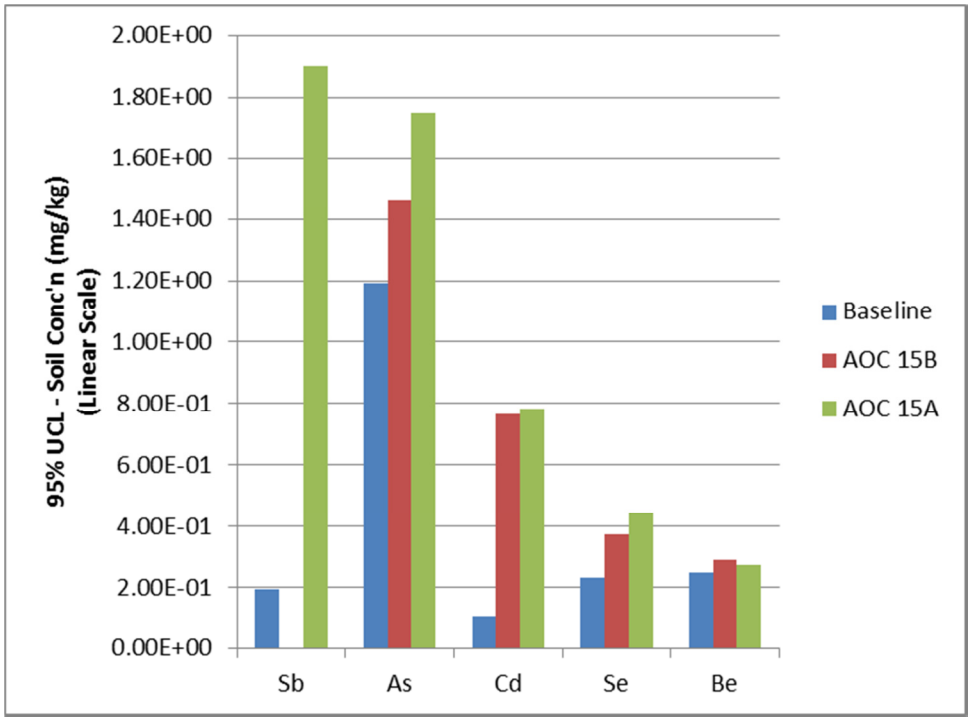

Figure 4-4: UCL95 values for antimony (Sb), arsenic (As), cadmium (Cd), selenium (Se), and beryllium (Be) for the three sampling areas.

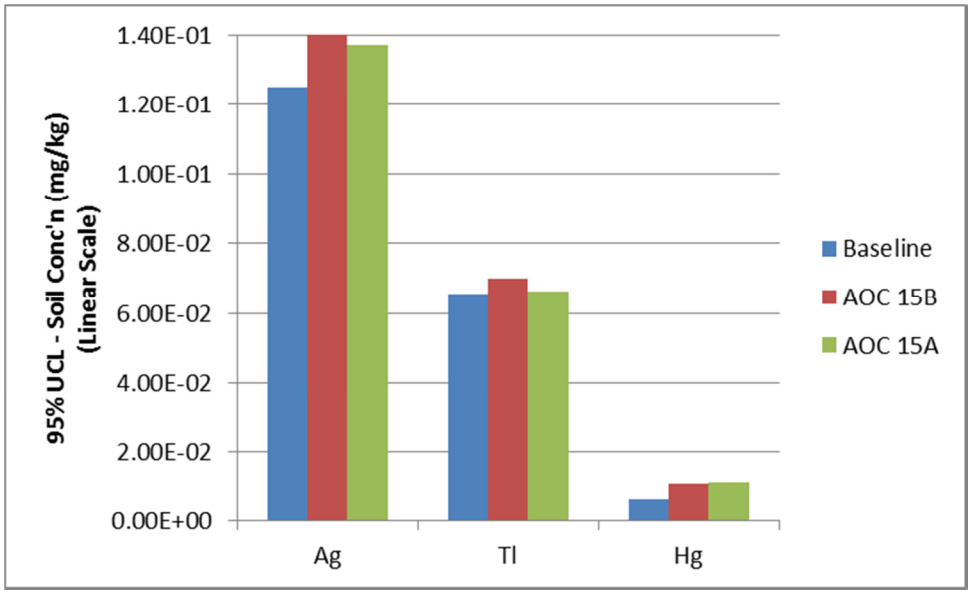

Figure 4-5: UCL95 values for silver (Ag), thallium (Tl), and mercury (Hg) for the three sampling areas.

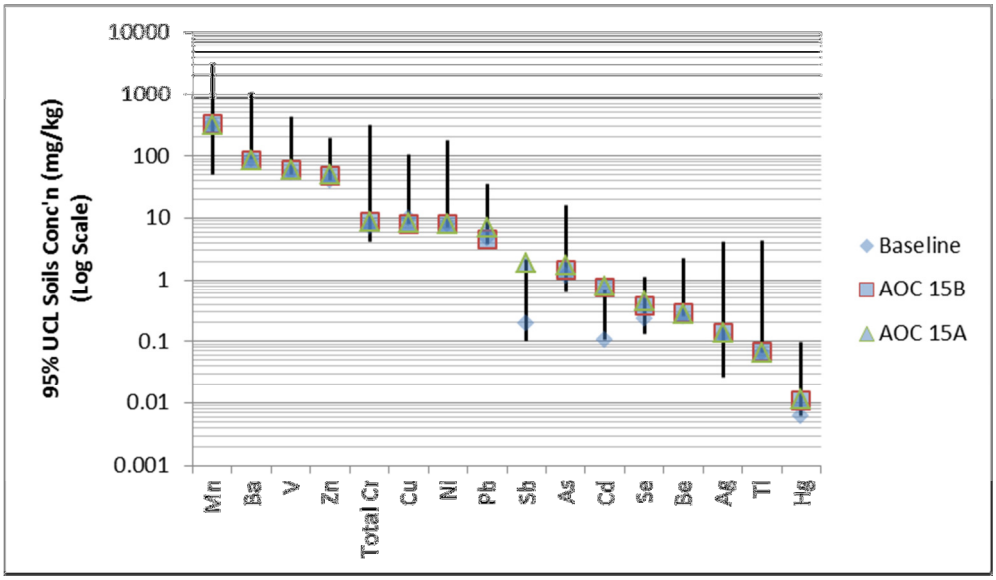

Figure 4-6: Range of concentrations for metals in soils from eastern and central Oregon compared to the levels observed at the UMCD. The vertical lines represent the range between the minimum and maximum values from the regional study. The individual points represent the 95% UCL values measured at the UMCD for the indicated data sets. Note that the vertical scale is logarithmic.

Table 4-1: Comparison of Metals Concentrations in UMCD Soils With the Range of Regional Concentrations

Name	Baseline UCL95 (mg/kg)	AOC-15B UCL95 (mg/kg)	AOC-15A UCL95 (mg/kg)	Oregon Regional Results, Deschutes-Columbia Plateau	
				Minimum Conc'n (mg/kg)	Maximum Conc'n (mg/kg)
Manganese (Mn)	3.328E+02	3.195E+02	3.161E+02	2.825E+02	2.830E+03
Barium (Ba)	8.697E+01	8.504E+01	8.368E+01	1.037E+02	9.679E+02
Vanadium (V)	5.493E+01	6.010E+01	5.908E+01	4.000E+00	3.700E+02
Zinc (Zn)	4.092E+01	4.779E+01	4.913E+01	4.370E+01	1.500E+02
Chromium (Cr)	7.188E+00	8.825E+00	8.848E+00	3.000E+00	3.060E+02
Copper (Cu)	9.852E+00	8.030E+00	8.213E+00	2.000E+00	9.400E+01
Nickel (Ni)	7.862E+00	7.831E+00	7.879E+00	1.000E+00	1.670E+02
Lead (Pb)	4.719E+00	4.450E+00	7.093E+00	1.000E+00	3.000E+01
Antimony (Sb)	1.940E-01	ND	1.900E+00	9.300E-02	1.917E+00
Arsenic (As)	1.190E+00	1.461E+00	1.745E+00	5.530E-01	1.500E+01
Cadmium (Cd)	1.050E-01	7.660E-01	7.830E-01	1.280E-01	5.870E-01
Selenium (Se)	2.330E-01	3.730E-01	4.451E-01	9.900E-02	8.800E-01
Beryllium (Be)	2.510E-01	2.900E-01	2.740E-01	5.700E-01	2.000E+00
Silver (Ag)	1.250E-01	1.400E-01	1.370E-01	9.900E-02	4.000E+00
Thallium (Tl)	6.540E-02	6.990E-02	6.640E-02	1.860E-01	4.209E+00
Mercury (Hg)	6.070E-03	1.100E-02	1.120E-02	7.000E-03	9.000E-02
Manganese (Mn)	3.328E+02	3.195E+02	3.161E+02	2.825E+02	2.830E+03
Barium (Ba)	8.697E+01	8.504E+01	8.368E+01	1.037E+02	9.679E+02
Vanadium (V)	5.493E+01	6.010E+01	5.908E+01	4.000E+00	3.700E+02

[a] ND denotes the compound was not detected

4.1.2 Organic Compounds

Figures 4-7 through 4-9 depict the UCL95 results for PCB, dioxin, and furan compounds in soils for the three sampling zones. Figures are not provided for semi-volatile or volatile organics since these species were rarely detected. The only semi-volatile compounds detected were benzoic acid and diethyl phthalate in baseline soils. The only volatile compounds detected were styrene (three detected values in AOC-15A soils), toluene (seventeen detected values in baseline soils), and trichlorofluoromethane (two detected values in AOC-15B soils).

Figures 4-8 and 4-9 suggest a general trend of increasing dioxin and furan concentrations between the baseline data set and those of AOC-15. Sixteen of the 17 dioxin and furan compounds showed higher concentrations in one or more the AOC-15 data sets when compared to the corresponding baseline values. The only exception was 1,2,3,4,8-PeCDF. A similar dominant trend was not evident in the PCB data (Figure 4-7).

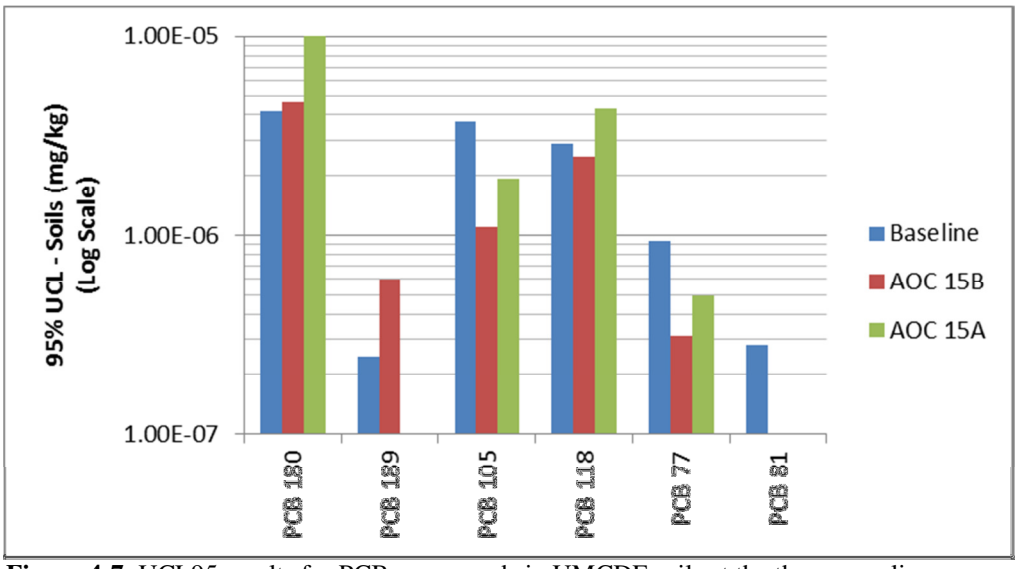

Figure 4-7: UCL95 results for PCB compounds in UMCDF soils at the three sampling zones.

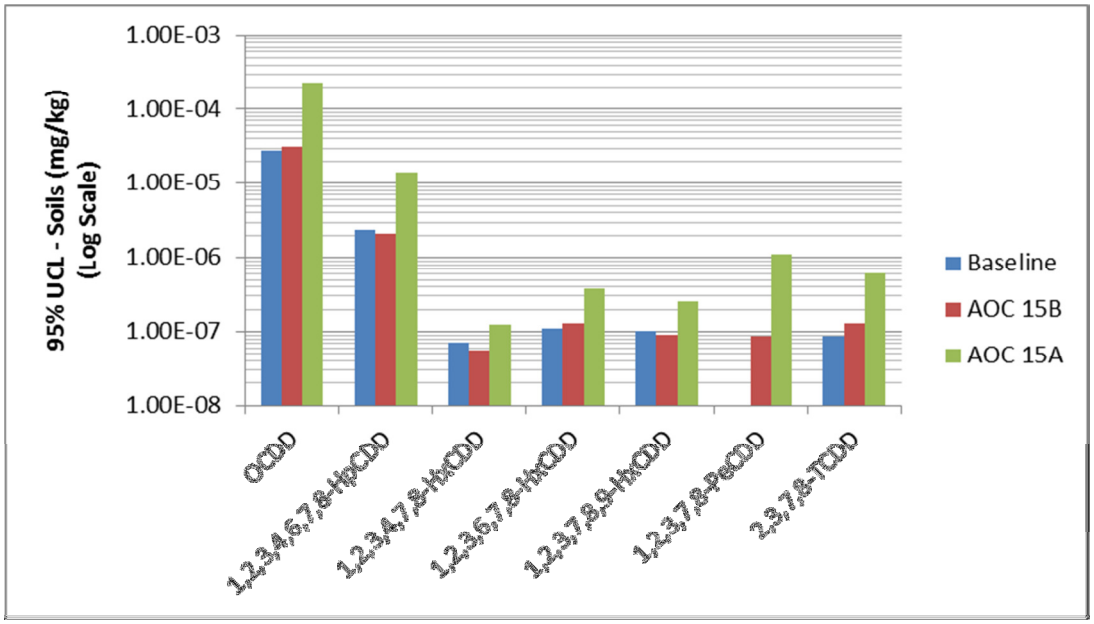

Figure 4-8: UCL95 results for dioxin compounds in UMCDF soils at the three sampling zones.

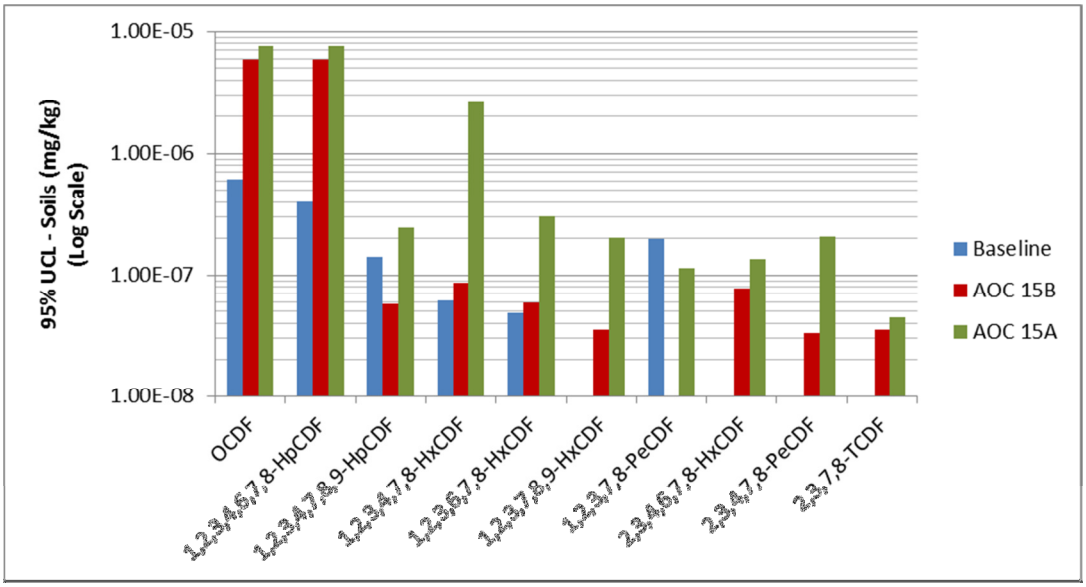

Figure 4-9: UCL95 results for furan compounds in UMCDF soils at the three sampling zones.

4.2 *Baseline Area Risk*

Application of baseline soil UCL95 concentrations to the Native American Subsistence scenario results in an adult cancer risk and Hazard Index of 6.1×10^{-5} and 1.3, respectively. The risks to Native American children are 7.0×10^{-6} (cancer risk) and 1.4 (Hazard Index).

Tables 4-2 and 4-3 list the top 10 contributors to cancer risk for Native American adults and children. The top 10 contributors account for more than 99% of the total risk for both exposure scenarios. Approximately 96% of the cancer risk is caused by the arsenic in the UMCD soils. This value increases to greater than 98% of the risk if the impacts of both lead and arsenic are considered.

Table 4-2: Ten Highest Contributors to Cancer Risk for the Native American Adult Subsistence Scenario

Name	Cancer Risk
Arsenic compounds	5.7E-05
Lead compounds	2.5E-06
2,3,7,8-Tetrachlorodibenzo-p-dioxin	9.5E-07
HeptaCDD, 1,2,3,4,6,7,8-	8.0E-08
HexaCDD, 1,2,3,6,7,8-	7.0E-08
HexaCDD, 1,2,3,7,8,9-	6.3E-08
PentaCDF, 1,2,3,7,8-	5.9E-08
HexaCDF, 1,2,3,4,7,8-	5.1E-08
HexaCDF, 1,2,3,6,7,8-	4.0E-08
3,4,4',5-Tetrachlorobiphenyl	3.5E-08

Table 4-3: Ten Highest Contributors to Cancer Risk for the Native American Child Subsistence Scenario

Name	Cancer Risk
Arsenic compounds	6.5E-06
Lead compounds	3.5E-07
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.2E-07
HeptaCDD, 1,2,3,4,6,7,8-	1.0E-08
HexaCDD, 1,2,3,6,7,8-	7.4E-09
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	7.1E-09
HexaCDD, 1,2,3,7,8,9-	6.7E-09
PentaCDF, 1,2,3,7,8-	5.8E-09
HexaCDF, 1,2,3,4,7,8-	5.1E-09
1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.4E-09

Tables 4-4 and 4-5 list the top 10 contributors to the noncancer risk for Native American adults and children. The top ten contributors are the same for both the adult and child exposure scenarios, but their relative contribution occurs in different order. For both scenarios, nine of the top ten noncancer risk causing compounds are naturally occurring metals. The top ten contributors to noncancer risk account for more than 95% of the total risk.

Table 4-4: Ten Highest Contributors to Noncancer Risk for the Native American Adult Subsistence Scenario

Name	Hazard Quotient
Manganese compounds	4.64E-01
Zinc compounds	1.29E-01
Arsenic compounds	1.27E-01
Vanadium compounds	1.04E-01
Benzoic acid	9.45E-02
Cadmium compounds	9.11E-02
Antimony compounds	6.33E-02
Barium compounds	5.14E-02
Thallium compounds	5.01E-02
Silver compounds	3.00E-02

Table 4-5: Ten Highest Contributors to Noncancer Risk for the Native American Child Subsistence Scenario

Name	Hazard Quotient
Manganese compounds	4.91E-01
Arsenic compounds	1.64E-01
Vanadium compounds	1.62E-01
Zinc compounds	1.30E-01
Benzoic acid	9.45E-02
Cadmium compounds	9.32E-02
Antimony compounds	6.76E-02
Barium compounds	5.71E-02
Thallium compounds	4.49E-02
Silver compounds	4.10E-02

The metals arsenic, manganese, vanadium, zinc, cadmium, barium, and thallium are all significant contributors to either cancer risk, noncancer risk, or both. While this result is a concern, it is important to note that the concentrations of these compounds at the UMCD are typical of those observed across the region and past military activity at the site does not appear to have had dramatic impacts on the levels of these compounds in the baseline soils (ODEQ, 2013). A comparison of the baseline levels of metals at the UMCD with those reported by the Oregon Department of Environmental Quality for central and eastern Oregon soils is provided in Table 4-1 and Figure 4-6. With the exception of vanadium, the baseline UCL95 values are in the lower half of the measured range for the region.

Evaluation of the exposure pathways involved in the human health risks for Native American adults and children reveal that the two largest contributors for both cancer and noncancer risks are exposure through ingestion of contaminated plant materials and soils. Tables 4-6 and 4-7

detail the fraction that each pathway evaluated contributes of the two risk categories. Ingestion of produce and soils combine to create between 88% and 97% of the total risk.

Table 4-6: Contribution of Exposure Pathways to Native American Cancer Risk

Pathway	Adult Cancer Risk (% of Total)	Child Cancer Risk (% of Total)
Produce Ingestion	77.6%	57.5%
Soil ingestion and Dermal Contact	10.1%	35.2%
Game ingestion	11.5%	5.7%
Milk injection	1.3%	1.6%
Egg ingestion	0.003%	0.001%
Fowl injection	0.002%	0.001%

Table 4-7: Contribution of Exposure Pathways to Native American Noncancer Risk

Pathway	Adult Cancer Risk (% of Total)	Child Cancer Risk (% of Total)
Produce Ingestion	86.3%	77.4%
Soil Ingestion and Dermal Contact	4.4%	14.7%
Game Ingestion	6.6%	3.9%
Milk Ingestion	2.6%	3.9%
Egg Ingestion	0.042%	0.027%
Fowl Ingestion	0.031%	0.019%

4.3 *AOC-15A Area Risk*

Table 4-8 details the results of the evaluation of AOC-15A soil data using the logic detailed in Figure 3-3. Only compounds with valid detections are listed in this table since undetected compounds are below their closure performance standard (CPS). Of the detected compounds, only arsenic was present at levels requiring analysis of its individual risk to future workers. All other detected compounds except phosphorus had maximum detections below the CPS. The maximum measured value for phosphorus was above the CPS, however, the UCL95 value was less than that of the baseline soil samples.

Arsenic is the only compound in AOC-15A with UCL95 levels above those of the baseline soils and the CPS. Figure 4-10 provides the individual sampling results for arsenic at AOC-15A along with the CPS level. As indicated, a full one-third of the arsenic sample results in AOC-15A are at, or above, the CPS level indicating that the elevated UCL95 value is not the result of a few outlying results.

As required in the closure plan evaluation logic (Figure 3-3), an analysis of the risk associated with exposure to arsenic at the AOC-15A levels was completed for an industrial exposure scenario. Both the individual contribution of arsenic to cancer and noncancer risks as well as the cumulative impacts of all measured COCs in AOC-15A were within the designated action levels. Arsenic cancer and noncancer risks were 1×10^{-6} and 0.0059, respectively. Cumulative risks computed for all COC at their UCL95 levels using the industrial exposure scenario were 1×10^{-6} (cancer risk) and 0.25 (noncancer risk). An action level for cumulative risk in AOC-15A was not specified in the UMCDF closure plan. Typical action levels for cumulative risk that trigger further regulatory consideration are greater than or equal to 1×10^{-5} for cancer risk and 1.0 for noncancer risks. Hence, the values computed for AOC-15A soils meet reasonable industrial closure criteria and the land is suitable for future industrial use. No further corrective action is necessary for AOC-15A.

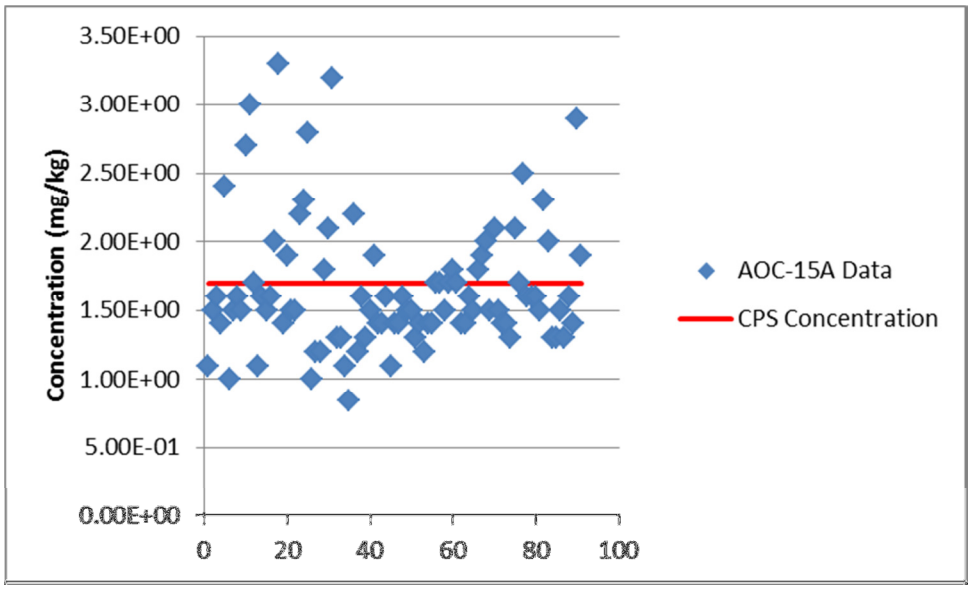

Figure 4-10: Individual sample results for arsenic in AOC15-A soils. The red line depicts the arsenic industrial CPS (1.7 mg/kg).

Table 4-8: AOC-15A Closure Analysis Results.

CAS NUM	Name	UCL95 (mg/kg)		AOC-15A Max Value (mg/kg)	Industrial CPS (mg/kg)	Max_{15A} > CPS ?	$UCL95_{15A}$ > $UCL95_{Baseline}$?	$UCL95_{15A}$ > CPS ?
		Baseline	AOC-15A					
1746-01-6	2,3,7,8-TCDD	8.70E-08	6.15E-07	6.15E-07	1.50E-05	NO	-- [a]	-- [a]
1746-01-6DF	Total D/F TEQ	1.70E-07	2.50E-06	9.00E-06	1.50E-05	NO	-- [a]	-- [a]
1746-01-6TOT	Total TEQ	1.70E-07	2.50E-06	9.02E-06	1.50E-05	NO	-- [a]	-- [a]
7440-36-0	Antimony (Sb)	1.94E-01	1.90E+00	1.90E+00	4.10E+02	NO	-- [a]	-- [a]
7440-38-2	Arsenic (As)	1.19E+00	1.75E+00	3.30E+00	1.70E+00	YES	YES	YES
7440-39-3	Barium (Ba)	8.70E+01	8.37E+01	1.20E+02	1.90E+05	NO	-- [a]	-- [a]
7440-41-7	Beryllium (Be)	2.51E-01	2.74E-01	3.50E-01	2.00E+03	NO	-- [a]	-- [a]
7440-42-8	Boron (B)	5.30E-01	1.96E+00	3.20E+00	2.00E+05	NO	-- [a]	-- [a]
7440-43-9	Cadmium (Cd)	1.05E-01	7.83E-01	1.10E+00	5.10E+02	NO	-- [a]	-- [a]
7440-47-3	Chromium^{+6} (Cr^{+6})	NM	>1.10E-02	>1.10E-02	5.50E+00	NO	-- [a]	-- [a]
7440-48-4	Cobalt (Co)	6.84E+00	7.20E+00	1.00E+01	3.00E+02	NO	-- [a]	-- [a]
7440-50-8	Copper (Cu)	9.85E+00	8.21E+00	1.50E+01	4.10E+04	NO	-- [a]	-- [a]
7439-92-1	Lead (Pb)	4.72E+00	7.09E+00	1.10E+02	8.00E+02	NO	-- [a]	-- [a]
7439-96-5	Manganese (Mn)	3.33E+02	3.16E+02	5.00E+02	2.30E+04	NO	-- [a]	-- [a]
7439-97-6	Mercury (Hg)	6.07E-03	1.12E-02	4.70E-02	3.10E+02	NO	-- [a]	-- [a]
7440-02-0	Nickel (Ni)	7.86E+00	7.88E+00	1.00E+01	2.00E+04	NO	-- [a]	-- [a]
7723-14-0	Phosphorus (P)	9.62E+02	7.75E+02	1.10E+03	2.00E+01 [b]	YES	NO	-- [a]
7782-49-2	Selenium (Se)	2.33E-01	4.45E-01	6.40E-01	5.10E+03	NO	-- [a]	-- [a]
7440-22-4	Silver (Ag)	1.25E-01	1.37E-01	1.70E-01	5.10E+03	NO	-- [a]	-- [a]
7440-28-0	Thallium (Tl)	6.54E-02	6.64E-02	1.10E-01	1.00E+01	NO	-- [a]	-- [a]
7440-31-5	Tin (Sn)	1.06E+00	4.00E+00	6.60E+01	6.10E+05	NO	-- [a]	-- [a]
7440-62-2	Vanadium (V)	5.49E+01	5.91E+01	7.60E+01	5.20E+03	NO	-- [a]	-- [a]
7440-66-6	Zinc (Zn)	4.09E+01	4.91E+01	1.40E+02	3.10E+05	NO	-- [a]	-- [a]
32598-14-4	PCB 105	3.70E-06	1.93E-06	3.33E-05	3.80E-01	NO	-- [a]	-- [a]
31508-00-6	PCB 118	2.90E-06	4.31E-06	5.53E-05	3.80E-01	NO	-- [a]	-- [a]
32598-13-3	PCB 77	9.30E-07	4.93E-07	3.61E-06	1.10E-01	NO	-- [a]	-- [a]
100-42-5	Styrene	ND	3.69E-04	1.40E-03	1.20E+05	NO	-- [a]	-- [a]

[a] Previous criteria met and no further analysis required.
[b] CPS value is for white phosphorus not the phosphate form most likely present in the soils.

4.4 *Area of Concern 15B Risk*

Application of AOC-15B soil concentrations to the Native American Subsistence scenario results in an adult cancer risk and Hazard Index of 7.5×10^{-5} and 1.8, respectively. The risks to Native American children are 8.6×10^{-6} (cancer risk) and 2.0 (Hazard Index).

Tables 4-8 and 4-9 list the top ten contributors to cancer risk for Native American adults and children. The top ten contributors account for more than 99% of the total risk for both the Native American Adult and Child Scenarios. Greater than 98% of the cancer risk results from lead and arsenic.

Table 4-8: Ten Highest Contributors to Cancer Risk for the Adult Native American Subsistence Scenario

Name	Cancer Risk
Arsenic compounds	7.2E-05
Lead compounds	2.7E-06
PentaCDD, 1,2,3,7,8-	2.7E-07
2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.0E-07
PentaCDF, 2,3,4,7,8-	1.1E-07
HexaCDD, 1,2,3,6,7,8-	1.0E-07
HexaCDF, 1,2,3,4,7,8-	6.1E-08
HeptaCDD, 1,2,3,4,6,7,8-	5.7E-08
HexaCDF, 2,3,4,6,7,8-	5.0E-08
HexaCDD, 1,2,3,7,8,9-	5.0E-08

Table 4-9: Ten Highest Contributors to Cancer Risk for the Child Native American Subsistence Scenario

Name	Cancer Risk
Arsenic compounds	8.1E-06
Lead compounds	3.8E-07
2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.7E-08
PentaCDD, 1,2,3,7,8-	2.6E-08
HexaCDD, 1,2,3,6,7,8-	1.1E-08
PentaCDF, 2,3,4,7,8-	1.0E-08
HeptaCDD, 1,2,3,4,6,7,8-	7.3E-09
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	6.3E-09
HexaCDF, 1,2,3,4,7,8-	6.1E-09
HexaCDD, 1,2,3,7,8,9-	5.2E-09

Tables 4-10 and 4-11 list the top ten contributors to the noncancer risk for Native American adults and children. The top nine contributors are the same for both the adult and child exposure scenarios, but their relative contribution occurs in different order. For both scenarios, all ten of the top noncancer risk causing compounds are naturally occurring metals and they contribute to more than 97% of the total noncancer risk.

Table 4-10: Ten Highest Contributors to Noncancer Risk for the Adult Native American Subsistence Scenario

Name	Hazard Quotient
Cadmium compounds	6.66E-01
Manganese compounds	4.43E-01
Arsenic compounds	1.59E-01
Zinc compounds	1.50E-01
Vanadium compounds	1.14E-01
Antimony compounds	6.88E-02
Thallium compounds	5.34E-02
Barium compounds	5.01E-02
Silver compounds	3.35E-02
Copper compounds	2.13E-02

Table 4-11: Ten Highest Contributors to Noncancer Risk for the Child Native American Subsistence Scenario

Name	Hazard Quotient
Cadmium compounds	6.81E-01
Manganese compounds	4.69E-01
Arsenic compounds	2.05E-01
Vanadium compounds	1.77E-01
Zinc compounds	1.51E-01
Antimony compounds	7.36E-02
Barium compounds	5.56E-02
Thallium compounds	4.78E-02
Silver compounds	4.59E-02
Nickel compounds	2.42E-02

Tables 4-12 and 4-13 detail the fraction each evaluated exposure pathway contributes to both cancer and non-cancer risk. Evaluation of the exposure pathways involved in the human health risks for Native American adults and children reveal that the two largest contributors for both cancer and noncancer risks are exposure through ingestion of contaminated plant materials and soils. These two pathways combine to create between 92% and 97% of the total risk.

Table 4-12: Contribution of Exposure Pathways to Native American Cancer Risk

Pathway	Adult Cancer Risk (% of Total)	Child Cancer Risk (% of Total)
Produce Ingestion	77.1%	58.2%
Soil injection and Dermal Contact	10.1%	34.8%
Game ingestion	11.5%	5.6%
Milk injection	1.3%	1.4%
Egg ingestion	0.003%	0.00085%
Fowl injection	0.002%	0.00072%

Table 4-13: Contribution of Exposure Pathways to Native American Noncancer Risk

Pathway	Adult Cancer Risk (% of Total)	Child Cancer Risk (% of Total)
Produce Ingestion	89.0%	81.1%
Soil Ingestion and Dermal Contact	3.7%	12.6%
Game Ingestion	5.2%	3.2%
Milk Ingestion	2.0%	3.0%
Egg Ingestion	0.049%	0.032%
Fowl Ingestion	0.072%	0.045%

4.5 *Comparison of Baseline and AOC-15B Risks*

Figure 3-4 depicts the analysis logic in the UMCDF closure plan to assess whether corrective action is required within AOC-15B. Exceedances of the action level by individual or cumulative incremental risk can trigger the need for action by the regulatory authority (ODEQ).

All values for incremental child cancer risks as well as all values for incremental noncancer risks for both adults and children were below regulatory action levels (Table 4-14). The cumulative incremental adult cancer risk for AOC-15B was equal to 2×10^{-5} which is also above the regulatory action level of 1×10^{-5}. Approximately 94% of the increase in cancer risk resulted from the increase in arsenic concentration from 1.19 mg/kg in the baseline soils to 1.46 mg/kg in AOC-15B soils. Thus arsenic caused an exceedance of both the individual compound regulatory incremental risk level of 1×10^{-6} and an exceedance of the cumulative incremental risk level of 1×10^{-5}. As shown in Figure 3-4 these exceedances requires follow-up discussions with the ODEQ to determine if further corrective actions is needed for AOC-15B.

Table 4-14: Summary of Cumulative Human Health Risk Values for the Baseline and AOC-15B Areas

Scenario/Risk Indicator	Baseline Risk Value	AOC-15B Risk Value	ΔRisk	ΔRisk Action Level
Native American Adult, Cancer Risk	6×10^{-5}	8×10^{-5}	2×10^{-5} [a]	1×10^{-5}
Native American Child, Cancer Risk	7×10^{-6}	9×10^{-6}	2×10^{-6}	1×10^{-5}
Native American Adult, Noncancer Risk	1.3	1.8	0.5	1.0
Native American Child, Noncancer Risk	1.4	2.0	0.6	1.0

[a] Value exceeds the regulatory action level of 1×10^{-5}.

5 Discussion

Soil concentration data from the three evaluation areas reveal that operations of the UMCDF likely contributed small, but measurable levels of organic and inorganic chemicals to the environment. Eighty-three percent (83%) of the compounds which were detected showed an increase in the central-tendency concentration (UCL95 value) in the down-wind locations when compared to up-wind soils. These increases in concentration have an assonated increase in human health risks within the downwind locations.

The increases in risk for a Native American substance life-style in AOC-15B soils were below the regulatory action levels set in the closure plan except for the risk of cancer in adults. Incremental increase in cancer risk for adults exceeded both cumulative threshold and, for arsenic, the individual compound contribution threshold. In fact, approximately 94% of the cumulative increase in cancer risk resulted from the increase in arsenic concentration from 1.19 mg/kg in the baseline soils to 1.46 mg/kg. As observed in Figure 5-1, the elevated concentration of arsenic within AOC-15B was widespread with 76% of the samples having arsenic concentrations above the baseline UCL95.

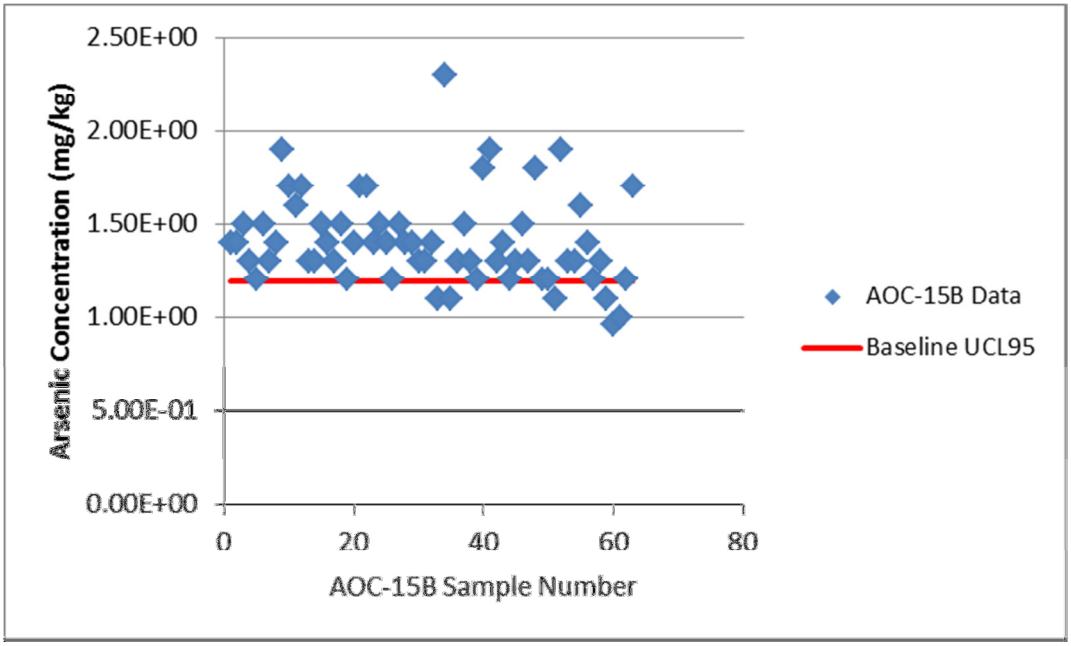

Figure 5-1: Individual AOC-15B arsenic results compared to the UCL95 for the baseline soils.

Arsenic levels are of concern to the CTUIR since over 400 metal hyperaccumulator plants (some of which hyperaccumulate arsenic) have been reported and include members of the *Asteraceae*, *Brassicaceae*, *Caryophyllaceae*, *Cyperaceae*, *Cunouniaceae*, *Fabaceae*, *Flacourtiaceae*, *Lamiaceae*, *Poaceae*, *Violaceae*, and *Euphobiaceae*. Among them, *Thlaspi*, *Brassica*, *Sedum alfredii H*., and *Arabidopsis* species have been studied the most for arsenic accumulation (Peryea 2001, Del Rio et al., 2002, Nicholson 2002, Grataol et al 2005; Lone et al 2008, Bergqvist 2011). Shrub steppe species have not been studied, but species within the same plant families are present on the UMAD property. Thus, there is a potential for ingesting arsenic from food and medicinal plants and soil particles that adhere to the outside surfaces of roots or leaves.

There are multiple possible sources for elevated levels of arsenic in AOC-15B. First, operations at the UMCDF could have potentially added arsenic to the environment since arsenic was a compound detected in most of the agent trial burns at the UMCDF[7]. Second, Past munition disposal operations at the UMCD could also have resulted in arsenic deposition at the UMCD. As indicated in Figure 5-2, the ammunition disposal area (ADA) is located on the western fence line of the UMCD and lies upwind of AOC-15B. Beginning in 1945 the ADA was used by the Army to dispose of ordnance and other solid wastes by burning, detonation, dumping, or burial. And pre-remediation data indicated UCL95 arsenic concentrations within the ammunition disposal area soils as high as 244 mg/kg (USACOE, 1994). Third, the deactivation furnace that was located near the warehouse complex in the southwest corner of the UMCD (Figure 5-2) is another possible source of wind transported arsenic. This facility was used for several decades to incinerate small arms ammunition and may have operated for several years without any pollution abatement system (USACOR, 1992). Pre-remediation soil samples near the incinerator revealed arsenic concentrations of up to 10.9 mg/kg (USACOR, 1992).

Wind transported arsenic from past UMCD activates at the ADA and the deactivation furnace is further suggested by the distribution of arsenic concentration at the UMCD. Figure 5-2 presents the baseline and AOC-15 arsenic data with individual values above the baseline UCL95 level (1.19 mg/kg) shown as red circles and values below the baseline UCL95 yellow circles. The white circles indicate maximum pre-remediation arsenic values (values in mg/kg are shown with each point in bold text) measured in soils within identified waste sites during remedial investigations (USACOE, 1992). The predominant wind direction is indicated by the yellow arrow. Clearly, the former UMCD operations in the ADA and at the deactivation furnace resulted in some amount of arsenic released to the environment as indicated by the pre-remediation values. Further the lands downwind of both the ADA and the deactivation furnace contain the higher arsenic concentrations. Hence, it is plausible that air transported materials from these sources were a contributor to arsenic on the northern portion of the UMCD.

[7] Arsenic was detected in at least one run in all the agent trial burns except for the Deactivation Furnace test with VX agent.

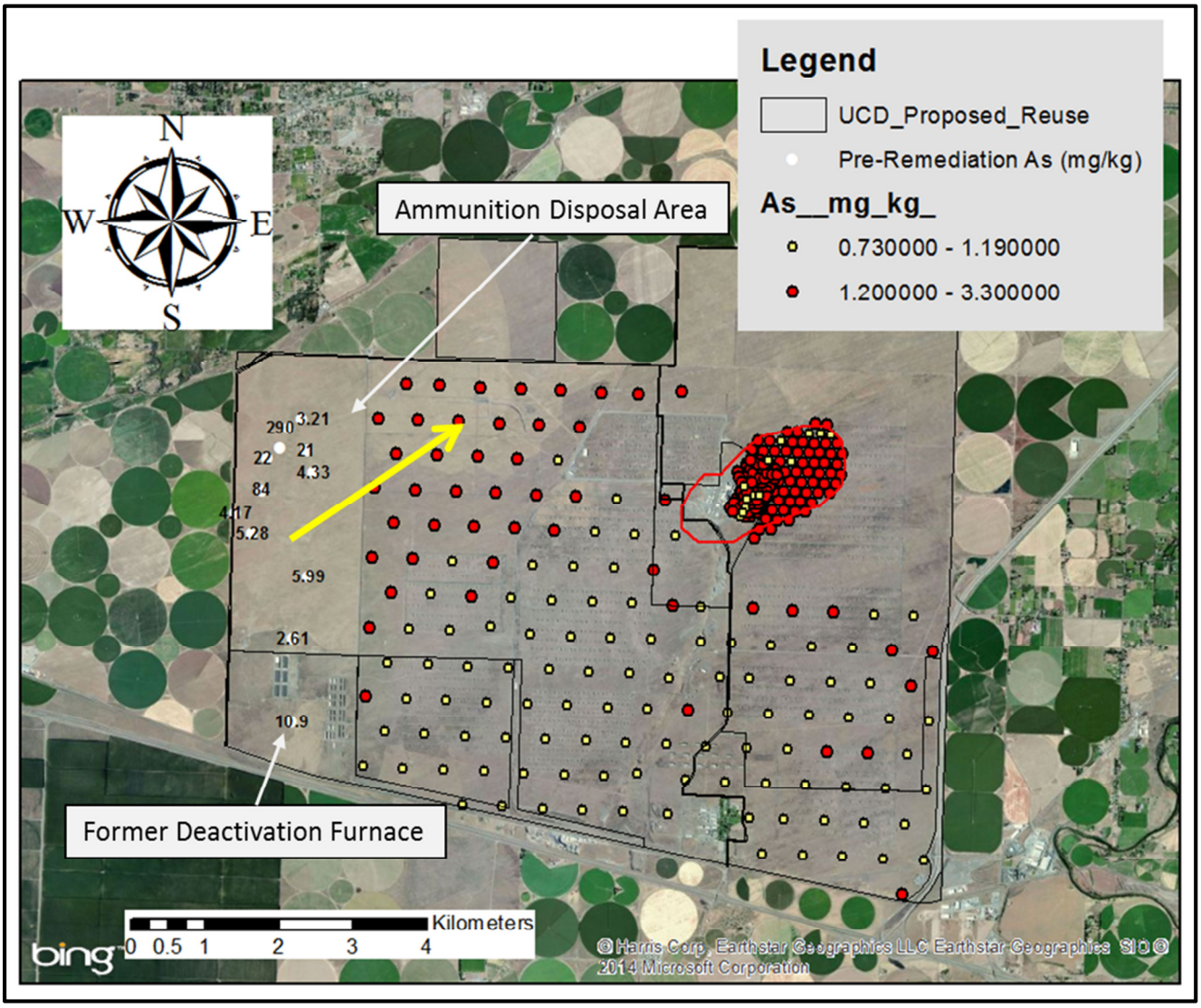

Figure 5-2: Individual Arsenic concentrations in UMCD soils. Values that were above the 1.19 mg/kg baseline UCL95 value are shown as red circles and values below the baseline UCL95 are represented by yellow circles. The white circles indicate maximum arsenic values (values in mg/kg are shown with each point in bold text) at former waste sites prior to completing remediation activities. The predominant wind direction is indicated by the yellow arrow.

Another line of evidence that the UMCDF may not have been the only source of arsenic contributing to elevated levels on the northern portion of the facility is similarity in the concentrations measured within AOC-15B and those of the northwest quadrant of the UMCD. The UCL95 value for the locations highlighted by light blue circles in Figure 5-3 is 1.49 mg/kg (Student-t UCL95 computed by PROUCL 4.1.01) which is very similar to that for AOC-15B (1.46 mg/kg). The similarity in the two data sets is also supported by the results of a two-sided Wilcoxon-Mann-Whitney rank sum test comparing the AOC-15B data to the indicated NW quadrant data. This non-parametric test indicates the two sets are equivalent at a 99% confidence level.

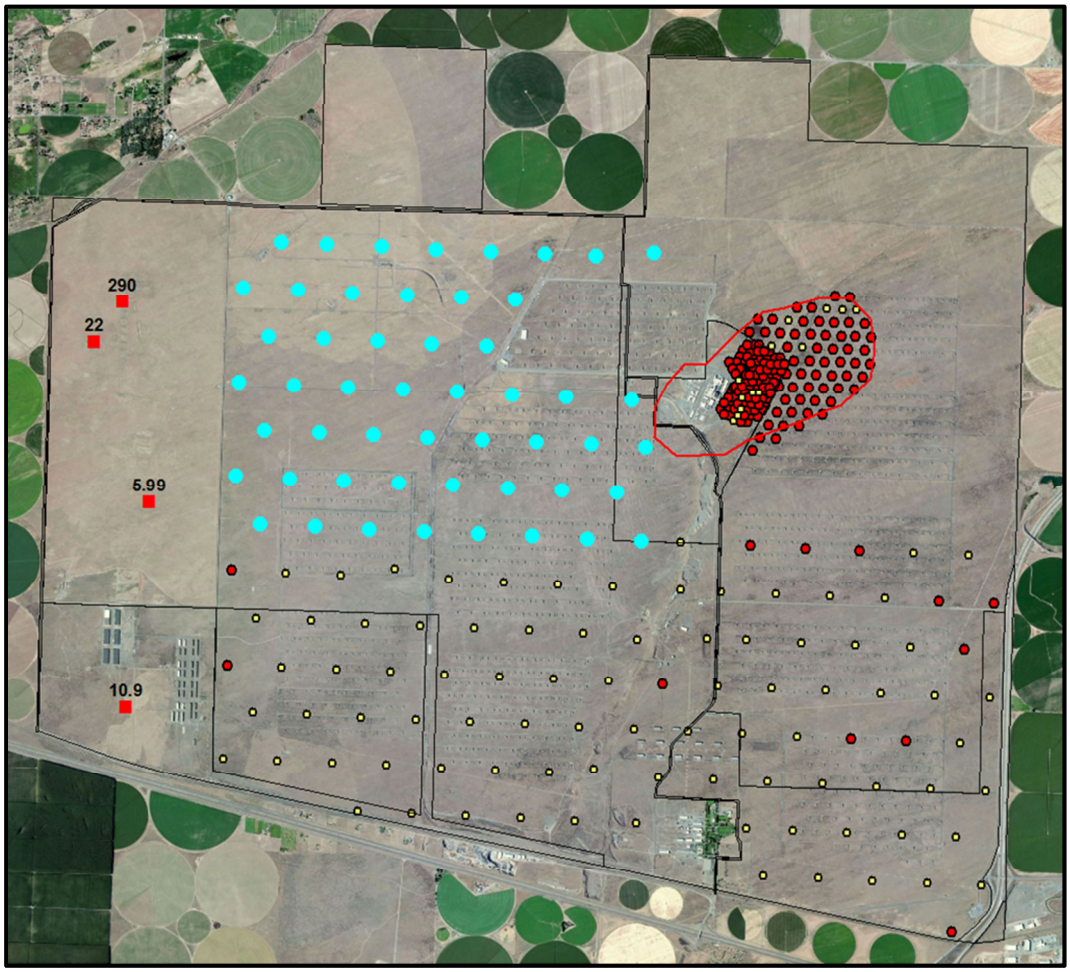

Figure 5-3: Northwest quadrant data used to compare to the AOC-15B data (blue circles).

It is also possible that the distribution of arsenic on the UMCD results from natural variations. Ten near surface samples were collected in during CERCLA remedial investigation (RI) studies to establish baseline soil concentrations of various compounds including arsenic (USACOE, 1992). The range of arsenic concentration for this data is 1.22 mg/kg to 2.61 mg/kg with a UCL95 of 2.26 (Student's-t UCL, PROUCL Version 4.1.01). In addition, the DEQ recently released regional soil data for the State of Oregon. The average value for the area that includes the UMCD[8] is 3.76 ± 2.03 (values ranged between 0.553 and 15.1 mg/kg). The variation observed in the current baseline and AOC-15 data (0.84 mg/kg to 3.3 mg/kg) is within the regional variation. The variation of the current data is also similar to the RI baseline data.

[8] The area that includes the UMCD extends between the Cascade and Blue Mountains and has a southern boundary of Redmond, OR and a northern boundary of the Columbia River.

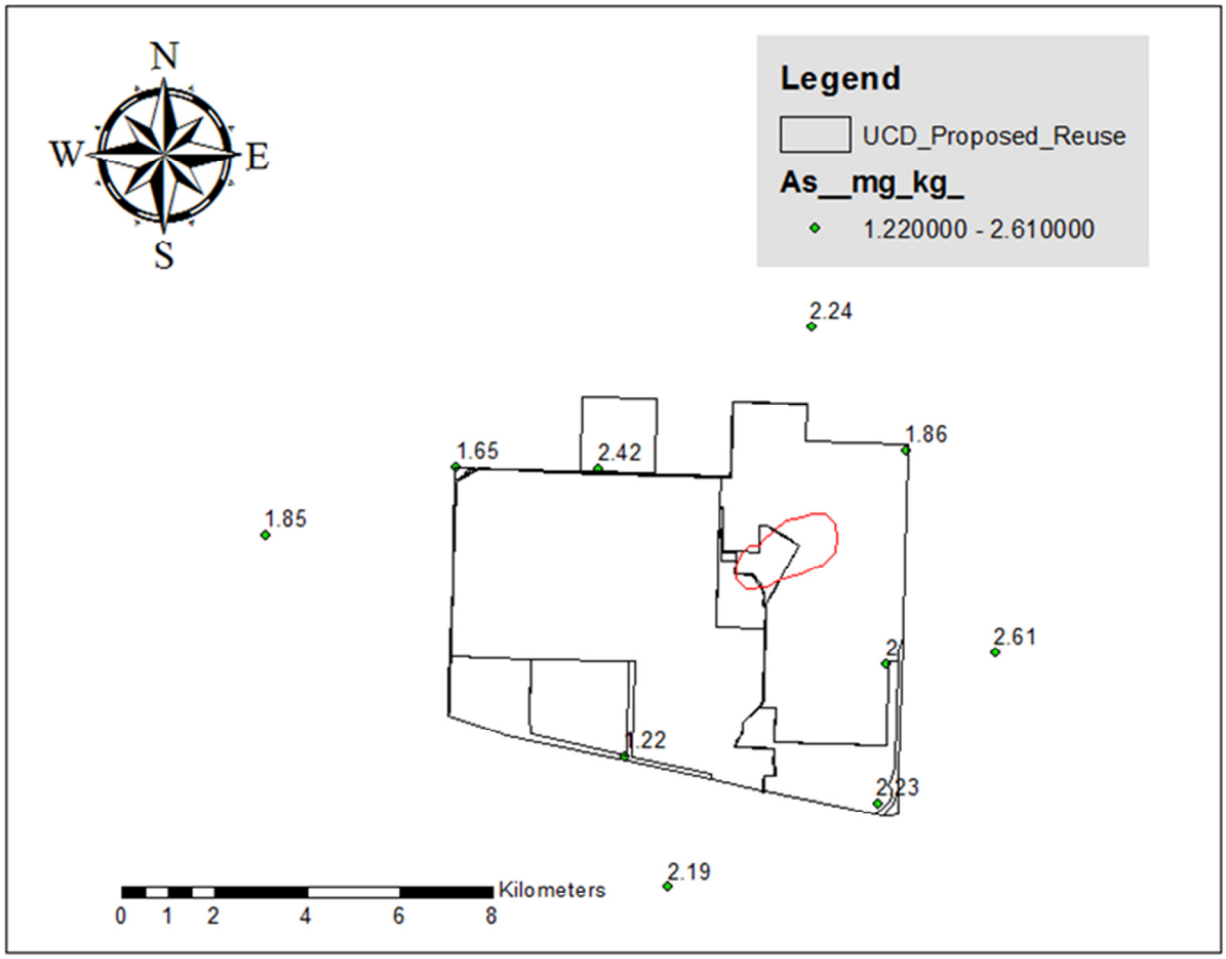

Figure 5-4: Location of the ten near-surface RI soil samples (green circles). Corresponding arsenic concentrations for each location in indicted in mg/kg.

Variations in arsenic concentration between the northern and southern portion of the UMCD does not appear to correlate to differences in soil types. Figure 5-5 reproduces the soil type distribution reported in a 1993 ecological assessment (Dames and Moore, 1993). A comparison of this figure with the sampling results depicted in Figure 5-2 shows that variations in arsenic levels do not equate to variations in soil type.

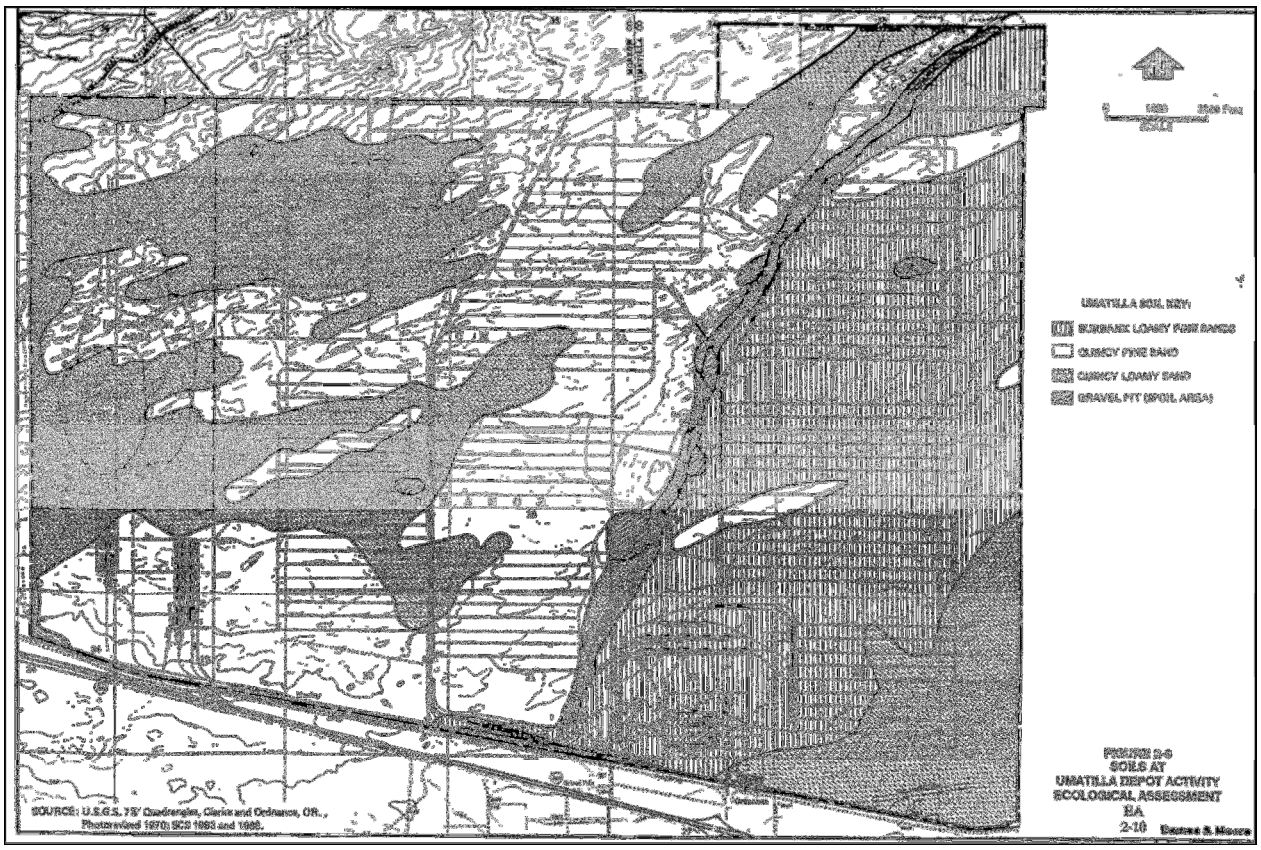

Figure 5-5: Soil type distribution map for the UMCD (Dames and Moore, 1993).

6 Conclusions

This report describes results of the risk assessment analysis for Area of Concern 15 detailed in the closure plan for the Umatilla Chemical Agent Disposal Facility (URS, 2013). Soil samples were collected from the Umatilla Chemical Depot (UMCD) in three areas. The first area (the baseline area) encompassed the lands to the west and south of the incinerator site and represent the area predicted to be least impacted by air deposition from the incinerator. The second area was immediately downwind of the incinerator and within an area designated for future industrial use (AOC-15A). The third area (AOC-15B) was further downwind from the incinerator and within the lands designated for habitat preservation. Individual samples were analyzed for a list of chemical species that were known to have been a component of the emissions from the UMCDF. These individual results were used to separately compute central tendency concentrations (95% Upper Confidence Limits, or UCL95) for each chemical species within the three sampling areas. These UCL95 values were applied to the risk analysis logic detailed in the closure plan to determine if further regulatory action was warranted for either AOC-15 areas.

In general, most of the measured inorganic species and dioxin and furans were present in AOC-15 soils at higher concentrations than in the baseline soils. Sixteen of the twenty inorganic compounds included in this study exhibited higher UCL95 values in either AOC-15A or AOC-15B than in the baseline soils. These sixteen species were vanadium, zinc, chromium, nickel, cobalt, lead, tin, boron, antimony, arsenic, cadmium, selenium, beryllium, silver, thallium, and mercury. Similarly, sixteen of the seventeen dioxin and furan compounds showed higher concentrations in one or more the AOC-15 data sets when compared to the corresponding baseline values. No dominant trend was evident in the PCB data.

A comparison was made of the concentrations of the inorganic elements included in this study with those reported by the Oregon Department of Environmental Quality for central and eastern Oregon soils is provided in Table 4-1 and Figure 4-6 (ODEQ, 2013). The comparison revealed that all UCL95 results were within the range defined by the regional maximum and minimum values except for Cadmium (Cd) in both AOC-15A and AOC-15B.

Risk analysis using the AOC-15A data revealed that only arsenic was present above both the baseline UCL95 and the industrial risk-based closure performance standard. Further analysis showed that both the individual contribution of arsenic to cancer and noncancer risks and the cumulative impacts of all measured COCs in AOC-15A were below typical regulatory action levels. No further corrective action is necessary for AOC-15A.

Application of baseline soil UCL95 concentrations to the Native American subsistence scenario results in an adult cancer risk and Hazard Index of 6.1×10^{-5} and 1.3, respectively. The risks to Native American children are 7.0×10^{-6} (cancer risk) and 1.4 (Hazard Index). Naturally occurring metals were the top contributors to both cancer and non-cancer risks for both adults and children. Arsenic was the highest contributor to cancer risk and Manganese to non-cancer risk.

Risk analysis using the Native American subsistence scenario with AOC-15B UCL95 concentrations results in an adult cancer risk and Hazard Index of 7.5×10^{-5} and 1.8, respectively. The risks to Native American children are 8.6×10^{-6} (cancer risk) and 2.0 (Hazard Index). Greater than 98% of the cancer risk results from lead and arsenic. Cadmium and manganese are the largest two contributors to noncancer risk.

The UMCDF closure plan establishes the need for additional regulatory intervention if incremental risk exceeds predefined action levels. Incremental risk is defined in the closure plan as the difference between results in AOC-15B and the baseline data. The cumulative incremental adult cancer risk for AOC-15B is 2×10^{-5} which is also above the regulatory action level of 1×10^{-5}. Approximately 94% of the increase in cancer risk resulted from the increase in arsenic concentration. Arsenic also exceeded the individual compound regulatory incremental risk level of 1×10^{-6}. Based on the closure plan decision process the ODEQ will need to determine if further corrective actions are needed for AOC-15B. During these deliberations the ODEQ should consider the arsenic levels within AOC-15B in the broader context of all arsenic data for the UMCD and the region. Evaluation of natural variations along with potential historical sources of arsenic should also be part of these deliberations.

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Appendix A – Sampling Results

Soil sampling results are contained in Microsoft Excel files on the companion CD.

Appendix B – Toxicity, Fate, and Transport Database

Table B-1: Toxicity, Fate, and Transport Database (Data Set 1)

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
7440-36-0	Antimony compounds	1.250E+02	9.030E+02	9.000E-01	2.300E+04	2.500E-02
7440-38-2	Arsenic compounds	7.800E+01	1.090E+03	3.300E-12	3.470E+04	7.700E-01
7440-39-3	Barium compounds	1.390E+02	1.000E+03	5.580E-12	5.480E+04	0.000E+00
7440-41-7	Beryllium compounds	9.010E+00	1.570E+03	5.580E-12	1.490E+05	1.500E-02
7440-43-9	Cadmium compounds	1.120E+02	5.930E+02	5.450E-12	1.230E+05	3.100E-02
7440-47-3	Chromium compounds	5.200E+01	2.170E+03	5.580E-12	8.670E+04	0.000E+00
7440-50-8	Copper compounds	6.400E+01	1.100E+03	1.320E-03	5.700E+02	2.500E-02
7439-92-1	Lead compounds	2.090E+02	6.030E+02	3.970E-12	9.580E+03	2.500E-02
7439-96-5	Manganese compounds	5.500E+01	1.200E+03	9.870E-06	1.100E+03	0.000E+00
7439-97-6	Mercury compounds	2.010E+02	2.340E+02	2.630E-06	6.000E-02	7.100E-03
7440-02-0	Nickel compounds	5.870E+01	1.770E+03	5.580E-12	4.220E+05	2.500E-02
7782-49-2	Selenium compounds	7.900E+01	4.930E+02	1.870E-13	2.060E+03	9.700E-03
7440-22-4	Silver compounds	1.080E+02	1.230E+03	5.580E-12	7.050E+04	0.000E+00
7440-28-0	Thallium compounds	2.050E+02	5.730E+02	5.580E-12	2.650E+04	0.000E+00
7440-62-2	Vanadium compounds	5.100E+01	1.900E+03	3.080E-05	7.000E+02	0.000E+00
7440-66-6	Zinc compounds	6.540E+01	6.930E+02	5.090E-12	3.440E+05	2.500E-02
7440-48-4	Cobalt compounds	5.900E+01	1.500E+03	9.870E-06	1.700E+03	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	0.000E+00	0.000E+00	1.600E+02	0.000E+00
7440-42-8	Boron compounds	1.100E+01	2.100E+03	1.560E-05	3.600E+04	0.000E+00
7440-31-5	Tin compounds	1.190E+02	5.050E+02	0.000E+00	0.000E+00	0.000E+00
100-41-4	Ethylbenzene	1.060E+02	1.780E+02	1.260E-02	1.700E+02	7.900E-03
100-42-5	Styrene	1.040E+02	2.420E+02	8.030E-03	3.100E+02	2.700E-03
100-51-6	Benzyl alcohol	1.080E+02	2.580E+02	8.240E-05	4.000E+04	3.370E-07
100-52-7	Benzaldehyde	1.060E+02	2.470E+02	1.670E-03	3.000E+03	2.670E-05
10061-01-5	cis-1,3-Dichloropropene	1.110E+02	2.230E+02	3.460E-02	2.180E+03	2.710E-03
10061-02-6	trans-1,3-Dichloropropene	1.110E+02	0.000E+00	4.470E-02	2.800E+03	8.710E-04

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
106-46-7	1,4-Dichlorobenzene	1.470E+02	3.260E+02	1.320E-03	7.900E+01	2.400E-03
106-99-0	1,3-butadiene	5.410E+01	1.640E+02	2.770E+00	7.340E+02	7.100E-02
107-21-1	ethylene glycol	6.210E+01	2.600E+02	8.000E-05	1.000E+06	6.000E-08
107-44-8	GB	1.400E+02	2.170E+02	2.760E-03	1.000E+06	5.400E-07
108-05-4	Vinyl acetate	8.610E+01	1.800E+02	1.180E-01	2.000E+04	5.100E-04
108-10-1	Methyl isobutyl ketone	1.000E+02	1.890E+02	2.630E-02	1.900E+04	1.400E-04
108-67-8	1,3,5-trimethylbenzene	1.202E+02	2.280E+02	3.260E-03	4.800E+01	8.770E-03
108-88-3	Toluene	9.210E+01	1.780E+02	3.680E-02	5.300E+02	6.600E-03
108-90-7	Chlorobenzene	1.130E+02	2.280E+02	1.580E-02	4.700E+02	3.700E-03
108-95-2	phenol	9.410E+01	3.140E+02	3.680E-04	8.300E+04	4.000E-07
110-54-3	n-Hexane	8.620E+01	1.780E+02	1.990E-01	9.500E+00	1.800E+00
111-48-8	thiodiglycol	1.222E+02	2.630E+02	4.250E-06	1.000E+06	1.140E-10
117-81-7	Bis(2-ethylhexyl)phthalate	3.910E+02	2.180E+02	8.950E-11	3.400E-01	1.000E-07
118-96-7	2,4,6-Trinitrotoluene	2.270E+02	3.530E+02	2.660E-09	1.240E+02	4.870E-09
120-12-7	anthracene	1.782E+02	4.930E+02	3.550E-09	4.300E-02	6.500E-05
120-82-1	1,2,4-trichlorobenzene	1.814E+02	2.900E+02	5.660E-04	3.500E+01	1.400E-03
121-14-2	2,4-Dinitrotoluene	1.820E+02	3.420E+02	1.930E-07	2.700E+02	9.260E-08
121-82-4	RDX	2.221E+02	4.790E+02	5.390E-12	6.000E+01	1.960E-11
124-48-1	Chlorodibromomethane	2.080E+02	2.510E+02	6.450E-03	2.600E+03	7.830E-04
127-18-4	tetrachloroethene	1.658E+02	2.510E+02	2.500E-02	2.000E+02	1.800E-02
129-00-0	pyrene	2.023E+02	4.230E+02	6.050E-09	1.400E+00	1.100E-05
131-11-3	Dimethylphthalate	1.940E+02	2.740E+02	2.170E-06	4.000E+03	1.050E-07
142-82-5	heptane	1.002E+02	1.830E+02	6.050E-02	3.400E+00	2.300E+00
1445-75-6	diisopropylmethyl phosphonate	1.802E+02	0.000E+00	3.600E-04	1.500E+03	4.380E-05
1634-04-4	methyl-t-butyl ether	8.820E+01	1.640E+02	4.200E+04	4.800E+04	5.870E-04
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	3.220E+02	5.790E+02	1.970E-12	1.930E-05	3.290E-05
1832-53-7	ethyl methyl phosphonic acid	1.241E+02	0.000E+00	2.500E-05	1.300E+05	2.380E-08

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
1832-54-8	isopropyl methyl phosphonic acid	1.381E+02	0.000E+00	1.570E-05	5.040E+04	4.290E-08
191-24-2	benzo(g,h,i)perylene	2.800E+02	5.510E+02	1.310E-13	2.600E-04	3.310E-07
19408-74-3	HexaCDD, 1,2,3,7,8,9-	3.910E+02	5.170E+02	6.450E-14	4.400E-06	1.100E-05
208-96-8	acenaphthylene	1.500E+02	3.660E+02	1.190E-06	1.600E+01	1.140E-04
22967-92-6	Methyl mercury	2.160E+02	0.000E+00	0.000E+00	0.000E+00	4.700E-07
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	3.260E+02	3.760E+02	8.570E-09	3.400E-03	8.250E-04
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	2.962E+02	4.560E+02	4.380E-17	5.000E+00	2.600E-15
26914-33-0	total tetrachlorobiphenyl	2.920E+02	4.530E+02	2.150E-08	5.690E-04	1.100E-02
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	3.270E+02	3.820E+02	1.180E-08	1.340E-02	2.870E-04
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	2.920E+02	4.530E+02	2.150E-08	5.690E-04	1.100E-02
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	3.260E+02	3.760E+02	8.570E-09	3.400E-03	8.250E-04
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	4.610E+02	5.990E+02	1.090E-15	7.400E-08	6.750E-06
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.953E+02	4.370E+02	1.700E-10	3.850E-03	1.000E-05
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	4.250E+02	5.380E+02	7.370E-15	2.400E-06	1.200E-05
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	4.450E+02	5.320E+02	4.930E-15	1.160E-06	1.880E-06
39227-28-6	HexaCDD, 1,2,3,4,7,8-	3.910E+02	5.470E+02	5.000E-14	4.420E-06	1.070E-05
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	3.950E+02	4.430E+02	1.710E-10	7.530E-04	5.070E-05
40321-76-4	PentaCDD, 1,2,3,7,8-	3.560E+02	5.140E+02	5.790E-13	1.180E-04	2.600E-06
479-45-8	Tetryl	2.872E+02	4.050E+02	7.490E-12	7.500E+01	2.690E-11
505-60-2	Sulfur mustard (or H/HD)	1.590E+02	2.870E+02	1.450E-04	9.200E+02	2.100E-05
50782-69-9	VX	2.670E+02	2.340E+02	9.210E-07	3.000E+04	3.500E-09
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	3.060E+02	5.010E+02	1.970E-11	4.190E-04	1.440E-05
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	3.610E+02	4.080E+02	7.630E-10	2.230E-03	6.850E-05
55-63-0	nitroglycerin	2.271E+02	2.870E+02	2.300E-06	1.380E+03	2.710E-07

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	4.090E+02	4.950E+02	4.040E-13	1.400E-06	1.400E-05
56-23-5	Carbon tetrachloride	1.540E+02	2.500E+02	1.580E-01	7.900E+02	3.000E-02
57-55-6	propylene glycol	7.610E+01	2.140E+02	1.000E-04	1.000E+06	1.200E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	3.400E+02	4.690E+02	3.420E-12	2.360E-04	4.980E-06
57117-41-6	PentaCDF, 1,2,3,7,8-	3.400E+02	4.990E+02	2.230E-12	2.400E-04	5.000E-06
57117-44-9	HexaCDF, 1,2,3,6,7,8-	3.750E+02	5.060E+02	2.890E-13	1.770E-05	7.310E-06
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	3.260E+02	3.790E+02	0.000E+00	1.000E+04	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	3.910E+02	5.590E+02	4.730E-14	4.400E-06	1.100E-05
60851-34-5	HexaCDF, 2,3,4,6,7,8-	3.750E+02	5.130E+02	2.630E-13	1.300E-05	1.100E-05
65-85-0	Benzoic acid	1.220E+02	3.960E+02	9.210E-07	3.400E+03	2.870E-06
67-63-0	isopropyl alcohol	6.010E+01	1.850E+02	5.980E-02	1.000E+06	8.100E-06
67-64-1	Acetone	5.810E+01	1.780E+02	3.030E-01	1.000E+06	3.900E-05
67-66-3	Chloroform	1.190E+02	2.090E+02	2.630E-01	7.900E+03	3.700E-03
67-72-1	hexachloroethane	2.370E+02	4.600E+02	2.760E-04	5.000E+01	3.890E-03
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.090E+02	5.100E+02	4.610E-14	1.350E-06	1.410E-05
68334-30-5	total petroleum hydrocarbons - diesel range	2.130E+02	0.000E+00	4.800E-05	3.520E+00	4.470E+01
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	3.610E+02	4.140E+02	0.000E+00	1.000E+04	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	2.920E+02	4.100E+02	0.000E+00	1.000E+04	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	3.750E+02	4.990E+02	3.160E-13	8.250E-06	1.430E-05
71-43-2	Benzene	7.810E+01	2.790E+02	1.250E-01	1.800E+03	5.600E-03
72918-21-9	HexaCDF, 1,2,3,7,8,9-	3.750E+02	5.210E+02	3.680E-13	1.300E-05	1.100E-05
73207-98-4	EA 2192	2.670E+02	2.340E+02	9.210E-07	3.000E+04	3.500E-09
74-83-9	Methyl bromide	9.490E+01	1.790E+02	2.130E+00	1.520E+04	6.240E-03
74-87-3	Methyl chloride	5.050E+01	1.750E+02	5.660E+00	5.330E+03	8.820E-03
74-88-4	Methyl iodide	1.420E+02	2.070E+02	5.320E-01	1.380E+04	5.260E-03
74-96-4	Bromoethane	1.090E+02	1.550E+02	5.050E-01	9.100E+03	7.490E-03
74-97-5	Bromochloromethane	1.290E+02	1.850E+02	1.880E-01	1.670E+04	1.460E-03
7439-97-6	Mercury	2.010E+02	2.340E+02	2.630E-06	6.000E-02	7.100E-03

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	3.260E+02	3.710E+02	7.180E-09	1.600E-02	9.240E-05
7487-94-7	Mercuric chloride	2.720E+02	5.500E+02	1.200E-04	6.900E+04	7.100E-10
75-01-4	Vinyl chloride	6.250E+01	1.230E+02	3.950E+00	8.800E+03	2.700E-02
75-09-2	Dichloromethane	8.490E+01	1.780E+02	5.660E-01	1.300E+04	2.200E-03
75-15-0	Carbon disulfide	7.610E+01	1.530E+02	4.740E-01	1.200E+03	3.000E-02
75-25-2	Tribromomethane	2.530E+02	2.810E+02	7.250E-03	3.100E+03	6.500E+00
75-27-4	Bromodichloromethane	1.690E+02	2.160E+02	6.580E-02	6.700E+03	1.600E-03
75-35-4	1,1-Dichloroethylene	9.900E+01	1.530E+02	7.890E-01	2.300E+03	2.600E-02
75-69-4	Trichlorofluoromethane	1.370E+02	1.630E+02	1.050E+00	1.100E+03	9.700E-02
75-71-8	Dichlorodifluoromethane	1.210E+02	1.150E+02	6.380E+00	2.800E+02	3.430E-01
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1.870E+02	2.370E+02	4.360E-01	1.700E+02	4.810E-01
7647-01-0	Hydrochloric acid	3.650E+01	1.590E+02	4.660E+01	7.200E+05	2.360E-03
7664-38-2	Phosphoric acid	9.800E+01	3.160E+02	2.710E-14	5.390E+05	7.600E-15
78-93-3	Methyl ethyl ketone	7.210E+01	1.860E+02	1.250E-01	2.200E+05	5.600E-05
79-01-6	Trichloroethylene	1.310E+02	1.880E+02	9.610E-02	1.500E+03	1.000E-02
8006-61-9	total petroleum hydrocarbons - gasoline range	1.030E+02	0.000E+00	6.300E-02	1.470E+02	7.000E-01
83-32-9	acenaphthene	1.542E+02	3.660E+02	3.290E-06	3.600E+00	1.600E-04
84-66-2	Diethyl phthalate	2.220E+02	2.320E+02	2.110E-06	1.100E+03	4.500E-07
84-74-2	Dibutyl phthalate	2.780E+02	2.380E+02	9.610E-08	1.100E+01	1.800E-06
85-01-8	phenanthrene	1.782E+02	3.720E+02	1.450E-07	1.100E+00	2.300E-05
85-68-7	butyl benzyl phthalate	3.123E+02	2.380E+02	1.090E-08	2.700E+00	1.300E-06
86-73-7	fluorene	1.662E+02	3.830E+02	8.290E-07	2.000E+00	6.400E-05
91-20-3	Naphthalene	1.280E+02	3.530E+02	1.120E-04	3.100E+01	4.800E-04
91-57-6	2-Methylnaphthalene	1.400E+02	3.080E+02	8.940E-05	2.500E+01	5.180E-04
95-47-6	2-Xylene	1.060E+02	2.480E+02	8.680E-03	1.800E+02	5.200E-03
95-48-7	o-Cresol	1.090E+02	3.040E+02	3.930E-04	2.600E+04	1.200E-06
95-50-1	1,2-Dichlorobenzene	1.470E+02	2.560E+02	1.790E-03	1.560E+02	1.900E-03

CAS Number	Name	MW (AMU)	Tm (K)	Vp (atm)	S (mg/L)	H (atm-m^3/mol)
95-63-6	1,2,4-trimethylbenzene	1.202E+02	2.290E+02	2.670E-03	5.700E+01	6.160E-03
98-82-8	1-methylethyl benzene	1.202E+02	1.770E+02	5.920E-03	6.100E+01	1.200E+00
98-86-2	acetophenone	1.202E+02	2.930E+02	5.220E-04	6.130E+03	1.070E-05
993-13-5	methyl phosphonic acid	9.600E+01	3.820E+02	4.300E-07	4.730E+05	8.730E-11
193-39-5	Indeno(1,2,3-cd) pyrene	2.763E+02	4.332E+02	1.320E-13	2.200E-05	1.600E-06
205-99-2	Benzo(b)fluoranthene	2.523E+02	4.407E+02	6.580E-10	1.500E-03	1.110E-04
206-44-0	Fluoranthene	2.023E+02	3.832E+02	1.030E-08	2.100E-01	1.600E-05
207-08-9	Benzo(k)fluoranthene	2.523E+02	4.932E+02	2.630E-12	8.000E-04	8.300E-07
218-01-9	Chrysene	2.283E+02	5.332E+02	8.160E-12	6.300E-03	9.500E-05
50-32-8	Benzo(a)pyrene	2.523E+02	4.532E+02	7.240E-12	1.600E-03	1.100E-06
53-70-3	Dibenz(a,h)anthracene	2.783E+02	5.432E+02	1.320E-13	2.500E-03	1.500E-08
56-55-3	Benzo(a)anthracene	2.283E+02	3.572E+02	1.450E-10	9.400E-03	3.400E-06

Table B-2: Toxicity, Fate, and Transport Database (Data Set 2)

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
7440-36-0	Antimony compounds	7.720E-02	9.570E-06	5.370E+00	0.000E+00	4.500E+01
7440-38-2	Arsenic compounds	7.720E-02	9.570E-06	4.790E+00	0.000E+00	2.900E+01
7440-39-3	Barium compounds	7.720E-02	9.570E-06	1.700E+00	0.000E+00	4.100E+01
7440-41-7	Beryllium compounds	7.720E-02	9.570E-06	2.690E-01	0.000E+00	7.900E+02
7440-43-9	Cadmium compounds	7.720E-02	9.570E-06	8.510E-01	0.000E+00	7.500E+01
7440-47-3	Chromium compounds	1.270E-01	1.410E-05	1.700E+00	0.000E+00	1.900E+01
7440-50-8	Copper compounds	0.000E+00	0.000E+00	2.690E-01	0.000E+00	4.300E+02
7439-92-1	Lead compounds	7.720E-02	9.570E-06	5.370E+00	0.000E+00	9.000E+02
7439-96-5	Manganese compounds	0.000E+00	0.000E+00	1.700E+00	0.000E+00	6.500E+01
7439-97-6	Mercury compounds	1.090E-02	3.010E-05	4.170E+00	0.000E+00	1.000E+03
7440-02-0	Nickel compounds	7.720E-02	9.570E-06	2.690E-01	0.000E+00	6.500E+01
7782-49-2	Selenium compounds	7.720E-02	9.570E-06	1.740E+00	0.000E+00	5.000E+00
7440-22-4	Silver compounds	7.720E-02	9.570E-06	1.700E+00	0.000E+00	8.300E+00
7440-28-0	Thallium compounds	7.720E-02	9.570E-06	1.700E+00	0.000E+00	7.100E+01
7440-62-2	Vanadium compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.000E+03
7440-66-6	Zinc compounds	7.720E-02	9.570E-06	3.390E-01	0.000E+00	6.200E+01
7440-48-4	Cobalt compounds	0.000E+00	0.000E+00	1.700E+00	0.000E+00	4.500E+01
179601-23-1	m,p-Xylene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7440-42-8	Boron compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.000E+00
7440-31-5	Tin compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
100-41-4	Ethylbenzene	7.500E-02	7.800E-06	1.260E+03	2.040E+02	7.300E-01
100-42-5	Styrene	7.100E-02	8.000E-06	1.000E+03	9.120E+02	1.200E+02
100-51-6	Benzyl alcohol	1.000E-03	1.000E-05	1.260E+01	1.210E+01	1.200E-01
100-52-7	Benzaldehyde	1.000E-03	1.000E-05	3.020E+01	2.850E+01	2.900E-01
10061-01-5	cis-1,3-Dichloropropene	6.260E-02	1.000E-05	1.150E+02	1.060E+02	1.060E+00
10061-02-6	trans-1,3-Dichloropropene	8.230E-02	9.530E-06	1.070E+02	9.900E+01	9.900E-01

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
106-46-7	1,4-Dichlorobenzene	6.900E-02	7.900E-06	3.160E+03	6.160E+02	1.200E+00
106-99-0	1,3-butadiene	1.160E-01	0.000E+00	9.770E+01	1.160E+02	8.900E-02
107-21-1	ethylene glycol	1.080E-01	1.220E-05	4.370E-02	2.000E+00	1.003E-03
107-44-8	GB	7.040E-02	8.160E-06	1.990E+00	5.890E+01	5.890E-01
108-05-4	Vinyl acetate	8.500E-02	9.200E-06	5.370E+00	5.220E+00	7.900E-01
108-10-1	Methyl isobutyl ketone	7.500E-02	7.800E-06	1.580E+01	1.510E+01	2.200E+00
108-67-8	1,3,5-trimethylbenzene	6.020E-02	8.670E-06	2.630E+03	6.119E+02	6.120E+00
108-88-3	Toluene	8.700E-02	8.600E-06	5.010E+02	1.400E+02	3.600E-01
108-90-7	Chlorobenzene	7.300E-02	8.700E-06	6.310E+02	2.240E+02	4.400E-01
108-95-2	phenol	8.200E-02	9.100E-06	3.160E+01	2.984E+01	4.400E+00
110-54-3	n-Hexane	9.740E-02	1.130E-05	7.940E+03	1.470E+03	1.470E+01
111-48-8	thiodiglycol	0.000E+00	0.000E+00	2.300E-01	1.000E+00	3.798E-03
117-81-7	Bis(2-ethylhexyl)phthalate	3.510E-02	3.660E-06	1.260E+05	1.110E+05	2.300E+06
118-96-7	2,4,6-Trinitrotoluene	1.000E-03	1.000E-05	3.980E+01	3.740E+01	3.700E-01
120-12-7	anthracene	1.000E-03	1.000E-05	3.160E+04	2.350E+04	4.500E+03
120-82-1	1,2,4-trichlorobenzene	3.000E-02	8.230E-06	1.000E+04	1.660E+03	3.600E+00
121-14-2	2,4-Dinitrotoluene	2.030E-01	7.060E-06	9.550E+01	8.840E+01	8.800E-01
121-82-4	RDX	7.400E-02	7.150E-06	7.400E+00	1.954E+02	7.170E-02
124-48-1	Chlorodibromomethane	1.000E-03	1.000E-05	1.700E+02	6.990E+01	7.000E-01
127-18-4	tetrachloroethene	7.200E-02	8.200E-06	2.510E+03	2.650E+02	3.100E-01
129-00-0	pyrene	1.000E-03	1.000E-05	7.940E+04	6.800E+04	9.500E+03
131-11-3	Dimethylphthalate	5.680E-02	6.290E-06	3.630E+01	3.420E+01	3.400E-01
142-82-5	heptane	6.540E-02	7.000E-06	4.570E+04	9.920E+03	5.870E+01
1445-75-6	diisopropylmethyl phosphonate	0.000E+00	0.000E+00	1.070E+01	3.128E+01	7.835E-02
1634-04-4	methyl-t-butyl ether	7.920E-02	9.410E-05	8.700E+00	1.100E+01	8.400E-02
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.040E-01	5.600E-06	6.310E+06	3.890E+06	3.890E+04
1832-53-7	ethyl methyl phosphonic acid	0.000E+00	0.000E+00	7.100E-01	3.572E+00	1.000E-02

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
1832-54-8	isopropyl methyl phosphonic acid	0.000E+00	0.000E+00	1.900E+00	5.523E+00	1.000E-02
191-24-2	benzo(g,h,i)perylene	4.900E-02	5.650E-05	3.980E+06	2.680E+06	4.500E+05
19408-74-3	HexaCDD, 1,2,3,7,8,9-	9.440E-02	8.000E-06	2.000E+07	1.230E+07	1.230E+05
208-96-8	acenaphthylene	4.390E-02	7.070E-06	1.260E+04	2.510E+03	1.500E+03
22967-92-6	Methyl mercury	5.280E-02	6.110E-06	2.570E+00	0.000E+00	7.000E+03
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	4.010E-02	4.640E-06	6.170E+06	4.730E+06	4.730E+04
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	6.300E-02	6.020E-06	6.600E+00	1.853E+03	1.437E-02
26914-33-0	total tetrachlorobiphenyl	4.320E-02	5.000E-06	4.270E+06	3.290E+06	3.290E+04
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	4.010E-02	4.640E-06	1.320E+07	9.980E+06	9.980E+04
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	4.320E-02	5.000E-06	4.270E+06	3.290E+06	3.290E+04
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	4.010E-02	4.640E-06	6.170E+06	4.730E+06	4.730E+04
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	8.690E-02	8.000E-06	1.580E+08	9.770E+07	9.770E+05
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.500E-02	4.100E-06	1.860E+08	2.070E+05	1.348E+06
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	9.050E-02	8.000E-06	1.000E+08	6.170E+07	6.170E+05
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	1.950E-02	8.000E-06	1.000E+08	6.170E+07	6.170E+05
39227-28-6	HexaCDD, 1,2,3,4,7,8-	9.440E-02	8.000E-06	6.310E+07	3.890E+07	3.890E+05
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	3.530E-02	4.080E-06	1.860E+08	1.350E+08	1.350E+06
40321-76-4	PentaCDD, 1,2,3,7,8-	9.880E-02	8.000E-06	4.370E+06	2.690E+06	2.690E+04
479-45-8	Tetryl	5.900E-02	5.990E-06	4.370E+01	2.141E+03	4.096E-01
505-60-2	Sulfur mustard (or H/HD)	6.470E-02	7.490E-06	2.340E+01	1.320E+02	1.320E+00
50782-69-9	VX	4.580E-02	5.300E-06	1.230E+02	3.160E+02	3.160E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	2.350E-02	6.010E-06	1.260E+06	7.760E+05	7.760E+03
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	3.750E-02	4.340E-06	3.160E+07	2.360E+07	2.360E+05
55-63-0	nitroglycerin	5.520E-02	7.340E-06	4.170E+01	1.308E+02	3.915E-01

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.030E-02	8.000E-06	2.510E+07	1.550E+07	1.550E+05
56-23-5	Carbon tetrachloride	7.800E-02	8.800E-06	6.310E+02	1.520E+02	3.500E-01
57-55-6	propylene glycol	1.060E-01	1.230E-05	1.200E-01	7.600E+00	4.114E-04
57117-31-4	PentaCDF, 2,3,4,7,8-	2.230E-02	8.000E-06	3.160E+06	1.950E+06	1.950E+04
57117-41-6	PentaCDF, 1,2,3,7,8-	2.230E-02	8.000E-06	6.170E+06	3.800E+06	3.800E+04
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.120E-02	8.000E-06	1.000E+07	6.170E+06	6.170E+04
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	9.440E-02	8.000E-06	2.000E+07	1.230E+07	1.230E+05
60851-34-5	HexaCDF, 2,3,4,6,7,8-	2.120E-02	8.000E-06	1.000E+07	6.170E+06	6.170E+04
65-85-0	Benzoic acid	1.000E-03	7.970E-06	7.410E+01	6.000E-01	6.000E-03
67-63-0	isopropyl alcohol	9.590E-02	1.030E-05	1.120E+00	2.000E+00	1.312E-02
67-64-1	Acetone	1.240E-01	1.140E-05	5.750E-01	5.800E-01	8.700E-02
67-66-3	Chloroform	1.040E-01	1.000E-05	1.000E+02	5.250E+01	8.000E-02
67-72-1	hexachloroethane	2.500E-03	6.800E-06	8.510E+03	1.550E+03	1.550E+01
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.030E-02	8.000E-06	2.510E+07	1.550E+07	1.550E+05
68334-30-5	total petroleum hydrocarbons - diesel range	4.000E-02	4.500E-06	0.000E+00	2.200E+08	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	2.120E-02	8.000E-06	1.000E+07	6.170E+06	6.170E+04
71-43-2	Benzene	8.800E-02	1.020E-05	1.260E+02	6.170E+01	1.200E-01
72918-21-9	HexaCDF, 1,2,3,7,8,9-	2.120E-02	8.000E-06	1.000E+07	6.170E+06	6.170E+04
73207-98-4	EA 2192	4.580E-02	5.300E-06	1.230E+02	3.160E+02	3.160E+00
74-83-9	Methyl bromide	7.280E-02	1.210E-05	1.550E+01	9.000E+00	9.000E-02
74-87-3	Methyl chloride	1.260E-01	6.500E-06	8.130E+00	6.300E+00	6.000E-02
74-88-4	Methyl iodide	6.980E-02	8.090E-06	3.240E+01	1.880E+01	1.880E-01
74-96-4	Bromoethane	8.330E-02	9.650E-06	4.070E+01	1.790E+02	1.790E+00
74-97-5	Bromochloromethane	7.430E-02	8.600E-06	2.570E+01	1.570E+01	1.570E-01

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
7439-97-6	Mercury	1.090E-02	3.010E-05	4.170E+00	0.000E+00	1.000E+03
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	4.010E-02	4.640E-06	9.550E+06	7.270E+06	7.270E+04
7487-94-7	Mercuric chloride	4.530E-02	5.250E-06	6.100E-01	0.000E+00	5.800E+04
75-01-4	Vinyl chloride	1.060E-01	1.230E-05	2.510E+01	1.540E+01	3.700E-02
75-09-2	Dichloromethane	1.010E-01	1.170E-05	2.000E+01	1.000E+01	2.400E-02
75-15-0	Carbon disulfide	1.040E-01	1.000E-05	1.580E+02	6.620E+01	9.100E-02
75-25-2	Tribromomethane	1.490E-02	1.030E-05	2.340E+02	1.260E+02	1.260E+00
75-27-4	Bromodichloromethane	1.000E-03	1.000E-05	1.260E+02	5.510E+01	1.100E-01
75-35-4	1,1-Dichloroethylene	9.000E-02	1.040E-05	1.260E+02	6.500E+01	1.200E-01
75-69-4	Trichlorofluoromethane	8.700E-02	9.700E-06	3.160E+02	1.140E+02	2.400E-01
75-71-8	Dichlorodifluoromethane	1.000E-03	1.000E-05	1.450E+02	6.150E+01	6.200E-01
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	7.800E-02	8.200E-06	1.450E+03	3.810E+02	3.810E+00
7647-01-0	Hydrochloric acid	1.000E-03	1.000E-05	0.000E+00	0.000E+00	0.000E+00
7664-38-2	Phosphoric acid	8.940E-02	1.040E-05	1.700E-01	0.000E+00	0.000E+00
78-93-3	Methyl ethyl ketone	8.080E-02	9.800E-06	1.950E+00	1.930E+00	2.900E-01
79-01-6	Trichloroethylene	7.900E-02	9.100E-06	2.510E+02	9.430E+01	3.300E-01
8006-61-9	total petroleum hydrocarbons - gasoline range	6.700E-02	6.900E-06	0.000E+00	1.200E+04	0.000E+00
83-32-9	acenaphthene	1.000E-03	1.000E-05	7.940E+03	4.900E+03	1.100E+03
84-66-2	Diethyl phthalate	1.000E-03	1.000E-05	3.160E+02	8.220E+01	4.400E+01
84-74-2	Dibutyl phthalate	4.380E-02	7.860E-06	5.010E+04	1.570E+03	5.200E+03
85-01-8	phenanthrene	1.000E-03	1.000E-05	3.160E+04	2.650E+04	3.700E+03
85-68-7	butyl benzyl phthalate	1.000E-03	1.000E-05	7.940E+04	1.370E+04	8.700E+03
86-73-7	fluorene	1.000E-03	1.000E-05	1.580E+04	7.710E+03	2.100E+03
91-20-3	Naphthalene	5.900E-02	7.500E-06	2.000E+03	1.190E+03	3.000E+02
91-57-6	2-Methylnaphthalene	7.050E-02	8.160E-06	7.940E+03	6.820E+03	9.500E+02
95-47-6	2-Xylene	8.700E-02	1.000E-05	1.260E+03	2.410E+02	7.300E-01
95-48-7	o-Cresol	7.400E-02	8.300E-06	8.910E+01	8.260E+01	8.300E-01

CAS Number	Name	Da (cm^2/sec)	Dw (cm^2/sec)	Kow (unitless)	Koc (ml-Water/g-Soil)	Kds (cm^3-Water/g-Soil)
95-50-1	1,2-Dichlorobenzene	6.900E-02	7.900E-06	2.400E+03	3.790E+02	3.790E+00
95-63-6	1,2,4-trimethylbenzene	6.220E-02	7.280E-06	4.270E+03	4.700E+02	8.974E+00
98-82-8	1-methylethyl benzene	6.500E-02	7.100E-06	5.010E+03	1.020E+03	6.000E+02
98-86-2	acetophenone	6.000E-02	8.730E-06	3.800E+01	3.580E+01	3.600E-01
993-13-5	methyl phosphonic acid	0.000E+00	0.000E+00	2.000E-01	1.000E+00	1.000E-02
193-39-5	Indeno(1,2,3-cd) pyrene	1.000E-03	1.000E-05	3.981E+06	3.077E+06	5.300E+05
205-99-2	Benzo(b)fluoranthene	1.000E-03	1.000E-05	1.330E+06	1.048E+06	1.048E+04
206-44-0	Fluoranthene	1.000E-03	1.000E-05	1.000E+05	4.910E+04	1.100E+04
207-08-9	Benzo(k)fluoranthene	1.000E-03	1.000E-05	1.259E+06	9.922E+05	1.900E+05
218-01-9	Chrysene	1.000E-03	1.000E-05	5.012E+05	4.012E+05	6.000E+04
50-32-8	Benzo(a)pyrene	4.300E-02	9.000E-06	1.000E+06	9.690E+05	1.600E+05
53-70-3	Dibenz(a,h)anthracene	1.000E-03	1.000E-05	3.162E+06	1.790E+06	5.800E+05
56-55-3	Benzo(a)anthracene	5.100E-02	9.000E-06	5.012E+05	3.580E+05	6.000E+04

Table B-3: Toxicity, Fate, and Transport Database (Data Set 3)

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
7440-36-0	Antimony compounds	4.500E+01	4.500E+01	4.500E+01	0.000E+00	0.000E+00
7440-38-2	Arsenic compounds	2.900E+01	2.900E+01	2.900E+01	0.000E+00	0.000E+00
7440-39-3	Barium compounds	4.100E+01	4.100E+01	4.100E+01	0.000E+00	0.000E+00
7440-41-7	Beryllium compounds	7.900E+02	7.900E+02	7.900E+02	0.000E+00	0.000E+00
7440-43-9	Cadmium compounds	7.500E+01	7.500E+01	7.500E+01	0.000E+00	0.000E+00
7440-47-3	Chromium compounds	1.900E+01	1.900E+01	1.900E+01	0.000E+00	9.000E-03
7440-50-8	Copper compounds	4.300E+02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7439-92-1	Lead compounds	9.000E+02	9.000E+02	9.000E+02	0.000E+00	0.000E+00
7439-96-5	Manganese compounds	6.500E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7439-97-6	Mercury compounds	1.000E+03	1.000E+03	3.000E+03	0.000E+00	1.000E+00
7440-02-0	Nickel compounds	6.500E+01	6.500E+01	6.500E+01	0.000E+00	0.000E+00
7782-49-2	Selenium compounds	5.000E+00	5.000E+00	5.000E+00	0.000E+00	0.000E+00
7440-22-4	Silver compounds	8.300E+00	8.300E+00	8.300E+00	0.000E+00	0.000E+00
7440-28-0	Thallium compounds	7.100E+01	7.100E+01	7.100E+01	0.000E+00	0.000E+00
7440-62-2	Vanadium compounds	1.000E+03	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7440-66-6	Zinc compounds	6.200E+01	6.200E+01	6.200E+01	0.000E+00	0.000E+00
7440-48-4	Cobalt compounds	4.500E+01	0.000E+00	0.000E+00	0.000E+00	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7440-42-8	Boron compounds	3.000E+00	0.000E+00	0.000E+00	0.000E+00	1.000E+00
7440-31-5	Tin compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
100-41-4	Ethylbenzene	7.300E-01	1.530E+01	8.160E+00	2.530E+01	1.000E+00
100-42-5	Styrene	1.200E+02	6.840E+01	3.650E+01	9.030E+00	1.000E+00
100-51-6	Benzyl alcohol	1.200E-01	9.000E-01	4.800E-01	0.000E+00	1.000E+00
100-52-7	Benzaldehyde	2.900E-01	2.140E+00	1.140E+00	0.000E+00	1.000E+00
10061-01-5	cis-1,3-Dichloropropene	1.060E+00	7.950E+00	4.240E+00	1.050E+01	1.000E+00
10061-02-6	trans-1,3-Dichloropropene	9.900E-01	7.430E+00	3.960E+00	1.050E+01	0.000E+00

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
106-46-7	1,4-Dichlorobenzene	1.200E+00	4.620E+01	2.460E+01	1.410E+00	1.000E+00
106-99-0	1,3-butadiene	8.900E-02	8.700E+00	4.640E+00	9.000E+00	1.000E+00
107-21-1	ethylene glycol	1.003E-03	1.500E-01	8.000E-02	1.100E+01	1.000E+00
107-44-8	GB	5.890E-01	4.420E+00	2.360E+00	0.000E+00	1.000E+00
108-05-4	Vinyl acetate	7.900E-01	3.900E-01	2.100E-01	0.000E+00	1.000E+00
108-10-1	Methyl isobutyl ketone	2.200E+00	1.130E+00	6.100E-01	3.610E+01	1.000E+00
108-67-8	1,3,5-trimethylbenzene	6.120E+00	4.589E+01	2.448E+01	0.000E+00	1.000E+00
108-88-3	Toluene	3.600E-01	1.050E+01	5.600E+00	1.150E+01	1.000E+00
108-90-7	Chlorobenzene	4.400E-01	1.680E+01	8.960E+00	1.690E+00	1.000E+00
108-95-2	phenol	4.400E+00	2.238E+00	1.194E+00	2.500E+01	1.000E+00
110-54-3	n-Hexane	1.470E+01	1.100E+02	5.870E+01	0.000E+00	1.000E+00
111-48-8	thiodiglycol	3.798E-03	7.500E-02	4.000E-02	0.000E+00	9.999E-01
117-81-7	Bis(2-ethylhexyl)phthalate	2.300E+06	8.330E+03	4.440E+03	1.100E+01	1.310E-01
118-96-7	2,4,6-Trinitrotoluene	3.700E-01	2.800E+00	1.500E+00	1.410E+00	9.400E-01
120-12-7	anthracene	4.500E+03	1.763E+03	9.400E+02	5.500E-01	9.980E-01
120-82-1	1,2,4-trichlorobenzene	3.600E+00	1.245E+02	6.640E+01	1.400E+00	1.000E+00
121-14-2	2,4-Dinitrotoluene	8.800E-01	6.630E+00	3.540E+00	1.410E+00	9.990E-01
121-82-4	RDX	7.170E-02	1.466E+01	7.816E+00	1.640E+00	3.590E-01
124-48-1	Chlorodibromomethane	7.000E-01	5.240E+00	2.800E+00	1.410E+00	1.000E+00
127-18-4	tetrachloroethene	3.100E-01	1.988E+01	1.060E+01	7.000E-01	1.000E+00
129-00-0	pyrene	9.500E+03	5.100E+03	2.720E+03	1.300E-01	9.943E-01
131-11-3	Dimethylphthalate	3.400E-01	2.560E+00	1.370E+00	3.610E+01	1.000E+00
142-82-5	heptane	5.870E+01	7.440E+02	3.968E+02	1.730E+01	1.000E+00
1445-75-6	diisopropylmethyl phosphonate	7.835E-02	2.346E+00	1.251E+00	2.000E-01	1.000E+00
1634-04-4	methyl-t-butyl ether	8.400E-02	8.250E-01	4.400E-01	1.400E+00	1.000E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	3.890E+04	2.920E+05	1.560E+05	3.000E-02	6.640E-01
1832-53-7	ethyl methyl phosphonic acid	1.000E-02	2.679E-01	1.429E-01	0.000E+00	1.000E+00

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
1832-54-8	isopropyl methyl phosphonic acid	1.000E-02	4.142E-01	2.209E-01	0.000E+00	1.000E+00
191-24-2	benzo(g,h,i)perylene	4.500E+05	2.010E+05	1.072E+05	3.900E-01	6.560E-02
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.230E+05	9.230E+05	4.920E+05	3.000E-02	1.600E-02
208-96-8	acenaphthylene	1.500E+03	1.883E+02	1.004E+02	4.230E+00	9.999E-01
22967-92-6	Methyl mercury	7.000E+03	1.000E+05	3.000E+03	0.000E+00	0.000E+00
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	4.730E+04	3.548E+05	1.890E+05	2.770E-02	0.000E+00
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	1.437E-02	1.390E+02	7.412E+01	1.100E-01	2.690E-06
26914-33-0	total tetrachlorobiphenyl	3.290E+04	2.470E+05	1.320E+05	2.770E-02	0.000E+00
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	9.980E+04	7.490E+05	3.990E+05	2.770E-02	0.000E+00
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	3.290E+04	2.470E+05	1.320E+05	2.770E-02	0.000E+00
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	4.730E+04	3.550E+05	1.890E+05	2.770E-02	0.000E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	9.770E+05	7.330E+06	3.910E+06	3.000E-02	2.000E-03
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.348E+06	1.553E+04	8.280E+03	2.800E-03	8.720E-01
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	6.170E+05	4.620E+06	2.470E+06	3.000E-02	3.000E-03
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	6.170E+05	4.620E+06	2.470E+06	3.000E-02	2.000E-03
39227-28-6	HexaCDD, 1,2,3,4,7,8-	3.890E+05	2.920E+06	1.560E+06	3.000E-02	2.400E-02
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	1.350E+06	1.010E+07	5.390E+06	2.770E-02	0.000E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	2.690E+04	2.020E+05	1.080E+05	3.000E-02	1.170E-01
479-45-8	Tetryl	4.096E-01	1.606E+02	8.564E+01	6.500E+02	1.260E-01
505-60-2	Sulfur mustard (or H/HD)	1.320E+00	9.890E+00	5.270E+00	2.330E+04	1.000E+00
50782-69-9	VX	3.160E+00	2.370E+01	1.260E+01	0.000E+00	9.990E-01
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	7.760E+03	5.820E+04	3.100E+04	3.000E-02	7.700E-01
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	2.360E+05	1.770E+06	9.440E+05	2.770E-02	0.000E+00
55-63-0	nitroglycerin	3.915E-01	9.810E+00	5.232E+00	3.610E+01	9.997E-01

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.550E+05	1.160E+06	6.200E+05	3.000E-02	5.700E-02
56-23-5	Carbon tetrachloride	3.500E-01	1.140E+01	6.080E+00	7.000E-01	1.000E+00
57-55-6	propylene glycol	4.114E-04	5.700E-01	3.040E-01	5.100E+01	1.000E+00
57117-31-4	PentaCDF, 2,3,4,7,8-	1.950E+04	1.460E+05	7.800E+04	3.000E-02	2.210E-01
57117-41-6	PentaCDF, 1,2,3,7,8-	3.800E+04	2.850E+05	1.520E+05	3.000E-02	2.680E-01
57117-44-9	HexaCDF, 1,2,3,6,7,8-	6.170E+04	4.620E+05	2.470E+05	3.000E-02	5.200E-02
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	2.770E-02	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.230E+05	9.230E+05	4.920E+05	3.000E-02	2.900E-02
60851-34-5	HexaCDF, 2,3,4,6,7,8-	6.170E+04	4.620E+05	2.470E+05	3.000E-02	5.500E-02
65-85-0	Benzoic acid	6.000E-03	5.000E-02	2.400E-02	0.000E+00	1.000E+00
67-63-0	isopropyl alcohol	1.312E-02	1.500E-01	8.000E-02	3.610E+01	1.000E+00
67-64-1	Acetone	8.700E-02	4.000E-02	2.000E-02	3.610E+01	1.000E+00
67-66-3	Chloroform	8.000E-02	3.940E+00	2.100E+00	1.410E+00	1.000E+00
67-72-1	hexachloroethane	1.550E+01	1.163E+02	6.200E+01	1.400E+00	1.000E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.550E+05	1.160E+06	6.200E+05	3.000E-02	1.000E-02
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	1.650E+07	8.800E+06	0.000E+00	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	2.770E-02	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	2.770E-02	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	6.170E+04	4.620E+05	2.470E+05	3.000E-02	4.900E-02
71-43-2	Benzene	1.200E-01	4.630E+00	2.470E+00	1.580E+01	1.000E+00
72918-21-9	HexaCDF, 1,2,3,7,8,9-	6.170E+04	4.620E+05	2.470E+05	3.000E-02	9.000E-02
73207-98-4	EA 2192	3.160E+00	2.370E+01	1.260E+01	0.000E+00	9.990E-01
74-83-9	Methyl bromide	9.000E-02	6.750E-01	3.600E-01	9.030E+00	1.000E+00
74-87-3	Methyl chloride	6.000E-02	4.700E-01	2.500E-01	9.030E+00	1.000E+00
74-88-4	Methyl iodide	1.880E-01	1.410E+00	7.520E-01	9.030E+00	1.000E+00
74-96-4	Bromoethane	1.790E+00	1.340E+01	7.160E+00	0.000E+00	1.000E+00
74-97-5	Bromochloromethane	1.570E-01	1.180E+00	6.270E-01	0.000E+00	1.000E+00
7439-97-6	Mercury	1.000E+03	1.000E+03	3.000E+03	0.000E+00	1.000E+00

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	7.270E+04	5.450E+05	2.910E+05	2.770E-02	9.850E-01
7487-94-7	Mercuric chloride	5.800E+04	1.000E+05	5.000E+04	0.000E+00	8.500E-01
75-01-4	Vinyl chloride	3.700E-02	1.150E+00	6.200E-01	1.410E+00	1.000E+00
75-09-2	Dichloromethane	2.400E-02	7.500E-01	4.000E-01	9.030E+00	1.000E+00
75-15-0	Carbon disulfide	9.100E-02	4.960E+00	2.650E+00	0.000E+00	1.000E+00
75-25-2	Tribromomethane	1.260E+00	9.450E+00	5.040E+00	1.410E+00	1.000E+00
75-27-4	Bromodichloromethane	1.100E-01	4.130E+00	2.210E+00	0.000E+00	1.000E+00
75-35-4	1,1-Dichloroethylene	1.200E-01	4.880E+00	2.600E+00	1.410E+00	1.000E+00
75-69-4	Trichlorofluoromethane	2.400E-01	8.570E+00	4.570E+00	7.000E-01	1.000E+00
75-71-8	Dichlorodifluoromethane	6.200E-01	4.610E+00	2.460E+00	1.410E+00	1.000E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	3.810E+00	2.860E+01	1.520E+01	0.000E+00	1.000E+00
7647-01-0	Hydrochloric acid	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.000E+00
7664-38-2	Phosphoric acid	0.000E+00	0.000E+00	0.000E+00	0.000E+00	6.860E-05
78-93-3	Methyl ethyl ketone	2.900E-01	1.400E-01	8.000E-02	3.610E+01	1.000E+00
79-01-6	Trichloroethylene	3.300E-01	7.070E+00	3.770E+00	7.000E-01	1.000E+00
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	9.000E+02	4.800E+02	0.000E+00	0.000E+00
83-32-9	acenaphthene	1.100E+03	3.675E+02	1.960E+02	2.500E+00	1.000E+00
84-66-2	Diethyl phthalate	4.400E+01	6.170E+00	3.290E+00	4.520E+00	1.000E+00
84-74-2	Dibutyl phthalate	5.200E+03	1.180E+02	6.280E+01	1.100E+01	9.940E-01
85-01-8	phenanthrene	3.700E+03	1.988E+03	1.060E+03	1.260E+00	9.992E-01
85-68-7	butyl benzyl phthalate	8.700E+03	1.028E+03	5.480E+02	3.600E+01	9.482E-01
86-73-7	fluorene	2.100E+03	5.783E+02	3.084E+02	4.200E+00	1.000E+00
91-20-3	Naphthalene	3.000E+02	8.930E+01	4.760E+01	5.270E+00	1.000E+00
91-57-6	2-Methylnaphthalene	9.500E+02	5.120E+02	2.730E+02	0.000E+00	1.000E+00
95-47-6	2-Xylene	7.300E-01	1.810E+01	9.640E+00	9.030E+00	1.000E+00
95-48-7	o-Cresol	8.300E-01	6.200E+00	3.310E+00	3.610E+01	1.000E+00
95-50-1	1,2-Dichlorobenzene	3.790E+00	2.840E+01	1.520E+01	1.410E+00	1.000E+00

CAS Number	Name	Kds (cm^3-Water/g-Soil)	Kdsw (L-Water/Kg-Soil)	Kdbs (cm^3-Water/g-Soil)	Ksg (1/yr)	Fv
95-63-6	1,2,4-trimethylbenzene	8.974E+00	3.525E+01	1.880E+01	9.000E+00	1.000E+00
98-82-8	1-methylethyl benzene	6.000E+02	7.650E+01	4.080E+01	3.160E+01	1.000E+00
98-86-2	acetophenone	3.600E-01	2.685E+00	1.432E+00	0.000E+00	1.000E+00
993-13-5	methyl phosphonic acid	1.000E-02	7.500E-02	4.000E-02	0.000E+00	9.998E-01
193-39-5	Indeno(1,2,3-cd) pyrene	5.300E+05	2.307E+05	1.231E+05	3.500E-01	5.000E-03
205-99-2	Benzo(b)fluoranthene	1.048E+04	7.857E+04	4.190E+04	4.100E-01	9.660E-01
206-44-0	Fluoranthene	1.100E+04	3.683E+03	1.964E+03	5.700E-01	9.920E-01
207-08-9	Benzo(k)fluoranthene	1.900E+05	7.441E+04	3.969E+04	1.200E-01	2.730E-01
218-01-9	Chrysene	6.000E+04	3.009E+04	1.605E+04	2.500E-01	7.440E-01
50-32-8	Benzo(a)pyrene	1.600E+05	7.268E+04	3.876E+04	4.800E-01	2.940E-01
53-70-3	Dibenz(a,h)anthracene	5.800E+05	1.343E+05	7.160E+04	2.700E-01	5.500E-02
56-55-3	Benzo(a)anthracene	6.000E+04	2.685E+04	1.432E+04	3.700E-01	4.830E-01

Table B-4: Toxicity, Fate, and Transport Database (Data Set 4)

CAS Number	Name	RCF (g-COPC/g-DWplant)/(g-COPC/mL-soil water)	$Br_{rootveg}$ (unitless)	Br_{ag} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Br_{forage} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Bv_{ag} (unitless)
7440-36-0	Antimony compounds	0.000E+00	3.000E-02	3.190E-02	2.000E-01	0.000E+00
7440-38-2	Arsenic compounds	0.000E+00	8.000E-03	6.330E-03	3.600E-02	0.000E+00
7440-39-3	Barium compounds	0.000E+00	1.500E-02	3.220E-02	1.500E-01	0.000E+00
7440-41-7	Beryllium compounds	0.000E+00	1.500E-03	2.580E-03	1.000E-02	0.000E+00
7440-43-9	Cadmium compounds	0.000E+00	6.400E-02	1.250E-01	3.640E-01	0.000E+00
7440-47-3	Chromium compounds	0.000E+00	4.500E-03	4.880E-03	7.500E-03	0.000E+00
7440-50-8	Copper compounds	0.000E+00	2.500E-01	2.500E-01	2.500E-01	0.000E+00
7439-92-1	Lead compounds	0.000E+00	9.000E-03	1.360E-02	4.500E-02	0.000E+00
7439-96-5	Manganese compounds	0.000E+00	5.000E-02	5.000E-02	5.000E-02	0.000E+00
7439-97-6	Mercury compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7440-02-0	Nickel compounds	0.000E+00	8.000E-03	9.310E-03	3.200E-02	0.000E+00
7782-49-2	Selenium compounds	0.000E+00	2.200E-02	1.950E-02	1.600E-02	0.000E+00
7440-22-4	Silver compounds	0.000E+00	1.000E-01	1.380E-01	4.000E-01	0.000E+00
7440-28-0	Thallium compounds	0.000E+00	4.000E-04	8.580E-04	4.000E-03	0.000E+00
7440-62-2	Vanadium compounds	0.000E+00	3.000E-03	3.000E-03	3.000E-03	0.000E+00
7440-66-6	Zinc compounds	0.000E+00	9.000E-01	9.700E-02	2.500E-01	0.000E+00
7440-48-4	Cobalt compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7440-42-8	Boron compounds	0.000E+00	4.000E-03	4.000E-03	4.000E-03	0.000E+00
7440-31-5	Tin compounds	0.000E+00	6.000E-03	6.000E-03	6.000E-03	0.000E+00
100-41-4	Ethylbenzene	5.660E+01	7.760E+01	6.250E-01	6.250E-01	1.420E-02
100-42-5	Styrene	4.740E+01	3.950E-01	7.140E-01	7.140E-01	3.240E-02
100-51-6	Benzyl alcohol	7.940E+00	6.580E+01	8.380E+00	8.380E+00	2.460E+00
100-52-7	Benzaldehyde	9.510E+00	3.340E+01	5.400E+00	5.400E+00	7.890E-02

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10061-01-5	cis-1,3-Dichloropropene	1.160E+00	1.100E+00	2.500E+00	2.500E+00	3.220E-03
10061-02-6	trans-1,3-Dichloropropene	1.100E+00	1.120E+00	2.600E+00	2.600E+00	9.320E-03
106-46-7	1,4-Dichlorobenzene	1.150E+02	9.590E+01	3.670E-01	3.670E-01	1.240E-01
106-99-0	1,3-butadiene	6.797E+00	7.637E+01	2.740E+00	2.740E+00	1.040E-04
107-21-1	ethylene glycol	1.790E-02	1.784E+01	2.366E+02	2.366E+02	3.320E-02
107-44-8	GB	3.390E-01	5.760E-01	2.600E+01	2.600E+01	2.160E-01
108-05-4	Vinyl acetate	7.160E+00	9.060E+00	8.380E+00	8.380E+00	6.570E-04
108-10-1	Methyl isobutyl ketone	8.260E+00	3.750E+00	7.840E+00	7.840E+00	7.570E-03
108-67-8	1,3,5-trimethylbenzene	9.990E+01	1.632E+01	4.090E-01	4.090E-01	2.800E-02
108-88-3	Toluene	2.790E+01	7.740E+01	1.070E+00	1.070E+00	6.360E-03
108-90-7	Chlorobenzene	3.330E+01	7.560E+01	9.320E-01	9.320E-01	1.450E-02
108-95-2	phenol	9.630E+00	2.189E+00	5.260E+00	5.260E+00	5.530E+00
110-54-3	n-Hexane	3.040E+01	2.070E+00	2.160E-01	2.160E-01	4.420E-04
111-48-8	thiodiglycol	6.530E-02	1.719E+01	8.957E+01	8.957E+01	1.020E+02
117-81-7	Bis(2-ethylhexyl)phthalate	1.960E+03	8.540E-04	4.370E-02	4.370E-02	1.510E+05
118-96-7	2,4,6-Trinitrotoluene	1.030E+01	2.740E+01	4.600E+00	4.600E+00	5.810E+02
120-12-7	anthracene	6.780E+02	1.507E-01	9.710E-02	9.710E-02	5.330E+01
120-82-1	1,2,4-trichlorobenzene	2.790E+02	7.750E+01	1.890E-01	1.890E-01	7.270E-01
121-14-2	2,4-Dinitrotoluene	1.410E+01	1.590E+01	2.780E+00	2.780E+00	7.750E+01
121-82-4	RDX	9.330E-01	1.301E+01	1.217E+01	1.217E+01	2.400E+04
124-48-1	Chlorodibromomethane	1.210E+01	1.730E+01	1.990E+00	1.990E+00	1.690E-02
127-18-4	tetrachloroethene	9.640E+01	3.110E+02	4.200E-01	4.200E-01	1.300E-02
129-00-0	pyrene	1.380E+03	1.453E-01	5.700E-02	5.700E-02	8.400E+02
131-11-3	Dimethylphthalate	1.000E+01	2.930E+01	4.860E+00	4.860E+00	2.440E+01
142-82-5	heptane	1.170E+02	1.993E+00	7.844E-02	7.844E-02	2.230E-03

CAS Number	Name	RCF (g-COPC/g-DWplant)/(g-COPC/mL-soil water)	$Br_{rootveg}$ (unitless)	Br_{ag} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Br_{forage} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Bv_{ag} (unitless)
1445-75-6	diisopropylmethyl phosphonate	1.239E+00	1.581E+01	9.832E+00	9.832E+00	1.590E-02
1634-04-4	methyl-t-butyl ether	1.056E+00	1.257E+01	1.108E+01	1.108E+01	1.800E-03
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	4.000E+04	1.030E+00	4.550E-03	4.550E-03	6.550E+04
1832-53-7	ethyl methyl phosphonic acid	1.529E-01	1.529E+01	4.728E+01	4.728E+01	1.600E+00
1832-54-8	isopropyl methyl phosphonic acid	3.220E-01	3.220E+01	2.704E+01	2.704E+01	2.580E+00
191-24-2	benzo(g,h,i)perylene	3.648E+03	8.106E-03	5.932E-03	5.932E-03	1.800E+06
19408-74-3	HexaCDD, 1,2,3,7,8,9-	9.710E+04	7.890E-01	2.340E-03	2.340E-03	5.200E+05
208-96-8	acenaphthylene	4.335E+01	2.890E-02	1.653E-01	1.653E-01	1.180E+01
22967-92-6	Methyl mercury	0.000E+00	9.900E-02	2.940E-02	0.000E+00	0.000E+00
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	5.110E+03	1.080E-01	4.610E-03	4.610E-03	1.150E+03
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	2.650E-01	1.843E+01	3.130E+01	3.130E+01	1.600E+08
26914-33-0	total tetrachlorobiphenyl	3.850E+03	1.170E-01	5.700E-03	5.700E-03	5.850E+01
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	9.170E+03	9.190E-02	2.970E-03	2.970E-03	7.450E+03
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	3.850E+03	1.170E-01	5.700E-03	5.700E-03	5.850E+01
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	5.110E+03	1.080E-01	4.610E-03	4.610E-03	1.150E+03
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	4.790E+05	4.900E-01	7.050E-04	7.050E-04	2.360E+06
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	7.045E+04	5.226E-02	6.426E-04	6.426E-04	3.580E+06
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	3.360E+05	5.450E-01	9.200E-04	9.200E-04	9.100E+05
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	4.790E+05	7.760E-01	9.200E-04	9.200E-04	2.280E+06
39227-28-6	HexaCDD, 1,2,3,4,7,8-	2.360E+05	6.050E-01	1.200E-03	1.200E-03	5.200E+05
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	7.050E+04	5.230E-02	6.430E-04	6.430E-04	7.080E+05
40321-76-4	PentaCDD, 1,2,3,7,8-	3.010E+04	1.120E+00	5.620E-03	5.620E-03	2.390E+05

CAS Number	Name	RCF (g-COPC/g-DWplant)/(g-COPC/mL-soil water)	$Br_{rootveg}$ (unitless)	Br_{ag} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Br_{forage} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Bv_{ag} (unitless)
479-45-8	Tetryl	3.654E+00	8.921E+00	4.366E+00	4.366E+00	1.160E+05
505-60-2	Sulfur mustard (or H/HD)	2.260E+00	1.720E+00	6.250E+00	6.250E+00	7.660E-02
50782-69-9	VX	1.230E+00	3.880E-01	2.400E+00	2.400E+00	2.690E+03
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.160E+04	1.490E+00	1.150E-02	1.150E-02	4.570E+04
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	1.800E+04	7.620E-02	1.790E-03	1.790E-03	7.930E+04
55-63-0	nitroglycerin	3.527E+00	9.009E+00	4.484E+00	4.484E+00	1.100E+01
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.160E+05	7.480E-01	2.050E-03	2.050E-03	8.300E+05
56-23-5	Carbon tetrachloride	3.330E+01	9.510E+01	9.320E-01	9.320E-01	1.790E-03
57-55-6	propylene glycol	1.638E-02	3.982E+01	2.529E+02	2.529E+02	4.870E-01
57117-31-4	PentaCDF, 2,3,4,7,8-	2.350E+04	1.210E+00	6.780E-03	6.780E-03	9.750E+04
57117-41-6	PentaCDF, 1,2,3,7,8-	3.930E+04	1.030E+00	4.610E-03	4.610E-03	9.750E+04
57117-44-9	HexaCDF, 1,2,3,6,7,8-	5.700E+04	9.250E-01	3.480E-03	3.480E-03	1.620E+05
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	9.710E+04	7.890E-01	2.340E-03	2.340E-03	5.200E+05
60851-34-5	HexaCDF, 2,3,4,6,7,8-	5.700E+04	9.250E-01	3.480E-03	3.480E-03	1.620E+05
65-85-0	Benzoic acid	1.270E+01	2.120E+03	3.210E+00	3.210E+00	1.910E+00
67-63-0	isopropyl alcohol	2.180E-01	1.662E+01	3.623E+01	3.623E+01	7.780E-03
67-64-1	Acetone	6.460E+00	7.420E+01	8.380E+00	8.380E+00	7.960E-04
67-66-3	Chloroform	8.050E+00	1.010E+02	2.700E+00	2.700E+00	2.040E-03
67-72-1	hexachloroethane	2.470E+02	1.594E+01	2.070E-01	2.070E-01	2.200E-01
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.160E+05	7.480E-01	2.050E-03	2.050E-03	8.300E+05
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	5.700E+04	9.250E-01	3.480E-03	3.480E-03	1.620E+05

CAS Number	Name	RCF (g-COPC/g-DWplant)/(g-COPC/mL-soil water)	$Br_{rootveg}$ (unitless)	Br_{ag} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Br_{forage} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Bv_{ag} (unitless)
71-43-2	Benzene	9.620E+00	8.010E+01	2.370E+00	2.370E+00	1.720E-03
72918-21-9	HexaCDF, 1,2,3,7,8,9-	5.700E+04	9.250E-01	3.480E-03	3.480E-03	1.620E+05
73207-98-4	EA 2192	1.230E+00	3.880E-01	2.400E+00	2.400E+00	2.690E+03
74-83-9	Methyl bromide	8.220E+00	9.140E+01	7.950E+00	7.950E+00	1.660E-04
74-87-3	Methyl chloride	7.470E+00	1.190E+02	8.380E+00	8.380E+00	5.900E-05
74-88-4	Methyl iodide	2.900E+00	1.540E+01	5.190E+00	5.190E+00	4.310E-04
74-96-4	Bromoethane	7.940E-02	2.930E-01	4.540E+00	4.540E+00	2.580E-01
74-97-5	Bromochloromethane	5.570E-02	2.350E+00	5.930E+00	5.930E+00	8.110E-01
7439-97-6	Mercury	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	7.150E+03	9.840E-02	3.580E-03	3.580E-03	1.640E+04
7487-94-7	Mercuric chloride	0.000E+00	3.600E-02	1.450E-02	0.000E+00	1.800E+03
75-01-4	Vinyl chloride	9.090E+00	2.460E+02	6.010E+00	6.010E+00	6.410E-05
75-09-2	Dichloromethane	8.640E+00	3.590E+02	6.860E+00	6.860E+00	6.160E-04
75-15-0	Carbon disulfide	1.150E+01	1.260E+02	2.070E+00	2.070E+00	4.100E-04
75-25-2	Tribromomethane	1.550E+01	1.230E+01	1.650E+00	1.650E+00	2.870E-06
75-27-4	Bromodichloromethane	9.620E+00	8.740E+01	2.370E+00	2.370E+00	6.020E-03
75-35-4	1,1-Dichloroethylene	9.620E+00	8.010E+01	2.370E+00	2.370E+00	3.710E-04
75-69-4	Trichlorofluoromethane	1.950E+01	8.140E+01	1.390E+00	1.390E+00	2.650E-04
75-71-8	Dichlorodifluoromethane	1.070E+01	1.740E+01	2.190E+00	2.190E+00	3.250E-05
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	8.190E+00	2.150E+00	5.780E-01	5.780E-01	2.700E-04
7647-01-0	Hydrochloric acid	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
7664-38-2	Phosphoric acid	5.090E-02	0.000E+00	0.000E+00	0.000E+00	0.000E+00
78-93-3	Methyl ethyl ketone	6.700E+00	2.310E+01	8.380E+00	8.380E+00	2.030E-03
79-01-6	Trichloroethylene	1.640E+01	4.960E+01	1.590E+00	1.590E+00	2.010E-03
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00

CAS Number	Name	RCF (g-COPC/g-DWplant)/(g-COPC/mL-soil water)	$Br_{rootveg}$ (unitless)	Br_{ag} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Br_{forage} (mg COPC/kg DW plant)/(mg COPC/kg soil)	Bv_{ag} (unitless)
83-32-9	acenaphthene	2.340E+02	2.127E-01	2.160E-01	2.160E-01	4.970E+00
84-66-2	Diethyl phthalate	1.950E+01	4.440E-01	1.390E+00	1.390E+00	5.710E+01
84-74-2	Dibutyl phthalate	9.660E+02	1.860E-01	7.400E-02	7.440E-02	3.150E+03
85-01-8	phenanthrene	6.780E+02	1.832E-01	9.700E-02	9.700E-02	1.510E+02
85-68-7	butyl benzyl phthalate	1.380E+03	1.586E-01	5.700E-02	5.700E-02	7.110E+03
86-73-7	fluorene	3.980E+02	1.895E-01	1.450E-01	1.450E-01	2.600E+01
91-20-3	Naphthalene	8.070E+01	2.690E-01	4.790E-01	4.790E-01	3.810E-01
91-57-6	2-Methylnaphthalene	3.040E+01	3.200E-02	2.160E-01	2.160E-01	1.540E+00
95-47-6	2-Xylene	5.660E+01	7.760E+01	6.250E-01	6.250E-01	2.150E-02
95-48-7	o-Cresol	1.370E+01	1.660E+01	2.890E+00	2.890E+00	5.560E+00
95-50-1	1,2-Dichlorobenzene	9.300E+01	2.450E+01	4.310E-01	4.310E-01	1.170E-01
95-63-6	1,2,4-trimethylbenzene	1.884E+01	2.099E+00	3.089E-01	3.089E-01	6.670E-02
98-82-8	1-methylethyl benzene	1.640E+02	2.733E-01	2.810E-01	2.810E-01	4.060E-04
98-86-2	acetophenone	1.010E+01	2.806E+01	4.730E+00	4.730E+00	2.520E-01
993-13-5	methyl phosphonic acid	5.768E-02	5.768E+00	9.831E+01	9.831E+01	1.150E+02
193-39-5	Indeno(1,2,3-cd) pyrene	2.806E+04	5.290E-02	5.930E-03	5.930E-03	3.735E+05
205-99-2	Benzo(b)fluoranthene	1.207E+04	1.150E+00	1.120E-02	1.120E-02	1.675E+03
206-44-0	Fluoranthene	1.644E+03	1.500E-01	4.990E-02	4.990E-02	7.380E+02
207-08-9	Benzo(k)fluoranthene	1.156E+04	6.090E-02	1.150E-02	1.150E-02	2.113E+05
218-01-9	Chrysene	5.689E+03	9.480E-02	1.970E-02	1.970E-02	6.920E+02
50-32-8	Benzo(a)pyrene	9.684E+03	6.050E-02	1.320E-02	1.320E-02	1.247E+05
53-70-3	Dibenz(a,h)anthracene	2.350E+04	4.050E-02	6.780E-03	6.780E-03	3.118E+07
56-55-3	Benzo(a)anthracene	5.689E+03	9.480E-02	1.970E-02	1.970E-02	1.934E+04

Table B-5: Toxicity, Fate, and Transport Database (Data Set 5)

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
7440-36-0	Antimony compounds	0.000E+00	1.000E-04	1.000E-03	0.000E+00	0.000E+00
7440-38-2	Arsenic compounds	0.000E+00	6.000E-05	2.000E-03	0.000E+00	0.000E+00
7440-39-3	Barium compounds	0.000E+00	3.500E-04	1.500E-04	0.000E+00	0.000E+00
7440-41-7	Beryllium compounds	0.000E+00	9.000E-07	1.000E-03	0.000E+00	0.000E+00
7440-43-9	Cadmium compounds	0.000E+00	6.500E-06	1.200E-04	0.000E+00	0.000E+00
7440-47-3	Chromium compounds	0.000E+00	1.500E-03	5.500E-03	0.000E+00	0.000E+00
7440-50-8	Copper compounds	0.000E+00	1.500E-03	1.000E-02	0.000E+00	0.000E+00
7439-92-1	Lead compounds	0.000E+00	2.500E-04	3.000E-04	0.000E+00	0.000E+00
7439-96-5	Manganese compounds	0.000E+00	3.500E-04	4.000E-04	0.000E+00	0.000E+00
7439-97-6	Mercury compounds	0.000E+00	4.500E-04	2.500E-01	0.000E+00	0.000E+00
7440-02-0	Nickel compounds	0.000E+00	1.000E-03	6.000E-03	0.000E+00	0.000E+00
7782-49-2	Selenium compounds	0.000E+00	5.860E-03	2.270E-03	0.000E+00	0.000E+00
7440-22-4	Silver compounds	0.000E+00	2.000E-02	3.000E-03	0.000E+00	0.000E+00
7440-28-0	Thallium compounds	0.000E+00	2.000E-03	4.000E-02	0.000E+00	0.000E+00
7440-62-2	Vanadium compounds	0.000E+00	2.000E-05	2.500E-03	0.000E+00	0.000E+00
7440-66-6	Zinc compounds	0.000E+00	3.250E-05	9.000E-05	0.000E+00	0.000E+00
7440-48-4	Cobalt compounds	0.000E+00	2.000E-03	2.000E-02	0.000E+00	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	1.000E+00	1.000E+00	0.000E+00	0.000E+00
7440-42-8	Boron compounds	0.000E+00	1.500E-03	8.000E-04	0.000E+00	0.000E+00
7440-31-5	Tin compounds	0.000E+00	1.000E-03	8.000E-02	0.000E+00	0.000E+00
100-41-4	Ethylbenzene	1.420E-02	2.560E-03	1.210E-02	0.000E+00	0.000E+00
100-42-5	Styrene	3.240E-02	2.300E-03	1.090E-02	0.000E+00	0.000E+00
100-51-6	Benzyl alcohol	2.460E+00	1.260E-04	5.970E-04	0.000E+00	0.000E+00
100-52-7	Benzaldehyde	7.890E-02	2.560E-04	1.220E-03	0.000E+00	0.000E+00
10061-01-5	cis-1,3-Dichloropropene	3.220E-03	6.700E-04	3.180E-03	0.000E+00	0.000E+00
10061-02-6	trans-1,3-Dichloropropene	9.320E-03	6.400E-04	3.040E-03	0.000E+00	0.000E+00

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
106-46-7	1,4-Dichlorobenzene	1.240E-01	3.750E-03	1.780E-02	0.000E+00	0.000E+00
106-99-0	1,3-butadiene	1.040E-04	6.016E-04	2.858E-03	3.460E-03	0.000E+00
107-21-1	ethylene glycol	3.320E-02	8.552E-03	4.062E-02	0.000E+00	0.000E+00
107-44-8	GB	2.160E-01	2.250E-05	1.070E-04	0.000E+00	0.000E+00
108-05-4	Vinyl acetate	6.570E-04	5.890E-05	2.800E-04	0.000E+00	0.000E+00
108-10-1	Methyl isobutyl ketone	7.570E-03	1.530E-04	7.250E-04	0.000E+00	0.000E+00
108-67-8	1,3,5-trimethylbenzene	2.800E-02	3.496E-03	1.660E-02	2.010E-02	0.000E+00
108-88-3	Toluene	6.360E-03	1.620E-03	7.690E-03	0.000E+00	0.000E+00
108-90-7	Chlorobenzene	1.450E-02	1.830E-03	8.680E-03	0.000E+00	0.000E+00
108-95-2	phenol	5.530E+00	2.650E-04	1.260E-03	1.520E-03	0.000E+00
110-54-3	n-Hexane	4.420E-04	5.120E-03	2.430E-02	0.000E+00	0.000E+00
111-48-8	thiodiglycol	1.020E+02	2.131E-06	1.012E-05	0.000E+00	0.000E+00
117-81-7	Bis(2-ethylhexyl)phthalate	1.510E+05	8.400E-03	3.990E-02	0.000E+00	0.000E+00
118-96-7	2,4,6-Trinitrotoluene	5.810E+02	3.170E-04	1.500E-03	0.000E+00	0.000E+00
120-12-7	anthracene	5.330E+01	7.120E-03	3.380E-02	4.090E-02	0.000E+00
120-82-1	1,2,4-trichlorobenzene	7.270E-01	5.470E-03	2.600E-02	3.150E-02	0.000E+00
121-14-2	2,4-Dinitrotoluene	7.750E+01	5.920E-04	2.810E-03	0.000E+00	0.000E+00
121-82-4	RDX	2.400E+04	7.907E-05	3.756E-04	4.550E-04	0.000E+00
124-48-1	Chlorodibromomethane	1.690E-02	8.630E-04	4.100E-03	0.000E+00	0.000E+00
127-18-4	tetrachloroethene	1.300E-02	3.430E-03	1.630E-02	1.970E-02	0.000E+00
129-00-0	pyrene	8.400E+02	8.090E-03	3.840E-02	4.650E-02	0.000E+00
131-11-3	Dimethylphthalate	2.440E+01	2.950E-04	1.400E-03	0.000E+00	0.000E+00
142-82-5	heptane	2.230E-03	7.558E-03	3.590E-02	4.350E-02	0.000E+00
1445-75-6	diisopropylmethyl phosphonate	1.590E-02	1.094E-04	5.198E-04	6.290E-04	0.000E+00
1634-04-4	methyl-t-butyl ether	1.800E-03	9.128E-05	4.336E-04	0.000E+00	0.000E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	6.550E+04	5.500E-03	2.610E-02	0.000E+00	0.000E+00
1832-53-7	ethyl methyl phosphonic acid	1.600E+00	7.574E-06	3.598E-05	0.000E+00	0.000E+00

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
1832-54-8	isopropyl methyl phosphonic acid	2.580E+00	2.107E-05	1.001E-04	0.000E+00	0.000E+00
191-24-2	benzo(g,h,i)perylene	1.800E+06	6.189E-03	2.940E-02	3.560E-02	0.000E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	5.200E+05	3.780E-03	1.790E-02	2.170E-02	2.330E-02
208-96-8	acenaphthylene	1.180E+01	5.819E-03	2.764E-02	3.350E-02	0.000E+00
22967-92-6	Methyl mercury	0.000E+00	3.380E-04	7.800E-04	0.000E+00	0.000E+00
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	1.150E+03	5.530E-03	2.630E-02	0.000E+00	0.000E+00
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	1.600E+08	1.625E-05	7.716E-05	9.340E-05	0.000E+00
26914-33-0	total tetrachlorobiphenyl	5.850E+01	6.090E-03	2.890E-02	0.000E+00	0.000E+00
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	7.450E+03	4.380E-03	2.080E-02	0.000E+00	0.000E+00
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	5.850E+01	6.090E-03	2.890E-02	0.000E+00	0.000E+00
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	1.150E+03	5.530E-03	2.630E-02	0.000E+00	0.000E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	2.360E+06	1.440E-03	6.850E-03	0.000E+00	0.000E+00
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	3.580E+06	1.443E-03	6.855E-03	8.300E-03	0.000E+00
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	9.100E+05	1.850E-03	8.770E-03	1.060E-02	2.550E-02
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	2.280E+06	1.850E-03	8.770E-03	0.000E+00	0.000E+00
39227-28-6	HexaCDD, 1,2,3,4,7,8-	5.200E+05	2.320E-03	1.100E-02	1.330E-02	4.530E-02
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	7.080E+05	1.320E-03	6.260E-03	0.000E+00	0.000E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	2.390E+05	6.050E-03	2.880E-02	3.480E-02	4.710E-02
479-45-8	Tetryl	1.160E+05	3.393E-04	1.612E-03	1.950E-03	0.000E+00
505-60-2	Sulfur mustard (or H/HD)	7.660E-02	2.100E-04	9.970E-04	0.000E+00	0.000E+00
50782-69-9	VX	2.690E+03	7.010E-04	3.330E-03	0.000E+00	0.000E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	4.570E+04	7.680E-03	3.650E-02	0.000E+00	0.000E+00
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	7.930E+04	3.150E-03	1.500E-02	0.000E+00	0.000E+00

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
55-63-0	nitroglycerin	1.100E+01	3.278E-04	1.557E-03	1.890E-03	0.000E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	8.300E+05	3.460E-03	1.640E-02	0.000E+00	0.000E+00
56-23-5	Carbon tetrachloride	1.790E-03	1.830E-03	8.680E-03	0.000E+00	0.000E+00
57-55-6	propylene glycol	4.870E-01	1.909E-06	9.066E-06	1.100E-05	0.000E+00
57117-31-4	PentaCDF, 2,3,4,7,8-	9.750E+04	6.520E-03	3.100E-02	3.750E-02	5.610E-02
57117-41-6	PentaCDF, 1,2,3,7,8-	9.750E+04	5.530E-03	2.630E-02	3.180E-02	0.000E+00
57117-44-9	HexaCDF, 1,2,3,6,7,8-	1.620E+05	4.800E-03	2.280E-02	2.760E-02	4.530E-02
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	0.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	5.200E+05	3.780E-03	1.790E-02	2.170E-02	3.700E-02
60851-34-5	HexaCDF, 2,3,4,6,7,8-	1.620E+05	4.800E-03	2.280E-02	2.760E-02	2.710E-02
65-85-0	Benzoic acid	1.910E+00	1.190E-05	5.650E-05	0.000E+00	0.000E+00
67-63-0	isopropyl alcohol	7.780E-03	1.245E-05	5.916E-05	7.160E-05	0.000E+00
67-64-1	Acetone	7.960E-04	6.020E-06	2.860E-05	0.000E+00	0.000E+00
67-66-3	Chloroform	2.040E-03	6.110E-04	2.900E-03	0.000E+00	0.000E+00
67-72-1	hexachloroethane	2.200E-01	5.230E-03	2.480E-02	3.000E-02	0.000E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	8.300E+05	3.460E-03	1.640E-02	0.000E+00	0.000E+00
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	0.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	0.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.620E+05	4.800E-03	2.280E-02	2.760E-02	4.510E-02
71-43-2	Benzene	1.720E-03	7.120E-04	3.380E-03	0.000E+00	0.000E+00
72918-21-9	HexaCDF, 1,2,3,7,8,9-	1.620E+05	4.800E-03	2.280E-02	2.760E-02	0.000E+00
73207-98-4	EA 2192	2.690E+03	7.010E-04	3.330E-03	0.000E+00	0.000E+00
74-83-9	Methyl bromide	1.660E-04	1.500E-04	7.110E-04	0.000E+00	0.000E+00
74-87-3	Methyl chloride	5.900E-05	8.590E-05	4.080E-04	0.000E+00	0.000E+00
74-88-4	Methyl iodide	4.310E-04	2.700E-04	1.280E-03	0.000E+00	0.000E+00

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
74-96-4	Bromoethane	2.580E-01	3.220E-04	1.530E-03	0.000E+00	0.000E+00
74-97-5	Bromochloromethane	8.110E-01	2.260E-04	1.070E-03	0.000E+00	0.000E+00
7439-97-6	Mercury	0.000E+00	4.500E-04	2.500E-01	0.000E+00	0.000E+00
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	1.640E+04	4.870E-03	2.310E-02	0.000E+00	0.000E+00
7487-94-7	Mercuric chloride	1.800E+03	2.260E-03	5.220E-03	0.000E+00	0.000E+00
75-01-4	Vinyl chloride	6.410E-05	2.220E-04	1.050E-03	0.000E+00	0.000E+00
75-09-2	Dichloromethane	6.160E-04	1.840E-04	8.760E-04	0.000E+00	0.000E+00
75-15-0	Carbon disulfide	4.100E-04	8.260E-04	3.920E-03	0.000E+00	0.000E+00
75-25-2	Tribromomethane	2.870E-06	1.050E-03	5.000E-03	0.000E+00	0.000E+00
75-27-4	Bromodichloromethane	6.020E-03	7.120E-04	3.380E-03	0.000E+00	0.000E+00
75-35-4	1,1-Dichloroethylene	3.710E-04	7.120E-04	3.380E-03	0.000E+00	0.000E+00
75-69-4	Trichlorofluoromethane	2.650E-04	1.250E-03	5.960E-03	0.000E+00	0.000E+00
75-71-8	Dichlorodifluoromethane	3.250E-05	7.790E-04	3.700E-03	0.000E+00	0.000E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	2.700E-04	2.720E-03	1.290E-02	0.000E+00	0.000E+00
7647-01-0	Hydrochloric acid	0.000E+00	1.100E-05	5.230E-05	0.000E+00	0.000E+00
7664-38-2	Phosphoric acid	0.000E+00	1.000E+00	1.000E+00	0.000E+00	0.000E+00
78-93-3	Methyl ethyl ketone	2.030E-03	2.210E-05	1.050E-04	0.000E+00	0.000E+00
79-01-6	Trichloroethylene	2.010E-03	1.100E-03	5.210E-03	0.000E+00	0.000E+00
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
83-32-9	acenaphthene	4.970E+00	5.120E-03	2.430E-02	2.940E-02	0.000E+00
84-66-2	Diethyl phthalate	5.710E+01	1.250E-03	5.960E-03	0.000E+00	0.000E+00
84-74-2	Dibutyl phthalate	3.150E+03	7.660E-03	3.640E-02	0.000E+00	0.000E+00
85-01-8	phenanthrene	1.510E+02	7.120E-03	3.380E-02	4.090E-02	0.000E+00
85-68-7	butyl benzyl phthalate	7.110E+03	8.090E-03	3.840E-02	4.650E-02	0.000E+00
86-73-7	fluorene	2.600E+01	6.160E-03	2.930E-02	3.540E-02	0.000E+00
91-20-3	Naphthalene	3.810E-01	3.130E-03	1.480E-02	0.000E+00	0.000E+00

CAS Number	Name	Bv_{forage} (unitless)	Ba_{milk} (day/kg-FW tissue)	Ba_{beef} (day/kg-FW tissue)	Ba_{pork} (day/kg-FW tissue)	BCF_{eggs} (unitless)
91-57-6	2-Methylnaphthalene	1.540E+00	5.120E-03	2.430E-02	0.000E+00	0.000E+00
95-47-6	2-Xylene	2.150E-02	2.560E-03	1.210E-02	0.000E+00	0.000E+00
95-48-7	o-Cresol	5.560E+00	5.640E-04	2.680E-03	0.000E+00	0.000E+00
95-50-1	1,2-Dichlorobenzene	1.170E-01	3.370E-03	1.600E-02	0.000E+00	0.000E+00
95-63-6	1,2,4-trimethylbenzene	6.670E-02	4.185E-03	1.988E-02	0.000E+00	0.000E+00
98-82-8	1-methylethyl benzene	4.060E-04	4.423E-03	2.101E-02	2.540E-02	0.000E+00
98-86-2	acetophenone	2.520E-01	3.060E-04	1.450E-03	1.760E-03	0.000E+00
993-13-5	methyl phosphonic acid	1.150E+02	1.756E-06	8.341E-06	0.000E+00	0.000E+00
193-39-5	Indeno(1,2,3-cd) pyrene	3.735E+05	6.189E-03	2.940E-02	3.559E-02	6.532E+01
205-99-2	Benzo(b)fluoranthene	1.675E+03	7.619E-03	3.619E-02	4.381E-02	1.265E+01
206-44-0	Fluoranthene	7.380E+02	8.262E-03	3.924E-02	4.750E-02	9.650E-01
207-08-9	Benzo(k)fluoranthene	2.113E+05	7.678E-03	3.647E-02	4.415E-02	1.259E+01
218-01-9	Chrysene	6.920E+02	8.405E-03	3.992E-02	4.833E-02	4.355E+00
50-32-8	Benzo(a)pyrene	1.247E+05	7.908E-03	3.756E-02	4.547E-02	1.070E+01
53-70-3	Dibenz(a,h)anthracene	3.118E+07	6.521E-03	3.097E-02	3.750E-02	2.802E+01
56-55-3	Benzo(a)anthracene	1.934E+04	8.405E-03	3.992E-02	4.833E-02	3.789E+00

Table B-6: Toxicity, Fate, and Transport Database (Data Set 6)

CAS Number	Name	$BCF_{chicken}$ (unitless)	BCF_{fish} ($mg_{COPC}/kg_{FW\text{-}tissue}$)/($mg_{COPC}/kg_{water}$)	BAF_{fish} ($L/kg_{FW\text{-}tissue}$)	$BSAF_{fish}$ (mg_{COPC}/kg_{lipid})/($mg_{COPC}/kg_{sediment}$)	RfD (mg/kg-day)
7440-36-0	Antimony compounds	0.000E+00	4.000E+01	0.000E+00	0.000E+00	4.000E-04
7440-38-2	Arsenic compounds	0.000E+00	1.140E+02	0.000E+00	0.000E+00	3.000E-04
7440-39-3	Barium compounds	0.000E+00	6.330E+02	0.000E+00	0.000E+00	2.000E-01
7440-41-7	Beryllium compounds	0.000E+00	6.200E+01	0.000E+00	0.000E+00	2.000E-03
7440-43-9	Cadmium compounds	0.000E+00	9.070E+02	0.000E+00	0.000E+00	5.000E-04
7440-47-3	Chromium compounds	0.000E+00	1.900E+01	0.000E+00	0.000E+00	1.500E+00
7440-50-8	Copper compounds	0.000E+00	3.160E+00	0.000E+00	0.000E+00	4.000E-01
7439-92-1	Lead compounds	0.000E+00	9.000E-02	0.000E+00	0.000E+00	0.000E+00
7439-96-5	Manganese compounds	0.000E+00	3.160E+00	0.000E+00	0.000E+00	1.400E-01
7439-97-6	Mercury compounds	0.000E+00	3.160E+00	0.000E+00	0.000E+00	3.000E-04
7440-02-0	Nickel compounds	0.000E+00	7.800E+01	0.000E+00	0.000E+00	2.000E-02
7782-49-2	Selenium compounds	0.000E+00	1.290E+02	0.000E+00	0.000E+00	5.000E-03
7440-22-4	Silver compounds	0.000E+00	8.770E+01	0.000E+00	0.000E+00	5.000E-03
7440-28-0	Thallium compounds	0.000E+00	1.000E+04	0.000E+00	0.000E+00	8.000E-05
7440-62-2	Vanadium compounds	0.000E+00	1.000E+00	0.000E+00	0.000E+00	9.000E-03
7440-66-6	Zinc compounds	0.000E+00	2.060E+03	0.000E+00	0.000E+00	3.000E-01
7440-48-4	Cobalt compounds	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	1.000E+00	1.000E+00	0.000E+00	2.000E-01
7440-42-8	Boron compounds	0.000E+00	1.000E+00	0.000E+00	0.000E+00	2.000E-01
7440-31-5	Tin compounds	0.000E+00	1.000E+00	0.000E+00	0.000E+00	6.000E-01
100-41-4	Ethylbenzene	0.000E+00	4.860E+01	1.000E+00	0.000E+00	1.000E-01
100-42-5	Styrene	0.000E+00	4.070E+01	1.000E+00	0.000E+00	2.000E-01
100-51-6	Benzyl alcohol	0.000E+00	3.140E-01	1.000E+00	0.000E+00	5.000E-01
100-52-7	Benzaldehyde	0.000E+00	2.750E+00	1.000E+00	0.000E+00	1.000E-01
10061-01-5	cis-1,3-Dichloropropene	0.000E+00	7.690E+00	1.000E+00	0.000E+00	3.000E-02

CAS Number	Name	$BCF_{chicken}$ (unitless)	BCF_{fish} ($mg_{COPC}/kg_{FW-tissue}$)/(mg_{COPC}/kg_{water})	BAF_{fish} ($L/kg_{FW-tissue}$)	$BSAF_{fish}$ (mg_{COPC}/kg_{lipid})/($mg_{COPC}/kg_{sediment}$)	RfD (mg/kg-day)
10061-02-6	trans-1,3-Dichloropropene	0.000E+00	7.300E+00	1.000E+00	0.000E+00	3.000E-02
106-46-7	1,4-Dichlorobenzene	0.000E+00	9.890E+01	1.000E+00	0.000E+00	7.000E-02
106-99-0	1,3-butadiene	0.000E+00	1.900E+01	0.000E+00	0.000E+00	0.000E+00
107-21-1	ethylene glycol	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
107-44-8	GB	0.000E+00	3.160E+00	1.000E+00	0.000E+00	2.000E-05
108-05-4	Vinyl acetate	0.000E+00	3.160E+00	1.000E+00	0.000E+00	1.000E+00
108-10-1	Methyl isobutyl ketone	0.000E+00	1.670E+00	1.000E+00	0.000E+00	8.000E-02
108-67-8	1,3,5-trimethylbenzene	0.000E+00	8.580E+01	0.000E+00	0.000E+00	5.000E-02
108-88-3	Toluene	0.000E+00	2.390E+01	1.000E+00	0.000E+00	8.000E-02
108-90-7	Chlorobenzene	0.000E+00	2.860E+01	1.000E+00	0.000E+00	2.000E-02
108-95-2	phenol	0.000E+00	2.850E+00	0.000E+00	0.000E+00	3.000E-01
110-54-3	n-Hexane	0.000E+00	2.010E+02	1.000E+00	0.000E+00	1.100E+01
111-48-8	thiodiglycol	0.000E+00	3.160E+00	0.000E+00	0.000E+00	4.000E-01
117-81-7	Bis(2-ethylhexyl)phthalate	0.000E+00	5.330E+01	1.940E+02	0.000E+00	2.000E-02
118-96-7	2,4,6-Trinitrotoluene	0.000E+00	3.400E+00	1.000E+00	0.000E+00	5.000E-04
120-12-7	anthracene	0.000E+00	5.820E+02	1.030E+03	0.000E+00	3.000E-01
120-82-1	1,2,4-trichlorobenzene	0.000E+00	2.400E+02	2.400E+02	0.000E+00	1.000E-02
121-14-2	2,4-Dinitrotoluene	0.000E+00	6.680E+00	1.000E+00	0.000E+00	2.000E-03
121-82-4	RDX	0.000E+00	3.160E+00	0.000E+00	0.000E+00	3.000E-03
124-48-1	Chlorodibromomethane	0.000E+00	1.040E+01	1.000E+00	0.000E+00	2.000E-02
127-18-4	tetrachloroethene	0.000E+00	8.280E+01	0.000E+00	0.000E+00	1.000E-02
129-00-0	pyrene	0.000E+00	1.180E+03	3.290E+03	0.000E+00	3.000E-02
131-11-3	Dimethylphthalate	0.000E+00	3.170E+00	1.000E+00	0.000E+00	0.000E+00
142-82-5	heptane	0.000E+00	2.000E+03	0.000E+00	0.000E+00	5.000E+00
1445-75-6	diisopropylmethyl phosphonate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-02
1634-04-4	methyl-t-butyl ether	0.000E+00	1.670E+00	0.000E+00	0.000E+00	0.000E+00

CAS Number	Name	$BCF_{chicken}$ (unitless)	BCF_{fish} ($mg_{COPC}/kg_{FW-tissue}$)/(mg_{COPC}/kg_{water})	BAF_{fish} ($L/kg_{FW-tissue}$)	$BSAF_{fish}$ (mg_{COPC}/kg_{lipid})/($mg_{COPC}/kg_{sediment}$)	RfD (mg/kg-day)
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000E+00	3.440E+04	9.180E+05	9.000E-02	0.000E+00
1832-53-7	ethyl methyl phosphonic acid	0.000E+00	3.160E+00	0.000E+00	0.000E+00	2.500E-02
1832-54-8	isopropyl methyl phosphonic acid	0.000E+00	3.160E+00	0.000E+00	0.000E+00	1.000E-01
191-24-2	benzo(g,h,i)perylene	0.000E+00	7.280E+04	1.580E+04	0.000E+00	0.000E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	6.300E-01	2.510E+04	5.740E+05	4.000E-02	0.000E+00
208-96-8	acenaphthylene	0.000E+00	2.860E+02	0.000E+00	0.000E+00	0.000E+00
22967-92-6	Methyl mercury	0.000E+00	3.160E+00	6.800E+06	0.000E+00	1.000E-04
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	0.000E+00	3.380E+04	9.010E+05	2.000E+00	0.000E+00
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	0.000E+00	3.160E+00	0.000E+00	0.000E+00	5.000E-02
26914-33-0	total tetrachlorobiphenyl	0.000E+00	2.540E+04	6.530E+05	2.000E+00	0.000E+00
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	0.000E+00	4.420E+04	1.130E+06	2.000E+00	0.000E+00
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	0.000E+00	2.540E+04	6.530E+05	2.000E+00	0.000E+00
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	0.000E+00	3.380E+04	9.010E+05	2.000E+00	0.000E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	0.000E+00	1.470E+03	6.640E+03	1.000E-04	0.000E+00
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	3.900E-01	2.750E+03	2.140E+04	5.000E-03	0.000E+00
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	0.000E+00	2.750E+03	2.150E+04	1.000E-04	0.000E+00
39227-28-6	HexaCDD, 1,2,3,4,7,8-	1.830E+00	5.180E+03	6.240E+04	4.000E-02	0.000E+00
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	0.000E+00	1.180E+03	3.890E+03	2.000E+00	0.000E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	2.500E+00	2.590E+04	6.640E+05	9.000E-02	0.000E+00
479-45-8	Tetryl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	4.000E-03
505-60-2	Sulfur mustard (or H/HD)	0.000E+00	2.260E+00	1.000E+00	0.000E+00	7.000E-06
50782-69-9	VX	0.000E+00	8.120E+00	1.000E+00	0.000E+00	6.000E-07

CAS Number	Name	$BCF_{chicken}$ (unitless)	BCF_{fish} ($mg_{COPC}/kg_{FW-tissue}$)/(mg_{COPC}/kg_{water})	BAF_{fish} ($L/kg_{FW-tissue}$)	$BSAF_{fish}$ (mg_{COPC}/kg_{lipid})/($mg_{COPC}/kg_{sediment}$)	RfD (mg/kg-day)
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.000E+00	9.930E+03	1.770E+05	9.000E-02	0.000E+00
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	0.000E+00	1.330E+04	2.530E+05	2.000E+00	0.000E+00
55-63-0	nitroglycerin	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.000E+00	1.830E+04	3.840E+05	5.000E-03	0.000E+00
56-23-5	Carbon tetrachloride	0.000E+00	2.860E+01	1.000E+00	0.000E+00	7.000E-04
57-55-6	propylene glycol	0.000E+00	3.160E+00	3.160E+00	0.000E+00	2.000E+01
57117-31-4	PentaCDF, 2,3,4,7,8-	3.280E+00	2.020E+04	4.970E+05	9.000E-02	0.000E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	0.000E+00	3.380E+04	9.010E+05	9.000E-02	0.000E+00
57117-44-9	HexaCDF, 1,2,3,6,7,8-	1.620E+00	4.900E+04	1.290E+06	4.000E-02	0.000E+00
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	2.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.170E+00	2.510E+04	5.740E+05	4.000E-02	0.000E+00
60851-34-5	HexaCDF, 2,3,4,6,7,8-	7.900E-01	4.900E+04	1.290E+06	4.000E-02	0.000E+00
65-85-0	Benzoic acid	0.000E+00	3.160E+00	1.000E+00	0.000E+00	4.000E+00
67-63-0	isopropyl alcohol	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
67-64-1	Acetone	0.000E+00	3.160E+00	1.000E+00	0.000E+00	9.000E-01
67-66-3	Chloroform	0.000E+00	6.920E+00	1.000E+00	0.000E+00	1.000E-02
67-72-1	hexachloroethane	0.000E+00	2.120E+02	0.000E+00	0.000E+00	1.000E-03
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.000E+00	1.830E+04	3.840E+05	5.000E-03	0.000E+00
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	2.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.000E+00	1.000E+00	1.000E+00	2.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.580E+00	4.900E+04	1.290E+06	4.000E-02	0.000E+00
71-43-2	Benzene	0.000E+00	8.260E+00	1.000E+00	0.000E+00	4.000E-03
72918-21-9	HexaCDF, 1,2,3,7,8,9-	0.000E+00	4.900E+04	1.290E+06	4.000E-02	0.000E+00
73207-98-4	EA 2192	0.000E+00	8.120E+00	1.000E+00	0.000E+00	6.000E-07
74-83-9	Methyl bromide	0.000E+00	1.650E+00	1.000E+00	0.000E+00	1.400E-03

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74-87-3	Methyl chloride	0.000E+00	3.160E+00	1.000E+00	0.000E+00	0.000E+00
74-88-4	Methyl iodide	0.000E+00	2.900E+00	1.000E+00	0.000E+00	0.000E+00
74-96-4	Bromoethane	0.000E+00	3.470E+00	7.460E+00	0.000E+00	0.000E+00
74-97-5	Bromochloromethane	0.000E+00	2.430E+00	5.180E+00	0.000E+00	0.000E+00
7439-97-6	Mercury	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	0.000E+00	4.730E+04	1.240E+06	2.000E+00	0.000E+00
7487-94-7	Mercuric chloride	0.000E+00	3.160E+00	0.000E+00	0.000E+00	3.000E-04
75-01-4	Vinyl chloride	0.000E+00	2.390E+00	1.000E+00	0.000E+00	3.000E-03
75-09-2	Dichloromethane	0.000E+00	2.000E+00	1.000E+00	0.000E+00	6.000E-02
75-15-0	Carbon disulfide	0.000E+00	9.860E+00	1.000E+00	0.000E+00	1.000E-01
75-25-2	Tribromomethane	0.000E+00	1.330E+01	1.000E+00	0.000E+00	2.000E-02
75-27-4	Bromodichloromethane	0.000E+00	8.260E+00	1.000E+00	0.000E+00	2.000E-02
75-35-4	1,1-Dichloroethylene	0.000E+00	8.260E+00	0.000E+00	0.000E+00	5.000E-02
75-69-4	Trichlorofluoromethane	0.000E+00	1.680E+01	1.000E+00	0.000E+00	3.000E-01
75-71-8	Dichlorodifluoromethane	0.000E+00	9.190E+00	1.000E+00	0.000E+00	2.000E-01
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.000E+00	5.410E+01	1.000E+00	0.000E+00	3.000E+01
7647-01-0	Hydrochloric acid	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
7664-38-2	Phosphoric acid	0.000E+00	3.160E+00	0.000E+00	0.000E+00	0.000E+00
78-93-3	Methyl ethyl ketone	0.000E+00	3.160E+00	1.000E+00	0.000E+00	6.000E-01
79-01-6	Trichloroethylene	0.000E+00	1.410E+01	0.000E+00	0.000E+00	3.000E-04
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	0.000E+00	0.000E+00	0.000E+00	3.700E-02
83-32-9	acenaphthene	0.000E+00	2.010E+02	0.000E+00	0.000E+00	6.000E-02
84-66-2	Diethyl phthalate	0.000E+00	1.680E+01	1.000E+00	0.000E+00	8.000E-01
84-74-2	Dibutyl phthalate	0.000E+00	8.300E+02	1.800E+03	0.000E+00	1.000E-01
85-01-8	phenanthrene	0.000E+00	5.820E+02	1.030E+03	0.000E+00	4.000E-02
85-68-7	butyl benzyl phthalate	0.000E+00	1.180E+03	3.290E+03	0.000E+00	2.000E-01

CAS Number	Name	$BCF_{chicken}$ (unitless)	BCF_{fish} ($mg_{COPC}/kg_{FW-tissue}$)/(mg_{COPC}/kg_{water})	BAF_{fish} ($L/kg_{FW-tissue}$)	$BSAF_{fish}$ (mg_{COPC}/kg_{lipid})/($mg_{COPC}/kg_{sediment}$)	RfD (mg/kg-day)
86-73-7	fluorene	0.000E+00	3.420E+02	4.720E+02	0.000E+00	4.000E-02
91-20-3	Naphthalene	0.000E+00	6.930E+01	1.000E+00	0.000E+00	2.000E-02
91-57-6	2-Methylnaphthalene	0.000E+00	2.010E+02	1.000E+00	0.000E+00	4.000E-03
95-47-6	2-Xylene	0.000E+00	4.860E+01	1.000E+00	0.000E+00	2.000E-01
95-48-7	o-Cresol	0.000E+00	6.330E+00	1.000E+00	0.000E+00	5.000E-02
95-50-1	1,2-Dichlorobenzene	0.000E+00	7.990E+01	0.000E+00	0.000E+00	9.000E-02
95-63-6	1,2,4-trimethylbenzene	0.000E+00	3.400E+02	0.000E+00	0.000E+00	0.000E+00
98-82-8	1-methylethyl benzene	0.000E+00	1.410E+02	0.000E+00	0.000E+00	1.000E-01
98-86-2	acetophenone	0.000E+00	4.750E-01	0.000E+00	0.000E+00	1.000E-01
993-13-5	methyl phosphonic acid	0.000E+00	3.160E+00	0.000E+00	0.000E+00	2.000E-03
193-39-5	Indeno(1,2,3-cd) pyrene	0.000E+00	2.410E+04	6.180E+05	0.000E+00	0.000E+00
205-99-2	Benzo(b)fluoranthene	0.000E+00	1.040E+04	2.063E+05	0.000E+00	0.000E+00
206-44-0	Fluoranthene	0.000E+00	1.410E+03	4.493E+03	0.000E+00	4.000E-02
207-08-9	Benzo(k)fluoranthene	0.000E+00	9.930E+03	1.766E+05	0.000E+00	0.000E+00
218-01-9	Chrysene	0.000E+00	4.890E+03	4.989E+04	0.000E+00	0.000E+00
50-32-8	Benzo(a)pyrene	0.000E+00	8.318E+03	1.330E+05	0.000E+00	0.000E+00
53-70-3	Dibenz(a,h)anthracene	0.000E+00	2.018E+04	4.966E+05	0.000E+00	0.000E+00
56-55-3	Benzo(a)anthracene	0.000E+00	4.886E+03	4.989E+04	0.000E+00	0.000E+00

Table B-7: Toxicity, Fate, and Transport Database (Data Set 7)

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
7440-36-0	Antimony compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-38-2	Arsenic compounds	1.500E+00	3.000E-05	4.300E-03	1.500E+01	I
7440-39-3	Barium compounds	0.000E+00	5.000E-04	0.000E+00	0.000E+00	I
7440-41-7	Beryllium compounds	0.000E+00	2.000E-05	2.400E-03	8.400E+00	I
7440-43-9	Cadmium compounds	0.000E+00	2.000E-05	1.800E-03	6.300E+00	I
7440-47-3	Chromium compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-50-8	Copper compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7439-92-1	Lead compounds	8.500E-03	0.000E+00	1.200E-05	4.200E-02	I
7439-96-5	Manganese compounds	0.000E+00	5.000E-05	0.000E+00	0.000E+00	I
7439-97-6	Mercury compounds	0.000E+00	3.000E-04	0.000E+00	0.000E+00	I
7440-02-0	Nickel compounds	0.000E+00	9.000E-05	2.400E-04	8.400E-01	I
7782-49-2	Selenium compounds	0.000E+00	2.000E-02	0.000E+00	0.000E+00	I
7440-22-4	Silver compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-28-0	Thallium compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-62-2	Vanadium compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-66-6	Zinc compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
7440-48-4	Cobalt compounds	0.000E+00	1.000E-04	0.000E+00	0.000E+00	I
179601-23-1	m,p-Xylene	0.000E+00	1.000E-01	0.000E+00	0.000E+00	O
7440-42-8	Boron compounds	0.000E+00	2.000E-02	0.000E+00	0.000E+00	I
7440-31-5	Tin compounds	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
100-41-4	Ethylbenzene	0.000E+00	1.000E+00	0.000E+00	0.000E+00	O
100-42-5	Styrene	0.000E+00	1.000E+00	0.000E+00	0.000E+00	O
100-51-6	Benzyl alcohol	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
100-52-7	Benzaldehyde	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
10061-01-5	cis-1,3-Dichloropropene	1.000E-01	2.000E-02	4.000E-06	1.100E-06	O
10061-02-6	trans-1,3-Dichloropropene	1.000E-01	2.000E-02	4.000E-06	1.100E-06	O

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
106-46-7	1,4-Dichlorobenzene	5.400E-03	8.000E-01	1.100E-05	4.000E-02	O
106-99-0	1,3-butadiene	3.400E+00	2.000E-03	3.000E-05	1.000E-01	O
107-21-1	ethylene glycol	0.000E+00	4.000E-01	0.000E+00	0.000E+00	O
107-44-8	GB	0.000E+00	1.000E-06	0.000E+00	0.000E+00	O
108-05-4	Vinyl acetate	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
108-10-1	Methyl isobutyl ketone	0.000E+00	3.000E+00	0.000E+00	0.000E+00	O
108-67-8	1,3,5-trimethylbenzene	0.000E+00	6.000E-03	0.000E+00	0.000E+00	O
108-88-3	Toluene	0.000E+00	5.000E+00	0.000E+00	0.000E+00	O
108-90-7	Chlorobenzene	0.000E+00	5.000E-02	0.000E+00	0.000E+00	O
108-95-2	phenol	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
110-54-3	n-Hexane	0.000E+00	7.000E-01	0.000E+00	0.000E+00	O
111-48-8	thiodiglycol	0.000E+00	4.700E-01	0.000E+00	0.000E+00	O
117-81-7	Bis(2-ethylhexyl)phthalate	1.400E-02	0.000E+00	2.400E-06	8.400E-03	O
118-96-7	2,4,6-Trinitrotoluene	3.000E-02	0.000E+00	0.000E+00	0.000E+00	O
120-12-7	anthracene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
120-82-1	1,2,4-trichlorobenzene	2.900E-02	2.000E-03	0.000E+00	0.000E+00	O
121-14-2	2,4-Dinitrotoluene	3.100E-01	0.000E+00	8.900E-05	3.100E-01	O
121-82-4	RDX	1.100E-01	0.000E+00	0.000E+00	0.000E+00	O
124-48-1	Chlorodibromomethane	8.400E-02	0.000E+00	2.700E-05	9.400E-02	O
127-18-4	tetrachloroethene	5.100E-02	3.000E-01	5.900E-06	2.100E-02	O
129-00-0	pyrene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
131-11-3	Dimethylphthalate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
142-82-5	heptane	0.000E+00	1.840E+01	0.000E+00	0.000E+00	O
1445-75-6	diisopropylmethyl phosphonate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
1634-04-4	methyl-t-butyl ether	1.800E-03	3.000E+00	2.600E-07	1.800E-03	O
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.500E+05	4.000E-08	3.800E+01	1.300E+05	O
1832-53-7	ethyl methyl phosphonic acid	0.000E+00	3.000E-02	0.000E+00	0.000E+00	O

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
1832-54-8	isopropyl methyl phosphonic acid	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
191-24-2	benzo(g,h,i)perylene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
208-96-8	acenaphthylene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
22967-92-6	Methyl mercury	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
25429-29-2	total pentachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
2691-41-0	HMX	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
26914-33-0	total tetrachlorobiphenyl	1.500E+01	0.000E+00	0.000E+00	1.300E+01	O
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	1.500E+01	0.000E+00	0.000E+00	1.300E+01	O
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	4.500E+01	0.000E+00	0.000E+00	3.900E+01	O
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.500E+03	0.000E+00	0.000E+00	1.300E+03	O
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	4.500E+01	0.000E+00	0.000E+00	3.900E+01	O
39227-28-6	HexaCDD, 1,2,3,4,7,8-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
40321-76-4	PentaCDD, 1,2,3,7,8-	1.500E+05	0.000E+00	0.000E+00	1.300E+05	O
479-45-8	Tetryl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
505-60-2	Sulfur mustard (or H/HD)	7.700E+00	2.000E-05	0.000E+00	3.000E+02	O
50782-69-9	VX	0.000E+00	6.000E-07	0.000E+00	0.000E+00	O
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
55-63-0	nitroglycerin	1.000E-02	0.000E+00	0.000E+00	0.000E+00	O

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.500E+03	0.000E+00	0.000E+00	1.300E+03	O
56-23-5	Carbon tetrachloride	1.300E-01	2.000E-01	1.500E-05	5.300E-02	O
57-55-6	propylene glycol	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
57117-31-4	PentaCDF, 2,3,4,7,8-	4.500E+04	0.000E+00	0.000E+00	3.900E+04	O
57117-41-6	PentaCDF, 1,2,3,7,8-	4.500E+03	0.000E+00	0.000E+00	3.900E+03	O
57117-44-9	HexaCDF, 1,2,3,6,7,8-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
60851-34-5	HexaCDF, 2,3,4,6,7,8-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
65-85-0	Benzoic acid	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
67-63-0	isopropyl alcohol	0.000E+00	7.000E+00	0.000E+00	0.000E+00	O
67-64-1	Acetone	0.000E+00	3.100E+01	0.000E+00	0.000E+00	O
67-66-3	Chloroform	3.100E-02	1.000E-01	2.300E-05	8.100E-02	O
67-72-1	hexachloroethane	1.400E-02	0.000E+00	4.000E-06	1.000E-02	O
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.500E+03	0.000E+00	0.000E+00	1.300E+03	O
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	7.500E-02	0.000E+00	0.000E+00	O
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	4.500E+01	0.000E+00	0.000E+00	3.900E+01	O
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
71-43-2	Benzene	5.500E-02	3.000E-02	7.800E-06	2.700E-02	O
72918-21-9	HexaCDF, 1,2,3,7,8,9-	1.500E+04	0.000E+00	0.000E+00	1.300E+04	O
73207-98-4	EA 2192	0.000E+00	6.000E-07	0.000E+00	0.000E+00	O
74-83-9	Methyl bromide	0.000E+00	5.000E-03	0.000E+00	0.000E+00	O
74-87-3	Methyl chloride	1.300E-02	9.000E-02	1.800E-06	6.300E-03	O
74-88-4	Methyl iodide	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
74-96-4	Bromoethane	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
74-97-5	Bromochloromethane	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
7439-97-6	Mercury	0.000E+00	3.000E-04	0.000E+00	0.000E+00	I

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	4.500E+00	0.000E+00	0.000E+00	3.900E+00	O
7487-94-7	Mercuric chloride	0.000E+00	0.000E+00	0.000E+00	0.000E+00	I
75-01-4	Vinyl chloride	1.500E+00	1.000E-01	8.800E-06	3.100E-02	O
75-09-2	Dichloromethane	7.500E-03	1.000E+00	4.700E-07	1.600E-03	O
75-15-0	Carbon disulfide	0.000E+00	7.000E-01	0.000E+00	0.000E+00	O
75-25-2	Tribromomethane	7.900E-03	0.000E+00	1.100E-06	3.900E-03	O
75-27-4	Bromodichloromethane	6.200E-02	0.000E+00	3.700E-05	1.300E-01	O
75-35-4	1,1-Dichloroethylene	0.000E+00	2.000E-01	0.000E+00	1.200E+00	O
75-69-4	Trichlorofluoromethane	0.000E+00	7.000E-01	0.000E+00	0.000E+00	O
75-71-8	Dichlorodifluoromethane	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.000E+00	3.000E+01	0.000E+00	0.000E+00	O
7647-01-0	Hydrochloric acid	0.000E+00	2.000E-02	0.000E+00	0.000E+00	I
7664-38-2	Phosphoric acid	0.000E+00	1.000E-02	0.000E+00	0.000E+00	I
78-93-3	Methyl ethyl ketone	0.000E+00	5.000E+00	0.000E+00	0.000E+00	O
79-01-6	Trichloroethylene	4.000E-01	4.000E-02	0.000E+00	4.000E-01	O
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	9.600E-01	0.000E+00	0.000E+00	O
83-32-9	acenaphthene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
84-66-2	Diethyl phthalate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
84-74-2	Dibutyl phthalate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
85-01-8	phenanthrene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
85-68-7	butyl benzyl phthalate	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
86-73-7	fluorene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O
91-20-3	Naphthalene	1.200E-01	3.000E-03	3.400E-05	1.200E-01	O
91-57-6	2-Methylnaphthalene	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
95-47-6	2-Xylene	0.000E+00	1.000E-01	0.000E+00	0.000E+00	O
95-48-7	o-Cresol	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
95-50-1	1,2-Dichlorobenzene	0.000E+00	2.000E-01	0.000E+00	0.000E+00	O

CAS Number	Name	Oral-CSF (mg/kg-day)	RfC (mg/m^3)	URF_{inh} (m^3/ug)	CSF_{Inh} (kg-day/mg)	Organic or Inorganic
95-63-6	1,2,4-trimethylbenzene	0.000E+00	7.000E-03	0.000E+00	0.000E+00	O
98-82-8	1-methylethyl benzene	0.000E+00	4.000E-01	0.000E+00	0.000E+00	O
98-86-2	acetophenone	0.000E+00	0.000E+00	0.000E+00	0.000E+00	O
993-13-5	methyl phosphonic acid	0.000E+00	2.400E-02	0.000E+00	0.000E+00	O
193-39-5	Indeno(1,2,3-cd) pyrene	7.300E-01	0.000E+00	1.100E-04	7.300E-01	O
205-99-2	Benzo(b)fluoranthene	7.300E-01	0.000E+00	1.100E-04	7.300E-01	O
206-44-0	Fluoranthene	0.000E+00	1.400E-01	0.000E+00	0.000E+00	O
207-08-9	Benzo(k)fluoranthene	7.300E-02	0.000E+00	1.100E-04	7.300E-02	O
218-01-9	Chrysene	7.300E-03	0.000E+00	1.100E-05	7.300E-03	O
50-32-8	Benzo(a)pyrene	7.300E+00	0.000E+00	1.100E-03	7.300E+00	O
53-70-3	Dibenz(a,h)anthracene	7.300E+00	0.000E+00	1.200E-03	7.300E+00	O
56-55-3	Benzo(a)anthracene	7.300E-01	0.000E+00	1.100E-04	7.300E-01	O

Table B-8: Toxicity, Fate, and Transport Database (Data Set 8)

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
7440-36-0	Antimony compounds	Metal	3.000E-02	0.000E+00	0.000E+00	0.000E+00
7440-38-2	Arsenic compounds	Metal	4.000E-03	0.000E+00	0.000E+00	8.570E-06
7440-39-3	Barium compounds	Metal	1.500E-02	0.000E+00	0.000E+00	1.430E-04
7440-41-7	Beryllium compounds	Metal	1.500E-03	0.000E+00	0.000E+00	5.710E-06
7440-43-9	Cadmium compounds	Metal	6.200E-02	2.500E-03	1.060E-01	5.710E-06
7440-47-3	Chromium compounds	Metal	4.500E-03	0.000E+00	0.000E+00	0.000E+00
7440-50-8	Copper compounds	Metal	2.500E-01	0.000E+00	0.000E+00	0.000E+00
7439-92-1	Lead compounds	Metal	9.000E-03	0.000E+00	0.000E+00	0.000E+00
7439-96-5	Manganese compounds	Metal	5.000E-02	0.000E+00	0.000E+00	1.430E-05
7439-97-6	Mercury compounds	Metal	0.000E+00	1.000E+00	1.000E+00	9.000E-05
7440-02-0	Nickel compounds	Metal	6.000E-03	0.000E+00	0.000E+00	2.570E-05
7782-49-2	Selenium compounds	Metal	2.000E-03	1.130E+00	1.130E+00	5.710E-03
7440-22-4	Silver compounds	Metal	1.000E-01	0.000E+00	0.000E+00	0.000E+00
7440-28-0	Thallium compounds	Metal	4.000E-04	0.000E+00	0.000E+00	0.000E+00
7440-62-2	Vanadium compounds	Metal	3.000E-03	0.000E+00	0.000E+00	0.000E+00
7440-66-6	Zinc compounds	Metal	5.400E-02	8.750E-03	8.750E-03	0.000E+00
7440-48-4	Cobalt compounds	Metal	0.000E+00	1.000E+00	1.000E+00	3.000E-05
179601-23-1	m,p-Xylene	None	0.000E+00	1.000E+00	1.000E+00	2.860E-02
7440-42-8	Boron compounds	Metal	4.000E-03	1.000E+00	1.000E+00	5.710E-03
7440-31-5	Tin compounds	Metal	6.000E-03	1.000E+00	1.000E+00	0.000E+00
100-41-4	Ethylbenzene	None	6.250E-01	5.110E-03	8.950E-03	2.860E-01
100-42-5	Styrene	None	7.140E-01	4.590E-03	8.040E-03	2.860E-01
100-51-6	Benzyl alcohol	None	8.380E+00	2.510E-04	4.400E-04	0.000E+00
100-52-7	Benzaldehyde	None	5.400E+00	5.130E-04	8.970E-04	0.000E+00
10061-01-5	cis-1,3-Dichloropropene	None	2.500E+00	1.340E-03	2.350E-03	6.000E-03
10061-02-6	trans-1,3-Dichloropropene	None	2.600E+00	1.280E-03	2.240E-03	6.000E-03

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
106-46-7	1,4-Dichlorobenzene	None	3.670E-01	7.500E-03	1.310E-02	2.290E-01
106-99-0	1,3-butadiene	None	2.740E+00	1.203E-03	2.106E-03	6.000E-04
107-21-1	ethylene glycol	None	2.366E+02	3.817E-06	6.680E-06	1.143E-01
107-44-8	GB	None	2.600E+01	4.510E-05	7.890E-05	2.860E-07
108-05-4	Vinyl acetate	None	8.380E+00	1.180E-04	2.060E-04	5.710E-02
108-10-1	Methyl isobutyl ketone	None	7.840E+00	3.050E-04	5.340E-04	8.570E-01
108-67-8	1,3,5-trimethylbenzene	None	4.090E-01	6.991E-03	1.223E-02	1.714E-03
108-88-3	Toluene	None	1.070E+00	3.240E-03	5.670E-03	1.430E+00
108-90-7	Chlorobenzene	None	9.320E-01	3.660E-03	6.400E-03	1.430E-02
108-95-2	phenol	None	5.260E+00	5.300E-04	9.280E-04	5.714E-02
110-54-3	n-Hexane	None	2.160E-01	1.020E-02	1.790E-02	2.000E-01
111-48-8	thiodiglycol	None	8.957E+01	4.263E-06	7.460E-06	1.343E-01
117-81-7	Bis(2-ethylhexyl)phthalate	P	4.370E-02	1.680E-02	2.940E-02	0.000E+00
118-96-7	2,4,6-Trinitrotoluene	None	4.600E+00	6.330E-04	1.110E-03	0.000E+00
120-12-7	anthracene	None	9.710E-02	1.420E-02	2.490E-02	6.000E-02
120-82-1	1,2,4-trichlorobenzene	None	1.890E-01	1.090E-02	1.910E-02	5.714E-04
121-14-2	2,4-Dinitrotoluene	None	2.780E+00	1.180E-03	2.070E-03	0.000E+00
121-82-4	RDX	None	1.217E+01	1.581E-04	2.768E-04	0.000E+00
124-48-1	Chlorodibromomethane	None	1.990E+00	1.730E-03	3.020E-03	0.000E+00
127-18-4	tetrachloroethene	None	4.200E-01	6.870E-03	1.200E-02	8.571E-02
129-00-0	pyrene	None	5.700E-02	1.620E-02	2.830E-02	6.000E-02
131-11-3	Dimethylphthalate	None	4.860E+00	5.910E-04	1.030E-03	0.000E+00
142-82-5	heptane	None	7.844E-02	1.512E-02	2.645E-02	5.260E+00
1445-75-6	diisopropylmethyl phosphonate	None	9.832E+00	2.189E-04	3.830E-04	0.000E+00
1634-04-4	methyl-t-butyl ether	None	1.108E+01	1.826E-04	3.195E-04	9.000E-01
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	D	4.550E-03	1.100E-02	1.920E-02	1.140E-08
1832-53-7	ethyl methyl phosphonic acid	ionizing	4.728E+01	1.515E-05	2.651E-05	8.571E-03

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
1832-54-8	isopropyl methyl phosphonic acid	ionizing	2.704E+01	4.215E-05	7.376E-05	0.000E+00
191-24-2	benzo(g,h,i)perylene	None	5.932E-03	1.238E-02	2.166E-02	0.000E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	D	2.340E-03	7.560E-03	1.320E-02	0.000E+00
208-96-8	acenaphthylene	None	1.653E-01	1.164E-02	2.037E-02	0.000E+00
22967-92-6	Methyl mercury	None	1.900E-02	3.580E-03	3.580E-03	0.000E+00
25323-68-6	total trichlorobiphenyl	None	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	PCB	4.610E-03	1.110E-02	1.940E-02	0.000E+00
25512-42-9	total dichlorobiphenyl	None	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	None	3.130E+01	3.249E-05	5.686E-05	0.000E+00
26914-33-0	total tetrachlorobiphenyl	PCB	5.700E-03	1.220E-02	2.130E-02	0.000E+00
27323-18-8	total monochlorobiphenyl	None	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	PCB	2.970E-03	8.760E-03	1.530E-02	0.000E+00
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	PCB	5.700E-03	1.220E-02	2.130E-02	0.000E+00
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	PCB	4.610E-03	1.110E-02	1.940E-02	0.000E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	None	7.050E-04	2.890E-03	5.050E-03	0.000E+00
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	None	6.426E-04	2.886E-03	5.051E-03	0.000E+00
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	D	9.200E-04	3.690E-03	6.460E-03	0.000E+00
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	F	9.200E-04	3.690E-03	6.460E-03	0.000E+00
39227-28-6	HexaCDD, 1,2,3,4,7,8-	D	1.200E-03	4.630E-03	8.110E-03	0.000E+00
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	PCB	6.430E-04	2.640E-03	4.610E-03	0.000E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	D	5.620E-03	1.210E-02	2.120E-02	0.000E+00
479-45-8	Tetryl	None	4.366E+00	6.786E-04	1.188E-03	0.000E+00
505-60-2	Sulfur mustard (or H/HD)	None	6.250E+00	4.200E-04	7.350E-04	5.710E-06
50782-69-9	VX	None	2.400E+00	1.400E-03	2.450E-03	1.710E-07
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	F	1.150E-02	1.540E-02	2.690E-02	0.000E+00
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	PCB	1.790E-03	6.300E-03	1.100E-02	0.000E+00

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
55-63-0	nitroglycerin	None	4.484E+00	6.557E-04	1.147E-03	0.000E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	F	2.050E-03	6.920E-03	1.210E-02	0.000E+00
56-23-5	Carbon tetrachloride	None	9.320E-01	3.660E-03	6.400E-03	5.710E-02
57-55-6	propylene glycol	None	2.529E+02	3.817E-06	6.680E-06	0.000E+00
57117-31-4	PentaCDF, 2,3,4,7,8-	F	6.780E-03	1.300E-02	2.280E-02	0.000E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	F	4.610E-03	1.110E-02	1.940E-02	0.000E+00
57117-44-9	HexaCDF, 1,2,3,6,7,8-	F	3.480E-03	9.600E-03	1.680E-02	0.000E+00
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	PCB	0.000E+00	1.000E+00	1.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	D	2.340E-03	7.560E-03	1.320E-02	0.000E+00
60851-34-5	HexaCDF, 2,3,4,6,7,8-	F	3.480E-03	9.600E-03	1.680E-02	0.000E+00
65-85-0	Benzoic acid	Ionizing	3.210E+00	2.380E-05	4.160E-05	0.000E+00
67-63-0	isopropyl alcohol	None	3.623E+01	2.491E-05	4.359E-05	2.000E+00
67-64-1	Acetone	None	8.380E+00	1.200E-05	2.110E-05	8.860E+00
67-66-3	Chloroform	None	2.700E+00	1.220E-03	2.140E-03	2.860E-02
67-72-1	hexachloroethane	None	2.070E-01	1.050E-02	1.830E-02	0.000E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	F	2.050E-03	6.920E-03	1.210E-02	0.000E+00
68334-30-5	total petroleum hydrocarbons - diesel range	None	0.000E+00	0.000E+00	0.000E+00	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	PCB	0.000E+00	1.000E+00	1.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	PCB	0.000E+00	1.000E+00	1.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	F	3.480E-03	9.600E-03	1.680E-02	0.000E+00
71-43-2	Benzene	None	2.370E+00	1.420E-03	2.490E-03	8.570E-03
72918-21-9	HexaCDF, 1,2,3,7,8,9-	F	3.480E-03	9.600E-03	1.680E-02	0.000E+00
73207-98-4	EA 2192	None	2.400E+00	1.400E-03	2.450E-03	1.710E-07
74-83-9	Methyl bromide	None	7.950E+00	2.990E-04	5.240E-04	1.430E-03
74-87-3	Methyl chloride	Divalent	8.380E+00	1.720E-04	3.010E-04	2.570E-02
74-88-4	Methyl iodide	None	5.190E+00	5.410E-04	9.460E-04	0.000E+00

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
74-96-4	Bromoethane	None	4.540E+00	6.440E-04	1.130E-03	0.000E+00
74-97-5	Bromochloromethane	None	5.930E+00	4.520E-04	7.910E-04	0.000E+00
7439-97-6	Mercury	Metal	0.000E+00	1.000E+00	1.000E+00	8.570E-05
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	PCB	3.580E-03	9.740E-03	1.700E-02	0.000E+00
7487-94-7	Mercuric chloride	None	9.300E-03	2.390E-02	2.390E-02	0.000E+00
75-01-4	Vinyl chloride	None	6.010E+00	4.440E-04	7.760E-04	2.860E-02
75-09-2	Dichloromethane	None	6.860E+00	3.690E-04	6.450E-04	2.860E-01
75-15-0	Carbon disulfide	None	2.070E+00	1.650E-03	2.890E-03	2.000E-01
75-25-2	Tribromomethane	None	1.650E+00	2.100E-03	3.680E-03	0.000E+00
75-27-4	Bromodichloromethane	None	2.370E+00	1.420E-03	2.490E-03	0.000E+00
75-35-4	1,1-Dichloroethylene	None	2.370E+00	1.420E-03	2.490E-03	5.710E-02
75-69-4	Trichlorofluoromethane	None	1.390E+00	2.510E-03	4.390E-03	2.000E-01
75-71-8	Dichlorodifluoromethane	None	2.190E+00	1.560E-03	2.730E-03	5.710E-02
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	None	5.780E-01	5.440E-03	9.520E-03	8.570E+00
7647-01-0	Hydrochloric acid	None	0.000E+00	2.200E-05	3.860E-05	5.710E-03
7664-38-2	Phosphoric acid	Metal	5.550E+01	0.000E+00	0.000E+00	3.000E-03
78-93-3	Methyl ethyl ketone	None	8.380E+00	4.420E-05	7.730E-05	1.430E+00
79-01-6	Trichloroethylene	None	1.590E+00	2.190E-03	3.840E-03	1.140E-02
8006-61-9	total petroleum hydrocarbons - gasoline range	None	0.000E+00	0.000E+00	0.000E+00	0.000E+00
83-32-9	acenaphthene	None	2.160E-01	1.020E-02	1.790E-02	1.000E-01
84-66-2	Diethyl phthalate	None	1.390E+00	2.510E-03	4.390E-03	0.000E+00
84-74-2	Dibutyl phthalate	None	7.440E-02	1.530E-02	2.680E-02	0.000E+00
85-01-8	phenanthrene	None	9.700E-02	1.420E-02	2.490E-02	1.000E-01
85-68-7	butyl benzyl phthalate	None	5.700E-02	1.620E-02	2.830E-02	0.000E+00
86-73-7	fluorene	None	1.450E-01	1.230E-02	2.160E-02	1.000E-01
91-20-3	Naphthalene	None	4.790E-01	6.250E-03	1.090E-02	8.570E-04

CAS Number	Name	Sub Type	Br_{grain} ($mg_{COPC}/kg_{plant-DW}$)/(mg_{COPC}/kg_{soil})	Ba_{egg} ($day/kg_{FW-tissue}$)	$Ba_{chicken}$ ($day/kg_{FW-tissue}$)	RfD_{Inh} (mg/kg-day)
91-57-6	2-Methylnaphthalene	None	2.160E-01	1.020E-02	1.790E-02	0.000E+00
95-47-6	2-Xylene	None	6.250E-01	5.110E-03	8.950E-03	2.860E-02
95-48-7	o-Cresol	None	2.890E+00	1.130E-03	1.970E-03	0.000E+00
95-50-1	1,2-Dichlorobenzene	None	4.310E-01	6.740E-03	1.180E-02	5.710E-02
95-63-6	1,2,4-trimethylbenzene	None	3.089E-01	8.369E-03	1.465E-02	2.000E-03
98-82-8	1-methylethyl benzene	None	2.810E-01	8.847E-03	1.548E-02	1.000E-01
98-86-2	acetophenone	None	4.730E+00	6.120E-04	1.070E-03	0.000E+00
993-13-5	methyl phosphonic acid	ionizing	9.831E+01	3.512E-06	6.146E-06	6.857E-03
193-39-5	Indeno(1,2,3-cd) pyrene	PAH	5.930E-03	1.238E-02	2.166E-02	0.000E+00
205-99-2	Benzo(b)fluoranthene	PAH	1.120E-02	1.524E-02	2.667E-02	0.000E+00
206-44-0	Fluoranthene	PAH	4.990E-02	1.652E-02	2.892E-02	4.000E-02
207-08-9	Benzo(k)fluoranthene	PAH	1.150E-02	1.536E-02	2.687E-02	0.000E+00
218-01-9	Chrysene	PAH	1.970E-02	1.681E-02	2.942E-02	0.000E+00
50-32-8	Benzo(a)pyrene	PAH	1.320E-02	1.582E-02	2.768E-02	0.000E+00
53-70-3	Dibenz(a,h)anthracene	PAH	6.780E-03	1.304E-02	2.282E-02	0.000E+00
56-55-3	Benzo(a)anthracene	PAH	1.970E-02	1.681E-02	2.942E-02	0.000E+00

Table B-9: Toxicity, Fate, and Transport Database (Data Set 9)

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
7440-36-0	Antimony compounds	0.000E+00	1.500E-01	1.910E+03	0.000E+00	1.000E-03	0.000E+00
7440-38-2	Arsenic compounds	0.000E+00	3.000E-02	8.880E+02	0.000E+00	1.000E-03	0.000E+00
7440-39-3	Barium compounds	0.000E+00	7.000E-02	1.910E+03	0.000E+00	1.000E-03	0.000E+00
7440-41-7	Beryllium compounds	0.000E+00	7.000E-03	3.240E+03	0.000E+00	1.000E-03	0.000E+00
7440-43-9	Cadmium compounds	0.000E+00	2.500E-02	1.040E+03	0.000E+00	1.000E-03	0.000E+00
7440-47-3	Chromium compounds	0.000E+00	1.300E-02	2.910E+03	0.000E+00	1.000E-03	0.000E+00
7440-50-8	Copper compounds	0.000E+00	1.000E+00	2.870E+03	0.000E+00	1.000E-03	0.000E+00
7439-92-1	Lead compounds	0.000E+00	1.000E+00	2.010E+03	0.000E+00	1.000E-03	0.000E+00
7439-96-5	Manganese compounds	0.000E+00	4.000E-02	2.370E+03	0.000E+00	1.000E-03	0.000E+00
7439-97-6	Mercury compounds	0.000E+00	7.000E-02	6.300E+02	0.000E+00	2.400E-01	0.000E+00
7440-02-0	Nickel compounds	0.000E+00	4.000E-02	3.000E+03	0.000E+00	2.000E-04	0.000E+00
7782-49-2	Selenium compounds	0.000E+00	1.000E+00	9.580E+02	0.000E+00	1.000E-03	0.000E+00
7440-22-4	Silver compounds	0.000E+00	4.000E-02	2.480E+03	0.000E+00	6.000E-04	0.000E+00
7440-28-0	Thallium compounds	0.000E+00	1.000E+00	1.740E+03	0.000E+00	1.000E-03	0.000E+00
7440-62-2	Vanadium compounds	0.000E+00	2.600E-02	3.680E+03	0.000E+00	1.000E-03	0.000E+00
7440-66-6	Zinc compounds	0.000E+00	1.000E+00	1.180E+03	0.000E+00	6.000E-04	0.000E+00
7440-48-4	Cobalt compounds	0.000E+00	1.000E+00	3.140E+03	0.000E+00	4.000E-04	0.000E+00
179601-23-1	m,p-Xylene	0.000E+00	1.000E+00	4.120E+02	0.000E+00	0.000E+00	8.720E-01
7440-42-8	Boron compounds	0.000E+00	1.000E+00	2.820E+03	0.000E+00	1.000E-03	0.000E+00
7440-31-5	Tin compounds	0.000E+00	1.000E+00	2.540E+03	0.000E+00	1.000E-03	0.000E+00
100-41-4	Ethylbenzene	0.000E+00	1.000E+00	4.090E+02	1.000E+00	4.900E-02	0.000E+00
100-42-5	Styrene	0.000E+00	1.000E+00	4.180E+02	1.000E+00	3.700E-02	1.670E+00
100-51-6	Benzyl alcohol	0.000E+00	1.000E+00	4.780E+02	1.000E+00	2.100E-03	0.000E+00
100-52-7	Benzaldehyde	0.000E+00	1.000E+00	4.520E+02	1.000E+00	3.830E-03	0.000E+00
10061-01-5	cis-1,3-Dichloropropene	0.000E+00	1.000E+00	3.770E+02	1.000E+00	8.670E-03	0.000E+00
10061-02-6	trans-1,3-Dichloropropene	0.000E+00	1.000E+00	3.850E+02	1.000E+00	8.280E-03	0.000E+00

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
106-46-7	1,4-Dichlorobenzene	0.000E+00	1.000E+00	4.460E+02	1.000E+00	4.200E-02	0.000E+00
106-99-0	1,3-butadiene	0.000E+00	1.000E+00	2.690E+02	0.000E+00	1.600E-02	0.000E+00
107-21-1	ethylene glycol	0.000E+00	0.000E+00	4.700E+02	1.000E-01	9.015E-05	0.000E+00
107-44-8	GB	0.000E+00	1.000E+00	4.200E+02	1.000E+00	4.110E-04	0.000E+00
108-05-4	Vinyl acetate	0.000E+00	1.000E+00	3.460E+02	1.000E+00	1.580E-03	0.000E+00
108-10-1	Methyl isobutyl ketone	0.000E+00	1.000E+00	3.900E+02	1.000E+00	2.700E-03	0.000E+00
108-67-8	1,3,5-trimethylbenzene	0.000E+00	1.000E+00	4.380E+02	0.000E+00	6.082E-02	0.000E+00
108-88-3	Toluene	0.000E+00	1.000E+00	3.840E+02	1.000E+00	3.100E-02	4.620E-01
108-90-7	Chlorobenzene	0.000E+00	1.000E+00	4.030E+02	1.000E+00	2.800E-02	5.870E-01
108-95-2	phenol	0.000E+00	1.000E+00	4.550E+02	1.000E-01	4.300E-03	1.480E+01
110-54-3	n-Hexane	0.000E+00	1.000E+00	3.420E+02	1.000E+00	1.960E-01	3.900E-02
111-48-8	thiodiglycol	0.000E+00	1.000E+00	5.550E+02	0.000E+00	1.243E-04	0.000E+00
117-81-7	Bis(2-ethylhexyl)phthalate	0.000E+00	1.000E+00	6.600E+02	8.000E-01	2.500E-02	0.000E+00
118-96-7	2,4,6-Trinitrotoluene	0.000E+00	1.000E+00	5.130E+02	1.000E+00	9.660E-04	0.000E+00
120-12-7	anthracene	0.000E+00	1.000E+00	6.130E+02	1.300E-01	1.486E-01	0.000E+00
120-82-1	1,2,4-trichlorobenzene	0.000E+00	1.000E+00	4.880E+02	1.000E-01	6.600E-02	0.000E+00
121-14-2	2,4-Dinitrotoluene	0.000E+00	1.000E+00	5.730E+02	1.000E+00	3.100E-03	0.000E+00
121-82-4	RDX	0.000E+00	1.000E+00	5.070E+02	0.000E+00	3.388E-04	0.000E+00
124-48-1	Chlorodibromomethane	0.000E+00	1.000E+00	3.930E+02	1.000E+00	3.200E-03	9.010E-01
127-18-4	tetrachloroethene	0.000E+00	1.000E+00	3.940E+02	0.000E+00	3.300E-02	2.330E-01
129-00-0	pyrene	0.000E+00	1.000E+00	6.770E+02	1.300E-01	2.000E-01	0.000E+00
131-11-3	Dimethylphthalate	0.000E+00	1.000E+00	5.570E+02	1.000E+00	1.400E-03	0.000E+00
142-82-5	heptane	0.000E+00	1.000E+00	3.710E+02	0.000E+00	5.181E-01	1.470E-01
1445-75-6	diisopropylmethyl phosphonate	0.000E+00	1.000E+00	4.830E+02	0.000E+00	7.418E-04	0.000E+00
1634-04-4	methyl-t-butyl ether	0.000E+00	1.000E+00	3.280E+02	0.000E+00	2.119E-03	0.000E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.000E+00	1.000E+00	7.730E+02	5.000E-01	8.100E-01	0.000E+00
1832-53-7	ethyl methyl phosphonic acid	0.000E+00	1.000E+00	4.950E+02	0.000E+00	2.552E-04	0.000E+00

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
1832-54-8	isopropyl methyl phosphonic acid	0.000E+00	1.000E+00	5.030E+02	0.000E+00	4.080E-04	0.000E+00
191-24-2	benzo(g,h,i)perylene	0.000E+00	1.000E+00	7.730E+02	1.300E-01	9.726E-01	0.000E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.000E-01	3.000E-02	7.180E+02	4.000E-01	6.736E-01	0.000E+00
208-96-8	acenaphthylene	0.000E+00	1.000E+00	5.530E+02	1.300E-01	1.165E-01	0.000E+00
22967-92-6	Methyl mercury	0.000E+00	1.000E+00	0.000E+00	0.000E+00	1.000E-03	0.000E+00
25323-68-6	total trichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
25429-29-2	total pentachlorobiphenyl	3.000E-05	1.000E+00	6.540E+02	7.000E-01	7.170E-01	0.000E+00
25512-42-9	total dichlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
2691-41-0	HMX	0.000E+00	1.000E+00	7.100E+02	0.000E+00	1.208E-04	0.000E+00
26914-33-0	total tetrachlorobiphenyl	1.000E-04	1.000E+00	6.330E+02	6.000E-01	8.720E-01	0.000E+00
27323-18-8	total monochlorobiphenyl	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	3.000E-05	1.000E+00	6.540E+02	5.000E-01	1.170E+00	0.000E+00
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	1.000E-04	1.000E+00	6.330E+02	6.000E-01	8.720E-01	0.000E+00
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	3.000E-05	1.000E+00	6.540E+02	7.000E-01	7.170E-01	0.000E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3.000E-04	1.000E+00	7.830E+02	1.000E-01	1.070E+00	0.000E+00
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	0.000E+00	1.000E+00	0.000E+00	2.000E-01	0.000E+00	0.000E+00
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.000E-02	3.000E-02	7.800E+02	1.000E-01	1.259E+00	0.000E+00
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	3.000E-04	1.000E+00	8.100E+02	1.000E-01	9.730E-01	0.000E+00
39227-28-6	HexaCDD, 1,2,3,4,7,8-	1.000E-01	3.000E-02	6.900E+02	2.000E-01	1.440E+00	0.000E+00
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	3.000E-05	1.000E+00	6.900E+02	2.000E-01	2.790E+00	0.000E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	1.000E+00	3.000E-02	6.710E+02	6.000E-01	3.880E-01	0.000E+00
479-45-8	Tetryl	0.000E+00	1.000E+00	4.600E+02	0.000E+00	4.725E-04	0.000E+00
505-60-2	Sulfur mustard (or H/HD)	0.000E+00	1.000E+00	4.880E+02	1.000E+00	4.500E-03	0.000E+00
50782-69-9	VX	0.000E+00	1.000E+00	5.710E+02	1.000E+00	1.210E-03	0.000E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.000E-01	1.000E+00	7.110E+02	8.000E-01	3.250E-01	0.000E+00
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl	3.000E-05	1.000E+00	6.730E+02	3.000E-01	1.340E+00	0.000E+00
55-63-0	nitroglycerin	0.000E+00	1.000E+00	3.230E+02	1.000E-01	9.943E-04	0.000E+00

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.000E-02	1.000E+00	7.800E+02	4.000E-01	6.220E-01	0.000E+00
56-23-5	Carbon tetrachloride	0.000E+00	1.000E+00	3.500E+02	1.000E+00	1.600E-02	1.370E-01
57-55-6	propylene glycol	0.000E+00	1.000E+00	4.610E+02	1.000E-01	1.466E-04	0.000E+00
57117-31-4	PentaCDF, 2,3,4,7,8-	3.000E-01	3.000E-02	7.380E+02	6.000E-01	3.855E-01	0.000E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	3.000E-02	3.000E-02	6.750E+02	6.000E-01	5.990E-01	0.000E+00
57117-44-9	HexaCDF, 1,2,3,6,7,8-	1.000E-01	3.000E-02	7.610E+02	5.000E-01	5.248E-01	0.000E+00
57465-28-8	3,4,5,3',4'-Pentachlorobiphenyl	1.000E-01	1.000E+00	6.540E+02	0.000E+00	0.000E+00	0.000E+00
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.000E-01	3.000E-02	7.180E+02	4.000E-01	6.736E-01	0.000E+00
60851-34-5	HexaCDF, 2,3,4,6,7,8-	1.000E-01	3.000E-02	6.880E+02	5.000E-01	5.248E-01	0.000E+00
65-85-0	Benzoic acid	0.000E+00	1.000E+00	5.220E+02	1.000E+00	5.700E-03	0.000E+00
67-63-0	isopropyl alcohol	0.000E+00	1.000E+00	3.560E+02	0.000E+00	7.869E-04	1.000E-02
67-64-1	Acetone	0.000E+00	1.000E+00	3.290E+02	1.000E+00	5.200E-04	0.000E+00
67-66-3	Chloroform	0.000E+00	1.000E+00	3.350E+02	1.000E+00	6.800E-03	6.100E-02
67-72-1	hexachloroethane	0.000E+00	1.000E+00	4.600E+02	1.000E-01	3.000E-02	1.590E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.000E-02	1.000E+00	7.800E+02	4.000E-01	6.220E-01	0.000E+00
68334-30-5	total petroleum hydrocarbons - diesel range	0.000E+00	1.000E+00	5.330E+02	0.000E+00	0.000E+00	0.000E+00
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl	3.000E-05	1.000E+00	6.730E+02	0.000E+00	0.000E+00	0.000E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	3.000E-04	1.000E+00	6.330E+02	0.000E+00	0.000E+00	0.000E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.000E-01	3.000E-02	7.610E+02	5.000E-01	5.248E-01	0.000E+00
71-43-2	Benzene	0.000E+00	1.000E+00	3.530E+02	1.000E+00	1.500E-02	2.060E-01
72918-21-9	HexaCDF, 1,2,3,7,8,9-	1.000E-01	3.000E-02	6.930E+02	5.000E-01	5.248E-01	0.000E+00
73207-98-4	EA 2192	0.000E+00	1.000E+00	5.710E+02	1.000E+00	1.210E-03	0.000E+00
74-83-9	Methyl bromide	0.000E+00	1.000E+00	2.770E+02	1.000E+00	2.800E-03	0.000E+00
74-87-3	Methyl chloride	0.000E+00	1.000E+00	2.490E+02	1.000E+00	3.300E-03	1.000E-02
74-88-4	Methyl iodide	0.000E+00	1.000E+00	3.150E+02	1.000E+00	2.500E-03	0.000E+00
74-96-4	Bromoethane	0.000E+00	0.000E+00	3.120E+02	1.000E+00	4.490E-03	0.000E+00
74-97-5	Bromochloromethane	0.000E+00	1.000E+00	3.410E+02	1.000E+00	2.550E-03	1.210E-01
7439-97-6	Mercury	0.000E+00	1.000E+00	6.300E+02	0.000E+00	2.400E-01	0.000E+00

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl	3.000E-05	1.000E+00	6.540E+02	5.000E-01	9.580E-01	0.000E+00
7487-94-7	Mercuric chloride	0.000E+00	7.000E-02	5.750E+02	0.000E+00	1.000E-03	0.000E+00
75-01-4	Vinyl chloride	0.000E+00	1.000E+00	2.590E+02	1.000E+00	5.600E-03	1.000E-02
75-09-2	Dichloromethane	0.000E+00	1.000E+00	3.130E+02	1.000E+00	3.500E-03	2.000E-02
75-15-0	Carbon disulfide	0.000E+00	1.000E+00	3.190E+02	1.000E+00	1.700E-02	0.000E+00
75-25-2	Tribromomethane	0.000E+00	1.000E+00	4.230E+02	1.000E+00	2.200E-03	0.000E+00
75-27-4	Bromodichloromethane	0.000E+00	1.000E+00	3.630E+02	1.000E+00	4.600E-03	1.210E-01
75-35-4	1,1-Dichloroethylene	0.000E+00	1.000E+00	3.050E+02	1.000E+00	1.200E-02	1.000E-02
75-69-4	Trichlorofluoromethane	0.000E+00	1.000E+00	2.970E+02	1.000E+00	1.300E-02	0.000E+00
75-71-8	Dichlorodifluoromethane	0.000E+00	1.000E+00	2.430E+02	1.000E+00	9.000E-03	1.000E-02
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.000E+00	1.000E+00	3.210E+02	1.000E+00	1.720E-02	0.000E+00
7647-01-0	Hydrochloric acid	0.000E+00	1.000E+00	1.880E+02	0.000E+00	1.000E-03	0.000E+00
7664-38-2	Phosphoric acid	0.000E+00	1.000E+00	2.130E+02	0.000E+00	1.000E-03	0.000E+00
78-93-3	Methyl ethyl ketone	0.000E+00	1.000E+00	3.530E+02	1.000E+00	9.600E-04	0.000E+00
79-01-6	Trichloroethylene	0.000E+00	1.000E+00	3.600E+02	1.000E+00	1.200E-02	2.330E-01
8006-61-9	total petroleum hydrocarbons - gasoline range	0.000E+00	1.000E+00	3.690E+02	0.000E+00	0.000E+00	0.000E+00
83-32-9	acenaphthene	0.000E+00	1.000E+00	5.520E+02	1.300E-01	8.135E-02	0.000E+00
84-66-2	Diethyl phthalate	0.000E+00	1.000E+00	5.710E+02	1.000E+00	3.900E-03	0.000E+00
84-74-2	Dibutyl phthalate	0.000E+00	1.000E+00	6.130E+02	9.000E-01	2.400E-02	0.000E+00
85-01-8	phenanthrene	0.000E+00	1.000E+00	6.050E+02	1.300E-01	1.400E-01	0.000E+00
85-68-7	butyl benzyl phthalate	0.000E+00	1.000E+00	6.430E+02	1.000E-01	4.842E-02	0.000E+00
86-73-7	fluorene	0.000E+00	1.000E+00	5.680E+02	1.300E-01	1.097E-01	0.000E+00
91-20-3	Naphthalene	0.000E+00	1.000E+00	4.910E+02	1.000E+00	4.700E-02	0.000E+00
91-57-6	2-Methylnaphthalene	0.000E+00	1.000E+00	5.140E+02	1.000E+00	9.770E-02	0.000E+00
95-47-6	2-Xylene	0.000E+00	1.000E+00	4.170E+02	1.000E+00	4.490E-02	8.810E-01
95-48-7	o-Cresol	0.000E+00	1.000E+00	4.640E+02	1.000E+00	7.700E-03	0.000E+00
95-50-1	1,2-Dichlorobenzene	0.000E+00	1.000E+00	4.540E+02	1.000E+00	4.100E-02	0.000E+00

CAS Number	Name	TEF (unitless)	ABS (unitless)	t_b (K)	Fa (unitless)	p_c (cm/hr)	Kpv (cm/hr)
95-63-6	1,2,4-trimethylbenzene	0.000E+00	1.000E+00	4.430E+02	0.000E+00	8.375E-02	0.000E+00
98-82-8	1-methylethyl benzene	0.000E+00	1.000E+00	4.250E+02	0.000E+00	9.306E-02	0.000E+00
98-86-2	acetophenone	0.000E+00	1.000E+00	4.750E+02	1.000E-01	3.711E-03	0.000E+00
993-13-5	methyl phosphonic acid	0.000E+00	1.000E+00	5.220E+02	0.000E+00	1.589E-04	0.000E+00
193-39-5	Indeno(1,2,3-cd) pyrene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
205-99-2	Benzo(b)fluoranthene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
206-44-0	Fluoranthene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
207-08-9	Benzo(k)fluoranthene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
218-01-9	Chrysene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
50-32-8	Benzo(a)pyrene	0.000E+00	1.300E-01	0.000E+00	1.000E+00	0.000E+00	0.000E+00
53-70-3	Dibenz(a,h)anthracene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00
56-55-3	Benzo(a)anthracene	0.000E+00	0.000E+00	0.000E+00	1.000E+00	0.000E+00	0.000E+00

Appendix C – Emission Rate Tables

The following fictitious emission rates were used in IRAP-h to generate soil concentrations equal to the baseline 95% UCL values. These files were necessary since it is not possible to directly input soil concentrations into IRAP-h. Instead, IRAP-h was constructed to internally calculate environmental media concentrations from point source emissions. Hence, fictitious emission rates and deposition characteristics (Appendix D) were input into the software and manipulated until soil concentrations matched those of the baseline 95% UCLs.

Table C-1: Emission rate file used to create average soil concentrations for the Native American adult exposure scenario that were equal to the 95% UCL values for the baseline soils. This file was used when calculating the adult cancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	1.71E+02
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	0.00E+00
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	4.39E-08
18540-29-9	Chromium, Hexavalent	0.00E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.10E-07
25323-68-6	total trichlorobiphenyl	9.28E-04
25429-29-2	total pentachlorobiphenyl	5.56E-05
25512-42-9	total dichlorobiphenyl	1.10E-03
26914-33-0	total tetrachlorobiphenyl	2.91E-04
27323-18-8	total monochlorobiphenyl	9.10E-05
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	3.51E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	2.08E-05
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	7.35E-06

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	7.55E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	2.70E-06
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	6.87E-07
39227-28-6	HexaCDD, 1,2,3,4,7,8-	7.54E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	2.65E-07
40321-76-4	PentaCDD, 1,2,3,7,8-	0.00E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.00E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.41E-07
57117-31-4	PentaCDF, 2,3,4,7,8-	0.00E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	1.43E-07
57117-44-9	HexaCDF, 1,2,3,6,7,8-	4.99E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.18E-07
60851-34-5	HexaCDF, 2,3,4,6,7,8-	0.00E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.44E-07
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	4.84E-05
70648-26-9	HexaCDF, 1,2,3,4,7,8-	6.37E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	0.00E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	3.15E-05
00-02-0	Lead compounds	1.50E+04
00-02-2	Manganese compounds	2.40E+02
00-02-3	Mercury compounds	2.19E-01
00-02-4	Nickel compounds	3.47E+05
00-02-6	Silver compounds	4.13E-01
00-02-7	Thallium compounds	4.56E-02
00-16-9	Tin compounds	1.83E+02
00-01-3	Antimony compounds	1.24E+04
00-01-4	Arsenic compounds	3.62E+06
00-01-5	Barium compounds	7.76E+01
00-01-6	Beryllium compounds	5.47E+02
00-16-6	Boron compounds	1.47E+00
00-01-7	Cadmium compounds	4.98E+03
00-01-8	Chromium compounds	1.08E+01
00-15-3	Cobalt compounds	5.81E+00
00-01-9	Copper compounds	5.01E+00
00-02-8	Vanadium compounds	2.69E+01
00-02-9	Zinc compounds	1.89E+06
7664-38-2	Phosphoric acid	1.65E+05
00-02-5	Selenium compounds	5.19E+04
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	6.90E+01
84-66-2	Diethyl phthalate	2.02E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-2: Emission rate file used to create average soil concentrations for the Native American child exposure scenario that were equal to the 95% UCL values for the baseline soils. This file was used when calculating the child cancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	1.47E+01
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	0.00E+00
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.00E-08
18540-29-9	Chromium, Hexavalent	0.00E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	5.40E-08
25323-68-6	total trichlorobiphenyl	7.95E-05
25429-29-2	total pentachlorobiphenyl	1.69E-05
25512-42-9	total dichlorobiphenyl	9.42E-05
26914-33-0	total tetrachlorobiphenyl	2.56E-05
27323-18-8	total monochlorobiphenyl	7.80E-06
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	1.63E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	1.83E-06
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	2.23E-06

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	7.49E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.33E-06
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	3.39E-07
39227-28-6	HexaCDD, 1,2,3,4,7,8-	3.71E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	1.37E-07
40321-76-4	PentaCDD, 1,2,3,7,8-	0.00E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.00E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	6.95E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	0.00E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	7.04E-08
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.46E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	5.78E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	0.00E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.18E-07
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	4.14E-06
70648-26-9	HexaCDF, 1,2,3,4,7,8-	3.13E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	0.00E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.56E-05
00-02-0	Lead compounds	1.29E+03
00-02-2	Manganese compounds	1.77E+02
00-02-3	Mercury compounds	1.88E-02
00-02-4	Nickel compounds	2.97E+04
00-02-6	Silver compounds	8.36E-02
00-02-7	Thallium compounds	3.48E-02
00-16-9	Tin compounds	1.57E+01
00-01-3	Antimony compounds	1.06E+03
00-01-4	Arsenic compounds	3.11E+05
00-01-5	Barium compounds	4.73E+01
00-01-6	Beryllium compounds	4.69E+01
00-16-6	Boron compounds	1.64E-01
00-01-7	Cadmium compounds	4.27E+02
00-01-8	Chromium compounds	4.09E+00
00-15-3	Cobalt compounds	3.71E+00
00-01-9	Copper compounds	5.09E+00
00-02-8	Vanadium compounds	2.83E+01
00-02-9	Zinc compounds	1.62E+05
7664-38-2	Phosphoric acid	1.42E+04
00-02-5	Selenium compounds	4.44E+03
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	5.91E+00
84-66-2	Diethyl phthalate	1.73E-01
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-3: Emission rate file used to create maximum soil concentrations for the Native American adult and child exposure scenario that were equal to the 95% UCL values for the baseline soils. This file was used when calculating noncancer risks for both populations.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	2.44E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	0.00E+00
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.70E-08
18540-29-9	Chromium, Hexavalent	0.00E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	4.62E-08
25323-68-6	total trichlorobiphenyl	1.33E-05
25429-29-2	total pentachlorobiphenyl	1.36E-05
25512-42-9	total dichlorobiphenyl	1.58E-05
26914-33-0	total tetrachlorobiphenyl	8.44E-06
27323-18-8	total monochlorobiphenyl	1.31E-06
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	1.39E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	6.04E-07
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	1.80E-06

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	6.82E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.14E-06
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	2.91E-07
39227-28-6	HexaCDD, 1,2,3,4,7,8-	3.18E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	1.18E-07
40321-76-4	PentaCDD, 1,2,3,7,8-	0.00E+00
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	0.00E+00
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	5.96E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	0.00E+00
57117-41-6	PentaCDF, 1,2,3,7,8-	6.03E-08
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.11E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	4.95E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	0.00E+00
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.87E-07
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	6.94E-07
70648-26-9	HexaCDF, 1,2,3,4,7,8-	2.68E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	0.00E+00
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.33E-05
00-02-0	Lead compounds	2.15E+02
00-02-2	Manganese compounds	1.58E+02
00-02-3	Mercury compounds	3.23E-03
00-02-4	Nickel compounds	4.96E+03
00-02-6	Silver compounds	6.19E-02
00-02-7	Thallium compounds	3.10E-02
00-16-9	Tin compounds	2.63E+00
00-01-3	Antimony compounds	1.77E+02
00-01-4	Arsenic compounds	5.18E+04
00-01-5	Barium compounds	4.14E+01
00-01-6	Beryllium compounds	7.81E+00
00-16-6	Boron compounds	8.93E-02
00-01-7	Cadmium compounds	7.11E+01
00-01-8	Chromium compounds	3.40E+00
00-15-3	Cobalt compounds	3.26E+00
00-01-9	Copper compounds	4.65E+00
00-02-8	Vanadium compounds	2.59E+01
00-02-9	Zinc compounds	2.70E+04
7664-38-2	Phosphoric acid	2.37E+03
00-02-5	Selenium compounds	7.41E+02
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	9.86E-01
84-66-2	Diethyl phthalate	2.91E-02
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-4: Emission rate file used to create average soil concentrations for the Industrial exposure scenario that were equal to the 95% UCL values for the AOC-15A soils. This file was used when calculating the cancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	1.40E-02
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	0.00E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	0.00E+00
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.98E-08
18540-29-9	Chromium, Hexavalent	0.00E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.90E-08
25323-68-6	total trichlorobiphenyl	0.00E+00
25429-29-2	total pentachlorobiphenyl	4.06E-06
25512-42-9	total dichlorobiphenyl	2.38E-03
26914-33-0	total tetrachlorobiphenyl	1.91E-05
27323-18-8	total monochlorobiphenyl	5.54E-04
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	3.42E-07
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	5.12E-07
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	2.07E-07

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.91E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.08E-06
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	5.80E-07
39227-28-6	HexaCDD, 1,2,3,4,7,8-	8.97E-09
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	0.00E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	6.83E-08
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.31E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.66E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	1.06E-08
57117-41-6	PentaCDF, 1,2,3,7,8-	5.50E-09
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.06E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	2.77E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	9.12E-09
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	5.67E-07
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.00E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.80E-07
72918-21-9	HexaCDF, 1,2,3,7,8,9-	1.29E-08
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.75E-05
00-02-0	Lead compounds	1.05E+03
00-02-2	Manganese compounds	9.09E+01
00-02-3	Mercury compounds	1.86E-02
00-02-4	Nickel compounds	1.62E+04
00-02-6	Silver compounds	3.03E-01
00-02-7	Thallium compounds	1.75E-02
00-16-9	Tin compounds	5.59E+02
00-01-3	Antimony compounds	5.65E+03
00-01-4	Arsenic compounds	2.49E+05
00-01-5	Barium compounds	3.80E+01
00-01-6	Beryllium compounds	2.79E+01
00-16-6	Boron compounds	3.60E+00
00-01-7	Cadmium compounds	1.73E+03
00-01-8	Chromium compounds	8.46E+00
00-15-3	Cobalt compounds	2.98E+00
00-01-9	Copper compounds	6.44E-01
00-02-8	Vanadium compounds	3.77E+00
00-02-9	Zinc compounds	1.06E+05
7664-38-2	Phosphoric acid	1.08E+05
00-02-5	Selenium compounds	4.62E+03
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	0.00E+00
84-66-2	Diethyl phthalate	0.00E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	Butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-5: Emission rate file used to create average soil concentrations for the Industrial exposure scenario that were equal to the 95% UCL values for the AOC-15A soils. This file was used when calculating noncancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	5.60E-04
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	0.00E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	0.00E+00
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.33E-08
18540-29-9	Chromium, Hexavalent	0.00E+00
19408-74-3	HexaCDD, 1,2,3,7,8,9-	1.33E-08
25323-68-6	total trichlorobiphenyl	1.45E-04
25429-29-2	total pentachlorobiphenyl	2.06E-06
25512-42-9	total dichlorobiphenyl	9.51E-05
26914-33-0	total tetrachlorobiphenyl	1.40E-06
27323-18-8	total monochlorobiphenyl	2.22E-05
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	2.31E-07
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	3.76E-08
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	1.05E-07

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	1.81E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	7.61E-07
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	4.09E-07
39227-28-6	HexaCDD, 1,2,3,4,7,8-	6.31E-09
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	0.00E+00
40321-76-4	PentaCDD, 1,2,3,7,8-	4.76E-08
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	8.86E-10
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.16E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	7.39E-09
57117-41-6	PentaCDF, 1,2,3,7,8-	3.85E-09
57117-44-9	HexaCDF, 1,2,3,6,7,8-	1.44E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.94E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	6.39E-09
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	3.98E-07
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.00E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	1.26E-07
72918-21-9	HexaCDF, 1,2,3,7,8,9-	9.06E-09
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.23E-05
00-02-0	Lead compounds	4.22E+01
00-02-2	Manganese compounds	1.86E+01
00-02-3	Mercury compounds	7.58E-04
00-02-4	Nickel compounds	6.49E+02
00-02-6	Silver compounds	1.49E-02
00-02-7	Thallium compounds	3.86E-03
00-16-9	Tin compounds	2.24E+01
00-01-3	Antimony compounds	2.26E+02
00-01-4	Arsenic compounds	9.95E+03
00-01-5	Barium compounds	5.22E+00
00-01-6	Beryllium compounds	1.11E+00
00-16-6	Boron compounds	1.46E-01
00-01-7	Cadmium compounds	6.93E+01
00-01-8	Chromium compounds	6.48E-01
00-15-3	Cobalt compounds	4.43E-01
00-01-9	Copper compounds	4.40E-01
00-02-8	Vanadium compounds	3.14E+00
00-02-9	Zinc compounds	4.24E+03
7664-38-2	Phosphoric acid	4.34E+03
00-02-5	Selenium compounds	1.85E+02
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	0.00E+00
84-66-2	Diethyl phthalate	0.00E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	Butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-6: Emission rate file used to create average soil concentrations for the Native American adult exposure scenario that were equal to the 95% UCL values for the AOC-15B soils. This file was used when calculating the adult cancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	0.00E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	7.37E+03
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	9.39E-09
18540-29-9	Chromium, Hexavalent	1.13E-01
19408-74-3	HexaCDD, 1,2,3,7,8,9-	8.62E-08
25323-68-6	total trichlorobiphenyl	0.00E+00
25429-29-2	total pentachlorobiphenyl	3.68E-05
25512-42-9	total dichlorobiphenyl	0.00E+00
26914-33-0	total tetrachlorobiphenyl	0.00E+00
27323-18-8	total monochlorobiphenyl	0.00E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	3.05E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	7.32E-06
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	2.44E-06

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	6.11E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	1.95E-06
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	6.16E-06
39227-28-6	HexaCDD, 1,2,3,4,7,8-	5.33E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	2.22E-07
40321-76-4	PentaCDD, 1,2,3,7,8-	2.18E-08
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.10E-08
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.99E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	2.20E-08
57117-41-6	PentaCDF, 1,2,3,7,8-	2.65E-08
57117-44-9	HexaCDF, 1,2,3,6,7,8-	5.38E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	1.73E-07
60851-34-5	HexaCDF, 2,3,4,6,7,8-	6.12E-08
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.00E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.00E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	7.60E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	1.47E-08
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	2.84E-05
00-02-0	Lead compounds	1.65E+04
00-02-2	Manganese compounds	2.30E+02
00-02-3	Mercury compounds	2.98E-01
00-02-4	Nickel compounds	3.46E+05
00-02-6	Silver compounds	4.63E-01
00-02-7	Thallium compounds	4.86E-02
00-16-9	Tin compounds	2.77E+02
00-01-3	Antimony compounds	1.34E+04
00-01-4	Arsenic compounds	4.54E+06
00-01-5	Barium compounds	7.57E+01
00-01-6	Beryllium compounds	6.29E+02
00-16-6	Boron compounds	4.21E+00
00-01-7	Cadmium compounds	3.64E+04
00-01-8	Chromium compounds	1.32E+01
00-15-3	Cobalt compounds	6.16E+00
00-01-9	Copper compounds	4.08E+00
00-02-8	Vanadium compounds	2.93E+01
00-02-9	Zinc compounds	2.21E+06
7664-38-2	Phosphoric acid	1.27E+05
00-02-5	Selenium compounds	8.35E+04
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	0.00E+00
84-66-2	Diethyl phthalate	0.00E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-7: Emission rate file used to create average soil concentrations for the Native American child exposure scenario that were equal to the 95% UCL values for the AOC-15B soils. This file was used when calculating the child cancer risk.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	0.00E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	6.32E+02
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	4.28E-09
18540-29-9	Chromium, Hexavalent	4.29E-02
19408-74-3	HexaCDD, 1,2,3,7,8,9-	4.22E-08
25323-68-6	total trichlorobiphenyl	0.00E+00
25429-29-2	total pentachlorobiphenyl	1.12E-05
25512-42-9	total dichlorobiphenyl	0.00E+00
26914-33-0	total tetrachlorobiphenyl	0.00E+00
27323-18-8	total monochlorobiphenyl	0.00E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	1.42E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	6.43E-07
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	7.42E-07

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	6.06E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	9.59E-07
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	3.04E-06
39227-28-6	HexaCDD, 1,2,3,4,7,8-	2.63E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	1.15E-07
40321-76-4	PentaCDD, 1,2,3,7,8-	1.07E-08
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	5.20E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.47E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	1.08E-08
57117-41-6	PentaCDF, 1,2,3,7,8-	1.30E-08
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.65E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	8.46E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	3.01E-08
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.00E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.00E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	3.73E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	7.23E-09
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.40E-05
00-02-0	Lead compounds	1.42E+03
00-02-2	Manganese compounds	1.70E+02
00-02-3	Mercury compounds	2.55E-02
00-02-4	Nickel compounds	2.97E+04
00-02-6	Silver compounds	9.37E-02
00-02-7	Thallium compounds	3.70E-02
00-16-9	Tin compounds	2.37E+01
00-01-3	Antimony compounds	1.15E+03
00-01-4	Arsenic compounds	3.89E+05
00-01-5	Barium compounds	4.62E+01
00-01-6	Beryllium compounds	5.40E+01
00-16-6	Boron compounds	4.68E-01
00-01-7	Cadmium compounds	3.12E+03
00-01-8	Chromium compounds	5.02E+00
00-15-3	Cobalt compounds	3.92E+00
00-01-9	Copper compounds	4.15E+00
00-02-8	Vanadium compounds	3.09E+01
00-02-9	Zinc compounds	1.89E+05
7664-38-2	Phosphoric acid	1.09E+04
00-02-5	Selenium compounds	7.15E+03
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	0.00E+00
84-66-2	Diethyl phthalate	0.00E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Table C-8: Emission rate file used to create maximum soil concentrations for the Native American adult and child exposure scenario that were equal to the 95% UCL values for the AOC-15B soils. This file was used when calculating noncancer risks for both populations.

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
00-15-5	m,p-Xylene	0.00E+00
1330-20-7	Xylene (mixed)	0.00E+00
100-41-4	Ethylbenzene	0.00E+00
100-42-5	Styrene	0.00E+00
106-46-7	1,4-Dichlorobenzene	0.00E+00
106-99-0	1,3-butadiene	0.00E+00
108-88-3	Toluene	0.00E+00
110-54-3	n-Hexane	0.00E+00
124-48-1	Chlorodibromomethane	0.00E+00
56-23-5	Carbon tetrachloride	0.00E+00
67-64-1	Acetone	0.00E+00
67-66-3	Chloroform	0.00E+00
71-43-2	Benzene	0.00E+00
74-83-9	Methyl bromide	0.00E+00
74-87-3	Methyl chloride	0.00E+00
74-88-4	Methyl iodide	0.00E+00
74-96-4	Bromoethane	0.00E+00
75-01-4	Vinyl chloride	0.00E+00
75-09-2	Dichloromethane	0.00E+00
75-15-0	Carbon disulfide	0.00E+00
75-27-4	Bromodichloromethane	0.00E+00
75-69-4	Trichlorofluoromethane	1.05E+02
75-71-8	Dichlorodifluoromethane	0.00E+00
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.00E+00
78-93-3	Methyl ethyl ketone	0.00E+00
79-01-6	Trichloroethylene	0.00E+00
95-47-6	2-Xylene	0.00E+00
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	3.64E-09
18540-29-9	Chromium, Hexavalent	3.57E-02
19408-74-3	HexaCDD, 1,2,3,7,8,9-	3.62E-08
25323-68-6	total trichlorobiphenyl	0.00E+00
25429-29-2	total pentachlorobiphenyl	8.98E-06
25512-42-9	total dichlorobiphenyl	0.00E+00
26914-33-0	total tetrachlorobiphenyl	0.00E+00
27323-18-8	total monochlorobiphenyl	0.00E+00
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl	1.21E-06
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl	2.12E-07
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl	5.97E-07

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
35065-29-3	2,2',3,4,4',5,5'-heptachlorobiphenyl	5.52E-07
35822-46-9	HeptaCDD, 1,2,3,4,6,7,8-	8.23E-07
39001-02-0	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	2.61E-06
39227-28-6	HexaCDD, 1,2,3,4,7,8-	2.25E-08
39635-31-9	2,3,4,5,3',4',5'-Heptachlorobiphenyl	9.90E-08
40321-76-4	PentaCDD, 1,2,3,7,8-	9.15E-09
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	4.44E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.26E-08
57117-31-4	PentaCDF, 2,3,4,7,8-	9.23E-09
57117-41-6	PentaCDF, 1,2,3,7,8-	1.12E-08
57117-44-9	HexaCDF, 1,2,3,6,7,8-	2.27E-08
57653-85-7	HexaCDD, 1,2,3,6,7,8-	7.25E-08
60851-34-5	HexaCDF, 2,3,4,6,7,8-	2.58E-08
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.00E+00
70362-50-4	3,4,4',5-Tetrachlorobiphenyl	0.00E+00
70648-26-9	HexaCDF, 1,2,3,4,7,8-	3.20E-08
72918-21-9	HexaCDF, 1,2,3,7,8,9-	6.20E-09
3268-87-9	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	1.20E-05
00-02-0	Lead compounds	2.36E+02
00-02-2	Manganese compounds	1.51E+02
00-02-3	Mercury compounds	4.39E-03
00-02-4	Nickel compounds	4.95E+03
00-02-6	Silver compounds	6.94E-02
00-02-7	Thallium compounds	3.31E-02
00-16-9	Tin compounds	3.97E+00
00-01-3	Antimony compounds	1.92E+02
00-01-4	Arsenic compounds	6.48E+04
00-01-5	Barium compounds	4.04E+01
00-01-6	Beryllium compounds	8.99E+00
00-16-6	Boron compounds	2.56E-01
00-01-7	Cadmium compounds	5.20E+02
00-01-8	Chromium compounds	4.17E+00
00-15-3	Cobalt compounds	3.45E+00
00-01-9	Copper compounds	3.79E+00
00-02-8	Vanadium compounds	2.83E+01
00-02-9	Zinc compounds	3.15E+04
7664-38-2	Phosphoric acid	1.82E+03
00-02-5	Selenium compounds	1.19E+03
100-51-6	Benzyl alcohol	0.00E+00
100-52-7	Benzaldehyde	0.00E+00
108-95-2	phenol	0.00E+00

CAS Number in IRAP-h	Name in IRAP-H	Fictitious Emission Rate (g/s)
117-81-7	Bis(2-ethylhexyl)phthalate	0.00E+00
65-85-0	Benzoic acid	0.00E+00
84-66-2	Diethyl phthalate	0.00E+00
84-74-2	Di-n-butyl phthalate	0.00E+00
85-68-7	butylbenzylphthalate	0.00E+00
98-86-2	acetophenone	0.00E+00

Appendix D – Deposition Rates and Air Concentrations

The following fictitious deposition characteristics were used in IRAP-h to generate soil concentrations equal to the baseline 95% UCL values. These files were necessary since it is not possible to directly input soil concentrations into IRAP-h. Instead, IRAP-h was constructed to internally calculate environmental media concentrations from point source emissions. Hence, fictitious emission rates (Appendix C) and deposition characteristics were input into the software and manipulated until soil concentrations matched those of the baseline 95% UCLs. The values in Table D-1 were used for all scenarios.

Table D-1: HHRA Deposition Rates and Air Concentrations for the Risk Evaluation Point

Parameter	Unit	Value
Hourly air concentration - particle phase	ug-s/g-m^3	43.5186
Hourly air concentration - particle bound	ug-s/g-m^3	43.5186
Hourly air concentration - vapor phase	ug-s/g-m^3	43.31657
Hourly air concentration - vapor phase hg	ug-s/g-m^3	43.33585
Air concentration - particle phase	ug-s/g-m^3	1.07776
Air concentration - particle bound	ug-s/g-m^3	1.07776
Air concentration - vapor phase	ug-s/g-m^3	1.0699
Air concentration - vapor phase hg	ug-s/g-m^3	1.03602
Dry deposition - particle phase	s/m^2 year	0.06361
Dry deposition - particle bound	s/m^2 year	0.06361
Dry deposition - vapor phase	s/m^2 year	0.19867
Dry deposition - vapor phase hg	s/m^2 year	0.87841
Wet deposition - particle phase	s/m^2 year	2.00E-05
Wet deposition - particle bound	s/m^2 year	2.00E-05
Wet deposition - vapor phase	s/m^2 year	0.0042
Wet deposition - vapor phase hg	s/m^2 year	0.00146