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Report

Phase I Removal Action Report Addendum

Riverdale Chemical Company

June 2001

Technical Memorandum on Sampling Activities

Prepared For

Nufarm

Prepared By

RMT

RMT, Inc. 222 South Riverside Plaza, Suite 820 • Chicago, IL 60606 • 312/575-0200 • 312/575-0300 (FAX)

Transmittal Letter

RMT, Inc. ("RMT")
222 South Riverside Plaza, Suite 820
Chicago, IL 60606
Tel. (312) 575-0200 • Fax (312) 575-0300

To: [redacted]ie Bolattino
On Scene Coordinator
USEPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Date: 7/2/01
Project No.: 496201
Subject: Submital of Riverdale Reports

Prepared By: Rae Mindock **Title** Project Manager

Signature:

We are sending you:

☒Report

COPIES	DATE	NO.	DESCRIPTION
1	6/27/01		Phase I Removal Action Report Addendum - Off-Site Drainage Ditch Sampling
1	6/27/01		Phase I Removal Action Report Addendum - Technical Memorandum on Sampling Activities

These items are transmitted as checked below:

☒For approval

Remarks

Callie –

Here are the reports. The data has been validated. Call if you have any questions,

Cc: Karen Peaceman, USEPA
Peter Bibby, Riverdale
Todd Wiener, MWE

Technical Memorandum

Date: June 27, 2001

To: Callie Bollatino
On-Scene Coordinator
USEPA, Emergency Response Branch, Region 5

cc: Karen Peaceman, USEPA
Peter Bibby, Riverdale
Todd Wiener, MWE

From: Rae Mindock, RMT
Brendan McLennan, RMT

Project No.: 4962.01

Subject: Riverdale Chemical Company
Excavation and Model Check Sampling Activities

RMT, Inc. (RMT) has prepared this Technical Memo to provide the USEPA with sampling data obtained during the Excavation and Model Check Sampling Activities conducted during April and May. The sampling activities were conducted as described in:

- Addendum to the Work Plan letter dated May 8,
- Addendum to the Work Plan letter dated April 3.

Both documents are provided in Appendix A.

Soil samples were collected at 89 locations (SL90 to SL178) to determine potential areas of excavation and to provide model checks (based on the risk model presented in the EE/CA). Samples were collected at five areas as discussed with the USEPA:

- Railroad Unloading Area – Two areas of potential excavation (10 ft by 10 ft) and three model check samples were collected at this location. Samples were analyzed for pesticides.
- South of Finished Goods Warehouse (Building No. 1) – One area of potential excavation (10 ft by 50 ft) and four model check samples were collected at this location. Sample locations were modified slightly from the proposed locations due to access problems. Samples were analyzed for pesticides. Several samples were analyzed for dioxin.
- Southwest Corner (at fence line south of Building No. 1) – One area of potential excavation (10 ft by 30 ft) and one model check sample. Samples were analyzed for pesticides.
- Liquid Storage Area Pipeline Rack (south of Building No. 2) – Two areas of potential excavation (10 ft by 10 ft) and two model check samples were collected at this location. Samples were analyzed for pesticides. Several samples were analyzed for dioxin.

- DMA AST (south of Building No. 3) - Nine areas of potential excavation (10 ft by 10 ft, with one 10 ft by 30 ft) and six model check samples were collected at this location. Excessive fill material limited sample collection at two locations, FIT sampling location B8 and RI sampling location SS01. Petroleum/kerosene odors and stained soils were observed at FIT sampling location B10, directly west of the Liquid Storage Area. Samples were analyzed for pesticides. Several samples were analyzed for dioxin.

The samples were collected to delineate areas of excavation and to check concentrations within the modeled construction worker risk scenarios. A summary of the sampling program is provided in Table 1. The sampling locations are provided on Figure 1. The sampling was conducted using procedures described in the Phase I Remedial Action Work Plan including the associated Quality Assurance Project Plan (QAPP), the Field Sampling Analysis Plan (FSAP), and the Health and Safety Plan (HASP).

Sampling results are provided in Table 2. The proposed excavation areas, remaining hazard index and cancer risk at excavation locations and model check locations are provided on Figure 2. The horizontal extent of the excavations were determined by the confirmatory samples. The vertical extent has been defined by confirmatory samples or a maximum depth of 8 feet below ground surface (bgs). The confirmatory sampling indicates that after excavation of the fifteen discrete areas, the remaining soil risk levels at the site will be less than a total cancer risk of 1×10^{-4}, a hazard index less than 1, and dioxin below 15 ppb TEQs. Risk calculations and dioxin TEQs are provided in Appendix B.

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL01 - 4 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL02 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL02 - 5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL03 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL04 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL05 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL06 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL07 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL07 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL08 - 2.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL08 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL09 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL10 - 3 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL10 - 5 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL11 - 3 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL11 - 4.5 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL12 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL12 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL13 - 1.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL13 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL14 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL15 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL16 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL17 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL17 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL18 - 2.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL19 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL20 - 2 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL20 - 2 FT DUP	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL21 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL22 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL22 - 2 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL23 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL24 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL24 - 1 FT DUP	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL25 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL25 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL26 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL26 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL27 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL27 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL28 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL 28 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL29 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL30 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL31 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL32 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL33 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL33 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL34 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL34 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL35 - 1 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL35 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL36 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL36 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL37 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide
SL38 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide
SL39 - 6.2 FT	Railroad Unloading Storage Basin	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL40-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
		8/28/2000	CLP Pesticide
SL41-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs
		8/28/2000	CLP Pesticide
SL41-5.2FT-DUP	Railroad Unloading Spill Containment Basin	8/28/2000	CLP Pesticide
SL44-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL44-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL45-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL45-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL46-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL46-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-DUP	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL48-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL48-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL50-6IN (SL50-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL50-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-6IN (SL51-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-6IN (SL52-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL53-6IN (SL53-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL54-6IN (SL54-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL55-6IN (SL55-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL56-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL57-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL58-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL59-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
		9/6/2000	CLP Pesticide
SL60-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL61-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL62-1FT	Utility Area	9/21/2000	CLP Pesticide
SL62-4FT	Utility Area	9/21/2000	CLP Pesticide
SL63-1FT	Utility Area	9/21/2000	CLP Pesticide
SL63-4FT	Utility Area	9/21/2000	CLP Pesticide
SL64-1FT	Utility Area	9/21/2000	CLP Pesticide
SL64-4FT	Utility Area	9/21/2000	CLP Pesticide
SL65-1FT	Utility Area	9/21/2000	CLP Pesticide
SL65-4FT	Utility Area	9/21/2000	CLP Pesticide
SL66-1FT	Utility Area	9/21/2000	CLP Pesticide
SL66-4FT	Utility Area	9/21/2000	CLP Pesticide
SL67-1FT	Utility Area	9/21/2000	CLP Pesticide
SL67-4FT	Utility Area	9/21/2000	CLP Pesticide
SL68-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL69-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL70-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL71-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL72-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL73-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL74-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL75-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL76-4FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL77-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL78-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL79-2.5FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL80-5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL81-3.5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL82-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL83-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL84-5FT	Hartwell Building Expansion	11/10/2000	CLP Pesticide
SL84-5FT DUP	Hartwell Building Expansion	11/10/2000	CLP Pesticide
SL85-1FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, & RCRA Metals
SL86-1FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, & RCRA Metals
SL86-3FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, & RCRA Metals
SL87-1FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, Dioxin & RCRA Metals
SL87-3FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, Dioxin & RCRA Metals
SL87-3FTDUP	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, Dioxin & RCRA Metals
SL88-1FT	Off -Site Drainage Ditch	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, & RCRA Metals
SL89-1FT	Low Lying Area	3/5/2001	VOCs, SVOCs, Pesticides/PCBs, Herbicides, & RCRA Metals
SL90-6FT	Railroad Unloading	4/6/2001	
SL90-7FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL91-6FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL91-7FT	Railroad Unloading	4/6/2001	
SL92-6FT	Railroad Unloading	4/6/2001	
SL92-7FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL93-2FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL94-1FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL95-8FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL96-6FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL97-6FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL97-7FT	Railroad Unloading	4/6/2001	
SL98-1FT	Railroad Unloading	4/6/2001	CLP Pesticides
SL99-1FT	Railroad Unloading	4/6/2001	
SL100-3FT	DMA AST	4/6/2001	CLP Pesticides
SL101-7FT	DMA AST	4/6/2001	CLP Pesticides

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL101-8FT	DMA AST	4/6/2001	
SL102-2FT	DMA AST	4/6/2001	CLP Pesticides
SL102-4FT	DMA AST	4/6/2001	CLP Pesticides
SL103-2FT	DMA AST	4/6/2001	CLP Pesticides
SL103-4FT	DMA AST	4/6/2001	CLP Pesticides
SL104-2FT	DMA AST	4/6/2001	CLP Pesticides
SL104-4FT	DMA AST	4/6/2001	CLP Pesticides, Dioxin
SL105-2FT	DMA AST	4/6/2001	CLP Pesticides, Dioxin
SL105-4FT	DMA AST	4/6/2001	Dioxin
SL106-2FT	DMA AST	4/6/2001	CLP Pesticides
SL106-4FT	DMA AST	4/6/2001	CLP Pesticides
SL107-2FT	DMA AST	4/6/2001	CLP Pesticides
SL107-4FT	DMA AST	4/6/2001	CLP Pesticides
SL108-2FT	DMA AST	4/6/2001	CLP Pesticides
SL108-4FT	DMA AST	4/6/2001	CLP Pesticides
SL109-2FT	DMA AST	4/6/2001	CLP Pesticides
SL109-4FT	DMA AST	4/6/2001	
SL110-2FT	DMA AST	4/6/2001	CLP Pesticides
SL110-4FT	DMA AST	4/6/2001	CLP Pesticides
SL111-2FT	DMA AST	4/6/2001	CLP Pesticides
SL111-4FT	DMA AST	4/6/2001	CLP Pesticides
SL112-2FT	DMA AST	4/6/2001	CLP Pesticides
SL112-4FT	DMA AST	4/6/2001	CLP Pesticides
SL113-2FT	DMA AST	4/6/2001	Dioxin
SL113-4FT	DMA AST	4/6/2001	CLP Pesticides
SL113-6FT	DMA AST	5/10/2001	CLP Pesticides
SL114-2FT	DMA AST	4/6/2001	CLP Pesticides
SL114-4FT	DMA AST	4/6/2001	
SL115-2FT	DMA AST	4/6/2001	CLP Pesticides
SL116-5FT	DMA AST	4/6/2001	CLP Pesticides
SL117-5FT	DMA AST	4/6/2001	
SL117-6FT	DMA AST	4/6/2001	CLP Pesticides
SL118-2FT	DMA AST	4/6/2001	CLP Pesticides
SL119-2FT	DMA AST	4/6/2001	CLP Pesticides
SL120-2FT	DMA AST	4/6/2001	CLP Pesticides

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL121-1FT	DMA AST	4/6/2001	CLP Pesticides
SL122-5FT	DMA AST	4/6/2001	CLP Pesticides
SL123-5FT	DMA AST	4/6/2001	CLP Pesticides, Dioxin
SL124-5FT	DMA AST	4/6/2001	CLP Pesticides, Dioxin
SL125-5FT	DMA AST	4/6/2001	CLP Pesticides
SL126-4FT	DMA AST	4/6/2001	CLP Pesticides
SL127-5FT	Pipeline Rack	4/6/2001	CLP Pesticides, Dioxin
SL127-7FT	Pipeline Rack	4/6/2001	
SL128-5FT	Pipeline Rack	4/6/2001	
SL128-7FT	Pipeline Rack	4/6/2001	CLP Pesticides
SL129-5FT	Pipeline Rack	4/6/2001	CLP Pesticides, Dioxin
SL129-7FT	Pipeline Rack	4/6/2001	
SL129-9FT	Pipeline Rack	4/6/2001	
SL130-2FT	Pipeline Rack	4/6/2001	CLP Pesticides
SL131-2FT	Pipeline Rack	4/6/2001	CLP Pesticides
SL132-2FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL132-4FT	South of Finished Goods	4/12/2001	
SL133-2FT	South of Finished Goods	4/12/2001	CLP Pesticides, Dioxin
SL133-4FT	South of Finished Goods	4/12/2001	
SL134-2FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL134-4FT	South of Finished Goods	4/12/2001	
SL135-2FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL135-4FT	South of Finished Goods	4/12/2001	
SL136-2FT	South of Finished Goods	4/12/2001	CLP Pesticides, Dioxin
SL136-4FT	South of Finished Goods	4/12/2001	
SL137-2FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL137-4FT	South of Finished Goods	4/12/2001	
SL138-1FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL139-1FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL140-1FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL141-1FT	South of Finished Goods	4/12/2001	CLP Pesticides
SL142-2FT	Southwest Corner	4/12/2001	CLP Pesticides
SL142-4FT	Southwest Corner	4/12/2001	
SL143-2FT	Southwest Corner	4/12/2001	CLP Pesticides
SL143-4FT	Southwest Corner	4/12/2001	
SL144-2FT	Southwest Corner	4/12/2001	CLP Pesticides

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL144-4FT	Southwest Corner	4/12/2001	
SL145-2FT	Southwest Corner	4/12/2001	CLP Pesticides
SL145-4FT	Southwest Corner	4/12/2001	
SL146-1FT	Southwest Corner	4/12/2001	CLP Pesticides
SL147-2FT	DMA AST	4/12/2001	CLP Pesticides
SL147-4FT	DMA AST	4/12/2001	
SL149-2FT	DMA AST	4/12/2001	CLP Pesticides
SL149-4FT	DMA AST	4/12/2001	
SL150-1FT	DMA AST	4/12/2001	CLP Pesticides
SL151-2FT	D IA AST	4/12/2001	CLP Pesticides
SL151-4FT	DMA AST	4/12/2001	
SL152-2FT	DMA AST	4/12/2001	CLP Pesticides
SL152-4FT	DMA AST	4/12/2001	
SL153-2FT	DMA AST	4/12/2001	CLP Pesticides
SL153-4FT	DMA AST	4/12/2001	CLP Pesticides
SL154-2FT	DMA AST	4/12/2001	CLP Pesticides
SL154-4FT	DMA AST	4/12/2001	
SL155-2FT	DMA AST	4/12/2001	CLP Pesticides
SL155-4FT	DMA AST	4/12/2001	
SL156-2FT	DMA AST	4/12/2001	CLP Pesticides
SL156-4FT	DMA AST	4/12/2001	
SL157-2FT	DMA AST	4/12/2001	CLP Pesticides
SL157-4FT	DMA AST	4/12/2001	
SL158-2FT	DMA AST	4/12/2001	CLP Pesticides
SL158-4FT	DMA AST	4/12/2001	
SL159-1FT	DMA AST	4/12/2001	CLP Pesticides
SL160-2FT	Pipeline Rack	4/12/2001	CLP Pesticides, Dioxin
SL160-4FT	Pipeline Rack	4/12/2001	
SL161-2FT	Pipeline Rack	4/12/2001	CLP Pesticides
SL161-4FT	Pipeline Rack	4/12/2001	
SL162-4FT	Pipeline Rack	4/12/2001	CLP Pesticides, Dioxin
SL162-6FT	Pipeline Rack	4/12/2001	CLP Pesticides
SL163-2FT	DMA AST	5/10/2001	CLP Pesticides
SL163-4FT	DMA AST	5/10/2001	
SL164-2FT	DMA AST	5/10/2001	CLP Pesticides
SL164-4FT	DMA AST	5/10/2001	

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL164-6FT	DMA AST	5/10/2001	
SL164-8FT	DMA AST	5/10/2001	
SL165-2FT	DMA AST	5/10/2001	CLP Pesticides
SL165-4FT	DMA AST	5/10/2001	
SL165-6FT	DMA AST	5/10/2001	
SL166-2FT	DMA AST	5/10/2001	CLP Pesticides
SL166-4FT	DMA AST	5/10/2001	
SL166-6FT	DMA AST	5/10/2001	
SL166-8FT	DMA AST	5/10/2001	
SL167-2FT	DMA AST	5/10/2001	CLP Pesticides
SL167-4FT	DMA AST	5/10/2001	
SL167-6FT	DMA AST	5/10/2001	
SL167-8FT	DMA AST	5/10/2001	
SL168-2FT	DMA AST	5/10/2001	CLP Pesticides
SL168-4FT	DMA AST	5/10/2001	CLP Pesticides
SL169-2FT	DMA AST	5/10/2001	CLP Pesticides
SL169-4FT	DMA AST	5/10/2001	
SL170-2FT	DMA AST	5/10/2001	CLP Pesticides
SL170-4FT	DMA AST	5/10/2001	Dioxin
SL171-2FT	DMA AST	5/10/2001	CLP Pesticides
SL171-4FT	DMA AST	5/10/2001	CLP Pesticides
SL172-2FT	DMA AST	5/10/2001	CLP Pesticides
SL172-4FT	DMA AST	5/10/2001	CLP Pesticides
SL173-2FT	Pipeline Rack	5/10/2001	CLP Pesticides
SL173-4FT	Pipeline Rack	5/10/2001	
SL174-2FT	Pipeline Rack	5/10/2001	CLP Pesticides
SL174-4FT	Pipeline Rack	5/10/2001	
SL175-2FT	Pipeline Rack	5/10/2001	CLP Pesticides
SL175-4FT	Pipeline Rack	5/10/2001	
SL176-2FT	Railroad Unloading	5/10/2001	CLP Pesticides
SL176-4FT	Railroad Unloading	5/10/2001	
SL177-2FT	Railroad Unloading	5/10/2001	CLP Pesticides
SL177-4FT	Railroad Unloading	5/10/2001	
SL178-2FT	Railroad Unloading	5/10/2001	CLP Pesticides
SL178-4FT	Railroad Unloading	5/10/2001	
DSL1	Railroad Unloading Area	8/23/2000	Full TCLP

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
DSL2	Phase I: Liquid Storage Area	8/23/2000	Full TCLP
DSL3	Raw Materials Warehouse (Potential)	9/6/2000	Full TCLP
DSL4	Raw Materials Warehouse (Contaminated)	9/6/2000	Full TCLP
DSL5	Railroad Unloading Spill Containment Basin (8 FT)	9/8/2000	Full TCLP
		9/18/2000	Dioxin - 8280
DSL6	Raw Materials Warehouse (Small Pile)	9/11/2000	TCLP Pesticides
DSL7	Raw Materials Warehouse (Under Concrete)	9/15/2000	TCLP Pesticides
DSL8	Pipeline Run (1-4FT)	9/26/2000	TCLP Pesticides
		9/26/2000	Dioxin - 8280
DSL9	Pipeline Run (4-8FT)	9/26/2000	TCLP Pesticides
DSL10	Railroad Unloading Trench (1-4FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL11	Railroad Unloading Trench (4-8FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL12	Phase II: Liquid Storage Area (berm)	10/26/2000	TCLP Pesticides/Herbicides
DSL13	Phase II: Liquid Storage Trench (1-4FT)	10/26/2000	TCLP Pesticides/Herbicides
		10/26/2000	Dioxin 8280
DSL14	Phase II: Liquid Storage Trench (4-8FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL15	Railroad Unloading Area	11/3/2000	TCLP Pesticides
DSL16	Phase II: Liquid Storage Area	11/7/2000	TCL SVOC/Pesticide/Herbicide
DSL17	Phase II: Liquid Storage Area	11/7/2000	TCL VOC
DSL18	Phase II: Liquid Storage Area	11/10/2000	BTEX
DSL19	Railroad Unloading Trench (1-4FT)	11/10/2000	BTEX
DSL20	Phase II: Liquid Storage Area	11/10/2000	Full TCLP
DSL21	Phase II: Liquid Storage Area	11/15/2000	EOX
DSL22	Phase II: Liquid Storage Area	11/15/2000	TCLP Pesticides
DSL23	Phase II: Liquid Storage Area	11/29/200	TCLP Pesticides
DSL24	Disposal Composite	5/10/2001	COD; fats, oils, and greases; ammonia nitrogen; pH; total cyanide; and presence of oxidizing agents

[1] These samples were not analyzed due to problems with laboratory. Additional locations were chosen and samples submitted for analysis.
[2] These samples were not analyzed per discussions with the USEPA.

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS	ANALYSIS DUE	RISK
SL01 - 4 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	3.36E-08
SL02 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	9.50E-08
SL02 - 5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	3.23E-08
SL03 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	4.47E-07
SL04 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	3.34E-08
SL05 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	2.45E-07
SL06 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	3.47E-08
SL07 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	1.96E-06
SL07 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	3.72E-08
SL08 - 2.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	1.62E-06
SL08 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	4.18E-08
SL09 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	2.77E-06
SL10 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	1.72E-07
SL10 - 5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	1.52E-07
SL11 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	2.99E-08
SL11 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs	NA	2.86E-08
SL12 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	2.09E-07
SL12 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	3.10E-08
SL13 - 1.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	3.16E-07
SL13 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	3.60E-08
SL14 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	2.72E-08
SL15 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	5.26E-07
SL16 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	4.61E-06
SL17 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	4.03E-05
SL17 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	2.23E-05
SL18 - 2.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	1.02E-07
SL19 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	4.91E-08
SL20 - 2 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	4.89E-08
SL20 - 2 FT DUP	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs	NA	5.31E-08
SL21 - 1 FT	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL22 - 1 FT	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL22 - 2 FT	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL23 - 1 FT	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL24 - 1 FT	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL24 - 1 FT DUP	Phase I & II: Liquid Storage Area	8/8/2000	Not Analyzed[1]	NA	NA
SL25 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL25 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL26 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS	ANALYSIS DUE	RISK
SL26 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL27 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL27 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL28 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL 28 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]	NA	NA
SL29 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]	NA	NA
SL30 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]	NA	NA
SL31 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]	NA	NA
SL32 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]	NA	NA
SL33 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	2.07E-03
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL33 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	1.42E-06
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL34 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	2.06E-04
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL34 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	1.52E-08
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL35 - 1 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	1.15E-05
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL35 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	2.55E-06
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL36 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	1.76E-04
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL36 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs	NA	2.98E-05
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL37 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs	NA	1.50E-08
		8/23/2000	CLP Pesticide COPCs	9/15/2000	
SL38 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs	NA	1.37E-08
		8/23/2000	CLP Pesticide COPCs	9/15/2000	
SL39 - 6.2 FT	Railroad Unloading Storage Basin	8/24/2000	SW846 Pesticide COPCs	NA	1.37E-08
		8/24/2000	CLP Pesticide COPCs	9/15/2000	
SL40-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs	9/8/2000	1.93E-05
		8/28/2000	CLP Pesticide COPCs	9/22/2000	
SL41-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs	9/8/2000	3.36E-04
		8/28/2000	CLP Pesticide COPCs	9/22/2000	
SL41-5.2FT-DUP	Railroad Unloading Spill Containment Basin	8/28/2000	CLP Pesticide COPCs	9/22/2000	
SL44-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL44-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS	ANALYSIS DUE	RISK
SL45-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL45-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL46-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL46-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL47-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL47-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL47-DUP	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL48-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL48-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL49-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL49-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide COPCs	9/29/2000	
SL50-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL50-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL51-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL51-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL52-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL52-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL53-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
		8/31/2000	Dioxin - 8290	9/27/2000	
SL54-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
		8/31/2000	Dioxin - 8290	9/27/2000	
SL55-6IN	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide	9/29/2000	
SL56-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs	9/20/2000	4.44E-06
		9/6/2000	CLP Pesticide COPCs	10/9/2000	
SL57-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs	9/20/2000	6.65E-07
		9/6/2000	CLP Pesticide COPCs	10/9/2000	
SL58-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs	9/20/2000	2.98E-08
		9/6/2000	CLP Pesticide COPCs	10/9/2000	
SL59-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs	9/20/2000	4.52E-08
		9/6/2000	CLP Pesticide COPCs	10/9/2000	
SL60-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide COPCs	10/11/2000	
SL61-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide COPCs	10/11/2000	
SL62-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL62-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL63-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL63-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL64-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL64-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS	ANALYSIS DUE	RISK
SL65-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL65-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL66-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL66-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL67-1FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL67-4FT	Utility Area	9/21/2000	CLP Pesticide COPCs	10/25/2000	
SL68-8FT	Pipeline Run	9/26/2000	Dioxin - 8280		
SL69-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
SL70-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
SL71-8FT	Pipeline Run	9/26/2000	Dioxin - 8280		
SL72-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
SL73-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
SL74-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
SL75-8FT	Pipeline Run	9/26/2000	CLP Pesticide COPCs		
DSL1	Railroad Unloading Area	8/23/2000	Full TCLP	NA	clean
DSL2	Phase I: Liquid Storage Area	8/23/2000	Full TCLP	NA	clean
DSL3	Raw Materials Warehouse (Potential)	9/6/2000	Full TCLP	NA	clean
DSL4	Raw Materials Warehouse (Contaminated)	9/6/2000	Full TCLP	NA	clean
DSL5	Railroad Unloading Spill Containment Basin (8 FT)	9/8/2000	Full TCLP	9/22/2000	
		9/18/2000	Dioxin - 8280	9/22/2000	
DSL6	Raw Materials Warehouse (Small Pile)	9/11/2000	TCLP Pesticides	NA	clean
DSL7	Raw Materials Warehouse (Under Concrete)	9/15/2000	TCLP Pesticides	9/22/2000	
DSL8	Pipeline Run (1-4FT)	9/26/2000	TCLP Pesticides		
		9/26/2000	Dioxin - 8280		
DSL9	Pipeline Run (4-8FT)	9/26/2000	TCLP Pesticides		

[1] These samples were not analyzed.

[2] These samples were not analyzed per discussions with the USEPA.

Table 1a

Summary of Samples to be Validated/Figure 3-3

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL37 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide COPCs
SL38 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide
SL39 - 6.2 FT	Railroad Unloading Storage Basin	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL48-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL48-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL50-6IN (SL50-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL50-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-6IN (SL51-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-6IN (SL52-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL53-6IN (SL53-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL54-6IN (SL54-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL55-6IN (SL55-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL56-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL57-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL58-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL59-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL60-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL61-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL62-1FT	Utility Area	9/21/2000	CLP Pesticide
SL62-4FT	Utility Area	9/21/2000	CLP Pesticide

Table 1a

Summary of Samples to be Validated/Figure 3-3

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL63-1FT	Utility Area	9/21/2000	CLP Pesticide
SL63-4FT	Utility Area	9/21/2000	CLP Pesticide
SL64-1FT	Utility Area	9/21/2000	CLP Pesticide
SL64-4FT	Utility Area	9/21/2000	CLP Pesticide
SL65-1FT	Utility Area	9/21/2000	CLP Pesticide
SL65-4FT	Utility Area	9/21/2000	CLP Pesticide
SL66-1FT	Utility Area	9/21/2000	CLP Pesticide
SL66-4FT	Utility Area	9/21/2000	CLP Pesticide
SL67-1FT	U lity Area	9/21/2000	CLP Pesticide
SL67-4FT	Utility Area	9/21/2000	CLP Pesticide
SL68-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL69-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL70-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL71-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL72-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL73-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL74-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL75-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL77-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL78-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL80-5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL81-3.5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL82-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL83-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL84-5FT	Hartwell Building Expansion	11/10/2000	CLP Pesticide
SL84-5FT DUP	Hartwell Building Expansion	11/10/2000	CLP Pesticide

Table 1a

Summary of Samples to be Validated/Figure 3-3

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
[1] These samples were not analyzed due to problems with laboratory. Additional locations were chosen and samples submitted for analysis.			
[2] These samples were not analyzed per discussions with the USEPA.			
[3] Several modifications/revisions were made to the table. The changes are indicated by italics.			

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL01 - 4 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL02 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL02 - 5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL03 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL04 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL05 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL06 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL07 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL07 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL08 - 2.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL08 - 4.5 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL09 - 3 FT	Raw Materials Warehouse	6/28/2000	Pesticides COPCs
SL10 - 3 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL10 - 5 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL11 - 3 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL11 - 4.5 FT	Phase I & II: Liquid Storage Area	6/28/2000	Pesticides COPCs
SL12 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL12 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL13 - 1.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL13 - 3.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL14 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL15 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL16 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL17 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL17 - 3 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL18 - 2.5 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL19 - 1 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL20 - 2 FT	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL20 - 2 FT DUP	Phase I & II: Liquid Storage Area	7/3/2000	Pesticides COPCs
SL21 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL22 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL22 - 2 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL23 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL24 - 1 FT	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL24 - 1 FT DUP	Phase II: Liquid Storage Area	8/8/2000	Not Analyzed[1]
SL25 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL25 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL26 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL26 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL27 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL27 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL28 - 2 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL 28 - 4 FT	Raw Materials Warehouse	8/8/2000	Not Analyzed[1]
SL29 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL30 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL31 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL32 - 10 FT	Phase I: Liquid Storage Area	8/18/2000	Not Analyzed[2]
SL33 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL33 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL34 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL34 - 3.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL35 - 1 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL35 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL36 - 1.2 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL36 - 4.5 FT	Raw Materials Warehouse	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL37 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide
SL38 - 6.2 FT	Railroad Unloading Storage Basin	8/23/2000	SW846 Pesticide COPCs
		8/23/2000	CLP Pesticide
SL39 - 6.2 FT	Railroad Unloading Storage Basin	8/24/2000	SW846 Pesticide COPCs
		8/24/2000	CLP Pesticide
SL40-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs
		8/28/2000	CLP Pesticide
SL41-5.2FT	Railroad Unloading Spill Containment Basin	8/28/2000	SW846 Pesticide COPCs
		8/28/2000	CLP Pesticide
SL41-5.2FT-DUP	Railroad Unloading Spill Containment Basin	8/28/2000	CLP Pesticide

Table 1

Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL44-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL44-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL45-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL45-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL46-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL46-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-1FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-4FT	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL47-DUP	Phase II: Liquid Storage Area	8/31/2000	CLP Pesticide
SL48-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL48-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-1FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL49-4FT	Hartwell Building Expansion	8/31/2000	CLP Pesticide
SL50-6IN (SL50-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL50-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-6IN (SL51-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL51-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-6IN (SL52-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL52-4FT	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL53-6IN (SL53-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL54-6IN (SL54-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
		8/31/2000	Dioxin - 8290
SL55-6IN (SL55-0.5FT)	Low Lying Area	8/31/2000	CLP: VOA, Metals, Semi-VOA, Pesticide,Herbicides
SL56-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL57-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL58-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL59-5FT	Raw Materials Warehouse	9/6/2000	SW846 Pesticide COPCs
		9/6/2000	CLP Pesticide
SL60-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL61-5FT	Railroad Unloading Spill Containment Basin	9/8/2000	CLP Pesticide
SL62-1FT	Utility Area	9/21/2000	CLP Pesticide
SL62-4FT	Utility Area	9/21/2000	CLP Pesticide
SL63-1FT	Utility Area	9/21/2000	CLP Pesticide

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
SL63-4FT	Utility Area	9/21/2000	CLP Pesticide
SL64-1FT	Utility Area	9/21/2000	CLP Pesticide
SL64-4FT	Utility Area	9/21/2000	CLP Pesticide
SL65-1FT	Utility Area	9/21/2000	CLP Pesticide
SL65-4FT	Utility Area	9/21/2000	CLP Pesticide
SL66-1FT	Utility Area	9/21/2000	CLP Pesticide
SL66-4FT	Utility Area	9/21/2000	CLP Pesticide
SL67-1FT	Utility Area	9/21/2000	CLP Pesticide
SL67-4FT	Utility Area	9/21/2000	CLP Pesticide
SL68-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL69-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL70-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL71-8FT	Pipeline Run	9/26/2000	Dioxin - 8280
SL72-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL73-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL74-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL75-8FT	Pipeline Run	9/26/2000	CLP Pesticide
SL76-4FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL77-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL78-6FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL79-2.5FT	Phase II: Liquid Storage Area	10/20/2000	CLP Pesticide/Herbicide
SL80-5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL81-3.5FT	Phase II: Liquid Storage Area	11/2/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL82-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL83-9FT	Phase II: Liquid Storage Area	11/7/2000	CLP Pesticide/Herbicide
			CLP VOA/SVOA
SL84-5FT	Hartwell Building Expansion	11/10/2000	CLP Pesticide
SL84-5FT DUP	Hartwell Building Expansion	11/10/2000	CLP Pesticide
DSL1	Railroad Unloading Area	8/23/2000	Full TCLP
DSL2	Phase I: Liquid Storage Area	8/23/2000	Full TCLP
DSL3	Raw Materials Warehouse (Potential)	9/6/2000	Full TCLP
DSL4	Raw Materials Warehouse (Contaminated)	9/6/2000	Full TCLP
DSL5	Railroad Unloading Spill Containment Basin (8 FT)	9/8/2000	Full TCLP

Table 1
Summary of the Sampling Program

SAMPLE ID	SAMPLE LOCATION	SAMPLE DATE	ANALYSIS
		9/18/2000	Dioxin - 8280
DSL6	Raw Materials Warehouse (Small Pile)	9/11/2000	TCLP Pesticides
DSL7	Raw Materials Warehouse (Under Concrete)	9/15/2000	TCLP Pesticides
DSL8	Pipeline Run (1-4FT)	9/26/2000	TCLP Pesticides
		9/26/2000	Dioxin - 8280
DSL9	Pipeline Run (4-8FT)	9/26/2000	TCLP Pesticides
DSL10	Railroad Unloading Trench (1-4FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL11	Railroad Unloading Trench (4-8FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL12	Phase II: Liquid Storage Area (berm)	10/26/2000	TCLP Pesticides/Herbicides
DSL13	Phase II: Liquid Storage Trench (1-4FT)	10/26/2000	TCLP Pesticides/Herbicides
		10/26/2000	Dioxin 8280
DSL14	Phase II: Liquid Storage Trench (4-8FT)	10/26/2000	TCLP Pesticides/Herbicides
DSL15	Railroad Unloading Area	11/3/2000	TCLP Pesticides
DSL16	Phase II: Liquid Storage Area	11/7/2000	TCL SVOC/Pesticide/Herbicide
DSL17	Phase II: Liquid Storage Area	11/7/2000	TCL VOC
DSL18	Phase II: Liquid Storage Area	11/10/2000	BTEX
DSL19	Railroad Unloading Trench (1-4FT)	11/10/2000	BTEX
DSL20	Phase II: Liquid Storage Area	11/10/2000	Full TCLP
DSL21	Phase II: Liquid Storage Area	11/15/2000	EOX
DSL22	Phase II: Liquid Storage Area	11/15/2000	TCLP Pesticides
DSL23	Phase II: Liquid Storage Area	11/29/200	TCLP Pesticides
[1] These samples were not analyzed due to problems with laboratory. Additional locations were chosen and samples submitted for analysis.			
[2] These samples were not analyzed per discussions with the USEPA.			
[1] Several modifications/revisions were made to the table. The changes are indicated by italics.			

Table 2
Pesticide Sampling Results - Evcavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL108-2*	SL108-4*	SL109-2*	SL110-2*	SL110-4*	SL111-2*	SL111-4*	SL112-2*	SL112-4*	SL113-4*	SL113-6*	SL114-2*
4,4'-DDD	6,600 C	3,400 CP	190 P	2,000 JCP	57 P	1,400 C	3,800 C	ND	21	2,200 C	2.8 JP	6,600 C
4,4'-DDE	1,100 JC	1,300 JCP	75 JP	ND	89 P	290 JP	1,300 C	ND	16 P	550 JCP	ND	ND
4,4'-DDT	7,200 C	3,400 C	160 P	12,000 C	95 P	5,300	10,000 C	4,900 JC	29 P	9,600 C	26	33,000 C
Aldrin	15,000 C	68,000 C	3,200 C	38,000 C	240	19,000 C	27,000 C	210,000 C	63	47,000 C	11	57,000 C
alpha-BHC	ND	ND	ND	ND	22	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	9,100 C	14,000 C	430	1,100 C	230	1,200 C	2,500	ND	39 P	930 C	2.1	24,000 C
beta-BHC	4,400 CP	ND	440 P	ND	330	ND	ND	ND	ND	ND	ND	15,000 CP
delta-BHC	ND	ND	96	ND	74	ND	170 J	ND	ND	ND	ND	ND
Dieldrin	24,000 C	29,000 C	3,400 C	15,000 C	1,700 C	5,600 C	84,000 C	14,000 C	410 C	9,500 C	5.8	240,000 C
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	1,500 JC	2,200 CP	58 JP	ND	ND	ND	ND	ND	16 P	ND	ND	ND
Endosulfan sulfate	1,100 JC	970 JC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	3,800 C	2,800 C	96 JP	ND	20 JP	ND	2,200 C	ND	9.4 JP	ND	ND	ND
Endrin aldehyde	850 JC	ND	ND	ND	ND	ND	410 J	ND	ND	ND	ND	ND
Endrin ketone	1,400 JC	ND	610 C	1,200 JC	390	440	1,300 C	ND	50	710 JP	ND	ND
gamma-BHC (Lindane)	ND	ND	ND	ND	14 J	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	17,000 C	17,000 C	1,200 C	7,100 C	320	6,600 C	10,000 C	3,800 JC	62	6,300 C	9.4	110,000 C
Heptachlor	34,000 C	23,000 C	320 P	17,000 C	ND	9,600 C	2000 JC	7,300 C	56	11,000 C	18	54,000 C
Heptachlor epoxide	850 CP	ND	63 P	ND	110 P	160 JP	300 JP	ND	20 P	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	1,100	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

J= Reported value is less than the reporting limit but greater than the method detection limit.

P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL115-2*	SL116-5	SL117-6*	SL118-2*	SL119-2*	SL120-2*	SL121-1	SL122-5*	SL123-5*	SL124-5*	SL125-5*
4,4'-DDD	10 J	3 JP	ND	ND	2.7 JP	ND	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	15	ND	ND	ND	6.4	ND	2.5 J	ND	ND	ND	ND
Aldrin	310	12	52	20	30	5	160	69	44 E	20	790 C
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	8.3	ND	ND	ND	1.4 JP	ND	2 JP	ND	ND	1.4 JP	ND
beta-BHC	5.9 JP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	85	3.9 JP	24	4.9 P	22	2.6 J	69	15 P	23	19 P	140
Endosulfan I	ND	ND	ND	ND	ND	ND	1.3 JP	21 P	1.8 JP	ND	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	ND	ND	ND	4.8	ND	ND	ND	ND
gamma-BHC (Lindane)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	41	2.4	1.6 J	ND	3.6	ND	8	ND	2.5	2.9	ND
Heptachlor	39	ND	2.8	ND	ND	ND	11	ND	3.5	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

E= Result concentration exceeds the calibration range.

J= Reported value is less than the reporting limit but greater than the method detection limit.

P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL126-4	SL127-5*	SL128-7*	SL129-5*	SL130-2*	SL131-2*	SL132-2*	SL133-2*	SL134-2*	SL135-2*	SL136-2*
4,4'-DDD	4.8 J	ND	ND	10.0 P	ND	12.0 P	ND	ND	ND	ND	ND
4,4'-DDE	ND	ND	ND	18	ND	5.1 JP	ND	ND	ND	ND	ND
4,4'-DDT	2.1 J	ND	ND	59	ND	6.5 J	ND	ND	ND	ND	ND
Aldrin	32	ND	5.1	20	ND	200	ND	2.5	ND	ND	ND
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	3.5 P	ND	ND	16 P	ND	32	ND	ND	ND	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	15 P	2.9 JP	2 JP	48	ND	75	ND	ND	ND	2.8 JP	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4 JP	ND
Endosulfan II	ND	ND	ND	7.8	ND	ND	ND	ND	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	6.4	ND	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	6.9	1.4 J	ND	52	ND	47	1 J	1.4 J	ND	ND	ND
Heptachlor	2.2 P	ND	1.1 J	19	1.9 JP	4 J	ND	2.2	ND	ND	ND
Heptachlor epoxide	ND	ND	ND	6.4 P	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

J= Reported value is less than the reporting limit but greater than the method detection limit.

P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL137-2*	SL138-1	SL139-1	SL140-1	SL141-1	SL142-2*	SL143-2*	SL144-2*	SL145-2*	SL146-1	SL147-2*	SL149-2*
4,4'-DDD	ND	ND	ND	ND	ND	15 P	ND	ND	ND	ND	60	20
4,4'-DDE	ND	ND	ND	ND	2.1 J	ND	ND	ND	ND	ND	4.9	ND
4,4'-DDT	ND	ND	ND	ND	7.8	ND	ND	ND	ND	ND	4.7	ND
Aldrin	ND	ND	ND	ND	21	ND	ND	ND	ND	ND	30	1.4 J
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	ND	ND	ND	ND	2.8 P	ND	ND	1.4 JP	ND	ND	9.2	3.7
beta-BHC	ND	ND	ND	ND	2.0 P	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	ND	ND	ND	ND	20	2.6 J	ND	2.1 JP	ND	ND	140	ND
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.6	ND
Endosulfan II	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1 J	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	ND	ND	ND	ND	7.8	ND	ND	ND	ND	ND	12	1.5 JP
Heptachlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2 JP	ND
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2 P	17 P	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:
All concentrations are presented in micrograms per kilogram(µg/kg).
C= The presence of the compound was confirmed by GC/MS analysis.
J= Reported value is less than the reporting limit but greater than the method detection limit.
P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.
j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.
ND= Not Detected.
*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL150-1	SL151-2*	SL152-2*	SL153-2*	SL153-4*	SL154-2*	SL155-2*	SL156-2*	SL157-2*	SL158-2*	SL159-1*
4,4'-DDD	ND	4.2	ND	2,300 C	4.3 P	5.6	97 P	ND	ND	27 J	20,000 C
4,4'-DDE	ND	6.6	ND	230 JP	6.6	2.8 J	58 P	ND	ND	8.4 P	ND
4,4'-DDT	5	5.9	ND	3,600 C	20	2.3 J	380	5.7 Pj	ND	68	14,000 C
Aldrin	6.7	25	3.7	12,000 C	17	23	67	7.1	ND	3.6	140,000 C
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	3.2	2.1 P	ND	1,600 C	1.7 JP	ND	270	9.8 Pj	ND	61 P	6,500 C
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,200 EPC
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	18	6.7 P	ND	3,000 C	11	ND	780 C	41 Pj	3.1 JP	620 C	30,000 C
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	ND	ND	260 J	ND	ND	110	ND	ND	6.6 P	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	ND	ND	ND	ND	ND	ND	15 JP	ND	ND	3.9 JP	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	400 C	ND	ND	47	ND	ND	20	ND
gamma-BHC (Lindane)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
gamma-Chlordane	5.9	6.6	2.0 J	4,400 C	5.7 P	1.6 J	600 C	15	ND	160	26,000 JC
Heptachlor	4	5.4	ND	6,100 C	4.4	1.6 J	130 J	4.9	ND	63 E	7,700 C
Heptachlor epoxide	ND	ND	ND	ND	ND	ND	60	1.3 JPj	ND	28	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	33	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

E= Result concentration exceeds the calibration range.

J= Reported value is less than the reporting limit but greater .han the method detection limit.

P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL160-2*	SL161-2*	SL162-4*	SL162-6*	SL163-2*	SL164-2*	SL165-2*	SL166-2	SL167-2*	SL168-2*	SL168-4*
4,4'-DDD	15	ND	150,000	350 P	84	2,300 PC	31,000 JC	84,000 PC	630 C	ND	ND
4,4'-DDE	ND	ND	4,700	9.7 JP	18	2,900 PC	ND	43,000 C	ND	ND	ND
4,4'-DDT	ND	ND	2,800	ND	31	14,000 C	92,000 C	1,900,000 C	1,900 C	ND	ND
Aldrin	5.8	ND	1,800	ND	420	23,000 C	170,000 C	29,000 C	750 C	150,000 C	120
alpha-BHC	ND	25	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	2.7 P	59 P	3,600	ND	62	9,500 C	76,000 C	67,000 C	120 J	ND	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	1,300 C	ND	ND	ND	ND	ND
Dieldrin	6.0 P	260 JP	25,000	49 P	110	110,000 C	310,000 C	160,000 C	250 J	ND	22
Endosulfan I	1.5 JP	ND	ND	80 JP	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	75 P	7,700	13	ND	990 JC	ND	17,000 JP	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	4.4 P	530 CP	ND	39	ND	1,000 JPC	ND	ND	ND	ND	ND
Endrin aldehyde	ND	ND	2,700	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	ND	ND	ND	ND	5,300 C	ND	ND	ND	ND	2.5 J
gamma-BHC (Lindane)	ND	13 J	ND	ND	ND	470 JC	ND	ND	ND	ND	ND
gamma-Chlordane	3.7	34 P	ND	ND	270	25,000 C	410,000 C	72,000 C	220	ND	ND
Heptachlor	ND	ND	ND	ND	300	18,000 C	840,000 C	32,000 C	73	ND	ND
Heptachlor epoxide	ND	ND	ND	ND	7.0 P	2,000 PC	ND	ND	ND	ND	ND
Methoxychlor	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

J= Reported value is less than the reporting limit but greater than the method detection limit.

P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

Table 2
Pesticide Sampling Results - Excavation and Model Check Samples
Riverdale Chemical Company - Chicago Heights, Illinois

	SL169-2*	SL170-2*	SL171-2*	SL171-4*	SL172-2*	SL172-4*	SL173-2*	SL174-2*	SL175-2*	SL176-2	SL177-2	SL178-2
4,4'-DDD	4.3	700 PC	ND	9.9	1,000 PC	ND	ND	790 PC	95 P	920 C	2.5 J	ND
4,4'-DDE	ND	870 C	ND	2.2 JP	1,700 C	ND	ND	ND	11	ND	ND	ND
4,4'-DDT	15	6,200 C	1,300 JC	40 P	12,000 C	ND	ND	51 P	290	260	ND	ND
Aldrin	70	6,300 C	37,000 C	50	8,300 C	2 J	1.1 J	ND	7.9	12	91	1.5 J
alpha-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
alpha-Chlordane	7.2 P	1,300 C	880 PC	11	3,000 C	ND	ND	60	14 P	14	1.1 JP	ND
beta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
delta-BHC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	19 P	24,000 C	15,000 C	230	78,000 C	5.5	2.9 JP	91 P	27 P	26 P	5.6 P	18
Endosulfan I	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	ND	320 J	ND	3.5 JP	850 C	ND	ND	180 P	8.8 P	ND	ND	ND
Endosulfan sulfate	ND	ND	ND	ND	ND	ND	ND	25 JP	ND	ND	ND	ND
Endrin	ND	ND	ND	2.2 JP	460 JPC	ND	ND	71 P	10.0 P	ND	ND	ND
Endrin aldehyde	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin ketone	ND	590	ND	32	2,800 C	ND	ND	ND	ND	ND	ND	ND
gamma-BHC (Lindane)	ND	ND	12,000 C	3.9	690 C	ND	ND	ND	ND	ND	ND	2.1 JP
gamma-Chlordane	26	3,600 C	2,900 C	23 P	8,100 C	ND	ND	300	9.9 P	130	3.2	ND
Heptachlor	4.6	3,200 C	3,500 C	20	8,400 C	ND	ND	ND	7.1	220	ND	1.4 J
Heptachlor epoxide	2.4	680 C	ND	6.6 P	2,000 C	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	ND	18,000 C	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes:

All concentrations are presented in micrograms per kilogram(µg/kg).

C= The presence of the compound was confirmed by GC/MS analysis.

J= Reported value is less than the reporting limit but greater than the method detection limit.

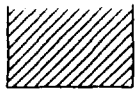
P= The difference for detected pesticide result between the two GC columns is greater than 25 percent.

j= Specific QC criteria are outside the established control limits, the reported concentration is appropriate when the difference between the two GC columns was greater than 30 percent, j-qualifier suggests uncertainty in the sample results.

ND= Not Detected.

*= Soil is to be excavated during the Phase I Removal Action in June 2001.

FIGURES



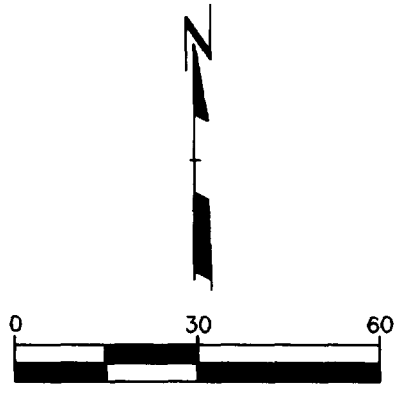
TOTAL NONCANCER HAZARD INDEX >1

NOTES:

1) EXCAVATION AND OFF-SITE DISPOSAL OF SOIL AT SPECIFIED AREAS WHICH EXCEED AN EXCESS CUMULATIVE CANCER RISK OF 1 X 10-4 AND A HAZARD INDEX OF 1, OR DIOXIN (2,3,7,8 - TCDD) ABOVE 15 PARTS PER BILLION TOXICITY EQUIVALENTS (TEQs). THE HORIZONTAL EXTENT IS DEFINED BY CONFIRMATORY SAMPLING AND VERTICAL EXTENT IS DEFINED BY CONFIRMATORY SAMPLING OR A MAXIMUM DEPTH OF 8 FEET BELOW GROUND SURFACE.

2) *- INDICATES EXCAVATION TO 8 FEET BELOW GROUND SURFACE AT THIS LOCATION.

3) TBA - INDICATES ANALYSIS IS PENDING.



NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				
0.				

Oversized maps can be viewed at U.S. EPA Region V Superfund Records Center

RIVERDALE CHEMICAL COMPANY
CHICAGO HEIGHTS, IL

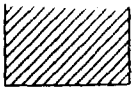
SOIL SAMPLING LOCATIONS
SL90 - SL178

DRAWN BY: MHS/TCP	SCALE:	PROJ. NO. 4962.01
CHECKED BY: RAM	AS NOTED	FILE NO. 49620185.DWG
APPROVED BY: RAM		**FIGURE 1**
DATE: JUNE 2001		

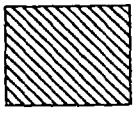
RMT

150 N. Patrick Blvd.
Brookfield, WI 53045-5854
Phone: 262/879-1212
Fax: 262/879-1220

0



TOTAL NONCANCER HAZARD INDEX >1



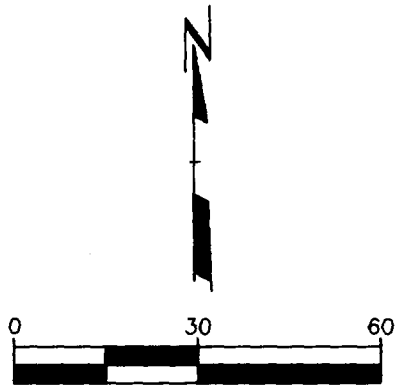
PROPOSED EXCAVATION AREAS

NOTES:

1) EXCAVATION AND OFF-SITE DISPOSAL OF SOIL AT SPECIFIED AREAS WHICH EXCEED AN EXCESS CUMULATIVE CANCER RISK OF 1 X 10-4 AND A HAZARD INDEX OF 1, OR DIOXIN (2,3,7,8 - TCDD) ABOVE 15 PARTS PER BILLION TOXICITY EQUIVALENTS (TEQs). THE HORIZONTAL EXTENT IS DEFINED BY CONFIRMATORY SAMPLING AND VERTICAL EXTENT IS DEFINED BY CONFIRMATORY SAMPLING OR A MAXIMUM DEPTH OF 8 FEET BELOW GROUND SURFACE.

2) *- INDICATES EXCAVATION TO 8 FEET BELOW GROUND SURFACE AT THIS LOCATION.

3) TBA - INDICATES ANALYSIS IS PENDING.



NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				
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Oversized maps can be viewed at U.S. EPA Region V Superfund Records Center

RIVERDALE CHEMICAL COMPANY
CHICAGO HEIGHTS, IL

CALCULATED RISK AT EXCAVATION AREAS AND MODEL CHECK SAMPLES

DRAWN BY: MHS/TCP	SCALE:	PROJ. NO. 4962.01
CHECKED BY: RAM	AS NOTED	FILE NO. 49620184
APPROVED BY: RAM		**FIGURE 2**
DATE: JUNE 2001		

RMT

150 N. Patrick Blvd.
Brookfield, WI 53045-5854
Phone: 262/879-1212
Fax: 262/879-1220

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APPENDIX A

RMT
Integrated Environmental Solutions

222 South Riverside Plaza
Suite 820
Chicago, IL 60606
Telephone: 312-575-0200
Fax: 312-575-0300

April 3, 2001

Via Messenger

Ms. Callie Bolattino
On-Scene Coordinator
USEPA, Emergency Response Branch, Region 5
77 West Jackson Boulevard (SE-5J)
Chicago, Illinois 60640

Subject: Riverdale Chemical Company
Addendum to Phase I RA Field Sampling and Analysis Plan

Dear Callie:

Riverdale Chemical Company (Riverdale) is submitting this Addendum to the Phase I Remedial Action Sampling Plan based on our discussions during the meeting with the USEPA on March 29, 2001. Riverdale proposes to collect additional soil samples, without any agreement or admission that any further excavation is warranted at the site.

Soil samples will be collected to attempt to delineate potential areas of excavation and check concentrations within the modeled construction worker risk scenarios. The sampling will be conducted using procedures described in the Phase I Remedial Action Work Plan including the associated Quality Assurance Project Plan (QAPP), the Field Sampling and Analysis Plan (FSAP) and the Health and Safety Plan (HSP). The proposed sampling is summarized in Table 1, with sampling locations provided on Figure 1. Sampling locations may be modified in the field, depending on accessibility to locations.

Please contact me with any questions or comments. Thank you for your timely review of this document.

Sincerely,

RMT, Inc.

Rae Mindock
Project Manager

Attachments: Figure 1, Proposed Soil Sampling Locations

cc: Matt Ohl, USEPA
Karen Peaceman, USEPA
Om Patel, Weston
Peter Bibby, Riverdale
Todd Wiener, MWE

Table 1
Proposed Soil Sampling Program

Location	Area	Number of Samples	Sample Depth	Sample Analysis
Railroad Unloading				
SS10	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
SS11	10 ft x 10 ft	3	2 ft below limestone	Pesticide (3)
Model Check	Discrete	3	1 ft below limestone	Pesticide (3)
South of Finished Goods				
SS46, SS33 – SS35	10 ft x 50 ft	6	2 ft below limestone	Pesticide (6) Dioxin (2)
Model Check	Discrete	4	1 ft below limestone	Pesticide (4)
Southwest Corner				
SS16, SS36	10 ft x 30 ft	4	2 ft below limestone	Pesticide (4)
Model Check	Discrete	1	1 ft below limestone	Pesticide (1)
Pipeline Rack				
B11	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4) Dioxin (2)
SB06	10 ft x 10 ft	3	4 ft below limestone	Pesticide (3) Dioxin (2)
Model Check	Discrete	2	1 ft below limestone	Pesticide (2)
DMA AST				
B7	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4) Dioxin (2)
B8	10 ft x 10 ft	3	2 ft below limestone	Pesticide (3)
B10	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
SS01	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
SS18	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
SS38	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
SB05	10 ft x 10 ft	4	5 ft below limestone	Pesticide (4)
SS17, SS39	10 ft x 30 ft	4	2 ft below limestone	Pesticide (4)
Model Check	Discrete	5	1 ft below limestone	Pesticide (5)
Total Samples				Pesticide (72) Dioxin (8)

RMT
Integrated Environmental Solutions

222 South Riverside Plaza
Suite 820
Chicago, IL 60606
Telephone: 312-575-0200
Fax: 312-575-0300

May 8, 2001

Via Messenger

Ms. Callie Bolattino
On-Scene Coordinator
USEPA, Emergency Response Branch, Region 5
77 West Jackson Boulevard (SE-5J)
Chicago, Illinois 60640

Subject: Riverdale Chemical Company
Addendum to Phase I RA Field Sampling and Analysis Plan

Dear Callie:

Riverdale Chemical Company (Riverdale) is submitting this Addendum to the Phase I Remedial Action Sampling Plan based on our discussions during our meeting on May 3, 2001. Riverdale proposes to collect additional soil samples, without any agreement or admission that any further excavation is warranted at the site.

Soil samples will be collected at four additional locations based on the results of the April 2001 sampling event. The proposed locations are adjacent to SL105, SL114, SL159 and SL162. The proposed sampling is summarized in Table 1, with sampling locations provided on Figure 1. We are also recalculating the cancer risk and hazard indices at each location using the assumption that the value for the Skin Surface Area Available for Dermal Contact is 5,800 cm^2/day as discussed during our meeting on May 3rd. Sampling locations may be modified based on the results of the re-calculated values or in the field (depending on accessibility to locations).

Table 1
Proposed Additional Soil Sampling Locations

Location	Area	Number of Samples	Sample Depth	Sample Analysis
Pipeline Rack				
SL162	10 ft x 10 ft	3	2 ft below limestone	Pesticide (3)
DMA AST				
SL105	10 ft x 10 ft	3	2 ft below limestone	Pesticide (3)
SL114	10 ft x 10 ft	3	2 ft below limestone	Pesticide (3)
SL159	10 ft x 10 ft	4	2 ft below limestone	Pesticide (4)
Total Samples		13		Pesticide (13)

The sampling will be conducted using procedures described in the Phase I Remedial Action Work Plan including the associated Quality Assurance Project Plan (QAPP), the Field Sampling and Analysis Plan (FSAP) and the Health and Safety Plan (HSP).

Please contact me with any questions or comments. Thank you for your timely review of this document.

Sincerely,

RMT, Inc.

Rae Mindock
Project Manager

Attachments: Figure 1, Proposed Additional Soil Sampling Locations

cc: Matt Ohl, USEPA
Karen Peaceman, USEPA
Om Patel, Weston
Peter Bibby, Riverdale
Todd Wiener, MWE

APPENDIX B

Total Cancer Risk
Removal Action Sampling
Riverdale Chemical Company - Chicago Heights, Illinois

Sampling Location	Analyte														Total Cancer Risk
	Aldrin	Alpha-BHC	Beta-BHC	4,4-DDD	4,4-DDE	4,4-DDT	Delta-BHC	Dieldrin	Chlordane	Gamma-BHC	Heptachlor	Heptachlor Epoxide	Toxaphene	2,3,7,8-TCDD	
SL90-7	7.38E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	0.00E+00	3.91E-11	6.78E-10	1.52E-11	0.00E+00	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.36E-09
SL91-6	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL92-7	3.88E-10	1.44E-10	4.11E-11	1.04E-11	1.48E-11	1.48E-11	4.11E-11	6.95E-10	1.60E-11	0.00E+00	1.03E-10	2.08E-10	2.51E-09	0.00E+00	4.18E-09
SL93-2	2.18E-09	4.38E-10	1.25E-10	3.13E-11	4.43E-11	1.85E-11	1.25E-10	3.48E-09	3.24E-10	0.00E+00	5.18E-09	6.32E-10	7.65E-09	0.00E+00	2.02E-08
SL94-1	7.75E-07	1.57E-08	4.50E-09	1.15E-09	1.62E-09	1.62E-09	4.50E-09	2.95E-08	2.89E-10	3.25E-09	2.05E-09	2.27E-08	2.75E-07	0.00E+00	1.14E-06
SL95-8	1.11E-07	5.34E-10	1.52E-10	6.26E-11	5.17E-11	1.99E-10	1.52E-10	2.47E-08	3.83E-10	1.10E-10	6.16E-09	7.31E-10	8.84E-09	0.00E+00	1.53E-07
SL96-6	1.03E-06	1.37E-08	3.91E-09	9.90E-10	1.40E-09	3.32E-10	3.91E-09	1.11E-08	3.34E-10	4.24E-10	1.66E-08	1.98E-08	2.39E-07	0.00E+00	1.35E-06
SL97-6	1.85E-09	1.37E-09	3.91E-10	1.02E-11	1.44E-11	1.44E-11	3.91E-10	6.78E-10	1.65E-10	2.82E-10	9.77E-11	1.98E-10	2.39E-09	0.00E+00	7.85E-09
SL98-1	9.23E-10	1.51E-10	4.30E-11	1.15E-11	1.62E-11	1.62E-11	4.30E-11	7.65E-10	1.67E-11	3.11E-11	1.27E-10	2.17E-10	2.63E-09	0.00E+00	4.99E-09
SL100-3	1.07E-09	1.44E-10	4.11E-11	1.07E-11	1.51E-11	1.51E-11	4.11E-11	7.12E-10	2.09E-11	2.96E-11	1.08E-10	2.08E-10	2.51E-09	0.00E+00	4.92E-09
SL101-7	1.51E-06	6.36E-08	4.30E-08	1.04E-08	5.83E-09	4.50E-08	1.82E-08	5.91E-07	1.85E-08	1.31E-08	5.08E-08	1.62E-08	1.11E-06	0.00E+00	3.50E-06
SL102-2	2.29E-06	6.91E-08	1.97E-08	1.72E-09	1.62E-09	8.12E-09	1.97E-08	2.88E-06	3.34E-08	1.24E-07	3.81E-07	3.16E-08	1.31E-07	0.00E+00	6.00E-06
SL102-4	9.97E-08	7.53E-08	2.15E-08	5.21E-09	7.38E-09	1.03E-09	2.15E-08	2.40E-06	5.85E-09	1.55E-08	2.93E-08	5.14E-08	1.31E-06	0.00E+00	4.05E-06
SL103-2	2.81E-06	2.60E-07	7.43E-08	4.38E-09	5.17E-09	3.91E-08	7.43E-08	7.99E-06	5.93E-08	7.06E-09	3.62E-07	7.31E-08	4.54E-06	0.00E+00	1.63E-05
SL103-4	2.33E-06	3.08E-07	8.80E-08	2.29E-08	3.25E-08	6.87E-08	8.80E-08	1.84E-05	5.13E-08	6.35E-08	9.09E-07	4.45E-07	5.38E-06	0.00E+00	2.82E-05
SL104-2	1.59E-06	3.01E-07	8.60E-08	2.24E-08	3.40E-09	1.99E-08	8.60E-08	9.04E-06	3.65E-08	6.21E-08	3.52E-07	3.56E-07	5.26E-06	5.67E-08	1.73E-05
SL104-4	4.80E-08	2.26E-10	6.45E-11	4.85E-11	2.36E-11	3.47E-11	6.45E-11	1.08E-07	8.97E-10	4.66E-11	1.61E-10	1.58E-09	3.94E-09	0.00E+00	1.63E-07
SL105-2	2.47E-06	1.51E-07	4.30E-08	3.39E-08	6.12E-09	6.72E-09	4.30E-08	2.47E-06	1.75E-08	3.11E-08	1.08E-07	5.34E-08	2.63E-06	1.04E-03	1.05E-03
SL105-4														2.69E-07	2.69E-07
SL106-2	1.29E-05	1.30E-06	4.30E-07	1.56E-07	1.70E-08	6.35E-08	3.71E-07	6.26E-06	2.96E-07	4.24E-08	6.94E-06	1.88E-06	2.27E-05	0.00E+00	5.34E-05
SL106-4	9.23E-06	3.01E-08	8.60E-09	1.30E-07	1.33E-08	5.02E-08	8.60E-09	5.91E-06	1.90E-07	9.60E-09	2.64E-06	8.10E-08	5.26E-07	0.00E+00	1.88E-05
SL107-2	1.59E-05	2.94E-07	2.97E-07	1.62E-07	9.60E-09	3.91E-08	8.41E-08	6.26E-06	3.73E-07	2.60E-08	2.54E-06	1.60E-07	5.14E-06	0.00E+00	3.13E-05
SL107-4	5.17E-06	6.84E-09	1.95E-09	2.66E-08	4.43E-09	3.62E-08	3.17E-09	2.81E-06	1.08E-07	4.24E-09	1.27E-06	5.53E-08	1.19E-07	0.00E+00	9.62E-06
SL108-2	7.38E-06	5.68E-07	1.64E-07	3.44E-08	8.12E-09	5.32E-08	1.62E-07	8.34E-06	2.06E-07	1.17E-07	3.71E-06	1.68E-07	9.92E-06	0.00E+00	3.08E-05
SL108-4	2.47E-05	6.29E-08	1.80E-08	1.77E-08	9.60E-09	2.51E-08	1.80E-08	1.04E-05	2.43E-07	1.30E-08	2.44E-06	9.09E-08	1.10E-06	0.00E+00	3.92E-05
SL109-2	1.22E-06	3.63E-08	1.72E-08	9.90E-10	5.54E-10	1.18E-09	3.75E-09	1.18E-06	1.39E-08	7.48E-09	3.13E-08	1.25E-08	6.33E-07	0.00E+00	3.16E-06
SL110-2	1.66E-05	7.53E-08	2.15E-08	1.04E-08	7.75E-09	8.86E-08	2.15E-08	5.21E-06	6.23E-08	1.55E-08	1.66E-06	1.09E-07	1.31E-06	0.00E+00	2.52E-05
SL110-4	6.65E-08	3.01E-09	1.29E-08	2.97E-10	6.57E-10	7.02E-10	2.89E-09	4.17E-07	4.11E-09	3.95E-10	7.33E-10	2.17E-08	1.79E-08	0.00E+00	5.49E-07
SL111-2	7.38E-06	1.51E-07	4.30E-08	7.30E-09	2.14E-09	1.55E-08	4.30E-08	1.95E-06	6.54E-08	3.11E-08	1.08E-06	3.16E-08	2.63E-06	0.00E+00	1.34E-05
SL111-4	9.97E-06	2.26E-08	6.45E-09	1.98E-08	9.60E-09	8.86E-08	6.65E-09	9.38E-06	9.50E-08	4.66E-09	1.86E-07	5.93E-08	3.94E-07	0.00E+00	2.02E-05
SL112-2	8.12E-05	2.81E-06	8.01E-07	2.06E-07	2.92E-07	3.62E-08	8.01E-07	4.87E-06	4.45E-08	5.79E-07	7.14E-07	4.05E-06	4.90E-05	0.00E+00	1.45E-04
SL112-4	1.40E-08	4.31E-10	1.23E-10	1.09E-10	1.18E-10	2.14E-10	1.23E-10	1.15E-07	7.68E-10	8.89E-11	5.47E-09	3.95E-09	7.53E-09	0.00E+00	1.48E-07
SL113-2														2.25E-05	2.25E-05
SL113-4	1.74E-05	3.22E-07	9.19E-08	1.15E-08	4.06E-09	7.09E-08	9.19E-08	3.30E-06	6.31E-08	6.64E-08	1.17E-06	4.64E-07	5.61E-06	0.00E+00	2.86E-05
SL113-6	4.06E-09	1.44E-10	4.11E-11	1.46E-11	1.48E-11	1.92E-10	4.11E-11	2.02E-09	8.74E-11	2.96E-11	1.76E-09	2.08E-10	2.51E-09	0.00E+00	1.11E-08
SL114-2	2.55E-05	1.92E-06	5.86E-07	3.44E-08	1.99E-07	2.44E-07	5.47E-07	8.34E-05	1.02E-06	3.95E-07	5.86E-06	2.77E-06	3.34E-05	0.00E+00	1.56E-04
SL115-2	1.26E-07	4.52E-09	2.31E-10	5.21E-11	4.80E-10	1.11E-10	1.29E-09	2.95E-08	5.32E-10	9.32E-10	3.81E-09	6.52E-09	7.88E-08	0.00E+00	2.52E-07
SL116-5	4.43E-09	1.57E-10	4.50E-11	1.56E-11	1.62E-11	1.62E-11	4.50E-11	1.36E-09	2.70E-11	3.25E-11	1.12E-10	2.27E-10	2.75E-09	0.00E+00	9.23E-09
SL117-6	2.10E-08	5.95E-10	1.70E-10	4.43E-11	6.28E-11	6.28E-11	1.70E-10	8.34E-09	2.28E-11	1.23E-10	2.74E-10	8.60E-10	1.04E-08	0.00E+00	4.22E-08
SL118-2	7.38E-09	1.44E-10	4.11E-11	1.07E-11	1.51E-11	1.51E-11	4.11E-11	1.70E-09	1.60E-11	2.96E-11	1.03E-10	2.08E-10	2.51E-09	0.00E+00	1.22E-08
SL119-2	1.11E-08	1.51E-10	4.30E-11	1.41E-11	1.55E-11	4.73E-11	4.30E-11	7.65E-09	3.80E-11	3.11E-11	1.08E-10	2.17E-10	2.63E-09	0.00E+00	2.21E-08
SL120-2	1.85E-09	1.44E-10	4.11E-11	1.04E-11	1.48E-11	1.48E-11	4.11E-11	9.04E-10	1.60E-11	2.96E-11	1.03E-10	2.08E-10	2.51E-09	0.00E+00	5.88E-09
SL121-1	5.91E-08	1.64E-09	4.69E-10	1.20E-10	1.70E-10	1.85E-11	4.69E-10	2.40E-08	7.60E-11	3.39E-10	1.08E-09	2.37E-09	2.87E-08	0.00E+00	1.18E-07
SL122-5	2.81E-08	7.53E-10	2.15E-10	5.73E-11	8.12E-11	8.12E-11	2.15E-10	5.21E-09	8.36E-11	1.55E-10	1.95E-10	1.09E-09	1.31E-08	0.00E+00	4.93E-08
SL123-5	1.62E-08	1.57E-10	4.50E-11	1.15E-11	1.62E-11	1.62E-11	4.50E-11	7.99E-09	2.77E-11	3.25E-11	3.42E-10	2.27E-10	2.75E-09	3.91E-09	3.18E-08
SL124-5	7.38E-09	1.57E-10	4.50E-11	1.15E-11	1.62E-11	1.62E-11	4.50E-11	6.60E-09	3.27E-11	3.25E-11	1.12E-10	2.27E-10	2.75E-09	3.91E-09	2.13E-08
SL125-5	3.32E-07	1.57E-08	4.50E-09	1.15E-09	1.62E-09	1.62E-09	4.50E-09	4.87E-08	1.75E-09	3.25E-09	1.12E-08	2.27E-08	2.75E-07	0.00E+00	7.24E-07
SL126-4	1.33E-08	2.94E-10	8.41E-11	2.50E-11	3.10E-11	1.55E-11	8.41E-11	5.21E-09	7.91E-11	6.07E-11	2.15E-10	4.25E-10	5.14E-09	0.00E+00	2.50E-08

Notes:

(1) Risk was calculated based on assumptions in EE/CA developed by Ecology and Environment, Inc. (with revised assumption)

(2) If the analyte concentration was below method detection limit, half of the method detection limit was used as the exposure point concentration (EPC).

H:\Data\Projects\Riverdale\Remedy\Pref_CancerConstruct_half.xlscancer summary
Last Updated: 6/26/20018:54 AM

Riverdale Chemical Company
Prepared By: Brendan McLennan
Checked By: Rae Mindock

Total Cancer Risk
Removal Action Sampling
Riverdale Chemical Company - Chicago Heights, Illinois

Sampling Location	Analyte														Total Cancer Risk
	Aldrin	Alpha-BHC	Beta-BHC	4,4-DDD	4,4-DDE	4,4-DDT	Delta-BHC	Dieldrin	Chlordane	Gamma-BHC	Heptachlor	Heptachlor Epoxide	Toxaphene	2,3,7,8-TCDD	
SL127-5	3.88E-10	1.44E-10	4.11E-11	1.07E-11	1.51E-11	1.51E-11	4.11E-11	1.01E-09	1.86E-11	2.96E-11	1.03E-10	2.08E-10	2.51E-09	8.15E-09	1.27E-08
SL128-7	1.88E-09	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.95E-10	1.52E-11	2.82E-11	1.08E-10	1.98E-10	2.39E-09	0.00E+00	5.57E-09
SL129-5	7.38E-09	7.53E-10	2.15E-10	5.21E-11	1.33E-10	4.36E-10	4.36E-10	3.30E-08	1.04E-09	1.55E-10	4.01E-09	1.26E-09	1.31E-08	8.86E-07	9.42E-07
SL130-2	4.43E-10	1.64E-10	4.69E-11	1.20E-11	1.70E-11	1.70E-11	1.70E-11	7.99E-10	1.82E-11	3.39E-11	1.86E-10	2.37E-10	2.87E-09	0.00E+00	4.86E-09
SL131-2	7.75E-08	2.94E-09	8.41E-10	6.26E-11	3.77E-11	4.80E-11	8.41E-10	2.41E-08	6.01E-10	6.07E-10	3.91E-10	4.25E-09	5.14E-08	0.00E+00	1.44E-07
SL132-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.48E-11	1.48E-11	3.91E-11	6.95E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.05E-09
SL133-2	9.23E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.82E-11	2.82E-11	2.15E-10	1.98E-10	2.39E-09	1.83E-08	2.30E-08
SL134-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL135-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	9.73E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.32E-09
SL136-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	1.95E-08	2.34E-08
SL137-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL138-1	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL139-1	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL140-1	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL141-1	7.75E-09	1.37E-10	7.82E-11	1.02E-11	1.55E-11	5.76E-11	3.91E-11	6.95E-09	8.06E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	1.78E-08
SL142-2	3.69E-10	1.37E-10	3.91E-11	7.82E-11	1.44E-11	1.44E-11	3.91E-11	9.04E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.32E-09
SL143-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL144-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	7.30E-10	1.82E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.08E-09
SL145-2	3.69E-10	1.37E-10	3.91E-11	1.02E-11	1.44E-11	1.44E-11	3.91E-11	6.78E-10	1.52E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	4.03E-09
SL146-1	3.88E-10	1.44E-10	4.11E-11	1.07E-11	1.51E-11	1.51E-11	4.11E-11	7.12E-10	1.60E-11	2.96E-11	1.03E-10	6.32E-10	2.51E-09	0.00E+00	4.66E-09
SL147-2	1.11E-08	1.57E-09	4.50E-10	3.13E-10	3.62E-11	3.47E-11	4.50E-10	4.87E-08	1.61E-10	3.25E-10	1.17E-10	3.36E-09	2.75E-08	0.00E+00	9.90E-08
SL148-2	5.17E-10	1.57E-10	4.50E-11	1.04E-10	1.62E-11	1.62E-11	4.50E-11	7.65E-10	3.95E-11	3.25E-11	1.12E-10	2.27E-10	2.75E-09	0.00E+00	4.82E-09
SL150-1	2.47E-09	1.57E-10	4.50E-11	1.15E-11	1.62E-11	3.69E-11	4.50E-11	6.26E-09	6.92E-11	3.25E-11	3.91E-10	2.27E-10	2.75E-09	0.00E+00	1.25E-08
SL151-2	9.23E-09	1.37E-10	3.91E-11	2.19E-11	4.87E-11	4.36E-11	3.91E-11	2.33E-09	6.61E-11	2.82E-11	5.28E-10	1.98E-10	2.39E-09	0.00E+00	1.51E-08
SL152-2	1.37E-09	1.44E-10	4.11E-11	1.04E-11	1.48E-11	1.48E-11	4.11E-11	6.95E-10	2.32E-11	2.96E-11	1.03E-10	2.08E-10	2.51E-09	0.00E+00	5.20E-09
SL153-2	7.75E-06	1.23E-07	3.52E-08	1.20E-08	1.70E-09	2.66E-08	3.52E-08	1.04E-06	7.91E-08	2.54E-08	1.17E-06	1.78E-07	2.15E-06	0.00E+00	1.26E-05
SL153-4	6.28E-09	1.51E-10	4.30E-11	2.24E-11	4.87E-11	3.48E-10	4.30E-11	3.82E-09	5.63E-11	3.11E-11	4.30E-10	2.17E-10	2.63E-09	0.00E+00	1.34E-08
SL154-2	8.49E-09	1.37E-10	3.91E-11	2.92E-11	2.07E-11	1.70E-11	3.91E-11	6.78E-10	1.98E-11	2.82E-11	1.56E-10	1.98E-10	2.39E-09	0.00E+00	1.22E-08
SL155-2	2.47E-08	9.58E-09	2.74E-09	5.00E-10	4.28E-10	4.00E-09	2.74E-09	3.82E-07	9.20E-09	1.98E-09	2.25E-08	1.19E-08	1.67E-07	0.00E+00	6.40E-07
SL156-2	2.62E-09	1.73E-10	5.08E-11	1.30E-11	1.85E-11	4.21E-11	5.08E-11	1.42E-08	1.89E-10	3.67E-11	4.79E-10	2.57E-10	3.11E-09	0.00E+00	2.13E-08
SL157-2	4.62E-10	1.71E-10	4.89E-11	1.28E-11	1.81E-11	1.81E-11	4.89E-11	1.08E-09	1.90E-11	3.53E-11	1.22E-10	2.47E-10	2.99E-09	0.00E+00	5.27E-09
SL158-2	1.31E-09	1.78E-09	5.08E-10	1.41E-10	6.20E-11	5.02E-10	5.08E-10	2.15E-07	1.68E-09	3.67E-10	6.16E-09	5.53E-09	3.11E-08	0.00E+00	2.65E-07
SL159-1	5.54E-05	2.94E-06	3.60E-07	1.04E-07	3.06E-07	1.03E-07	8.41E-07	1.04E-05	3.61E-07	6.07E-07	7.53E-07	4.25E-06	5.14E-05	0.00E+00	1.28E-04
SL160-2	2.74E-09	1.37E-10	3.91E-11	7.82E-11	1.48E-11	1.48E-11	3.91E-11	2.09E-09	4.87E-11	2.82E-11	9.77E-11	1.98E-10	2.39E-09	2.67E-08	2.68E-08
SL161-2	3.69E-08	3.42E-09	3.91E-09	1.04E-09	1.48E-09	1.48E-09	3.91E-09	9.04E-08	7.07E-10	3.67E-10	9.77E-09	1.98E-08	2.39E-07	0.00E+00	4.12E-07
SL162-4	6.65E-07	1.51E-06	4.30E-07	7.82E-07	3.47E-08	2.07E-08	4.30E-07	8.69E-06	3.57E-08	3.11E-07	1.08E-06	2.17E-06	2.63E-05	2.38E-04	2.80E-04
SL162-6	1.53E-08	5.68E-09	1.62E-09	1.82E-09	7.16E-11	5.91E-10	1.62E-10	1.70E-08	9.12E-11	1.17E-10	4.06E-10	8.20E-10	9.92E-09	0.00E+00	5.37E-08
SL163-2	1.59E-07	4.79E-10	1.37E-10	4.36E-10	1.33E-10	2.29E-10	1.37E-10	3.82E-08	2.52E-09	9.88E-11	3.03E-08	1.36E-09	8.36E-09	0.00E+00	2.41E-07
SL164-2	9.97E-06	4.72E-08	1.35E-08	1.20E-08	2.14E-08	1.03E-07	5.08E-08	3.82E-05	2.62E-07	1.33E-08	1.95E-06	3.95E-07	8.24E-07	0.00E+00	5.19E-05
SL165-2	6.28E-05	1.51E-06	4.30E-07	1.62E-07	1.55E-07	6.79E-07	4.30E-07	1.08E-04	4.06E-06	3.11E-07	8.99E-05	2.17E-06	2.63E-05	0.00E+00	2.97E-04
SL166-2	1.07E-05	9.58E-07	2.74E-07	4.38E-07	3.18E-07	1.40E-05	2.74E-07	5.56E-05	1.06E-06	1.98E-07	3.13E-06	1.38E-06	1.67E-05	0.00E+00	1.05E-04
SL167-2	3.06E-07	1.51E-06	4.30E-10	3.28E-09	1.59E-10	1.40E-08	4.30E-10	8.69E-08	2.56E-09	3.11E-10	7.14E-09	2.17E-09	2.63E-08	0.00E+00	4.52E-07
SL168-2	5.54E-05	1.57E-07	4.50E-08	1.17E-08	1.66E-08	1.66E-08	4.50E-08	7.82E-07	1.75E-08	3.25E-08	1.12E-07	2.27E-07	2.75E-06	0.00E+00	5.96E-05
SL168-4	4.43E-08	1.37E-10	3.91E-11	1.04E-11	1.48E-11	1.48E-11	3.91E-11	7.65E-09	1.52E-10	2.82E-11	9.77E-11	1.98E-10	2.39E-09	0.00E+00	5.51E-08
SL169-2	2.46E-08	1.51E-10	4.30E-11	2.24E-11	1.55E-11	1.11E-10	4.30E-11	6.60E-09	2.52E-10	3.11E-11	4.50E-10	4.74E-10	2.63E-09	0.00E+00	3.74E-08
SL170-2	2.06E-06	1.44E-08	4.11E-09	3.65E-09	6.42E-09	5.24E-08	4.11E-09	8.34E-06	3.86E-08	2.96E-09	3.13E-07	1.34E-07	2.51E-07	0.00E+00	1.18E-05
SL170-4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.19E-08
SL171-2	1.51E-05	5.82E-08	1.66E-08	4.17E-09	5.91E-09	9.60E-09	1.66E-08	5.21E-06	2.87E-08	3.39E-07	4.89E-07	8.40E-08	1.02E-06	0.00E+00	2.24E-05
SL171-4	1.85E-08	1.51E-10	4.30E-11	5.00E-11	1.62E-11	2.95E-10	4.30E-11	7.99E-08	2.58E-10	1.11E-10	1.95E-09	1.30E-09	2.63E-09	0.00E+00	1.05E-07
SL172-2	1.99E-06	2.87E-08	8.21E-09	5.21E-09	1.20E-08	8.86E-08	8.21E-09	2.71E-05	8.29E-08	1.95E-08	8.99E-07	3.95E-07	5.02E-07	0.00E+00	3.28E-05
SL172-4	7.38E-10	1.64E-10	4.69E-11	1.20E-11	1.70E-11	1.70E-11	4.69E-11	1.91E-09	1.82E-11	3.39E-11	1.17E-10	2.37E-10	2.87E-09	0.00E+00	6.23E-09
SL173-2	4.06E-10	1.51E-10	4.30E-11	1.09E-11	1.55E-11	1.55E-11	4.30E-11	1.01E-09	1.67E-11	3.11E-11	1.08E-10	2.17E-10	2.63E-09	0.00E+00	4.69E-09
SL174-2	4.06E-09	1.51E-09	4.30E-10	4.12E-09	1.55E-10	3.77E-10	4.30E-10	3.16E-08	2.76E-09	3.11E-10	1.08E-09	2.17E-09	2.63E-08	0.00E+00	7.53E-08
SL175-2	2.92E-09	2.74E-10	7.82E-11	4.95E-10	8.12E-11	2.14E-09	7.82E-11	9.36E-09	1.82E-10	5.65E-11	6.94E-10	3.95E-10	4.78E-09	0.00E+00	2.16E-08
SL176-2	4.43E-09	7.53E-10	2.15E-10	5.06E-09	7.75E-11	1.92E-09	2.15E-10	9.04E-09	9.88E-10	1.55E-10	2.15E-08	1.09E-09	1.31E-08	0.00E+00	5.86E-08
SL177-2	3.36E-08	1.44E-10	4.11E-11	1.30E-11	1.48E-11	1.48E-11	4.11E-11	1.95E-09	3.27E-11	2.96E-11	1.03E-10	2.08E-10	2.51E-09	0.00E+00	3.87E-08
SL178-2	5.54E-10	1.51E-10	4.30E-11	1.09E-11	1.55E-11	1.55E-11	4.30E-11	6.26E-09	1.60E-11	3.11E-11	1.37E-10	2.17E-10	2.63E-09	0.00E+00	1.01E-08

Notes
(1) Risk was calculated based on assumptions in EE/CA developed by Ecology and Environment, Inc (with revised assumption)
(2) If the analyte concentration was below method detection limit, half of the method detection limit was used as the exposure point concentration (EPC)

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL90-7

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-11	3.1E-10	1.6E-15	2.8E-14			2.5E-11	4.3E-10	7.4E-10	16.95
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.14
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.23
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.33
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	15.56
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.35
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin		NI	NI		1	0.10											
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.24
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.54
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	54.85
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.8E-09		1.6E-13				2.6E-09	4.4E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL91-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	*2.0E-03*	*2.4E-01*	*2.4E-01*	*NI*	1	*0.10*		*1.8E-11*	*4.2E-12*	*1.6E-15*				*2.5E-11*	*6.0E-12*	*1.0E-11*	*0.25*
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	*2.0E-03*	*NI*	*NI*	*NI*	1	*0.10*		*1.8E-11*		*1.6E-15*				*2.5E-11*			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	*1.0E-01*	*1.1E+00*	*1.1E+00*	*1.1E+00*	1	*0.10*		*9.0E-10*	*9.9E-10*	*8.2E-14*	*9.1E-14*			*1.3E-09*	*1.4E-09*	*2.4E-09*	*59.30*
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL92-7

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.5E-12	1.6E-10	8.7E-16	1.5E-14			1.3E-11	2.3E-10	3.9E-10	9.20
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	3.41
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.3E-12	1.6E-15				2.5E-11	6.1E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.35
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.35
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.9E-10	1.6E-15	2.6E-14			2.5E-11	4.1E-10	7.0E-10	16.50
Chlordane	2.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-11	6.6E-12	1.7E-15	6.1E-16			2.7E-11	9.3E-12	1.6E-11	0.38
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.70
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	2.44
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	4.93
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	59.55
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.6E-13				2.5E-09	4.2E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL

SAMPLING LOCATION: SL93-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	5.9E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		5.3E-11	9.0E-10	4.9E-15	8.3E-14			7.5E-11	1.3E-09	2.2E-09	10.73
Alpha-BHC	3.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.9E-11	1.8E-10	2.6E-15	1.7E-14			4.1E-11	2.6E-10	4.4E-10	2.16
Beta-BHC	3.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.9E-11	5.2E-11	2.6E-15	4.7E-15			4.1E-11	7.3E-11	1.3E-10	0.62
4,4-DDD	6.0E-03	2.4E-01	2.4E-01	NI	1	0.10		5.4E-11	1.3E-11	4.9E-15				7.6E-11	1.8E-11	3.1E-11	0.15
4,4-DDE	6.0E-03	3.4E-01	3.4E-01	NI	1	0.10		5.4E-11	1.8E-11	4.9E-15				7.6E-11	2.6E-11	4.4E-11	0.22
4,4-DDT	2.5E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.3E-11	7.7E-12	2.1E-15	7.0E-16			3.2E-11	1.1E-11	1.8E-11	0.09
Delta-BHC	3.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.9E-11	5.2E-11	2.6E-15	4.7E-15			4.1E-11	7.3E-11	1.3E-10	0.62
Dieldrin	1.0E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		9.0E-11	1.4E-09	8.2E-15	1.3E-13			1.3E-10	2.0E-09	3.5E-09	17.11
Chlordane	4.3E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.8E-10	1.3E-10	3.5E-14	1.2E-14			5.4E-10	1.9E-10	3.2E-10	1.59
Endosulfan I	3.2E-03	NI	NI	NI	1	0.10		2.9E-11		2.6E-15				4.1E-11			
Endosulfan II	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endosulfan sulfate	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endrin	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endrin aldehyde	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endrin ketone	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Gamma-BHC (Lindane)	3.2E-03	1.3E+00	1.3E+00	NI	1	0.10		2.9E-11	3.7E-11	2.6E-15				4.1E-11	5.3E-11	9.0E-11	0.44
Heptachlor	5.3E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.8E-10	2.1E-09	4.4E-14	2.0E-13			6.7E-10	3.0E-09	5.2E-09	25.51
Heptachlor epoxide	3.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.9E-11	2.6E-10	2.6E-15	2.4E-14			4.1E-11	3.7E-10	6.3E-10	3.11
Methoxychlor	3.2E-02	NI	NI	NI	1	0.10		2.9E-10		2.6E-14				4.1E-10			
Toxaphene	3.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.9E-09	3.2E-09	2.6E-13	2.9E-13			4.1E-09	4.5E-09	7.6E-09	37.65
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									8.4E-09		7.7E-13				1.2E-08	2.0E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL94-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.1E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.9E-08	3.2E-07	1.7E-12	2.9E-11			2.7E-08	4.5E-07	7.8E-07	68.19
Alpha-BHC	1.2E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-09	6.5E-09	9.5E-14	6.0E-13			1.5E-09	9.2E-09	1.6E-08	1.38
Beta-BHC	1.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-09	1.9E-09	9.5E-14	1.7E-13			1.5E-09	2.6E-09	4.5E-09	0.40
4,4-DDD	2.2E-01	2.4E-01	2.4E-01	NI	1	0.10		2.0E-09	4.8E-10	1.8E-13				2.8E-09	6.7E-10	1.1E-09	0.10
4,4-DDE	2.2E-01	3.4E-01	3.4E-01	NI	1	0.10		2.0E-09	6.7E-10	1.8E-13				2.8E-09	9.5E-10	1.6E-09	0.14
4,4-DDT	2.2E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-09	6.7E-10	1.8E-13	6.2E-14			2.8E-09	9.5E-10	1.6E-09	0.14
Delta-BHC	1.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-09	1.9E-09	9.5E-14	1.7E-13			1.5E-09	2.6E-09	4.5E-09	0.40
Dieldrin	8.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		7.7E-10	1.2E-08	7.0E-14	1.1E-12			1.1E-09	1.7E-08	3.0E-08	2.60
Chlordane	3.8E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.4E-10	1.2E-10	3.1E-14	1.1E-14			4.8E-10	1.7E-10	2.9E-10	0.03
Endosulfan I	*1.2E-01*	NI	NI	NI	1	*0.10*		*1.0E-09*		*9.5E-14*				*1.5E-09*			
Endosulfan II	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endosulfan sulfate	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin aldehyde	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin ketone	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Gamma-BHC (Lindane)	1.2E-01	1.3E+00	1.3E+00	NI	1	0.10		1.0E-09	1.3E-09	9.5E-14				1.5E-09	1.9E-09	3.2E-09	0.29
Heptachlor	2.1E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.9E-10	8.5E-10	1.7E-14	8.0E-14			2.7E-10	1.2E-09	2.1E-09	0.18
Heptachlor epoxide	*1.2E-01*	*9.1E+00*	*9.1E+00*	*9.1E+00*	1	*0.10*		*1.0E-09*	*9.4E-09*	*9.5E-14*	*8.6E-13*			*1.5E-09*	*1.3E-08*	*2.3E-08*	*2.00*
Methoxychlor	1.2E+00	NI	NI	NI	1	0.10		1.0E-08		9.5E-13				1.5E-08			
Toxaphene	1.2E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-07	1.1E-07	9.5E-12	1.0E-11			1.5E-07	1.6E-07	2.7E-07	24.16
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									4.7E-07		4.3E-11				6.7E-07	1.1E-06	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL95-8

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	3.0E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.7E-09	4.6E-08	2.5E-13	4.2E-12			3.8E-09	6.5E-08	1.1E-07	72.49
Alpha-BHC	3.9E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.5E-11	2.2E-10	3.2E-15	2.0E-14			5.0E-11	3.1E-10	5.3E-10	0.35
Beta-BHC	3.9E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.5E-11	6.3E-11	3.2E-15	5.8E-15			5.0E-11	8.9E-11	1.5E-10	0.10
4,4-DDD	1.2E-02	2.4E-01	2.4E-01	NI	1	0.10		1.1E-10	2.6E-11	9.9E-15				1.5E-10	3.7E-11	6.3E-11	0.04
4,4-DDE	7.0E-03	3.4E-01	3.4E-01	NI	1	0.10		6.3E-11	2.1E-11	5.8E-15				8.9E-11	3.0E-11	5.2E-11	0.03
4,4-DDT	2.7E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.4E-10	8.3E-11	2.2E-14	7.6E-15			3.4E-10	1.2E-10	2.0E-10	0.13
Delta-BHC	3.9E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.5E-11	6.3E-11	3.2E-15	5.8E-15			5.0E-11	8.9E-11	1.5E-10	0.10
Dieldrin	7.1E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.4E-10	1.0E-08	5.9E-14	9.4E-13			9.0E-10	1.4E-08	2.5E-08	16.15
Chlordane	5.0E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.5E-10	1.6E-10	4.2E-14	1.5E-14			6.4E-10	2.2E-10	3.8E-10	0.25
Endosulfan I	3.9E-03	NI	NI	NI	1	0.10		3.5E-11		3.2E-15				5.0E-11			
Endosulfan II	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endosulfan sulfate	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin aldehyde	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin ketone	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Gamma-BHC (Lindane)	3.9E-03	1.3E+00	1.3E+00	NI	1	0.10		3.5E-11	4.6E-11	3.2E-15				5.0E-11	6.4E-11	1.1E-10	0.07
Heptachlor	6.3E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		5.7E-10	2.6E-09	5.2E-14	2.4E-13			8.0E-10	3.6E-09	6.2E-09	4.03
Heptachlor epoxide	3.7E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.3E-11	3.0E-10	3.0E-15	2.8E-14			4.7E-11	4.3E-10	7.3E-10	0.48
Methoxychlor	3.7E-02	NI	NI	NI	1	0.10		3.3E-10		3.0E-14				4.7E-10			
Toxaphene	3.7E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.3E-09	3.7E-09	3.0E-13	3.4E-13			4.7E-09	5.2E-09	8.8E-09	5.78
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									6.3E-08		5.8E-12				8.9E-08	1.5E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL96-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.8E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.5E-08	4.3E-07	2.3E-12	3.9E-11			3.6E-08	6.1E-07	1.0E-06	76.85
Alpha-BHC	1.0E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-10	5.7E-09	8.2E-14	5.2E-13			1.3E-09	8.0E-09	1.4E-08	1.02
Beta-BHC	1.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-10	1.6E-09	8.2E-14	1.5E-13			1.3E-09	2.3E-09	3.9E-09	0.29
4,4-DDD	1.9E-01	2.4E-01	2.4E-01	NI	1	0.10		1.7E-09	4.1E-10	1.6E-13				2.4E-09	5.8E-10	9.9E-10	0.07
4,4-DDE	1.9E-01	3.4E-01	3.4E-01	NI	1	0.10		1.7E-09	5.8E-10	1.6E-13				2.4E-09	8.2E-10	1.4E-09	0.10
4,4-DDT	4.5E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.1E-10	1.4E-10	3.7E-14	1.3E-14			5.7E-10	1.9E-10	3.3E-10	0.02
Delta-BHC	1.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-10	1.6E-09	8.2E-14	1.5E-13			1.3E-09	2.3E-09	3.9E-09	0.29
Dieldrin	3.2E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.9E-10	4.6E-09	2.6E-14	4.2E-13			4.1E-10	6.5E-09	1.1E-08	0.83
Chlordane	4.4E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.0E-10	1.4E-10	3.6E-14	1.3E-14			5.6E-10	2.0E-10	3.3E-10	0.02
Endosulfan I	1.0E-01	NI	NI	NI	1	0.10		9.0E-10		8.2E-14				1.3E-09			
Endosulfan II	1.9E-01	NI	NI	NI	1	0.10		1.7E-09		1.6E-13				2.4E-09			
Endosulfan sulfate	1.9E-01	NI	NI	NI	1	0.10		1.7E-09		1.6E-13				2.4E-09			
Endrin	1.9E-01	NI	NI	NI	1	0.10		1.7E-09		1.6E-13				2.4E-09			
Endrin aldehyde	1.9E-01	NI	NI	NI	1	0.10		1.7E-09		1.6E-13				2.4E-09			
Endrin ketone	1.9E-01	NI	NI	NI	1	0.10		1.7E-09		1.6E-13				2.4E-09			
Gamma-BHC (Lindane)	1.5E-02	1.3E+00	1.3E+00	NI	1	0.10		1.4E-10	1.8E-10	1.2E-14				1.9E-10	2.5E-10	4.2E-10	0.03
Heptachlor	1.7E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.5E-09	6.9E-09	1.4E-13	6.4E-13			2.2E-09	9.7E-09	1.7E-08	1.24
Heptachlor epoxide	1.0E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-10	8.2E-09	8.2E-14	7.5E-13			1.3E-09	1.2E-08	2.0E-08	1.47
Methoxychlor	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Toxaphene	1.0E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-08	9.9E-08	8.2E-12	9.1E-12			1.3E-07	1.4E-07	2.4E-07	17.76
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.6E-07		5.1E-11				7.9E-07	1.3E-06	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL97-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	5.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.5E-11	7.7E-10	4.1E-15	7.0E-14			6.4E-11	1.1E-09	1.8E-09	23.53
Alpha-BHC	1.0E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-11	5.7E-10	8.2E-15	5.2E-14			1.3E-10	8.0E-10	1.4E-09	17.44
Beta-BHC	1.0E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-11	1.6E-10	8.2E-15	1.5E-14			1.3E-10	2.3E-10	3.9E-10	4.98
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.13
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.18
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.18
Delta-BHC	1.0E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-11	1.6E-10	8.2E-15	1.5E-14			1.3E-10	2.3E-10	3.9E-10	4.98
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	8.64
Chlordane	2.2E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.0E-10	6.8E-11	1.8E-14	6.3E-15			2.8E-10	9.7E-11	1.6E-10	2.10
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	I	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	I	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-02	1.3E+00	1.3E+00	NI	1	0.10		9.0E-11	1.2E-10	8.2E-15				1.3E-10	1.7E-10	2.8E-10	3.60
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	1.25
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	2.52
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	30.45
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									3.3E-09		2.9E-13				4.6E-09	7.8E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL98-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.5E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.3E-11	3.8E-10	2.1E-15	3.5E-14			3.2E-11	5.4E-10	9.2E-10	18.50
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	3.02
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.86
4,4-DDD	2.2E-03	2.4E-01	2.4E-01	NI	1	0.10		2.0E-11	4.8E-12	1.8E-15				2.8E-11	6.7E-12	1.1E-11	0.23
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.33
4,4-DDT	2.2E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-11	6.7E-12	1.8E-15	6.2E-16			2.8E-11	9.5E-12	1.6E-11	0.33
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.86
Dieldrin	2.2E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-11	3.2E-10	1.8E-15	2.9E-14			2.8E-11	4.5E-10	7.6E-10	15.33
Chlordane	2.2E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.0E-11	6.9E-12	1.8E-15	6.3E-16			2.8E-11	9.8E-12	1.7E-11	0.34
Endosulfan I	1.1E-03	*NI*	*NI*	*NI*	1	*0.10*		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI		1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	"	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.62
Heptachlor	1.3E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.2E-11	5.3E-11	1.1E-15	4.9E-15			1.7E-11	7.4E-11	1.3E-10	2.55
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-12	9.0E-11	9.1E-16	8.2E-15			1.4E-11	1.3E-10	2.2E-10	4.36
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	52.68
DIOXIN																	
2,3,7,8-TCDD		*1.5E+05*	*1.5E+05*	*1.5E+05*	*1*	*0.10*											
No sample collected																	
Total Cancer Risk									2.1E-09		1.9E-13				2.9E-09	5.0E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL

SAMPLING LOCATION SL100-3

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.9E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.6E-11	4.4E-10	2.4E-15	4.1E-14			3.7E-11	6.3E-10	1.1E-09	21.75
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	2.92
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.83
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.4E-12	1.7E-15				2.6E-11	6.3E-12	1.1E-11	0.22
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.3E-12	1.7E-15				2.6E-11	8.9E-12	1.5E-11	0.31
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.3E-12	1.7E-15	5.7E-16			2.6E-11	8.9E-12	1.5E-11	0.31
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.83
Dieldrin	2.1E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	3.0E-10	1.7E-15	2.7E-14			2.6E-11	4.2E-10	7.1E-10	14.47
Chlordane	2.8E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.5E-11	8.7E-12	2.3E-15	7.9E-16			3.5E-11	1.2E-11	2.1E-11	0.42
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.60
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-12	4.5E-11	9.1E-16	4.2E-15			1.4E-11	6.3E-11	1.1E-10	2.18
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	4.21
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	50.95
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.0E-09		1.8E-13				2.9E-09	4.9E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL101-7

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.1E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.7E-08	6.3E-07	3.4E-12	5.7E-11			5.2E-08	8.9E-07	1.5E-06	43.25
Alpha-BHC	4.7E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		4.2E-09	2.6E-08	3.8E-13	2.4E-12			5.9E-09	3.7E-08	6.4E-08	1.82
Beta-BHC	1.1E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-09	1.8E-08	9.1E-13	1.6E-12			1.4E-08	2.5E-08	4.3E-08	1.23
4,4-DDD	2.0E+00	2.4E-01	2.4E-01	NI	1	0.10		1.8E-08	4.3E-09	1.6E-12				2.5E-08	6.1E-09	1.0E-08	0.30
4,4-DDE	7.9E-01	3.4E-01	3.4E-01	NI	1	0.10		7.1E-09	2.4E-09	6.5E-13				1.0E-08	3.4E-09	5.8E-09	0.17
4,4-DDT	6.1E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.5E-08	1.9E-08	5.0E-12	1.7E-12			7.8E-08	2.6E-08	4.5E-08	1.29
Delta-BHC	4.7E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.2E-09	7.5E-09	3.8E-13	6.9E-13			5.9E-09	1.1E-08	1.8E-08	0.52
Dieldrin	1.7E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.5E-08	2.4E-07	1.4E-12	2.2E-11			2.2E-08	3.5E-07	5.9E-07	16.88
Chlordane	2.4E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-08	7.7E-09	2.0E-12	7.0E-13			3.1E-08	1.1E-08	1.8E-08	0.53
Endosulfan I	4.7E-01	NI	NI	NI	1	0.10		4.2E-09		3.8E-13				5.9E-09			
Endosulfan II	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endosulfan sulfate	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endrin	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endrin aldehyde	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endrin ketone	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Gamma-BHC (Lindane)	4.7E-01	1.3E+00	1.3E+00	NI	1	0.10		4.2E-09	5.4E-09	3.8E-13				5.9E-09	7.7E-09	1.3E-08	0.38
Heptachlor	5.2E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.7E-09	2.1E-08	4.3E-13	2.0E-12			6.6E-09	3.0E-08	5.1E-08	1.45
Heptachlor epoxide	8.2E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		7.4E-10	6.7E-09	6.8E-14	6.1E-13			1.0E-09	9.5E-09	1.6E-08	0.46
Methoxychlor	4.7E+00	NI	NI	NI	1	0.10		4.2E-08		3.8E-12				5.9E-08			
Toxaphene	4.7E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		4.2E-07	4.6E-07	3.8E-11	4.2E-11			5.9E-07	6.5E-07	1.1E-06	31.74
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.5E-06		1.3E-10				2.0E-06	3.5E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL102-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.2E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		5.6E-08	9.5E-07	5.1E-12	8.7E-11			7.9E-08	1.3E-06	2.3E-06	38.18
Alpha-BHC	5.1E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		4.5E-09	2.9E-08	4.2E-13	2.6E-12			6.4E-09	4.0E-08	6.9E-08	1.15
Beta-BHC	5.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.5E-09	8.2E-09	4.2E-13	7.5E-13			6.4E-09	1.2E-08	2.0E-08	0.33
4,4-DDD	3.3E-01	2.4E-01	2.4E-01	NI	1	0.10		3.0E-09	7.1E-10	2.7E-13				4.2E-09	1.0E-09	1.7E-09	0.03
4,4-DDE	2.2E-01	3.4E-01	3.4E-01	NI	1	0.10		2.0E-09	6.7E-10	1.8E-13				2.8E-09	9.5E-10	1.6E-09	0.03
4,4-DDT	1.1E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		9.9E-09	3.4E-09	9.1E-13	3.1E-13			1.4E-08	4.8E-09	8.1E-09	0.14
Delta-BHC	5.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.5E-09	8.2E-09	4.2E-13	7.5E-13			6.4E-09	1.2E-08	2.0E-08	0.33
Dieldrin	8.3E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		7.5E-08	1.2E-06	6.8E-12	1.1E-10			1.1E-07	1.7E-06	2.9E-06	48.11
Chlordane	4.4E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.0E-08	1.4E-08	3.6E-12	1.3E-12			5.6E-08	2.0E-08	3.3E-08	0.56
Endosulfan I	5.1E-01	NI	NI	NI	1	0.10		4.5E-09		4.2E-13				6.4E-09			
Endosulfan II	2.9E-01	NI	NI	NI	1	0.10		2.6E-09		2.4E-13				3.7E-09			
Endosulfan sulfate	1.1E-01	NI	NI	NI	1	0.10		9.9E-10		9.1E-14				1.4E-09			
Endrin	1.7E-01	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.2E-09			
Endrin aldehyde	1.1E-01	NI	NI	NI	1	0.10		9.9E-10		9.1E-14				1.4E-09			
Endrin ketone	2.9E-01	NI	NI	NI	1	0.10		2.6E-09		2.4E-13				3.7E-09			
Gamma-BHC (Lindane)	4.4E+00	1.3E+00	1.3E+00	NI	1	0.10		4.0E-08	5.1E-08	3.6E-12				5.6E-08	7.3E-08	1.2E-07	2.07
Heptachlor	3.9E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.5E-08	1.6E-07	3.2E-12	1.5E-11			5.0E-08	2.2E-07	3.8E-07	6.36
Heptachlor epoxide	1.6E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.4E-09	1.3E-08	1.3E-13	1.2E-12			2.0E-09	1.9E-08	3.2E-08	0.53
Methoxychlor	5.5E-01	NI	NI	NI	1	0.10		5.0E-09		4.5E-13				7.0E-09			
Toxaphene	5.5E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-08	5.4E-08	4.5E-12	5.0E-12			7.0E-08	7.7E-08	1.3E-07	2.19
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.5E-06		2.2E-10				3.5E-06	6.0E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL102-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.7E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.4E-09	4.1E-08	2.2E-13	3.8E-12			3.4E-09	5.8E-08	1.0E-07	2.46
Alpha-BHC	5.5E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		5.0E-09	3.1E-08	4.5E-13	2.9E-12			7.0E-09	4.4E-08	7.5E-08	1.86
Beta-BHC	5.5E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-09	8.9E-09	4.5E-13	8.2E-13			7.0E-09	1.3E-08	2.2E-08	0.53
4,4-DDD	1.0E+00	2.4E-01	2.4E-01	NI	1	0.10		9.0E-09	2.2E-09	8.2E-13				1.3E-08	3.1E-09	5.2E-09	0.13
4,4-DDE	1.0E+00	3.4E-01	3.4E-01	NI	1	0.10		9.0E-09	3.1E-09	8.2E-13				1.3E-08	4.3E-09	7.4E-09	0.18
4,4-DDT	1.4E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.3E-09	4.3E-10	1.2E-13	3.9E-14			1.8E-09	6.1E-10	1.0E-09	0.03
Delta-BHC	5.5E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-09	8.9E-09	4.5E-13	8.2E-13			7.0E-09	1.3E-08	2.2E-08	0.53
Dieldrin	6.9E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.2E-08	9.9E-07	5.7E-12	9.1E-11			8.8E-08	1.4E-06	2.4E-06	59.27
Chlordane	7.7E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		6.9E-09	2.4E-09	6.3E-13	2.2E-13			9.8E-09	3.4E-09	5.9E-09	0.14
Endosulfan I	5.5E-01	NI	NI	NI	1	0.10		5.0E-09		4.5E-13				7.0E-09			
Endosulfan II	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Endosulfan sulfate	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Endrin	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Endrin aldehyde	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Endrin ketone	3.6E-01	NI	NI	NI	1	0.10		3.2E-09		3.0E-13				4.6E-09			
Gamma-BHC (Lindane)	5.5E-01	1.3E+00	1.3E+00	NI	1	0.10		5.0E-09	6.4E-09	4.5E-13				7.0E-09	9.1E-09	1.6E-08	0.38
Heptachlor	3.0E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.7E-09	1.2E-08	2.5E-13	1.1E-12			3.8E-09	1.7E-08	2.9E-08	0.72
Heptachlor epoxide	2.6E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.3E-09	2.1E-08	2.1E-13	1.9E-12			3.3E-09	3.0E-08	5.1E-08	1.27
Methoxychlor	5.5E+00	NI	NI	NI	1	0.10		5.0E-08		4.5E-12				7.0E-08			
Toxaphene	5.5E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-07	5.4E-07	4.5E-11	5.0E-11			7.0E-07	7.7E-07	1.3E-06	32.48
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-06		1.5E-10				2.4E-06	4.0E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL103-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	7.6E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.8E-08	1.2E-06	6.3E-12	1.1E-10			9.7E-08	1.6E-06	2.8E-06	17.22
Alpha-BHC	1.9E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.7E-08	1.1E-07	1.6E-12	9.9E-12			2.4E-08	1.5E-07	2.6E-07	1.60
Beta-BHC	1.9E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.7E-08	3.1E-08	1.6E-12	2.8E-12			2.4E-08	4.3E-08	7.4E-08	0.46
4,4-DDD	8.4E-01	2.4E-01	2.4E-01	NI	1	0.10		7.6E-09	1.8E-09	6.9E-13				1.1E-08	2.6E-09	4.4E-09	0.03
4,4-DDE	7.0E-01	3.4E-01	3.4E-01	NI	1	0.10		6.3E-09	2.1E-09	5.8E-13				8.9E-09	3.0E-09	5.2E-09	0.03
4,4-DDT	5.3E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.8E-08	1.6E-08	4.4E-12	1.5E-12			6.7E-08	2.3E-08	3.9E-08	0.24
Delta-BHC	1.9E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.7E-08	3.1E-08	1.6E-12	2.8E-12			2.4E-08	4.3E-08	7.4E-08	0.46
Dieldrin	2.3E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.1E-07	3.3E-06	1.9E-11	3.0E-10			2.9E-07	4.7E-06	8.0E-06	49.05
Chlordane	7.8E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.0E-08	2.5E-08	6.4E-12	2.2E-12			9.9E-08	3.5E-08	5.9E-08	0.36
Endosulfan I	1.9E+00	NI	NI	NI	1	0.10		1.7E-08		1.6E-12				2.4E-08			
Endosulfan II	4.9E-01	NI	NI	NI	1	0.10		4.4E-09		4.0E-13				6.2E-09			
Endosulfan sulfate	3.8E+00	NI	NI	NI	1	0.10		3.4E-08		3.1E-12				4.8E-08			
Endrin	3.8E+00	NI	NI	NI	1	0.10		3.4E-08		3.1E-12				4.8E-08			
Endrin aldehyde	3.8E+00	NI	NI	NI	1	0.10		3.4E-08		3.1E-12				4.8E-08			
Endrin ketone	7.8E-01	NI	NI	NI	1	0.10		7.0E-09		6.4E-13				9.9E-09			
Gamma-BHC (Lindane)	2.5E-01	1.3E+00	1.3E+00	NI	1	0.10		2.3E-09	2.9E-09	2.1E-13				3.2E-09	4.1E-09	7.1E-09	0.04
Heptachlor	3.7E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.3E-08	1.5E-07	3.0E-12	1.4E-11			4.7E-08	2.1E-07	3.6E-07	2.22
Heptachlor epoxide	3.7E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.3E-09	3.0E-08	3.0E-13	2.8E-12			4.7E-09	4.3E-08	7.3E-08	0.45
Methoxychlor	1.9E+01	NI	NI	NI	1	0.10		1.7E-07		1.6E-11				2.4E-07			
Toxaphene	1.9E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.7E-06	1.9E-06	1.6E-10	1.7E-10			2.4E-06	2.7E-06	4.5E-06	27.85
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.8E-06		6.2E-10				9.5E-06	1.6E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL103-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.3E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		5.7E-08	9.6E-07	5.2E-12	8.8E-11			8.0E-08	1.4E-06	2.3E-06	8.25
Alpha-BHC	2.3E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.0E-08	1.3E-07	1.9E-12	1.2E-11			2.9E-08	1.8E-07	3.1E-07	1.09
Beta-BHC	2.3E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-08	3.6E-08	1.9E-12	3.3E-12			2.9E-08	5.2E-08	8.8E-08	0.31
4,4-DDD	4.4E+00	2.4E-01	2.4E-01	NI	1	0.10		4.0E-08	9.5E-09	3.6E-12				5.6E-08	1.3E-08	2.3E-08	0.08
4,4-DDE	4.4E+00	3.4E-01	3.4E-01	NI	1	0.10		4.0E-08	1.3E-08	3.6E-12				5.6E-08	1.9E-08	3.2E-08	0.12
4,4-DDT	9.3E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		8.4E-08	2.8E-08	7.7E-12	2.6E-12			1.2E-07	4.0E-08	6.9E-08	0.24
Delta-BHC	2.3E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-08	3.6E-08	1.9E-12	3.3E-12			2.9E-08	5.2E-08	8.8E-08	0.31
Dieldrin	5.3E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		4.8E-07	7.6E-06	4.4E-11	7.0E-10			6.7E-07	1.1E-05	1.8E-05	65.32
Chlordane	6.8E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		6.1E-08	2.1E-08	5.6E-12	1.9E-12			8.6E-08	3.0E-08	5.1E-08	0.18
Endosulfan I	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Endosulfan II	4.4E+00	NI	NI	NI	1	0.10		4.0E-08		3.6E-12				5.6E-08			
Endosulfan sulfate	4.4E+00	NI	NI	NI	1	0.10		4.0E-08		3.6E-12				5.6E-08			
Endrin	4.4E+00	NI	NI	NI	1	0.10		4.0E-08		3.6E-12				5.6E-08			
Endrin aldehyde	4.4E+00	NI	NI	NI	1	0.10		4.0E-08		3.6E-12				5.6E-08			
Endrin ketone	4.4E+00	NI	NI	NI	1	0.10		4.0E-08		3.6E-12				5.6E-08			
Gamma-BHC (Lindane)	2.3E+00	1.3E+00	1.3E+00	NI	1	0.10		2.0E-08	2.6E-08	1.9E-12				2.9E-08	3.7E-08	6.4E-08	0.23
Heptachlor	9.3E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		8.4E-08	3.8E-07	7.7E-12	3.5E-11			1.2E-07	5.3E-07	9.1E-07	3.22
Heptachlor epoxide	2.3E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.0E-08	1.8E-07	1.9E-12	1.7E-11			2.9E-08	2.6E-07	4.4E-07	1.58
Methoxychlor	2.3E+01	NI	NI	NI	1	0.10		2.0E-07		1.9E-11				2.9E-07			
Toxaphene	2.3E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.0E-06	2.2E-06	1.9E-10	2.0E-10			2.9E-06	3.1E-06	5.4E-06	19.06
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.2E-05		1.1E-09				1.7E-05	2.8E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL104-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.3E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.9E-08	6.6E-07	3.5E-12	6.0E-11			5.5E-08	9.3E-07	1.6E-06	9.20
Alpha-BHC	2.2E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.0E-08	1.2E-07	1.8E-12	1.1E-11			2.8E-08	1.8E-07	3.0E-07	1.74
Beta-BHC	2.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-08	3.6E-08	1.8E-12	3.3E-12			2.8E-08	5.0E-08	8.6E-08	0.50
4,4-DDD	4.3E+00	2.4E-01	2.4E-01	NI	1	0.10		3.9E-08	9.3E-09	3.5E-12				5.5E-08	1.3E-08	2.2E-08	0.13
4,4-DDE	4.6E-01	3.4E-01	3.4E-01	NI	1	0.10		4.1E-09	1.4E-09	3.8E-13				5.9E-09	2.0E-09	3.4E-09	0.02
4,4-DDT	2.7E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.4E-08	8.3E-09	2.2E-12	7.6E-13			3.4E-08	1.2E-08	2.0E-08	0.12
Delta-BHC	2.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-08	3.6E-08	1.8E-12	3.3E-12			2.8E-08	5.0E-08	8.6E-08	0.50
Dieldrin	2.6E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-07	3.7E-06	2.1E-11	3.4E-10			3.3E-07	5.3E-06	9.0E-06	52.35
Chlordane	4.6E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.3E-08	1.5E-08	4.0E-12	1.4E-12			6.1E-08	2.1E-08	3.6E-08	0.21
Endosulfan I	2.2E+00	NI	NI	NI	1	0.10		2.0E-08		1.8E-12				2.8E-08			
Endosulfan II	4.3E+00	NI	NI	NI	1	0.10		3.9E-08		3.5E-12				5.5E-08			
Endosulfan sulfate	4.3E+00	NI	NI		1	0.10		3.9E-08		3.5E-12				5.5E-08			
Endrin	4.3E+00	NI	NI	II	1	0.10		3.9E-08		3.5E-12				5.5E-08			
Endrin aldehyde	4.3E+00	NI	NI	NI	1	0.10		3.9E-08		3.5E-12				5.5E-08			
Endrin ketone	1.4E+00	NI	NI	NI	1	0.10		1.3E-08		1.2E-12				1.8E-08			
Gamma-BHC (Lindane)	2.2E+00	1.3E+00	1.3E+00	NI	1	0.10		2.0E-08	2.6E-08	1.8E-12				2.8E-08	3.6E-08	6.2E-08	0.36
Heptachlor	3.6E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.2E-08	1.5E-07	3.0E-12	1.4E-11			4.6E-08	2.1E-07	3.5E-07	2.04
Heptachlor epoxide	1.8E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.6E-08	1.5E-07	1.5E-12	1.3E-11			2.3E-08	2.1E-07	3.6E-07	2.06
Methoxychlor	2.2E+01	NI	NI	NI	1	0.10		2.0E-07		1.8E-11				2.8E-07			
Toxaphene	2.2E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.0E-06	2.2E-06	1.8E-10	2.0E-10			2.8E-06	3.1E-06	5.3E-06	30.45
DIOXIN																	
2,3,7,8-TCDD	1.7E-05	1.5E+05	1.5E+05	1.5E+05	1	0.10		1.6E-13	2.3E-08	1.4E-17	2.2E-12			2.2E-13	3.3E-08	5.7E-08	0.33
Total Cancer Risk									7.2E-06		6.5E-10				1.0E-05	1.7E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL104-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.3E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.2E-09	2.0E-08	1.1E-13	1.8E-12			1.7E-09	2.8E-08	4.8E-08	29.48
Alpha-BHC	1.7E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.5E-11	9.4E-11	1.4E-15	8.6E-15			2.1E-11	1.3E-10	2.3E-10	0.14
Beta-BHC	1.7E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.5E-11	2.7E-11	1.4E-15	2.4E-15			2.1E-11	3.8E-11	6.5E-11	0.04
4,4-DDD	9.3E-03	2.4E-01	2.4E-01	NI	1	0.10		8.4E-11	2.0E-11	7.7E-15				1.2E-10	2.8E-11	4.8E-11	0.03
4,4-DDE	3.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.9E-11	9.8E-12	2.6E-15				4.1E-11	1.4E-11	2.4E-11	0.01
4,4-DDT	4.7E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.2E-11	1.4E-11	3.9E-15	1.3E-15			6.0E-11	2.0E-11	3.5E-11	0.02
Delta-BHC	1.7E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.5E-11	2.7E-11	1.4E-15	2.4E-15			2.1E-11	3.8E-11	6.5E-11	0.04
Dieldrin	3.1E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.8E-09	4.5E-08	2.6E-13	4.1E-12			3.9E-09	6.3E-08	1.1E-07	66.16
Chlordane	1.2E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.1E-09	3.7E-10	9.7E-14	3.4E-14			1.5E-09	5.3E-10	9.0E-10	0.55
Endosulfan I	1.7E-03	NI	NI	NI	1	0.10		1.5E-11		1.4E-15				2.1E-11			
Endosulfan II	4.7E-03	NI	NI	NI	1	0.10		4.2E-11		3.9E-15				6.0E-11			
Endosulfan sulfate	3.2E-03	NI	NI	NI	1	0.10		2.9E-11		2.6E-15				4.1E-11			
Endrin	3.2E-03	NI	NI	NI	1	0.10		2.9E-11		2.6E-15				4.1E-11			
Endrin aldehyde	3.2E-03	NI	NI	NI	1	0.10		2.9E-11		2.6E-15				4.1E-11			
Endrin ketone	1.6E-02	NI	NI	NI	1	0.10		1.4E-10		1.3E-14				2.0E-10			
Gamma-BHC (Lindane)	1.7E-03	1.3E+00	1.3E+00	NI	1	0.10		1.5E-11	1.9E-11	1.4E-15				2.1E-11	2.7E-11	4.7E-11	0.03
Heptachlor	1.7E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.5E-11	6.7E-11	1.4E-15	6.3E-15			2.1E-11	9.4E-11	1.6E-10	0.10
Heptachlor epoxide	8.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		7.2E-11	6.6E-10	6.6E-15	6.0E-14			1.0E-10	9.3E-10	1.6E-09	0.97
Methoxychlor	1.7E-02	NI	NI	NI	1	0.10		1.5E-10		1.4E-14				2.1E-10			
Toxaphene	1.7E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.5E-09	1.6E-09	1.4E-13	1.5E-13			2.1E-09	2.3E-09	3.9E-09	2.42
DIOXIN																	
2,3,7,8-TCDD No Sample Collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									6.7E-08		6.2E-12				9.5E-08	1.6E-07	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL105-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.7E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.0E-08	1.0E-06	5.5E-12	9.4E-11			8.5E-08	1.4E-06	2.5E-06	0.24
Alpha-BHC	1.1E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-09	6.2E-08	9.1E-13	5.7E-12			1.4E-08	8.8E-08	1.5E-07	0.01
Beta-BHC	1.1E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-09	1.8E-08	9.1E-13	1.6E-12			1.4E-08	2.5E-08	4.3E-08	0.00
4,4-DDD	6.5E+00	2.4E-01	2.4E-01	NI	1	0.10		5.9E-08	1.4E-08	5.4E-12				8.3E-08	2.0E-08	3.4E-08	0.00
4,4-DDE	1.1E+00	3.4E-01	3.4E-01	NI	1	0.10		9.9E-09	3.4E-09	9.1E-13				1.4E-08	4.8E-09	8.1E-09	0.00
4,4-DDT	9.1E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		8.2E-09	2.8E-09	7.5E-13	2.5E-13			1.2E-08	3.9E-09	6.7E-09	0.00
Delta-BHC	1.1E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-09	1.8E-08	9.1E-13	1.6E-12			1.4E-08	2.5E-08	4.3E-08	0.00
Dieldrin	7.1E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.4E-08	1.0E-06	5.9E-12	9.4E-11			9.0E-08	1.4E-06	2.5E-06	0.23
Chlordane	2.3E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.1E-08	7.2E-09	1.9E-12	6.6E-13			2.9E-08	1.0E-08	1.7E-08	0.00
Endosulfan I	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endosulfan II	9.4E-01	NI	NI	NI	1	0.10		8.5E-09		7.7E-13				1.2E-08			
Endosulfan sulfate	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endrin	9.9E-01	NI	NI	NI	1	0.10		8.9E-09		8.2E-13				1.3E-08			
Endrin aldehyde	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endrin ketone	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Gamma-BHC (Lindane)	1.1E+00	1.3E+00	1.3E+00	NI	1	0.10		9.9E-09	1.3E-08	9.1E-13				1.4E-08	1.8E-08	3.1E-08	0.00
Heptachlor	1.1E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-09	4.5E-08	9.1E-13	4.2E-12			1.4E-08	6.3E-08	1.1E-07	0.01
Heptachlor epoxide	2.7E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.4E-09	2.2E-08	2.2E-13	2.0E-12			3.4E-09	3.1E-08	5.3E-08	0.01
Methoxychlor	1.1E+01	NI	NI	NI	1	0.10		9.9E-08		9.1E-12				1.4E-07			
Toxaphene	1.1E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-07	1.1E-06	9.1E-11	1.0E-10			1.4E-06	1.5E-06	2.6E-06	0.25
DIOXIN																	
2,3,7,8-TCDD	3.2E-01	1.5E+05	1.5E+05	1.5E+05	1	0.10		2.9E-09	4.3E-04	2.6E-13	4.0E-08			4.1E-09	6.1E-04	1.0E-03	99.23
Total Cancer Risk									4.4E-04		4.0E-08				6.2E-04	1.1E-03	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL105-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin		1.7E+01	1.7E+01	1.7E+01	1	0.10											
Alpha-BHC		6.3E+00	6.3E+00	6.3E+00	1	0.10											
Beta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
4,4-DDD		2.4E-01	2.4E-01	NI	1	0.10											
4,4-DDE		3.4E-01	3.4E-01	NI	1	0.10											
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											
Delta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
Dieldrin		1.6E+01	1.6E+01	1.6E+01	1	0.10											
Chlordane		3.5E-01	3.5E-01	3.5E-01	1	0.10											
Endosulfan I		NI	NI	NI	1	0.10											
Endosulfan II		NI	NI	NI	1	0.10											
Endosulfan sulfate		NI	NI	NI	1	0.10											
Endrin		NI	NI	NI	1	0.10											
Endrin aldehyde		NI	NI	NI	1	0.10											
Endrin ketone		NI	NI	NI	1	0.10											
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											
Heptachlor		4.5E+00	4.5E+00	4.6E+00	1	0.10											
Heptachlor epoxide		9.1E+00	9.1E+00	9.1E+00	1	0.10											
Methoxychlor		NI	NI	NI	1	0.10											
Toxaphene		1.1E+00	1.1E+00	1.1E+00	1	0.10											
DIOXIN																	
2,3,7,8-TCDD	8.3E-05	1.5E+05	1.5E+05	1.5E+05	1	0.10		7.4E-13	1.1E-07	6.8E-17	1.0E-11			1.1E-12	1.6E-07	2.7E-07	100.00
Total Cancer Risk									1.1E-07		1.0E-11				1.6E-07	2.7E-07	

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL106-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.5E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.2E-07	5.4E-06	2.9E-11	4.9E-10			4.5E-07	7.6E-06	1.3E-05	24.21
Alpha-BHC	9.5E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		8.6E-08	5.4E-07	7.8E-12	4.9E-11			1.2E-07	7.6E-07	1.3E-06	2.44
Beta-BHC	1.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-08	1.8E-07	9.1E-12	1.6E-11			1.4E-07	2.5E-07	4.3E-07	0.81
4,4-DDD	3.0E+01	2.4E-01	2.4E-01	NI	1	0.10		2.7E-07	6.5E-08	2.5E-11				3.8E-07	9.2E-08	1.6E-07	0.29
4,4-DDE	2.3E+00	3.4E-01	3.4E-01	NI	1	0.10		2.1E-08	7.0E-09	1.9E-12				2.9E-08	9.9E-09	1.7E-08	0.03
4,4-DDT	8.6E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		7.7E-08	2.6E-08	7.1E-12	2.4E-12			1.1E-07	3.7E-08	6.4E-08	0.12
Delta-BHC	9.5E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		8.6E-08	1.5E-07	7.8E-12	1.4E-11			1.2E-07	2.2E-07	3.7E-07	0.70
Dieldrin	1.8E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.6E-07	2.6E-06	1.5E-11	2.4E-10			2.3E-07	3.7E-06	6.3E-06	11.72
Chlordane	3.9E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.5E-07	1.2E-07	3.2E-11	1.1E-11			5.0E-07	1.7E-07	3.0E-07	0.56
Endosulfan I	9.5E+00	NI	NI	NI	1	0.10		8.6E-08		7.8E-12				1.2E-07			
Endosulfan II	2.0E+00	NI	NI	NI	1	0.10		1.8E-08		1.6E-12				2.5E-08			
Endosulfan sulfate	1.9E+01	NI	NI	NI	1	0.10		1.7E-07		1.5E-11				2.4E-07			
Endrin	1.9E+01	NI	NI	NI	1	0.10		1.7E-07		1.5E-11				2.4E-07			
Endrin aldehyde	1.9E+01	NI	NI	NI	1	0.10		1.7E-07		1.5E-11				2.4E-07			
Endrin ketone	1.9E+01	NI	NI	NI	1	0.10		1.7E-07		1.5E-11				2.4E-07			
Gamma-BHC (Lindane)	1.5E+00	1.3E+00	1.3E+00	NI	1	0.10		1.4E-08	1.8E-08	1.2E-12				1.9E-08	2.5E-08	4.2E-08	0.08
Heptachlor	7.1E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.4E-07	2.9E-08	5.9E-11	2.7E-10			9.0E-07	4.1E-06	6.9E-06	13.00
Heptachlor epoxide	9.5E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		8.6E-08	7.8E-07	7.8E-12	7.1E-11			1.2E-07	1.1E-06	1.9E-06	3.52
Methoxychlor	9.5E+01	NI	NI	NI	1	0.10		8.6E-07		7.8E-11				1.2E-06			
Toxaphene	9.5E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		8.6E-06	9.4E-06	7.8E-10	8.6E-10			1.2E-05	1.3E-05	2.3E-05	42.53
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									*2.2E-05*		*2.0E-09*				*3.1E-05*	*5.3E-05*	*100*

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL106-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.5E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.3E-07	3.8E-06	2.1E-11	3.5E-10			3.2E-07	5.4E-06	9.2E-06	49.04
Alpha-BHC	2.2E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.0E-09	1.2E-08	1.8E-13	1.1E-12			2.8E-09	1.8E-08	3.0E-08	0.16
Beta-BHC	2.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-09	3.6E-09	1.8E-13	3.3E-13			2.8E-09	5.0E-09	8.6E-09	0.05
4,4-DDD	2.5E+01	2.4E-01	2.4E-01	NI	1	0.10		2.3E-07	5.4E-08	2.1E-11				3.2E-07	7.6E-08	1.3E-07	0.69
4,4-DDE	1.8E+00	3.4E-01	3.4E-01	NI	1	0.10		1.6E-08	5.5E-09	1.5E-12				2.3E-08	7.8E-09	1.3E-08	0.07
4,4-DDT	6.8E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		6.1E-08	2.1E-08	5.6E-12	1.9E-12			8.6E-08	2.9E-08	5.0E-08	0.27
Delta-BHC	2.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.0E-09	3.6E-09	1.8E-13	3.3E-13			2.8E-09	5.0E-09	8.6E-09	0.05
Dieldrin	1.7E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.5E-07	2.4E-06	1.4E-11	2.2E-10			2.2E-07	3.5E-06	5.9E-06	31.38
Chlordane	2.5E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.3E-07	7.9E-08	2.1E-11	7.2E-12			3.2E-07	1.1E-07	1.9E-07	1.01
Endosulfan I	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endosulfan II	8.6E-01	NI	NI	NI	1	0.10		7.7E-09		7.1E-13				1.1E-08			
Endosulfan sulfate	4.3E-01	NI	NI	NI	1	0.10		3.9E-09		3.5E-13				5.5E-09			
Endrin	7.9E-01	NI	NI	NI	1	0.10		7.1E-09		6.5E-13				1.0E-08			
Endrin aldehyde	4.3E-01	NI	NI	NI	1	0.10		3.9E-09		3.5E-13				5.5E-09			
Endrin ketone	4.9E-01	NI	NI	NI	1	0.10		4.4E-09		4.0E-13				6.2E-09			
Gamma-BHC (Lindane)	3.4E-01	1.3E+00	1.3E+00	NI	1	0.10		3.1E-09	4.0E-09	2.8E-13				4.3E-09	5.6E-09	9.6E-09	0.05
Heptachlor	2.7E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.4E-07	1.1E-06	2.2E-11	1.0E-10			3.4E-07	1.5E-06	2.6E-06	14.02
Heptachlor epoxide	4.1E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.7E-09	3.4E-08	3.4E-13	3.1E-12			5.2E-09	4.7E-08	8.1E-08	0.43
Methoxychlor	3.9E+00	NI	NI	NI	1	0.10		3.5E-08		3.2E-12				5.0E-08			
Toxaphene	2.2E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.0E-07	2.2E-07	1.8E-11	2.0E-11			2.8E-07	3.1E-07	5.3E-07	2.79
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									7.8E-06		7.1E-10				1.1E-05	1.9E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	.1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL107-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.3E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.9E-07	6.6E-06	3.5E-11	6.0E-10			5.5E-07	9.3E-06	1.6E-05	50.80
Alpha-BHC	2.2E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.9E-08	1.2E-07	1.8E-12	1.1E-11			2.7E-08	1.7E-07	2.9E-07	0.94
Beta-BHC	7.6E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.8E-08	1.2E-07	6.3E-12	1.1E-11			9.7E-08	1.7E-07	3.0E-07	0.95
4,4-DDD	3.1E+01	2.4E-01	2.4E-01	NI	1	0.10		2.8E-07	6.7E-08	2.6E-11				3.9E-07	9.5E-08	1.6E-07	0.52
4,4-DDE	1.3E+00	3.4E-01	3.4E-01	NI	1	0.10		1.2E-08	4.0E-09	1.1E-12				1.7E-08	5.6E-09	9.6E-09	0.03
4,4-DDT	5.3E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.8E-08	1.6E-08	4.4E-12	1.5E-12			6.7E-08	2.3E-08	3.9E-08	0.13
Delta-BHC	2.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-08	3.5E-08	1.8E-12	3.2E-12			2.7E-08	4.9E-08	8.4E-08	0.27
Dieldrin	1.8E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.6E-07	2.6E-06	1.5E-11	2.4E-10			2.3E-07	3.7E-06	6.3E-06	20.01
Chlordane	4.9E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.4E-07	1.5E-07	4.0E-11	1.4E-11			6.2E-07	2.2E-07	3.7E-07	1.19
Endosulfan I	2.2E+00	NI	NI	NI	1	0.10		1.9E-08		1.8E-12				2.7E-08			
Endosulfan II	3.2E+00	NI	NI	NI	1	0.10		2.9E-08		2.6E-12				4.1E-08			
Endosulfan sulfate	4.2E-01	NI	NI	NI	1	0.10		3.8E-09		3.5E-13				5.3E-09			
Endrin	8.6E+00	NI	NI	NI	1	0.10		7.7E-08		7.1E-12				1.1E-07			
Endrin aldehyde	4.2E+00	NI	NI	NI	1	0.10		3.7E-08		3.4E-12				5.3E-08			
Endrin ketone	3.6E+00	NI	NI	NI	1	0.10		3.2E-08		3.0E-12				4.6E-08			
Gamma-BHC (Lindane)	9.2E-01	1.3E+00	1.3E+00	NI	1	0.10		8.3E-09	1.1E-08	7.6E-13				1.2E-08	1.5E-08	2.6E-08	0.08
Heptachlor	2.6E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.3E-07	1.1E-06	2.1E-11	9.9E-11			3.3E-07	1.5E-06	2.5E-06	8.13
Heptachlor epoxide	8.1E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		7.3E-09	6.6E-08	6.7E-13	6.1E-12			1.0E-08	9.4E-08	1.6E-07	0.51
Methoxychlor	2.2E+01	NI	NI	NI	1	0.10		1.9E-07		1.8E-11				2.7E-07			
Toxaphene	2.2E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.9E-06	2.1E-06	1.8E-10	1.9E-10			2.7E-06	3.0E-06	5.1E-06	16.44
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.3E-05		1.2E-09				1.8E-05	3.1E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL107-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.4E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.3E-07	2.1E-06	1.2E-11	2.0E-10			1.8E-07	3.0E-06	5.2E-06	53.73
Alpha-BHC	5.0E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		4.5E-10	2.8E-09	4.1E-14	2.6E-13			6.4E-10	4.0E-09	6.8E-09	0.07
Beta-BHC	5.0E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.5E-10	8.1E-10	4.1E-14	7.4E-14			6.4E-10	1.1E-09	2.0E-09	0.02
4,4-DDD	5.1E+00	2.4E-01	2.4E-01	NI	1	0.10		4.6E-08	1.1E-08	4.2E-12				6.5E-08	1.6E-08	2.7E-08	0.28
4,4-DDE	6.0E-01	3.4E-01	3.4E-01	NI	1	0.10		5.4E-09	1.8E-09	4.9E-13				7.6E-09	2.6E-09	4.4E-09	0.05
4,4-DDT	4.9E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.4E-08	1.5E-08	4.0E-12	1.4E-12			6.2E-08	2.1E-08	3.6E-08	0.38
Delta-BHC	8.1E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		7.3E-10	1.3E-09	6.7E-14	1.2E-13			1.0E-09	1.9E-09	3.2E-09	0.03
Dieldrin	8.1E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		7.3E-08	1.2E-06	6.7E-12	1.1E-10			1.0E-07	1.6E-06	2.8E-06	29.26
Chlordane	1.4E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.3E-07	4.5E-08	1.2E-11	4.1E-12			1.8E-07	6.3E-08	1.1E-07	1.12
Endosulfan I	5.0E-02	NI	NI	NI	1	0.10		4.5E-10		4.1E-14				6.4E-10			
Endosulfan II	6.5E-01	NI	NI	NI	1	0.10		5.9E-09		5.4E-13				8.3E-09			
Endosulfan sulfate	1.6E-01	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
Endrin	1.2E+00	NI	NI	NI	1	0.10		1.1E-08		9.9E-13				1.5E-08			
Endrin aldehyde	1.0E-01	NI	NI	NI	1	0.10		9.0E-10		8.2E-14				1.3E-09			
Endrin ketone	6.6E-01	NI	NI	NI	1	0.10		5.9E-09		5.4E-13				8.4E-09			
Gamma-BHC (Lindane)	1.5E-01	1.3E+00	1.3E+00	NI	1	0.10		1.4E-09	1.8E-09	1.2E-13				1.9E-09	2.5E-09	4.2E-09	0.04
Heptachlor	1.3E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.2E-07	5.3E-07	1.1E-11	4.9E-11			1.7E-07	7.4E-07	1.3E-06	13.21
Heptachlor epoxide	2.8E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.5E-09	2.3E-08	2.3E-13	2.1E-12			3.6E-09	3.2E-08	5.5E-08	0.58
Methoxychlor	5.0E-01	NI	NI	NI	1	0.10		4.5E-09		4.1E-13				6.4E-09			
Toxaphene	5.0E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		4.5E-08	5.0E-08	4.1E-12	4.5E-12			6.4E-08	7.0E-08	1.2E-07	1.24
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.0E-06		3.6E-10				5.6E-06	9.6E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL108-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.0E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-07	3.1E-06	1.6E-11	2.8E-10			2.5E-07	4.3E-06	7.4E-06	23.95
Alpha-BHC	4.2E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.7E-08	2.4E-07	3.4E-12	2.2E-11			5.3E-08	3.3E-07	5.7E-07	1.84
Beta-BHC	4.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.8E-08	6.8E-08	3.5E-12	6.2E-12			5.3E-08	9.6E-08	1.6E-07	0.53
4,4-DDD	6.6E+00	2.4E-01	2.4E-01	NI	1	0.10		5.9E-08	1.4E-08	5.4E-12				8.4E-08	2.0E-08	3.4E-08	0.11
4,4-DDE	1.1E+00	3.4E-01	3.4E-01	NI	1	0.10		9.9E-09	3.4E-09	9.1E-13				1.4E-08	4.8E-09	8.1E-09	0.03
4,4-DDT	7.2E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		6.5E-08	2.2E-08	5.9E-12	2.0E-12			9.2E-08	3.1E-08	5.3E-08	0.17
Delta-BHC	4.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.7E-08	6.7E-08	3.4E-12	6.2E-12			5.3E-08	9.5E-08	1.6E-07	0.53
Dieldrin	2.4E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.2E-07	3.5E-06	2.0E-11	3.2E-10			3.1E-07	4.9E-06	8.3E-06	27.05
Chlordane	2.7E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.4E-07	8.5E-08	2.2E-11	7.8E-12			3.4E-07	1.2E-07	2.1E-07	0.67
Endosulfan I	4.2E+00	NI	NI	NI	1	0.10		3.7E-08		3.4E-12				5.3E-08			
Endosulfan II	1.5E+00	NI	NI	"	1	0.10		1.4E-08		1.2E-12				1.9E-08			
Endosulfan sulfate	1.1E+00	NI	NI	"	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endrin	3.8E+00	NI	NI	"	1	0.10		3.4E-08		3.1E-12				4.8E-08			
Endrin aldehyde	8.5E-01	NI	NI	NI	1	0.10		7.7E-09		7.0E-13				1.1E-08			
Endrin ketone	1.4E+00	NI	NI	NI	1	0.10		1.3E-08		1.2E-12				1.8E-08			
Gamma-BHC (Lindane)	4.2E+00	1.3E+00	1.3E+00	NI	1	0.10		3.7E-08	4.9E-08	3.4E-12				5.3E-08	6.9E-08	1.2E-07	0.38
Heptachlor	3.8E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.4E-07	1.5E-05	3.1E-11	1.4E-10			4.8E-07	2.2E-06	3.7E-06	12.04
Heptachlor epoxide	8.5E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		7.7E-09	7.0E-08	7.0E-13	6.4E-12			1.1E-08	9.8E-08	1.7E-07	0.54
Methoxychlor	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Toxaphene	4.2E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.7E-06	4.1E-06	3.4E-10	3.8E-10			5.3E-06	5.8E-06	9.9E-06	32.15
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.3E-05		1.2E-09				1.8E-05	3.1E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL108-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.7E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.0E-07	1.0E-05	5.5E-11	9.4E-10			8.5E-07	1.4E-05	2.5E-05	63.10
Alpha-BHC	4.6E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		4.1E-09	2.6E-08	3.8E-13	2.4E-12			5.9E-09	3.7E-08	6.3E-08	0.16
Beta-BHC	4.6E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.1E-09	7.5E-09	3.8E-13	6.8E-13			5.9E-09	1.1E-08	1.8E-08	0.05
4,4-DDD	3.4E+00	2.4E-01	2.4E-01	NI	1	0.10		3.1E-08	7.3E-09	2.8E-12				4.3E-08	1.0E-08	1.8E-08	0.05
4,4-DDE	1.3E+00	3.4E-01	3.4E-01	NI	1	0.10		1.2E-08	4.0E-09	1.1E-12				1.7E-08	5.6E-09	9.6E-09	0.02
4,4-DDT	3.4E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		3.1E-08	1.0E-08	2.8E-12	9.5E-13			4.3E-08	1.5E-08	2.5E-08	0.06
Delta-BHC	4.6E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.1E-09	7.5E-09	3.8E-13	6.8E-13			5.9E-09	1.1E-08	1.8E-08	0.05
Dieldrin	3.0E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.7E-07	4.3E-06	2.5E-11	4.0E-10			3.8E-07	6.1E-06	1.0E-05	26.59
Chlordane	3.2E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.9E-07	1.0E-07	2.6E-11	9.2E-12			4.1E-07	1.4E-07	2.4E-07	0.62
Endosulfan I	4.6E-01	NI	NI	NI	1	0.10		4.1E-09		3.8E-13				5.9E-09			
Endosulfan II	2.2E+00	NI	NI	NI	1	0.10		2.0E-08		1.8E-12				2.8E-08			
Endosulfan sulfate	9.7E-01	NI	NI	I	1	0.10		8.7E-09		8.0E-13				1.2E-08			
Endrin	2.8E+00	NI	NI	I	1	0.10		2.5E-08		2.3E-12				3.6E-08			
Endrin aldehyde	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endrin ketone	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Gamma-BHC (Lindane)	4.6E-01	1.3E+00	1.3E+00	NI	1	0.10		4.1E-09	5.4E-09	3.8E-13				5.9E-09	7.6E-09	1.3E-08	0.03
Heptachlor	2.5E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.3E-07	1.0E-06	2.1E-11	9.5E-11			3.2E-07	1.4E-06	2.4E-06	6.23
Heptachlor epoxide	4.6E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		4.1E-09	3.8E-08	3.8E-13	3.4E-12			5.9E-09	5.3E-08	9.1E-08	0.23
Methoxychlor	4.6E+00	NI	NI	NI	1	0.10		4.1E-08		3.8E-12				5.9E-08			
Toxaphene	4.6E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		4.1E-07	4.6E-07	3.8E-11	4.2E-11			5.9E-07	6.4E-07	1.1E-06	2.80
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.6E-05		1.5E-09				2.3E-05	3.9E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL109-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	3.3E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.0E-08	5.0E-07	2.7E-12	4.6E-11			4.2E-08	7.1E-07	1.2E-06	38.58
Alpha-BHC	2.7E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.4E-09	1.5E-08	2.2E-13	1.4E-12			3.4E-09	2.1E-08	3.6E-08	1.15
Beta-BHC	4.4E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		4.0E-09	7.1E-09	3.6E-13	6.5E-13			5.6E-09	1.0E-08	1.7E-08	0.54
4,4-DDD	1.9E-01	2.4E-01	2.4E-01	NI	1	0.10		1.7E-09	4.1E-10	1.6E-13				2.4E-09	5.8E-10	9.9E-10	0.03
4,4-DDE	7.5E-02	3.4E-01	3.4E-01	NI	1	0.10		6.8E-10	2.3E-10	6.2E-14				9.5E-10	3.2E-10	5.5E-10	0.02
4,4-DDT	1.6E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.4E-09	4.9E-10	1.3E-13	4.5E-14			2.0E-09	6.9E-10	1.2E-09	0.04
Delta-BHC	9.6E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		8.6E-10	1.6E-09	7.9E-14	1.4E-13			1.2E-09	2.2E-09	3.8E-09	0.12
Dieldrin	3.4E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		3.1E-08	4.9E-07	2.8E-12	4.5E-11			4.3E-08	6.9E-07	1.2E-06	37.41
Chlordane	1.8E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.6E-08	5.8E-09	1.5E-12	5.3E-13			2.3E-08	8.1E-09	1.4E-08	0.44
Endosulfan I	2.7E-01	NI	NI	NI	1	0.10		2.4E-09		2.2E-13				3.4E-09			
Endosulfan II	5.6E-02	NI	NI	NI	1	0.10		5.2E-10		4.6E-14				7.4E-10			
Endosulfan sulfate	5.0E-01	NI	NI	NI	1	0.10		4.5E-09		4.1E-13				6.4E-09			
Endrin	9.6E-02	NI	NI	NI	1	0.10		8.6E-10		7.9E-14				1.2E-09			
Endrin aldehyde	5.0E-01	NI	NI	NI	1	0.10		4.5E-09		4.1E-13				6.4E-09			
Endrin ketone	6.1E-01	NI	NI	NI	1	0.10		5.5E-09		5.0E-13				7.8E-09			
Gamma-BHC (Lindane)	2.7E-01	1.3E+00	1.3E+00	NI	1	0.10		2.4E-09	3.1E-09	2.2E-13				3.4E-09	4.4E-09	7.5E-09	0.24
Heptachlor	3.2E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.9E-09	1.3E-08	2.6E-13	1.2E-12			4.1E-09	1.8E-08	3.1E-08	0.99
Heptachlor epoxide	6.3E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.7E-10	5.2E-09	5.2E-14	4.7E-13			8.0E-10	7.3E-09	1.2E-08	0.39
Methoxychlor	2.7E+00	NI	NI	NI	1	0.10		2.4E-08		2.2E-12				3.4E-08			
Toxaphene	2.7E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.4E-07	2.6E-07	2.2E-11	2.4E-11			3.4E-07	3.7E-07	6.3E-07	20.05
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.3E-06		1.2E-10				1.8E-06	3.2E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL110-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.5E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.1E-07	6.9E-06	3.7E-11	6.3E-10			5.7E-07	9.7E-06	1.7E-05	65.89
Alpha-BHC	5.5E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		5.0E-09	3.1E-08	4.5E-13	2.9E-12			7.0E-09	4.4E-08	7.5E-08	0.30
Beta-BHC	5.5E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-09	8.9E-09	4.5E-13	8.2E-13			7.0E-09	1.3E-08	2.2E-08	0.09
4,4-DDD	2.0E+00	2.4E-01	2.4E-01	NI	1	0.10		1.8E-08	4.3E-09	1.6E-12				2.5E-08	6.1E-09	1.0E-08	0.04
4,4-DDE	1.1E+00	3.4E-01	3.4E-01	NI	1	0.10		9.5E-09	3.2E-09	8.7E-13				1.3E-08	4.5E-09	7.8E-09	0.03
4,4-DDT	1.2E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.1E-07	3.7E-08	9.9E-12	3.4E-12			1.5E-07	5.2E-08	8.9E-08	0.35
Delta-BHC	5.5E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-09	8.9E-09	4.5E-13	8.2E-13			7.0E-09	1.3E-08	2.2E-08	0.09
Dieldrin	1.5E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.4E-07	2.2E-06	1.2E-11	2.0E-10			1.9E-07	3.1E-06	5.2E-06	20.67
Chlordane	6.2E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.4E-08	2.6E-08	6.8E-12	2.4E-12			1.0E-07	3.7E-08	6.2E-08	0.25
Endosulfan I	5.5E-01	NI	NI	NI	1	0.10		5.0E-09		4.5E-13				7.0E-09			
Endosulfan II	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endosulfan sulfate	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endrin	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endrin aldehyde	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endrin ketone	1.2E+00	NI	NI	NI	1	0.10		1.1E-08		9.9E-13				1.5E-08			
Gamma-BHC (Lindane)	5.5E-01	1.3E+00	1.3E+00	NI	1	0.10		5.0E-09	6.4E-09	4.5E-13				7.0E-09	9.1E-09	1.6E-08	0.06
Heptachlor	1.7E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.5E-07	6.9E-07	1.4E-11	6.4E-11			2.2E-07	9.7E-07	1.7E-06	6.59
Heptachlor epoxide	5.5E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.0E-09	4.5E-08	4.5E-13	4.1E-12			7.0E-09	6.4E-08	1.1E-07	0.43
Methoxychlor	5.5E+00	NI	NI	NI	1	0.10		5.0E-08		4.5E-12				7.0E-08			
Toxaphene	5.5E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-07	5.4E-07	4.5E-11	5.0E-11			7.0E-07	7.7E-07	1.3E-06	5.21
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.0E-05		9.6E-10				1.5E-05	2.5E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL110-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.8E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.6E-09	2.8E-08	1.5E-13	2.5E-12			2.3E-09	3.9E-08	6.6E-08	12.11
Alpha-BHC	2.2E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.0E-10	1.2E-09	1.8E-14	1.1E-13			2.8E-10	1.8E-09	3.0E-09	0.55
Beta-BHC	3.3E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.0E-09	5.3E-09	2.7E-13	4.9E-13			4.2E-09	7.6E-09	1.3E-08	2.35
4,4-DDD	5.7E-02	2.4E-01	2.4E-01	NI	1	0.10		5.1E-10	1.2E-10	4.7E-14				7.2E-10	1.7E-10	3.0E-10	0.05
4,4-DDE	8.9E-02	3.4E-01	3.4E-01	NI	1	0.10		8.0E-10	2.7E-10	7.3E-14				1.1E-09	3.8E-10	6.6E-10	0.12
4,4-DDT	9.5E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		8.6E-10	2.9E-10	7.8E-14	2.7E-14			1.2E-09	4.1E-10	7.0E-10	0.13
Delta-BHC	7.4E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.7E-10	1.2E-09	6.1E-14	1.1E-13			9.4E-10	1.7E-09	2.9E-09	0.53
Dieldrin	1.2E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.1E-08	1.7E-07	9.9E-13	1.6E-11			1.5E-08	2.4E-07	4.2E-07	75.98
Chlordane	5.4E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.9E-09	1.7E-09	4.5E-13	1.6E-13			6.9E-09	2.4E-09	4.1E-09	0.75
Endosulfan I	7.5E-03	NI	NI	NI	1	0.10		6.8E-11		6.2E-15				9.5E-11			
Endosulfan II	1.5E-02	NI	NI	NI	1	0.10		1.3E-10		1.2E-14				1.8E-10			
Endosulfan sulfate	1.5E-02	NI	NI	NI	1	0.10		1.3E-10		1.2E-14				1.8E-10			
Endrin	2.0E-02	NI	NI	NI	1	0.10		1.8E-10		1.6E-14				2.5E-10			
Endrin aldehyde	1.5E-02	NI	NI	NI	1	0.10		1.3E-10		1.2E-14				1.8E-10			
Endrin ketone	3.9E-01	NI	NI	NI	1	0.10		3.5E-09		3.2E-13				5.0E-09			
Gamma-BHC (Lindane)	1.4E-02	1.3E+00	1.3E+00	NI	1	0.10		1.3E-10	1.6E-10	1.2E-14				1.8E-10	2.3E-10	4.0E-10	0.07
Heptachlor	7.5E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.8E-11	3.0E-10	6.2E-15	2.8E-14			9.5E-11	4.3E-10	7.3E-10	0.13
Heptachlor epoxide	1.1E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-10	9.0E-09	9.1E-14	8.2E-13			1.4E-09	1.3E-08	2.2E-08	3.96
Methoxychlor	7.5E-02	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Toxaphene	*7.5E-01*	*1.1E+00*	*1.1E+00*	*1.1E+00*	1	*0.10*		*6.8E-09*	*7.4E-09*	*6.2E-13*	*6.8E-13*			*9.5E-09*	*1.0E-08*	*1.8E-08*	*3.26*
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.3E-07		2.1E-11				3.2E-07	5.5E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL111-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.0E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-07	3.1E-06	1.6E-11	2.8E-10			2.5E-07	4.3E-06	7.4E-06	55.01
Alpha-BHC	1.1E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-09	6.2E-08	9.1E-13	5.7E-12			1.4E-08	8.8E-08	1.5E-07	1.12
Beta-BHC	1.1E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-09	1.8E-08	9.1E-13	1.6E-12			1.4E-08	2.5E-08	4.3E-08	0.32
4,4-DDD	1.4E+00	2.4E-01	2.4E-01	NI	1	0.10		1.3E-08	3.0E-09	1.2E-12				1.8E-08	4.3E-09	7.3E-09	0.05
4,4-DDE	2.9E-01	3.4E-01	3.4E-01	NI	1	0.10		2.6E-09	8.9E-10	2.4E-13				3.7E-09	1.3E-09	2.1E-09	0.02
4,4-DDT	2.1E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.9E-08	6.4E-09	1.7E-12	5.9E-13			2.7E-08	9.1E-09	1.6E-08	0.12
Delta-BHC	1.1E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-09	1.8E-08	9.1E-13	1.6E-12			1.4E-08	2.5E-08	4.3E-08	0.32
Dieldrin	5.6E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.0E-08	8.1E-07	4.6E-12	7.4E-11			7.1E-08	1.1E-06	1.9E-06	14.50
Chlordane	8.6E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.7E-08	2.7E-08	7.1E-12	2.5E-12			1.1E-07	3.8E-08	6.5E-08	0.49
Endosulfan I	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endosulfan II	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endosulfan sulfate	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endrin	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endrin aldehyde	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Endrin ketone	4.4E-01	NI	NI	NI	1	0.10		4.0E-09		3.6E-13				5.6E-09			
Gamma-BHC (Lindane)	1.1E+00	1.3E+00	1.3E+00	NI	1	0.10		9.9E-09	1.3E-08	9.1E-13				1.4E-08	1.8E-08	3.1E-08	0.23
Heptachlor	1.1E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-08	4.5E-07	9.1E-12	4.2E-11			1.4E-07	6.3E-07	1.1E-06	8.01
Heptachlor epoxide	1.6E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.4E-09	1.3E-08	1.3E-13	1.2E-12			2.0E-09	1.9E-08	3.2E-08	0.24
Methoxychlor	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Toxaphene	1.1E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-07	1.1E-06	9.1E-11	1.0E-10			1.4E-06	1.5E-06	2.6E-06	19.58
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.6E-06		5.1E-10				7.9E-06	1.3E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL111-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.7E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.4E-07	4.1E-06	2.2E-11	3.8E-10			3.4E-07	5.8E-06	1.0E-05	49.24
Alpha-BHC	1.7E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.5E-09	9.4E-09	1.4E-13	8.6E-13			2.1E-09	1.3E-08	2.3E-08	0.11
Beta-BHC	1.7E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.5E-09	2.7E-09	1.4E-13	2.4E-13			2.1E-09	3.8E-09	6.5E-09	0.03
4,4-DDD	3.8E+00	2.4E-01	2.4E-01	NI	1	0.10		3.4E-08	8.2E-09	3.1E-12				4.8E-08	1.2E-08	2.0E-08	0.10
4,4-DDE	1.3E+00	3.4E-01	3.4E-01	NI	1	0.10		1.2E-08	4.0E-09	1.1E-12				1.7E-08	5.6E-09	9.6E-09	0.05
4,4-DDT	1.2E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.1E-07	3.7E-08	9.9E-12	3.4E-12			1.5E-07	5.2E-08	8.9E-08	0.44
Delta-BHC	1.7E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.5E-09	2.8E-09	1.4E-13	2.5E-13			2.2E-09	3.9E-09	6.6E-09	0.03
Dieldrin	2.7E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.4E-07	3.9E-06	2.2E-11	3.6E-10			3.4E-07	5.5E-06	9.4E-06	46.35
Chlordane	1.3E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.1E-07	3.9E-08	1.0E-11	3.6E-12			1.6E-07	5.6E-08	9.5E-08	0.47
Endosulfan I	1.7E-01	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
Endosulfan II	3.2E-01	NI	NI	NI	1	0.10		2.9E-09		2.6E-13				4.1E-09			
Endosulfan sulfate	3.2E-01	NI	NI	NI	1	0.10		2.9E-09		2.6E-13				4.1E-09			
Endrin	2.2E+00	NI	NI	NI	1	0.10		2.0E-08		1.8E-12				2.8E-08			
Endrin aldehyde	4.1E-01	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Endrin ketone	1.3E+00	NI	NI	NI	1	0.10		1.2E-08		1.1E-12				1.7E-08			
Gamma-BHC (Lindane)	1.7E-01	1.3E+00	1.3E+00	NI	1	0.10		1.5E-09	1.9E-09	1.4E-13				2.1E-09	2.7E-09	4.7E-09	0.02
Heptachlor	1.9E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.7E-08	7.7E-08	1.6E-12	7.2E-12			2.4E-08	1.1E-07	1.9E-07	0.92
Heptachlor epoxide	3.0E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.7E-09	2.5E-08	2.5E-13	2.2E-12			3.8E-09	3.5E-08	5.9E-08	0.29
Methoxychlor	1.7E+00	NI	NI	NI	1	0.10		1.5E-08		1.4E-12				2.1E-08			
Toxaphene	1.7E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.5E-07	1.6E-07	1.4E-11	1.5E-11			2.1E-07	2.3E-07	3.9E-07	1.95
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									8.4E-06		7.7E-10				1.2E-05	2.0E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL112-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.2E+02	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.0E-06	3.4E-05	1.8E-10	3.1E-09			2.8E-06	4.8E-05	8.1E-05	55.87
Alpha-BHC	2.1E+01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.8E-07	1.2E-06	1.7E-11	1.1E-10			2.6E-07	1.6E-06	2.8E-06	1.93
Beta-BHC	2.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.8E-07	3.3E-07	1.7E-11	3.0E-11			2.6E-07	4.7E-07	8.0E-07	0.55
4,4-DDD	4.0E+01	2.4E-01	2.4E-01	NI	1	0.10		3.6E-07	8.5E-08	3.3E-11				5.0E-07	1.2E-07	2.1E-07	0.14
4,4-DDE	4.0E+01	3.4E-01	3.4E-01	NI	1	0.10		3.6E-07	1.2E-07	3.3E-11				5.0E-07	1.7E-07	2.9E-07	0.20
4,4-DDT	4.9E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.4E-08	1.5E-08	4.0E-12	1.4E-12			6.2E-08	2.1E-08	3.6E-08	0.02
Delta-BHC	2.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.8E-07	3.3E-07	1.7E-11	3.0E-11			2.6E-07	4.7E-07	8.0E-07	0.55
Dieldrin	1.4E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.3E-07	2.0E-06	1.2E-11	1.8E-10			1.8E-07	2.8E-06	4.9E-06	3.35
Chlordane	5.9E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		5.3E-08	1.8E-08	4.8E-12	1.7E-12			7.4E-08	2.6E-08	4.4E-08	0.03
Endosulfan I	2.1E+01	NI	NI	NI	1	0.10		1.8E-07		1.7E-11				2.6E-07			
Endosulfan II	4.0E+01	NI	NI	NI	1	0.10		3.6E-07		3.3E-11				5.0E-07			
Endosulfan sulfate	4.0E+01	NI	NI	NI	1	0.10		3.6E-07		3.3E-11				5.0E-07			
Endrin	4.0E+01	NI	NI	NI	1	0.10		3.6E-07		3.3E-11				5.0E-07			
Endrin aldehyde	4.0E+01	NI	NI	NI	1	0.10		3.6E-07		3.3E-11				5.0E-07			
Endrin ketone	4.0E+01	NI	NI	NI	1	0.10		3.6E-07		3.3E-11				5.0E-07			
Gamma-BHC (Lindane)	2.1E+01	1.3E+00	1.3E+00	NI	1	0.10		1.8E-07	2.4E-07	1.7E-11				2.6E-07	3.4E-07	5.8E-07	0.40
Heptachlor	7.3E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.6E-08	3.0E-07	6.0E-12	2.8E-11			9.3E-08	4.2E-07	7.1E-07	0.49
Heptachlor epoxide	2.1E+01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.8E-07	1.7E-06	1.7E-11	1.5E-10			2.6E-07	2.4E-06	4.1E-06	2.79
Methoxychlor	2.1E+02	NI	NI	NI	1	0.10		1.8E-06		1.7E-10				2.6E-06			
Toxaphene	2.1E+03	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.8E-05	2.0E-05	1.7E-09	1.9E-09			2.6E-05	2.9E-05	4.9E-05	33.68
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.0E-05		5.5E-09				8.5E-05	1.5E-04	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL112-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.8E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.4E-10	5.8E-09	3.1E-14	5.3E-13			4.8E-10	8.2E-09	1.4E-08	9.50
Alpha-BHC	3.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.8E-11	1.8E-10	2.6E-15	1.6E-14			4.0E-11	2.5E-10	4.3E-10	0.29
Beta-BHC	3.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.8E-11	5.1E-11	2.6E-15	4.7E-15			4.0E-11	7.2E-11	1.2E-10	0.08
4,4-DDD	2.1E-02	2.4E-01	2.4E-01	NI	1	0.10		1.9E-10	4.5E-11	1.7E-14				2.7E-10	6.4E-11	1.1E-10	0.07
4,4-DDE	1.6E-02	3.4E-01	3.4E-01	NI	1	0.10		1.4E-10	4.9E-11	1.3E-14				2.0E-10	6.9E-11	1.2E-10	0.08
4,4-DDT	2.9E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.6E-10	8.9E-11	2.4E-14	8.1E-15			3.7E-10	1.3E-10	2.1E-10	0.15
Delta-BHC	3.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.8E-11	5.1E-11	2.6E-15	4.7E-15			4.0E-11	7.2E-11	1.2E-10	0.08
Dieldrin	3.3E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		3.0E-09	4.8E-08	2.7E-13	4.4E-12			4.2E-09	6.7E-08	1.1E-07	77.68
Chlordane	1.0E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.1E-10	3.2E-10	8.3E-14	2.9E-14			1.3E-09	4.5E-10	7.7E-10	0.52
Endosulfan I	3.2E-03	NI	NI		1	0.10		2.8E-11		2.6E-15				4.0E-11			
Endosulfan II	1.6E-02	NI	NI	"	1	0.10		1.4E-10		1.3E-14				2.0E-10			
Endosulfan sulfate	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endrin	9.4E-03	NI	NI	NI	1	0.10		8.5E-11		7.7E-15				1.2E-10			
Endrin aldehyde	6.0E-03	NI	NI	NI	1	0.10		5.4E-11		4.9E-15				7.6E-11			
Endrin ketone	5.0E-02	NI	NI	NI	1	0.10		4.5E-10		4.1E-14				6.4E-10			
Gamma-BHC (Lindane)	3.2E-03	1.3E+00	1.3E+00	NI	1	0.10		2.8E-11	3.7E-11	2.6E-15				4.0E-11	5.2E-11	8.9E-11	0.06
Heptachlor	5.6E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		5.0E-10	2.3E-09	4.6E-14	2.1E-13			7.1E-10	3.2E-09	5.5E-09	3.71
Heptachlor epoxide	2.0E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.8E-10	1.6E-09	1.6E-14	1.5E-13			2.5E-10	2.3E-09	4.0E-09	2.68
Methoxychlor	3.2E-02	NI	NI	NI	1	0.10		2.8E-10		2.6E-14				4.0E-10			
Toxaphene	3.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.8E-09	3.1E-09	2.6E-13	2.9E-13			4.0E-09	4.4E-09	7.5E-09	5.10
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.1E-08		5.6E-12				8.6E-08	1.5E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL113-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin		1.7E+01	1.7E+01	1.7E+01	1	0.10											
Alpha-BHC		6.3E+00		6.3E+00													
Beta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
4,4-DDD		2.4E-01	2.4E-01	NI	1	0.10											
4,4-DDE		3.4E-01	3.4E-01	NI	1	0.10											
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											
Delta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
Dieldrin		1.6E+01	1.6E+01	1.6E+01	1	0.10											
Chlordane		3.5E-01	3.5E-01	3.5E-01	1	0.10											
Endosulfan I		NI	NI	NI	1	0.10											
Endosulfan II		NI	NI	NI	1	0.10											
Endosulfan sulfate		NI	NI	N	1	0.10											
Endrin		NI	NI	N	1	0.10											
Endrin aldehyde		NI	NI	NI	1	0.10											
Endrin ketone		NI	NI	NI	1	0.10											
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											
Heptachlor		4.5E+00	4.5E+00	4.6E+00	1	0.10											
Heptachlor epoxide		9.1E+00	9.1E+00	9.1E+00	1	0.10											
Methoxychlor		NI	NI	NI													
Toxaphene		1.1E+00	1.1E+00	1.1E+00	1	0.10											
DIOXIN																	
2,3,7,8-TCDD	6.9E-03	1.5E+05	1.5E+05	1.5E+05	1	0.10		6.2E-11	9.3E-06	5.7E-15	8.5E-10			8.8E-11	1.3E-05	2.2E-05	100 000
Total Cancer Risk									9.3E-06		8.5E-10				1.3E-05	2.2E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL113-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	4.7E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.2E-07	7.2E-06	3.9E-11	6.6E-10			6.0E-07	1.0E-05	1.7E-05	60.62
Alpha-BHC	2.4E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.1E-08	1.3E-07	1.9E-12	1.2E-11			3.0E-08	1.9E-07	3.2E-07	1.12
Beta-BHC	2.4E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.1E-08	3.8E-08	1.9E-12	3.5E-12			3.0E-08	5.4E-08	9.2E-08	0.32
4,4-DDD	2.2E+00	2.4E-01	2.4E-01	NI	1	0.10		2.0E-08	4.8E-09	1.8E-12				2.8E-08	6.7E-09	1.1E-08	0.04
4,4-DDE	5.5E-01	3.4E-01	3.4E-01	NI	1	0.10		5.0E-09	1.7E-09	4.5E-13				7.0E-09	2.4E-09	4.1E-09	0.01
4,4-DDT	9.6E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		8.6E-08	2.9E-08	7.9E-12	2.7E-12			1.2E-07	4.2E-08	7.1E-08	0.25
Delta-BHC	2.4E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		2.1E-08	3.8E-08	1.9E-12	3.5E-12			3.0E-08	5.4E-08	9.2E-08	0.32
Dieldrin	9.5E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		8.6E-08	1.4E-06	7.8E-12	1.3E-10			1.2E-07	1.9E-06	3.3E-06	11.53
Chlordane	8.3E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.5E-08	2.6E-08	6.8E-12	2.4E-12			1.1E-07	3.7E-08	6.3E-08	0.22
Endosulfan I	2.4E+00	NI	NI	NI	1	0.10		2.1E-08		1.9E-12				3.0E-08			
Endosulfan II	4.5E+00	NI	NI	NI	1	0.10		4.1E-08		3.7E-12				5.7E-08			
Endosulfan sulfate	4.5E+00	NI	NI	NI	1	0.10		4.1E-08		3.7E-12				5.7E-08			
Endrin	4.5E+00	NI	NI	NI	1	0.10		4.1E-08		3.7E-12				5.7E-08			
Endrin aldehyde	4.5E+00	NI	NI	NI	1	0.10		4.1E-08		3.7E-12				5.7E-08			
Endrin ketone	7.1E-01	NI	NI	NI	1	0.10		6.4E-09		5.9E-13				9.0E-09			
Gamma-BHC (Lindane)	2.4E+00	1.3E+00	1.3E+00	NI	1	0.10		2.1E-08	2.7E-08	1.9E-12				3.0E-08	3.9E-08	6.6E-08	0.23
Heptachlor	1.2E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.1E-07	4.9E-07	9.9E-12	4.5E-11			1.5E-07	6.9E-07	1.2E-06	4.10
Heptachlor epoxide	2.4E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.1E-08	1.9E-07	1.9E-12	1.8E-11			3.0E-08	2.7E-07	4.6E-07	1.62
Methoxychlor	2.4E+01	NI	NI	NI	1	0.10		2.1E-07		1.9E-11				3.0E-07			
Toxaphene	2.4E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		2.1E-06	2.3E-06	1.9E-10	2.1E-10			3.0E-06	3.3E-06	5.6E-06	19.61
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No Sample Collected																	
Total Cancer Risk									1.2E-05		1.1E-09				1.7E-05	2.9E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contamnant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL113-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.1E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.9E-11	1.7E-09	9.1E-15	1.5E-13			1.4E-10	2.4E-09	4.1E-09	36.54
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	1.29
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.37
4,4-DDD	2.8E-03	2.4E-01	2.4E-01	NI	1	0.10		2.5E-11	6.0E-12	2.3E-15				3.6E-11	8.5E-12	1.5E-11	0.13
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.13
4,4-DDT	2.6E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.3E-10	8.0E-11	2.1E-14	7.3E-15			3.3E-10	1.1E-10	1.9E-10	1.73
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.37
Dieldrin	5.8E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.2E-11	8.4E-10	4.8E-15	7.6E-14			7.4E-11	1.2E-09	2.0E-09	18.13
Chlordane	1.2E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.0E-10	3.6E-11	9.5E-15	3.3E-15			1.5E-10	5.1E-11	8.7E-11	0.79
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.27
Heptachlor	1.6E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.6E-10	7.3E-10	1.5E-14	6.8E-14			2.3E-10	1.0E-09	1.8E-09	15.83
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	1.87
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	22.57
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No Sample Collected																	
Total Cancer Risk									4.6E-09		4.2E-13				6.5E-09	1.1E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL114-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Derm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	6.9E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.2E-07	1.1E-05	5.7E-11	9.7E-10			8.8E-07	1.5E-05	2.5E-05	16.34
Alpha-BHC	1.4E+01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.3E-07	7.9E-07	1.2E-11	7.3E-11			1.8E-07	1.1E-06	1.9E-06	1.23
Beta-BHC	1.5E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.4E-07	2.4E-07	1.2E-11	2.2E-11			1.9E-07	3.4E-07	5.9E-07	0.38
4,4-DDD	6.6E+00	2.4E-01	2.4E-01	NI	1	0.10		5.9E-08	1.4E-08	5.4E-12				8.4E-08	2.0E-08	3.4E-08	0.02
4,4-DDE	2.7E+01	3.4E-01	3.4E-01	NI	1	0.10		2.4E-07	8.3E-08	2.2E-11				3.4E-07	1.2E-07	2.0E-07	0.13
4,4-DDT	3.3E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		3.0E-07	1.0E-07	2.7E-11	9.2E-12			4.2E-07	1.4E-07	2.4E-07	0.16
Delta-BHC	1.4E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.3E-07	2.3E-07	1.2E-11	2.1E-11			1.8E-07	3.2E-07	5.5E-07	0.35
Dieldrin	2.4E+02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.2E-06	3.5E-05	2.0E-10	3.2E-09			3.1E-06	4.9E-05	8.3E-05	53.50
Chlordane	1.3E+02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.2E-06	4.2E-07	1.1E-10	3.9E-11			1.7E-06	6.0E-07	1.0E-06	0.65
Endosulfan I	1.4E+01	NI	NI	NI	1	0.10		1.3E-07		1.2E-11				1.8E-07			
Endosulfan II	2.7E+01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.4E-07			
Endosulfan sulfate	2.7E+01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.4E-07			
Endrin	2.7E+01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.4E-07			
Endrin aldehyde	2.7E+01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.4E-07			
Endrin ketone	2.7E+01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.4E-07			
Gamma-BHC (Lindane)	1.4E+01	1.3E+00	1.3E+00	NI	1	0.10		1.3E-07	1.6E-07	1.2E-11				1.8E-07	2.3E-07	4.0E-07	0.25
Heptachlor	6.0E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		5.4E-07	2.4E-06	4.9E-11	2.3E-10			7.6E-07	3.4E-06	5.9E-06	3.76
Heptachlor epoxide	1.4E+01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.3E-07	1.1E-06	1.2E-11	1.0E-10			1.8E-07	1.6E-06	2.8E-06	1.77
Methoxychlor	1.4E+02	NI	NI	NI	1	0.10		1.3E-06		1.2E-10				1.8E-06			
Toxaphene	1.4E+03	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.3E-05	1.4E-05	1.2E-09	1.3E-09			1.8E-05	2.0E-05	3.3E-05	21.45
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.5E-05		5.9E-09				9.1E-05	1.6E-04	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL115-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.4E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.1E-09	5.2E-08	2.8E-13	4.8E-12			4.3E-09	7.4E-08	1.3E-07	49.74
Alpha-BHC	3.3E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.0E-10	1.9E-09	2.7E-14	1.7E-13			4.2E-10	2.6E-09	4.5E-09	1.79
Beta-BHC	5.9E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.3E-11	9.6E-11	4.9E-15	8.8E-15			7.5E-11	1.4E-10	2.3E-10	0.09
4,4-DDD	1.0E-02	2.4E-01	2.4E-01	NI	1	0.10		9.0E-11	2.2E-11	8.2E-15				1.3E-10	3.1E-11	5.2E-11	0.02
4,4-DDE	6.5E-02	3.4E-01	3.4E-01	NI	1	0.10		5.9E-10	2.0E-10	5.4E-14				8.3E-10	2.8E-10	4.8E-10	0.19
4,4-DDT	1.5E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.4E-10	4.6E-11	1.2E-14	4.2E-15			1.9E-10	6.5E-11	1.1E-10	0.04
Delta-BHC	3.3E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.0E-10	5.3E-10	2.7E-14	4.9E-14			4.2E-10	7.6E-10	1.3E-09	0.51
Dieldrin	8.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		7.7E-10	1.2E-08	7.0E-14	1.1E-12			1.1E-09	1.7E-08	3.0E-08	11.70
Chlordane	7.0E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		6.3E-10	2.2E-10	5.8E-14	2.0E-14			8.9E-10	3.1E-10	5.3E-10	0.21
Endosulfan I	3.3E-02	NI	NI	NI	1	0.10		3.0E-10		2.7E-14				4.2E-10			
Endosulfan II	6.5E-02	NI	NI	NI	1	0.10		5.9E-10		5.4E-14				8.3E-10			
Endosulfan sulfate	6.5E-02	NI	NI	NI	1	0.10		5.9E-10		5.4E-14				8.3E-10			
Endrin	6.5E-02	NI	NI	NI	1	0.10		5.9E-10		5.4E-14				8.3E-10			
Endrin aldehyde	6.5E-02	NI	NI	NI	1	0.10		5.9E-10		5.4E-14				8.3E-10			
Endrin ketone	6.5E-02	NI	NI	NI	1	0.10		5.9E-10		5.4E-14				8.3E-10			
Gamma-BHC (Lindane)	3.3E-02	1.3E+00	1.3E+00	NI	1	0.10		3.0E-10	3.9E-10	2.7E-14				4.2E-10	5.5E-10	9.3E-10	0.37
Heptachlor	3.9E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.5E-10	1.6E-09	3.2E-14	1.5E-13			5.0E-10	2.2E-09	3.8E-09	1.51
Heptachlor epoxide	3.3E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.0E-10	2.7E-09	2.7E-14	2.5E-13			4.2E-10	3.8E-09	6.5E-09	2.58
Methoxychlor	3.3E-01	NI	NI	NI	1	0.10		3.0E-09		2.7E-13				4.2E-09			
Toxaphene	3.3E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.0E-08	3.3E-08	2.7E-12	3.0E-12			4.2E-08	4.6E-08	7.9E-08	31.24
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.0E-07		9.5E-12				1.5E-07	2.5E-07	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL116-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG), (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.2E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.1E-10	1.8E-09	9.9E-15	1.7E-13			1.5E-10	2.6E-09	4.4E-09	48.01
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-11	6.5E-11	9.5E-16	6.0E-15			1.5E-11	9.2E-11	1.6E-10	1.71
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.49
4,4-DDD	3.0E-03	2.4E-01	2.4E-01	NI	1	0.10		2.7E-11	6.5E-12	2.5E-15				3.8E-11	9.2E-12	1.6E-11	0.17
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.18
4,4-DDT	2.2E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-11	6.7E-12	1.8E-15	6.2E-16			2.8E-11	9.5E-12	1.6E-11	0.18
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.49
Dieldrin	3.9E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		3.5E-11	5.6E-10	3.2E-15	5.1E-14			5.0E-11	7.9E-10	1.4E-09	14.69
Chlordane	3.6E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.2E-11	1.1E-11	2.9E-15	1.0E-15			4.5E-11	1.6E-11	2.7E-11	0.29
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.0E-11		9.5E-16				1.5E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.0E-11	1.3E-11	9.5E-16				1.5E-11	1.9E-11	3.2E-11	0.35
Heptachlor	1.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.0E-11	4.7E-11	9.5E-16	4.4E-15			1.5E-11	6.6E-11	1.1E-10	1.22
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-11	9.4E-11	9.5E-16	8.6E-15			1.5E-11	1.3E-10	2.3E-10	2.46
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.0E-10		9.5E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.0E-13			1.5E-09	1.6E-09	2.7E-09	29.77
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									3.8E-09		3.5E-13				5.4E-09	9.2E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL117-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	5.7E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		5.1E-10	8.7E-09	4.7E-14	8.0E-13			7.2E-10	1.2E-08	2.1E-08	49.92
Alpha-BHC	4.4E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.9E-11	2.5E-10	3.6E-15	2.3E-14			5.5E-11	3.5E-10	6.0E-10	1.41
Beta-BHC	4.4E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.9E-11	7.0E-11	3.6E-15	6.5E-15			5.5E-11	1.0E-10	1.7E-10	0.40
4,4-DDD	8.5E-03	2.4E-01	2.4E-01	NI	1	0.10		7.7E-11	1.8E-11	7.0E-15				1.1E-10	2.6E-11	4.4E-11	0.11
4,4-DDE	8.5E-03	3.4E-01	3.4E-01	NI	1	0.10		7.7E-11	2.6E-11	7.0E-15				1.1E-10	3.7E-11	6.3E-11	0.15
4,4-DDT	8.5E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		7.7E-11	2.6E-11	7.0E-15	2.4E-15			1.1E-10	3.7E-11	6.3E-11	0.15
Delta-BHC	4.4E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.9E-11	7.0E-11	3.6E-15	6.5E-15			5.5E-11	1.0E-10	1.7E-10	0.40
Dieldrin	2.4E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.2E-10	3.5E-09	2.0E-14	3.2E-13			3.1E-10	4.9E-09	8.3E-09	19.78
Chlordane	3.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.7E-11	9.5E-12	2.5E-15	8.7E-16			3.8E-11	1.3E-11	2.3E-11	0.05
Endosulfan I	4.4E-03	NI	NI	NI	1	0.10		3.9E-11		3.6E-15				5.5E-11			
Endosulfan II	8.5E-03	NI	NI	NI	1	0.10		7.7E-11		7.0E-15				1.1E-10			
Endosulfan sulfate	8.5E-03	NI	NI	NI	1	0.10		7.7E-11		7.0E-15				1.1E-10			
Endrin	8.5E-03	NI	NI	NI	1	0.10		7.7E-11		7.0E-15				1.1E-10			
Endrin aldehyde	8.5E-03	NI	NI	NI	1	0.10		7.7E-11		7.0E-15				1.1E-10			
Endrin ketone	8.5E-03	NI	NI	NI	1	0.10		7.7E-11		7.0E-15				1.1E-10			
Gamma-BHC (Lindane)	4.4E-03	1.3E+00	1.3E+00	NI	1	0.10		3.9E-11	5.1E-11	3.6E-15				5.5E-11	7.2E-11	1.2E-10	0.29
Heptachlor	2.8E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.5E-11	1.1E-10	2.3E-15	1.1E-14			3.6E-11	1.6E-10	2.7E-10	0.65
Heptachlor epoxide	4.4E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.9E-11	3.6E-10	3.6E-15	3.3E-14			5.5E-11	5.0E-10	8.6E-10	2.04
Methoxychlor	4.4E-02	NI	NI	NI	1	0.10		3.9E-10		3.6E-14				5.5E-10			
Toxaphene	4.4E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.9E-09	4.3E-09	3.6E-13	3.9E-13			5.5E-09	6.1E-09	1.0E-08	24.65
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-08		1.6E-12				2.5E-08	4.2E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL118-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dermal (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG), (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-10	3.1E-09	1.6E-14	2.8E-13			2.5E-10	4.3E-09	7.4E-09	60.44
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	1.18
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.34
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.4E-12	1.7E-15				2.6E-11	6.3E-12	1.1E-11	0.09
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.3E-12	1.7E-15				2.6E-11	8.9E-12	1.5E-11	0.12
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.3E-12	1.7E-15	5.7E-16			2.6E-11	8.9E-12	1.5E-11	0.12
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.34
Dieldrin	4.9E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		4.4E-11	7.1E-10	4.0E-15	6.5E-14			6.2E-11	1.0E-09	1.7E-09	13.94
Chlordane	2.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-11	6.6E-12	1.7E-15	6.1E-16			2.7E-11	9.3E-12	1.6E-11	0.13
Endosulfan I	1.1E-03	NI	NI	N	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.1E-03	NI	NI	N	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.24
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	0.84
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	1.70
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	20.53
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.1E-09		4.6E-13				7.2E-09	1.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL119-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.7E-10	4.6E-09	2.5E-14	4.2E-13			3.8E-10	6.5E-09	1.1E-08	50.22
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	0.68
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.19
4,4-DDD	2.7E-03	2.4E-01	2.4E-01	NI	1	0.10		2.4E-11	5.8E-12	2.2E-15				3.4E-11	8.2E-12	1.4E-11	0.06
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.9E-11	6.4E-12	1.7E-15				2.7E-11	9.1E-12	1.6E-11	0.07
4,4-DDT	6.4E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.8E-11	2.0E-11	5.3E-15	1.8E-15			8.1E-11	2.8E-11	4.7E-11	0.21
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.19
Dieldrin	2.2E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-10	3.2E-09	1.8E-14	2.9E-13			2.8E-10	4.5E-09	7.6E-09	34.66
Chlordane	5.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.5E-11	1.6E-11	4.1E-15	1.4E-15			6.4E-11	2.2E-11	3.8E-11	0.17
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endosulfan sulfate	2.1E-03	NI	NI	I	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	2.1E-03	NI	NI	I	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.14
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-12	4.5E-11	9.1E-16	4.2E-15			1.4E-11	6.3E-11	1.1E-10	0.49
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-12	9.0E-11	9.1E-16	8.2E-15			1.4E-11	1.3E-10	2.2E-10	0.99
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	11.91
DIOXIN																	
2,3,7,8-TCDD No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									9.1E-09		8.3E-13				1.3E-08	2.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL120-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	5.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.5E-11	7.7E-10	4.1E-15	7.0E-14			6.4E-11	1.1E-09	1.8E-09	31.40
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	2.44
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.70
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.3E-12	1.6E-15				2.5E-11	6.1E-12	1.0E-11	0.18
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.25
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.25
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.70
Dieldrin	2.6E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-11	3.7E-10	2.1E-15	3.4E-14			3.3E-11	5.3E-10	9.0E-10	15.37
Chlordane	2.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-11	6.6E-12	1.7E-15	6.1E-16			2.7E-11	9.3E-12	1.6E-11	0.27
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.50
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	1.75
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	3.53
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	42.66
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.4E-09		2.2E-13				3.4E-09	5.9E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL121-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.6E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.4E-09	2.4E-08	1.3E-13	2.2E-12			2.0E-09	3.5E-08	5.9E-08	49.86
Alpha-BHC	1.2E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.1E-10	6.8E-10	9.9E-15	6.2E-14			1.5E-10	9.6E-10	1.6E-09	1.39
Beta-BHC	1.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-10	1.9E-10	9.9E-15	1.8E-14			1.5E-10	2.7E-10	4.7E-10	0.40
4,4-DDD	2.3E-02	2.4E-01	2.4E-01	NI	1	0.10		2.1E-10	5.0E-11	1.9E-14				2.9E-10	7.0E-11	1.2E-10	0.10
4,4-DDE	2.3E-02	3.4E-01	3.4E-01	NI	1	0.10		2.1E-10	7.0E-11	1.9E-14				2.9E-10	9.9E-11	1.7E-10	0.14
4,4-DDT	2.5E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.3E-11	7.7E-12	2.1E-15	7.0E-16			3.2E-11	1.1E-11	1.8E-11	0.02
Delta-BHC	1.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-10	1.9E-10	9.9E-15	1.8E-14			1.5E-10	2.7E-10	4.7E-10	0.40
Dieldrin	6.9E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.2E-10	9.9E-09	5.7E-14	9.1E-13			8.8E-10	1.4E-08	2.4E-08	20.24
Chlordane	1.0E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.0E-11	3.2E-11	8.2E-15	2.9E-15			1.3E-10	4.5E-11	7.6E-11	0.06
Endosulfan I	1.3E-03	NI	NI	NI	1	0.10		1.2E-11		1.1E-15				1.7E-11			
Endosulfan II	2.3E-02	NI	NI	NI	1	0.10		2.1E-10		1.9E-14				2.9E-10			
Endosulfan sulfate	2.3E-02	NI	NI	NI	1	0.10		2.1E-10		1.9E-14				2.9E-10			
Endrin	2.3E-02	NI	NI	NI	1	0.10		2.1E-10		1.9E-14				2.9E-10			
Endrin aldehyde	2.3E-02	NI	NI	NI	1	0.10		2.1E-10		1.9E-14				2.9E-10			
Endrin ketone	4.8E-03	NI	NI	NI	1	0.10		4.3E-11		4.0E-15				6.1E-11			
Gamma-BHC (Lindane)	1.2E-02	1.3E+00	1.3E+00	NI	1	0.10		1.1E-10	1.4E-10	9.9E-15				1.5E-10	2.0E-10	3.4E-10	0.29
Heptachlor	1.1E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-11	4.5E-10	9.1E-15	4.2E-14			1.4E-10	6.3E-10	1.1E-09	0.91
Heptachlor epoxide	1.2E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.1E-10	9.8E-10	9.9E-15	9.0E-14			1.5E-10	1.4E-09	2.4E-09	2.00
Methoxychlor	1.2E-01	NI	NI	NI	1	0.10		1.1E-09		9.9E-14				1.5E-09			
Toxaphene	1.2E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.1E-08	1.2E-08	9.9E-13	1.1E-12			1.5E-08	1.7E-08	2.9E-08	24.20
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.9E-08		4.5E-12				6.9E-08	1.2E-07	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL122-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	7.6E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.8E-10	1.2E-08	6.3E-14	1.1E-12			9.7E-10	1.6E-08	2.8E-08	56.88
Alpha-BHC	5.5E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		5.0E-11	3.1E-10	4.5E-15	2.9E-14			7.0E-11	4.4E-10	7.5E-10	1.53
Beta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.44
4,4-DDD	1.1E-02	2.4E-01	2.4E-01	NI	1	0.10		9.9E-11	2.4E-11	9.1E-15				1.4E-10	3.4E-11	5.7E-11	0.12
4,4-DDE	1.1E-02	3.4E-01	3.4E-01	NI	1	0.10		9.9E-11	3.4E-11	9.1E-15				1.4E-10	4.8E-11	8.1E-11	0.16
4,4-DDT	1.1E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		9.9E-11	3.4E-11	9.1E-15	3.1E-15			1.4E-10	4.8E-11	8.1E-11	0.16
Delta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.44
Dieldrin	1.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.4E-10	2.2E-09	1.2E-14	2.0E-13			1.9E-10	3.1E-09	5.2E-09	10.57
Chlordane	1.1E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.9E-11	3.5E-11	9.1E-15	3.2E-15			1.4E-10	4.9E-11	8.4E-11	0.17
Endosulfan I	2.1E-02	NI	NI	NI	1	0.10		1.9E-10		1.7E-14				2.7E-10			
Endosulfan II	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endosulfan sulfate	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endrin	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endrin aldehyde	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endrin ketone	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Gamma-BHC (Lindane)	5.5E-03	1.3E+00	1.3E+00	NI	1	0.10		5.0E-11	6.4E-11	4.5E-15				7.0E-11	9.1E-11	1.6E-10	0.31
Heptachlor	2.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.8E-11	8.1E-11	1.6E-15	7.6E-15			2.5E-11	1.1E-10	2.0E-10	0.40
Heptachlor epoxide	5.5E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.0E-11	4.5E-10	4.5E-15	4.1E-14			7.0E-11	6.4E-10	1.1E-09	2.20
Methoxychlor	5.5E-02	NI	NI	NI	1	0.10		5.0E-10		4.5E-14				7.0E-10			
Toxaphene	5.5E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-09	5.4E-09	4.5E-13	5.0E-13			7.0E-09	7.7E-09	1.3E-08	26.63
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.0E-08		1.9E-12				2.9E-08	4.9E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL123-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.4E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.0E-10	6.7E-09	3.6E-14	6.2E-13			5.6E-10	9.5E-09	1.6E-08	51.06
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-11	6.5E-11	9.5E-16	6.0E-15			1.5E-11	9.2E-11	1.6E-10	0.49
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.14
4,4-DDD	2.2E-03	2.4E-01	2.4E-01	NI	1	0.10		2.0E-11	4.8E-12	1.8E-15				2.8E-11	6.7E-12	1.1E-11	0.04
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.05
4,4-DDT	2.2E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-11	6.7E-12	1.8E-15	6.2E-16			2.8E-11	9.5E-12	1.6E-11	0.05
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.14
Dieldrin	2.3E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.1E-10	3.3E-09	1.9E-14	3.0E-13			2.9E-10	4.7E-09	8.0E-09	25.12
Chlordane	3.7E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.3E-11	1.1E-11	3.0E-15	1.1E-15			4.6E-11	1.6E-11	2.8E-11	0.09
Endosulfan I	1.8E-03	NI	NI	NI	1	0.10		1.6E-11		1.5E-15				2.3E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.0E-11	1.3E-11	9.5E-16				1.5E-11	1.9E-11	3.2E-11	0.10
Heptachlor	3.5E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.2E-11	1.4E-10	2.9E-15	1.3E-14			4.5E-11	2.0E-10	3.4E-10	1.08
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-11	9.4E-11	9.5E-16	8.6E-15			1.5E-11	1.3E-10	2.3E-10	0.71
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.0E-10		9.5E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.0E-13			1.5E-09	1.6E-09	2.7E-09	8.64
DIOXIN																	
2,3,7,8-TCDD	1.2E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		1.1E-14	1.6E-09	9.9E-19	1.5E-13			1.5E-14	2.3E-09	3.9E-09	12.29
Total Cancer Risk									1.3E-08		1.2E-12				1.9E-08	3.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL124-5

		Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless			Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	
	Concentration in soil (CS),	Oral Slope	Dermal Slope	Inhalation Slope			Volatilization factor (VF),	Amount Absorbed (IDD),	Lifetime Risks (CRD)	Amount Inhaled (IDIS),	Lifetime Risks (CRIS)	Amount Inhaled (IDIV),	Lifetime Risks (CRIV)	Amount Ingested (IDIG),	Lifetime Risks (CRIG)		Risk Percentage
Aldrin	2.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-10	3.1E-09	1.6E-14	2.8E-13			2.5E-10	4.3E-09	7.4E-09	34.60
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-11	6.5E-11	9.5E-16	6.0E-15			1.5E-11	9.2E-11	1.6E-10	0.74
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.21
4,4-DDD	2.2E-03	2.4E-01	2.4E-01	NI	1	0.10		2.0E-11	4.8E-12	1.8E-15				2.8E-11	6.7E-12	1.1E-11	0.05
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.08
4,4-DDT	2.2E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-11	6.7E-12	1.8E-15	6.2E-16			2.8E-11	9.5E-12	1.6E-11	0.08
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.21
Dieldrin	1.9E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.7E-10	2.7E-09	1.6E-14	2.5E-13			2.4E-10	3.9E-09	6.6E-09	30.94
Chlordane	4.3E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.9E-11	1.4E-11	3.5E-15	1.2E-15			5.5E-11	1.9E-11	3.3E-11	0.15
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.0E-11		9.5E-16				1.5E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.0E-11	1.3E-11	9.5E-16				1.5E-11	1.9E-11	3.2E-11	0.15
Heptachlor	1.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.0E-11	4.7E-11	9.5E-16	4.4E-15			1.5E-11	6.6E-11	1.1E-10	0.53
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-11	9.4E-11	9.5E-16	8.6E-15			1.5E-11	1.3E-10	2.3E-10	1.07
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.0E-10		9.5E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.0E-13			1.5E-09	1.6E-09	2.7E-09	12.87
DIOXIN																	
2,3,7,8-TCDD	1.2E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		1.1E-14	1.6E-09	9.9E-19	1.5E-13			1.5E-14	2.3E-09	3.9E-09	18.32
No sample collected																	
Total Cancer Risk									6.8E-09		8.1E-13				1.2E-08	2.1E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL125-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	9.0E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		8.1E-09	1.4E-07	7.4E-13	1.3E-11			1.1E-08	1.9E-07	3.3E-07	45.91
Alpha-BHC	1.2E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-09	6.5E-09	9.5E-14	6.0E-13			1.5E-09	9.2E-09	1.6E-08	2.17
Beta-BHC	1.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-09	1.9E-09	9.5E-14	1.7E-13			1.5E-09	2.6E-09	4.5E-09	0.62
4,4-DDD	2.2E-01	2.4E-01	2.4E-01	NI	1	0.10		2.0E-09	4.8E-10	1.8E-13				2.8E-09	6.7E-10	1.1E-09	0.16
4,4-DDE	2.2E-01	3.4E-01	3.4E-01	NI	1	0.10		2.0E-09	6.7E-10	1.8E-13				2.8E-09	9.5E-10	1.6E-09	0.22
4,4-DDT	2.2E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-09	6.7E-10	1.8E-13	6.2E-14			2.8E-09	9.5E-10	1.6E-09	0.22
Delta-BHC	1.2E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-09	1.9E-09	9.5E-14	1.7E-13			1.5E-09	2.6E-09	4.5E-09	0.62
Dieldrin	1.4E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.3E-09	2.0E-08	1.2E-13	1.8E-12			1.8E-09	2.8E-08	4.9E-08	6.72
Chlordane	2.3E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.1E-09	7.2E-10	1.9E-13	6.6E-14			2.9E-09	1.0E-09	1.7E-09	0.24
Endosulfan I	1.2E-01	NI	NI	NI	1	0.10		1.0E-09		9.5E-14				1.5E-09			
Endosulfan II	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endosulfan sulfate	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin aldehyde	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Endrin ketone	2.2E-01	NI	NI	NI	1	0.10		2.0E-09		1.8E-13				2.8E-09			
Gamma-BHC (Lindane)	1.2E-01	1.3E+00	1.3E+00	NI	1	0.10		1.0E-09	1.3E-09	9.5E-14				1.5E-09	1.9E-09	3.2E-09	0.45
Heptachlor	1.2E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.0E-09	4.7E-09	9.5E-14	4.4E-13			1.5E-09	6.6E-09	1.1E-08	1.55
Heptachlor epoxide	1.2E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-09	9.4E-09	9.5E-14	8.6E-13			1.5E-09	1.3E-08	2.3E-08	3.14
Methoxychlor	1.2E+00	NI	NI	NI	1	0.10		1.0E-08		9.5E-13				1.5E-08			
Toxaphene	1.2E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-07	1.1E-07	9.5E-12	1.0E-11			1.5E-07	1.6E-07	2.7E-07	37.96
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									3.0E-07		2.7E-11				4.2E-07	7.2E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL126-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.6E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.2E-10	5.5E-09	3.0E-14	5.0E-13			4.6E-10	7.8E-09	1.3E-08	53.26
Alpha-BHC	2.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.9E-11	1.2E-10	1.8E-15	1.1E-14			2.7E-11	1.7E-10	2.9E-10	1.18
Beta-BHC	2.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-11	3.5E-11	1.8E-15	3.2E-15			2.7E-11	4.9E-11	8.4E-11	0.34
4,4-DDD	4.8E-03	2.4E-01	2.4E-01	NI	1	0.10		4.3E-11	1.0E-11	4.0E-15				6.1E-11	1.5E-11	2.5E-11	0.10
4,4-DDE	4.2E-03	3.4E-01	3.4E-01	NI	1	0.10		3.8E-11	1.3E-11	3.5E-15				5.3E-11	1.8E-11	3.1E-11	0.12
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.9E-11	6.4E-12	1.7E-15	5.9E-16			2.7E-11	9.1E-12	1.6E-11	0.06
Delta-BHC	2.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-11	3.5E-11	1.8E-15	3.2E-15			2.7E-11	4.9E-11	8.4E-11	0.34
Dieldrin	1.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.4E-10	2.2E-09	1.2E-14	2.0E-13			1.9E-10	3.1E-09	5.2E-09	20.89
Chlordane	1.0E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.4E-11	3.3E-11	8.6E-15	3.0E-15			1.3E-10	4.6E-11	7.9E-11	0.32
Endosulfan I	2.2E-03	NI	NI	NI	1	0.10		1.9E-11		1.8E-15				2.7E-11			
Endosulfan II	4.2E-03	NI	NI	I	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Endosulfan sulfate	4.2E-03	NI	NI	I	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Endrin	4.2E-03	NI	NI	NI	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Endrin aldehyde	4.2E-03	NI	NI	NI	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Endrin ketone	4.2E-03	NI	NI	NI	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Gamma-BHC (Lindane)	2.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.9E-11	2.5E-11	1.8E-15				2.7E-11	3.6E-11	6.1E-11	0.24
Heptachlor	2.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.0E-11	8.9E-11	1.8E-15	8.3E-15			2.8E-11	1.3E-10	2.2E-10	0.86
Heptachlor epoxide	2.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.9E-11	1.8E-10	1.8E-15	1.6E-14			2.7E-11	2.5E-10	4.2E-10	1.70
Methoxychlor	2.2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Toxaphene	2.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.9E-09	2.1E-09	1.8E-13	1.9E-13			2.7E-09	3.0E-09	5.1E-09	20.58
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.0E-08		9.4E-13				1.5E-08	2.5E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL127-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.5E-12	1.6E-10	8.7E-16	1.5E-14			1.3E-11	2.3E-10	3.9E-10	3.06
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	1.13
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.32
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.4E-12	1.7E-15				2.6E-11	6.3E-12	1.1E-11	0.08
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.3E-12	1.7E-15				2.6E-11	8.9E-12	1.5E-11	0.12
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.3E-12	1.7E-15	5.7E-16			2.6E-11	8.9E-12	1.5E-11	0.12
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.32
Dieldrin	2.9E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.6E-11	4.2E-10	2.4E-15	3.8E-14			3.7E-11	5.9E-10	1.0E-09	7.95
Chlordane	2.5E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-11	7.7E-12	2.0E-15	7.1E-16			3.1E-11	1.1E-11	1.9E-11	0.15
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endosulfan sulfate	2.1E-03	NI	NI	I	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin	2.1E-03	NI	NI	I	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.23
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.5E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	0.81
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	1.64
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	19.79
DIOXIN																	
2,3,7,8-TCDD	2.5E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		2.3E-14	3.4E-09	2.1E-18	3.1E-13			3.2E-14	4.8E-09	8.1E-09	64.26
Total Cancer Risk									5.3E-09		4.8E-13				7.4E-09	1.3E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL128-7

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	5.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.6E-11	7.8E-10	4.2E-15	7.1E-14			6.5E-11	1.1E-09	1.9E-09	33.81
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	2.46
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.70
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.18
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.26
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.26
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.70
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.9E-10	1.6E-15	2.6E-14			2.5E-11	4.1E-10	7.0E-10	12.48
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.27
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.51
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-12	4.5E-11	9.1E-16	4.2E-15			1.4E-11	6.3E-11	1.1E-10	1.93
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	3.55
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	42.89
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.3E-09		2.1E-13				3.3E-09	5.6E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL129-5

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-10	3.1E-09	1.6E-14	2.8E-13			2.5E-10	4.3E-09	7.4E-09	0.78
Alpha-BHC	5.5E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		5.0E-11	3.1E-10	4.5E-15	2.9E-14			7.0E-11	4.4E-10	7.5E-10	0.08
Beta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.02
4,4-DDD	1.0E-02	2.4E-01	2.4E-01	NI	1	0.10		9.0E-11	2.2E-11	8.2E-15				1.3E-10	3.1E-11	5.2E-11	0.01
4,4-DDE	1.8E-02	3.4E-01	3.4E-01	NI	1	0.10		1.6E-10	5.5E-11	1.5E-14				2.3E-10	7.8E-11	1.3E-10	0.01
4,4-DDT	5.9E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.3E-10	1.8E-10	4.9E-14	1.7E-14			7.5E-10	2.6E-10	4.4E-10	0.05
Delta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.02
Dieldrin	9.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		8.6E-10	1.4E-08	7.8E-14	1.3E-12			1.2E-09	1.9E-08	3.3E-08	3.51
Chlordane	1.4E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.2E-09	4.3E-10	1.1E-13	4.0E-14			1.7E-09	6.1E-10	1.0E-09	0.11
Endosulfan I	5.5E-03	NI	NI	NI	1	0.10		5.0E-11		4.5E-15				7.0E-11			
Endosulfan II	7.8E-03	NI	NI	NI	1	0.10		7.0E-11		6.4E-15				9.9E-11			
Endosulfan sulfate	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin aldehyde	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin ketone	6.4E-03	NI	NI	NI	1	0.10		5.8E-11		5.3E-15				8.1E-11			
Gamma-BHC (Lindane)	5.5E-03	1.3E+00	1.3E+00	NI	1	0.10		5.0E-11	6.4E-11	4.5E-15				7.0E-11	9.1E-11	1.6E-10	0.02
Heptachlor	4.1E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.7E-10	1.7E-09	3.4E-14	1.6E-13			5.2E-10	2.3E-09	4.0E-09	0.43
Heptachlor epoxide	6.4E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.8E-11	5.2E-10	5.3E-15	4.8E-14			8.1E-11	7.4E-10	1.3E-09	0.13
Methoxychlor	5.5E-02	NI	NI	NI	1	0.10		5.0E-10		4.5E-14				7.0E-10			
Toxaphene	5.5E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-09	5.4E-09	4.5E-13	5.0E-13			7.0E-09	7.7E-09	1.3E-08	1.40
DIOXIN																	
2,3,7,8-TCDD	2.7E-04	1.5E+05	1.5E+05	1.5E+05	1	0.10		2.4E-12	3.6E-07	2.2E-16	3.3E-11			3.4E-12	5.2E-07	8.8E-07	93.43
Total Cancer Risk									3.9E-07		3.6E-11				5.5E-07	9.4E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL130-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.2E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.1E-11	1.8E-10	9.9E-16	1.7E-14			1.5E-11	2.6E-10	4.4E-10	9.06
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.1E-11	6.8E-11	9.9E-16	6.2E-15			1.5E-11	9.6E-11	1.6E-10	3.36
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	1.9E-11	9.9E-16	1.8E-15			1.5E-11	2.7E-11	4.7E-11	0.96
4,4-DDD	2.3E-03	2.4E-01	2.4E-01	NI	1	0.10		2.1E-11	5.0E-12	1.9E-15				2.9E-11	7.0E-12	1.2E-11	0.25
4,4-DDE	2.3E-03	3.4E-01	3.4E-01	NI	1	0.10		2.1E-11	7.0E-12	1.9E-15				2.9E-11	9.9E-12	1.7E-11	0.35
4,4-DDT	2.3E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.1E-11	7.0E-12	1.9E-15	6.4E-16			2.9E-11	9.9E-12	1.7E-11	0.35
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	1.9E-11	9.9E-16	1.8E-15			1.5E-11	2.7E-11	4.7E-11	0.98
Dieldrin	2.3E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.1E-11	3.3E-10	1.9E-15	3.0E-14			2.9E-11	4.7E-10	8.0E-10	16.35
Chlordane	2.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-11	7.6E-12	2.0E-15	6.9E-16			3.1E-11	1.1E-11	1.8E-11	0.37
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.1E-11		9.9E-16				1.5E-11			
Endosulfan II	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endosulfan sulfate	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin aldehyde	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin ketone	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.1E-11	1.4E-11	9.9E-16				1.5E-11	2.0E-11	3.4E-11	0.69
Heptachlor	1.9E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.7E-11	7.7E-11	1.6E-15	7.2E-15			2.4E-11	1.1E-10	1.9E-10	3.80
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.1E-11	9.8E-11	9.9E-16	9.0E-15			1.5E-11	1.4E-10	2.4E-10	4.85
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.1E-10		9.9E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.1E-09	1.2E-09	9.9E-14	1.1E-13			1.5E-09	1.7E-09	2.9E-09	58.65
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									2.0E-09		1.8E-13				2.9E-09	4.9E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL131-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.1E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.9E-09	3.2E-08	1.7E-13	2.9E-12			2.7E-09	4.5E-08	7.8E-08	46.83
Alpha-BHC	2.2E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.9E-10	1.2E-09	1.8E-14	1.1E-13			2.7E-10	1.7E-09	2.9E-09	1.78
Beta-BHC	2.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-10	3.5E-10	1.8E-14	3.2E-14			2.7E-10	4.9E-10	8.4E-10	0.51
4,4-DDD	1.2E-02	2.4E-01	2.4E-01	NI	1	0.10		1.1E-10	2.6E-11	9.9E-15				1.5E-10	3.7E-11	6.3E-11	0.04
4,4-DDE	5.1E-03	3.4E-01	3.4E-01	NI	1	0.10		4.6E-11	1.6E-11	4.2E-15				6.5E-11	2.2E-11	3.8E-11	0.02
4,4-DDT	6.5E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.9E-11	2.0E-11	5.4E-15	1.8E-15			8.3E-11	2.8E-11	4.8E-11	0.03
Delta-BHC	2.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-10	3.5E-10	1.8E-14	3.2E-14			2.7E-10	4.9E-10	8.4E-10	0.51
Dieldrin	7.5E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.8E-10	1.1E-08	6.2E-14	9.9E-13			9.5E-10	1.5E-08	2.6E-08	15.74
Chlordane	7.9E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.1E-10	2.5E-10	6.5E-14	2.3E-14			1.0E-09	3.5E-10	6.0E-10	0.36
Endosulfan I	2.2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Endosulfan II	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Endosulfan sulfate	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Endrin	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Endrin aldehyde	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Endrin ketone	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Gamma-BHC (Lindane)	2.2E-02	1.3E+00	1.3E+00	NI	1	0.10		1.9E-10	2.5E-10	1.8E-14				2.7E-10	3.6E-10	6.1E-10	0.37
Heptachlor	4.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.6E-11	1.6E-10	3.3E-15	1.5E-14			5.1E-11	2.3E-10	3.9E-10	0.24
Heptachlor epoxide	2.2E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.9E-10	1.8E-09	1.8E-14	1.6E-13			2.7E-10	2.5E-09	4.2E-09	2.57
Methoxychlor	2.2E-01	NI	NI	NI	1	0.10		1.9E-09		1.8E-13				2.7E-09			
Toxaphene	2.2E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.9E-08	2.1E-08	1.8E-12	1.9E-12			2.7E-08	3.0E-08	5.1E-08	31.02
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									6.9E-08		6.3E-12				9.7E-08	1.7E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL132-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dermal (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.12
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.38
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.3E-12	1.6E-15				2.5E-11	6.1E-12	1.0E-11	0.26
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.9E-10	1.6E-15	2.6E-14			2.5E-11	4.1E-10	7.0E-10	17.17
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.41
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.88
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.03
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL133-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dermal (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.5E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.3E-11	3.8E-10	2.1E-15	3.5E-14			3.2E-11	5.4E-10	9.2E-10	4.02
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.60
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.17
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.04
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.06
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.06
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.17
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	2.95
Chlordane	2.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-11	7.6E-12	2.0E-15	6.9E-16			3.1E-11	1.1E-11	1.8E-11	0.08
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.12
Heptachlor	2.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.0E-11	8.9E-11	1.8E-15	8.3E-15			2.8E-11	1.3E-10	2.2E-10	0.94
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	0.86
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	10.40
DIOXIN																	
2,3,7,8-TCDD	5.6E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		5.0E-14	7.6E-09	4.6E-18	6.9E-13			7.1E-14	1.1E-08	1.8E-08	79.53
Total Cancer Risk									9.5E-09		8.7E-13				1.3E-08	2.3E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL134-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL135-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	8.54
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.16
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.24
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.33
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.33
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
Dieldrin	2.8E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.5E-11	4.0E-10	2.3E-15	3.7E-14			3.6E-11	5.7E-10	9.7E-10	22.50
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.35
Endosulfan I	1.4E-03	NI	NI	NI	1	0.10		1.3E-11		1.2E-15				1.8E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.65
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.26
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.57
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	55.25
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.8E-09		1.6E-13				2.5E-09	4.3E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL136-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	1.57
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.58
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.17
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.04
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.06
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.06
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.17
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	2.87
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.06
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.12
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	0.41
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	0.84
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	10.13
DIOXIN																	
2,3,7,8-TCDD	6.0E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		5.4E-14	8.1E-09	4.9E-18	7.4E-13			7.6E-14	1.1E-08	2.0E-08	82.91
Total Cancer Risk									9.8E-09		8.9E-13				1.4E-08	2.4E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL137-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL138-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL139-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL140-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	*0.122*
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	*1.00E-06*
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	*1*
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL141-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.1E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.9E-10	3.2E-09	1.7E-14	2.9E-13			2.7E-10	4.5E-09	7.8E-09	43.48
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.77
Beta-BHC	2.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.8E-11	3.2E-11	1.6E-15	3.0E-15			2.5E-11	4.6E-11	7.8E-11	0.44
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.06
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.9E-11	6.4E-12	1.7E-15				2.7E-11	9.1E-12	1.6E-11	0.09
4,4-DDT	7.8E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		7.0E-11	2.4E-11	6.4E-15	2.2E-15			9.9E-11	3.4E-11	5.8E-11	0.32
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.22
Dieldrin	2.0E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-10	2.9E-09	1.6E-14	2.6E-13			2.5E-10	4.1E-09	7.0E-09	38.97
Chlordane	1.1E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.5E-11	3.3E-11	8.7E-15	3.1E-15			1.3E-10	4.7E-11	8.1E-11	0.45
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.16
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	0.55
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	1.11
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	13.40
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									7.4E-09		6.7E-13				1.0E-08	1.8E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL142-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dermal (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	8.54
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.17
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
4,4-DDD	1.5E-02	2.4E-01	2.4E-01	NI	1	0.10		1.4E-10	3.2E-11	1.2E-14				1.9E-10	4.6E-11	7.8E-11	1.81
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.33
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.33
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.90
Dieldrin	2.6E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-11	3.7E-10	2.1E-15	3.4E-14			3.3E-11	5.3E-10	9.0E-10	20.90
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.35
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	[illegible]	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	[illegible]	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.65
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.26
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.57
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	55.27
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.8E-09		1.6E-13				2.5E-09	4.3E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL143-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	I	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	I I	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL144-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Derm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG), (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.04
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.35
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.96
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.35
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.35
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.96
Dieldrin	2.1E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.9E-11	3.0E-10	1.7E-15	2.8E-14			2.7E-11	4.3E-10	7.3E-10	17.87
Chlordane	2.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-11	7.6E-12	2.0E-15	6.9E-16			3.1E-11	1.1E-11	1.8E-11	0.45
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.69
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.39
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.84
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	58.50
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.1E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL145-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-12	1.5E-10	8.2E-16	1.4E-14			1.3E-11	2.2E-10	3.7E-10	9.16
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	3.40
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.2E-12	1.6E-15				2.5E-11	6.0E-12	1.0E-11	0.25
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.0E-12	1.6E-15				2.5E-11	8.4E-12	1.4E-11	0.36
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.0E-12	1.6E-15	5.5E-16			2.5E-11	8.4E-12	1.4E-11	0.36
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.97
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	16.82
Chlordane	2.0E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-11	6.3E-12	1.6E-15	5.8E-16			2.5E-11	8.9E-12	1.5E-11	0.38
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.70
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	2.43
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	4.91
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	59.30
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-09		1.5E-13				2.4E-09	4.0E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL146-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.5E-12	1.6E-10	8.7E-16	1.5E-14			1.3E-11	2.3E-10	3.9E-10	8.33
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	3.09
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.88
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.4E-12	1.7E-15				2.6E-11	6.3E-12	1.1E-11	0.23
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.3E-12	1.7E-15				2.6E-11	8.9E-12	1.5E-11	0.33
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.3E-12	1.7E-15	5.7E-16			2.6E-11	8.9E-12	1.5E-11	0.33
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.88
Dieldrin	2.1E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	3.0E-10	1.7E-15	2.7E-14			2.6E-11	4.2E-10	7.1E-10	15.30
Chlordane	2.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-11	6.6E-12	1.7E-15	6.1E-16			2.7E-11	9.3E-12	1.6E-11	0.34
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.64
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	2.20
Heptachlor epoxide	3.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.9E-11	2.6E-10	2.6E-15	2.4E-14			4.1E-11	3.7E-10	6.3E-10	13.58
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	53.88
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.9E-09		1.7E-13				2.7E-09	4.7E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL147-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	3.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.7E-10	4.6E-09	2.5E-14	4.2E-13			3.8E-10	6.5E-09	1.1E-08	11.78
Alpha-BHC	1.2E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-10	6.5E-10	9.5E-15	6.0E-14			1.5E-10	9.2E-10	1.6E-09	1.67
Beta-BHC	1.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-10	1.9E-10	9.5E-15	1.7E-14			1.5E-10	2.6E-10	4.5E-10	0.48
4,4-DDD	6.0E-02	2.4E-01	2.4E-01	NI	1	0.10		5.4E-10	1.3E-10	4.9E-14				7.6E-10	1.8E-10	3.1E-10	0.33
4,4-DDE	4.9E-03	3.4E-01	3.4E-01	NI	1	0.10		4.4E-11	1.5E-11	4.0E-15				6.2E-11	2.1E-11	3.6E-11	0.04
4,4-DDT	4.7E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.2E-11	1.4E-11	3.9E-15	1.3E-15			6.0E-11	2.0E-11	3.5E-11	0.04
Delta-BHC	1.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-10	1.9E-10	9.5E-15	1.7E-14			1.5E-10	2.6E-10	4.5E-10	0.48
Dieldrin	1.4E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.3E-09	2.0E-08	1.2E-13	1.8E-12			1.8E-09	2.8E-08	4.9E-08	51.74
Chlordane	2.1E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-10	6.7E-11	1.7E-14	6.1E-15			2.7E-10	9.4E-11	1.6E-10	0.17
Endosulfan I	3.6E-03	NI	NI	NI	1	0.10		3.2E-11		3.0E-15				4.6E-11			
Endosulfan II	3.1E-03	NI	NI	NI	1	0.10		2.8E-11		2.6E-15				3.9E-11			
Endosulfan sulfate	2.3E-02	NI	NI	NI	1	0.10		2.0E-10		1.9E-14				2.9E-10			
Endrin	2.3E-02	NI	NI	NI	1	0.10		2.0E-10		1.9E-14				2.9E-10			
Endrin aldehyde	2.3E-02	NI	NI	NI	1	0.10		2.0E-10		1.9E-14				2.9E-10			
Endrin ketone	2.3E-02	NI	NI	NI	1	0.10		2.0E-10		1.9E-14				2.9E-10			
Gamma-BHC (Lindane)	1.2E-02	1.3E+00	1.3E+00	NI	1	0.10		1.0E-10	1.3E-10	9.5E-15				1.5E-10	1.9E-10	3.2E-10	0.35
Heptachlor	1.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.1E-11	4.9E-11	9.9E-16	4.5E-15			1.5E-11	6.9E-11	1.2E-10	0.12
Heptachlor epoxide	1.7E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.5E-10	1.4E-09	1.4E-14	1.3E-13			2.2E-10	2.0E-09	3.4E-09	3.57
Methoxychlor	1.2E-01	NI	NI	NI	1	0.10		1.0E-09		9.5E-14				1.5E-09			
Toxaphene	1.2E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-08	1.1E-08	9.5E-13	1.0E-12			1.5E-08	1.6E-08	2.7E-08	29.22
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									3.9E-08		3.5E-12				5.5E-08	9.4E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL149-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.4E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.3E-11	2.1E-10	1.2E-15	2.0E-14			1.8E-11	3.0E-10	5.2E-10	10.71
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-11	6.5E-11	9.5E-16	6.0E-15			1.5E-11	9.2E-11	1.6E-10	3.26
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.93
4,4-DDD	2.0E-02	2.4E-01	2.4E-01	NI	1	0.10		1.8E-10	4.3E-11	1.6E-14				2.5E-10	6.1E-11	1.0E-10	2.16
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.34
4,4-DDT	2.2E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-11	6.7E-12	1.8E-15	6.2E-16			2.8E-11	9.5E-12	1.6E-11	0.34
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.93
Dieldrin	2.2E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-11	3.2E-10	1.8E-15	2.9E-14			2.8E-11	4.5E-10	7.6E-10	15.85
Chlordane	5.2E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.7E-11	1.6E-11	4.3E-15	1.5E-15			6.6E-11	2.3E-11	4.0E-11	0.82
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.0E-11		9.5E-16				1.5E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.0E-11	1.3E-11	9.5E-16				1.5E-11	1.9E-11	3.2E-11	0.67
Heptachlor	1.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.0E-11	4.7E-11	9.5E-16	4.4E-15			1.5E-11	6.6E-11	1.1E-10	2.33
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-11	9.4E-11	9.5E-16	8.6E-15			1.5E-11	1.3E-10	2.3E-10	4.71
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.0E-10		9.5E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.0E-13			1.5E-09	1.6E-09	2.7E-09	56.95
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.0E-09		1.8E-13				2.8E-09	4.8E-09	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL150-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.7E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.0E-11	1.0E-09	5.5E-15	9.4E-14			8.5E-11	1.4E-09	2.5E-09	19.78
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-11	6.5E-11	9.5E-16	6.0E-15			1.5E-11	9.2E-11	1.6E-10	1.26
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.36
4,4-DDD	2.2E-03	2.4E-01	2.4E-01	NI	1	0.10		2.0E-11	4.8E-12	1.8E-15				2.8E-11	6.7E-12	1.1E-11	0.09
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.13
4,4-DDT	5.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.5E-11	1.5E-11	4.1E-15	1.4E-15			6.4E-11	2.2E-11	3.7E-11	0.30
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-11	1.9E-11	9.5E-16	1.7E-15			1.5E-11	2.6E-11	4.5E-11	0.36
Dieldrin	1.8E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.6E-10	2.6E-09	1.5E-14	2.4E-13			2.3E-10	3.7E-09	6.3E-09	50.01
Chlordane	9.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		8.2E-11	2.9E-11	7.5E-15	2.6E-15			1.2E-10	4.1E-11	6.9E-11	0.55
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.0E-11		9.5E-16				1.5E-11			
Endosulfan II	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin ketone	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.0E-11	1.3E-11	9.5E-16				1.5E-11	1.9E-11	3.2E-11	0.26
Heptachlor	4.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.6E-11	1.6E-10	3.3E-15	1.5E-14			5.1E-11	2.3E-10	3.9E-10	3.13
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-11	9.4E-11	9.5E-16	8.6E-15			1.5E-11	1.3E-10	2.3E-10	1.82
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.0E-10		9.5E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.0E-13			1.5E-09	1.6E-09	2.7E-09	21.97
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.2E-09		4.7E-13				7.3E-09	1.3E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL151-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.5E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.3E-10	3.8E-09	2.1E-14	3.5E-13			3.2E-10	5.4E-09	9.2E-09	61.14
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.91
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.26
4,4-DDD	4.2E-03	2.4E-01	2.4E-01	NI	1	0.10		3.8E-11	9.1E-12	3.5E-15				5.3E-11	1.3E-11	2.2E-11	0.15
4,4-DDE	6.6E-03	3.4E-01	3.4E-01	NI	1	0.10		5.9E-11	2.0E-11	5.4E-15				8.4E-11	2.9E-11	4.9E-11	0.32
4,4-DDT	5.9E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.3E-11	1.8E-11	4.9E-15	1.7E-15			7.5E-11	2.6E-11	4.4E-11	0.29
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.26
Dieldrin	6.7E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		6.0E-11	9.6E-10	5.5E-15	8.8E-14			8.5E-11	1.4E-09	2.3E-09	15.42
Chlordane	8.7E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		7.8E-11	2.7E-11	7.2E-15	2.5E-15			1.1E-10	3.9E-11	6.6E-11	0.44
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	1.9E-03	NI	NI	NI	1	0.10		1.7E-11		1.6E-15				2.4E-11			
Endosulfan sulfate	1.9E-03	NI	NI	NI	1	0.10		1.7E-11		1.6E-15				2.4E-11			
Endrin	1.9E-03	NI	NI	NI	1	0.10		1.7E-11		1.6E-15				2.4E-11			
Endrin aldehyde	1.9E-03	NI	NI	NI	1	0.10		1.7E-11		1.6E-15				2.4E-11			
Endrin ketone	1.9E-03	NI	NI	NI	1	0.10		1.7E-11		1.6E-15				2.4E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.19
Heptachlor	5.4E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.9E-11	2.2E-10	4.5E-15	2.0E-14			6.9E-11	3.1E-10	5.3E-10	3.50
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	1.31
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	15.82
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.3E-09		5.7E-13				8.8E-09	1.5E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL152-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.7E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.3E-11	5.7E-10	3.0E-15	5.2E-14			4.7E-11	8.0E-10	1.4E-09	26.26
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	2.76
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.79
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.3E-12	1.6E-15				2.5E-11	6.1E-12	1.0E-11	0.20
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.28
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.28
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.79
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.9E-10	1.6E-15	2.6E-14			2.5E-11	4.1E-10	7.0E-10	13.37
Chlordane	3.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.7E-11	9.6E-12	2.5E-15	8.8E-16			3.9E-11	1.4E-11	2.3E-11	0.45
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.57
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	1.97
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	3.99
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	48.26
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.2E-09		2.0E-13				3.0E-09	5.2E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL153-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dermal (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.1E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.9E-07	3.2E-06	1.7E-11	2.9E-10			2.7E-07	4.5E-06	7.8E-06	61.37
Alpha-BHC	9.0E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		8.1E-09	5.1E-08	7.4E-13	4.7E-12			1.1E-08	7.2E-08	1.2E-07	0.97
Beta-BHC	9.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		8.1E-09	1.5E-08	7.4E-13	1.3E-12			1.1E-08	2.1E-08	3.5E-08	0.28
4,4-DDD	2.3E+00	2.4E-01	2.4E-01	NI	1	0.10		2.1E-08	5.0E-09	1.9E-12				2.9E-08	7.0E-09	1.2E-08	0.09
4,4-DDE	2.3E-01	3.4E-01	3.4E-01	NI	1	0.10		2.1E-09	7.0E-10	1.9E-13				2.9E-09	9.9E-10	1.7E-09	0.01
4,4-DDT	3.6E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		3.2E-08	1.1E-08	3.0E-12	1.0E-12			4.6E-08	1.6E-08	2.7E-08	0.21
Delta-BHC	9.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		8.1E-09	1.5E-08	7.4E-13	1.3E-12			1.1E-08	2.1E-08	3.5E-08	0.28
Dieldrin	3.0E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.7E-08	4.3E-07	2.5E-12	4.0E-11			3.8E-08	6.1E-07	1.0E-06	8.25
Chlordane	1.0E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.4E-08	3.3E-08	8.6E-12	3.0E-12			1.3E-07	4.6E-08	7.9E-08	0.63
Endosulfan I	9.0E-01	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Endosulfan II	2.6E-01	NI	NI	NI	1	0.10		2.3E-09		2.1E-13				3.3E-09			
Endosulfan sulfate	1.8E+00	NI	NI	NI	1	0.10		1.6E-08		1.4E-12				2.2E-08			
Endrin	1.8E+00	NI	NI	NI	1	0.10		1.6E-08		1.4E-12				2.2E-08			
Endrin aldehyde	1.8E+00	NI	NI	NI	1	0.10		1.6E-08		1.4E-12				2.2E-08			
Endrin ketone	4.0E-01	NI	NI	NI	1	0.10		3.6E-09		3.3E-13				5.1E-09			
Gamma-BHC (Lindane)	9.0E-01	1.3E+00	1.3E+00	NI	1	0.10		8.1E-09	1.1E-08	7.4E-13				1.1E-08	1.5E-08	2.5E-08	0.20
Heptachlor	1.2E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.1E-07	4.9E-07	9.9E-12	4.5E-11			1.5E-07	6.9E-07	1.2E-06	9.28
Heptachlor epoxide	9.0E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		8.1E-09	7.4E-08	7.4E-13	6.7E-12			1.1E-08	1.0E-07	1.8E-07	1.41
Methoxychlor	9.0E+00	NI	NI	NI	1	0.10		8.1E-08		7.4E-12				1.1E-07			
Toxaphene	9.0E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		8.1E-07	8.9E-07	7.4E-11	8.2E-11			1.1E-06	1.3E-06	2.2E-06	17.02
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.2E-06		4.8E-10				7.4E-06	1.3E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL153-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.7E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.5E-10	2.6E-09	1.4E-14	2.4E-13			2.2E-10	3.7E-09	6.3E-09	45.10
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	1.08
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.31
4,4-DDD	4.3E-03	2.4E-01	2.4E-01	NI	1	0.10		3.9E-11	9.3E-12	3.5E-15				5.5E-11	1.3E-11	2.2E-11	0.16
4,4-DDE	6.6E-03	3.4E-01	3.4E-01	NI	1	0.10		5.9E-11	2.0E-11	5.4E-15				8.4E-11	2.9E-11	4.9E-11	0.35
4,4-DDT	2.0E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-10	6.1E-11	1.6E-14	5.6E-15			2.5E-10	8.6E-11	1.5E-10	1.06
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.31
Dieldrin	1.1E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		9.9E-11	1.6E-09	9.1E-15	1.5E-13			1.4E-10	2.2E-09	3.8E-09	27.47
Chlordane	7.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		6.7E-11	2.3E-11	6.1E-15	2.1E-15			9.4E-11	3.3E-11	5.6E-11	0.40
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.22
Heptachlor	4.4E-03	4.5E+00	4.5E+00	.6E+00	1	0.10		4.0E-11	1.8E-10	3.6E-15	1.7E-14			5.6E-11	2.5E-10	4.3E-10	3.09
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	.E+00	1	0.10		9.9E-12	9.0E-11	9.1E-16	8.2E-15			1.4E-11	1.3E-10	2.2E-10	1.56
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	18.88
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.8E-09		5.2E-13				8.2E-09	1.4E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL154-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.3E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.1E-10	3.5E-09	1.9E-14	3.2E-13			2.9E-10	5.0E-09	8.5E-09	69.36
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	1.12
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.32
4,4-DDD	5.6E-03	2.4E-01	2.4E-01	NI	1	0.10		5.0E-11	1.2E-11	4.6E-15				7.1E-11	1.7E-11	2.9E-11	0.24
4,4-DDE	2.8E-03	3.4E-01	3.4E-01	NI	1	0.10		2.5E-11	8.6E-12	2.3E-15				3.6E-11	1.2E-11	2.1E-11	0.17
4,4-DDT	2.3E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.1E-11	7.0E-12	1.9E-15	6.4E-16			2.9E-11	9.9E-12	1.7E-11	0.14
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.32
Dieldrin	2.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.8E-11	2.8E-10	1.6E-15	2.6E-14			2.5E-11	4.0E-10	6.8E-10	5.53
Chlordane	2.6E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.3E-11	8.2E-12	2.1E-15	7.5E-16			3.3E-11	1.2E-11	2.0E-11	0.16
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.23
Heptachlor	1.6E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.4E-11	6.5E-11	1.3E-15	6.1E-15			2.0E-11	9.2E-11	1.6E-10	1.28
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	1.61
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	19.51
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.1E-09		4.6E-13				7.2E-09	1.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL155-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	6.7E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.0E-10	1.0E-08	5.5E-14	9.4E-13			8.5E-10	1.4E-08	2.5E-08	3.87
Alpha-BHC	7.0E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		6.3E-10	4.0E-09	5.8E-14	3.6E-13			8.9E-10	5.6E-09	9.6E-09	1.50
Beta-BHC	7.0E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.3E-10	1.1E-09	5.8E-14	1.0E-13			8.9E-10	1.6E-09	2.7E-09	0.43
4,4-DDD	9.7E-02	2.4E-01	2.4E-01	NI	1	0.10		8.7E-10	2.1E-10	8.0E-14				1.2E-09	3.0E-10	5.1E-10	0.08
4,4-DDE	5.8E-02	3.4E-01	3.4E-01	NI	1	0.10		5.2E-10	1.8E-10	4.8E-14				7.4E-10	2.5E-10	4.3E-10	0.07
4,4-DDT	5.5E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.0E-09	1.7E-09	4.5E-13	1.5E-13			7.0E-09	2.4E-09	4.1E-09	0.63
Delta-BHC	7.0E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.3E-10	1.1E-09	5.8E-14	1.0E-13			8.9E-10	1.6E-09	2.7E-09	0.43
Dieldrin	1.1E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		9.9E-09	1.6E-07	9.1E-13	1.5E-11			1.4E-08	2.2E-07	3.8E-07	59.75
Chlordane	1.2E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.1E-08	3.8E-09	1.0E-12	3.5E-13			1.5E-08	5.4E-09	9.2E-09	1.44
Endosulfan I	7.0E-02	NI	NI	NI	1	0.10		6.3E-10		5.8E-14				8.9E-10			
Endosulfan II	1.1E-01	NI	NI	NI	1	0.10		9.9E-10		9.1E-14				1.4E-09			
Endosulfan sulfate	1.4E-01	NI	NI	NI	1	0.10		1.2E-09		1.1E-13				1.7E-09			
Endrin	1.5E-02	NI	NI	NI	1	0.10		1.4E-10		1.2E-14				1.9E-10			
Endrin aldehyde	1.4E-01	NI	NI	NI	1	0.10		1.2E-09		1.1E-13				1.7E-09			
Endrin ketone	4.7E-02	NI	NI	NI	1	0.10		4.2E-10		3.9E-14				6.0E-10			
Gamma-BHC (Lindane)	7.0E-02	1.3E+00	1.3E+00	NI	1	0.10		6.3E-10	8.2E-10	5.8E-14				8.9E-10	1.2E-09	2.0E-09	0.31
Heptachlor	2.3E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.1E-09	9.3E-09	1.9E-13	8.7E-13			2.9E-09	1.3E-08	2.2E-08	3.51
Heptachlor epoxide	6.0E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.4E-10	4.9E-09	4.9E-14	4.5E-13			7.6E-10	6.9E-09	1.2E-08	1.85
Methoxychlor	7.0E-01	NI	NI	NI	1	0.10		6.3E-09		5.8E-13				8.9E-09			
Toxaphene	7.0E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		6.3E-08	6.9E-08	5.8E-12	6.3E-12			8.9E-08	9.8E-08	1.7E-07	26.14
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.7E-07		2.4E-11				3.7E-07	6.4E-07	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL156-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	7.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.4E-11	1.1E-09	5.9E-15	9.9E-14			9.0E-11	1.5E-09	2.6E-09	12.31
Alpha-BHC	1.3E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.2E-11	7.4E-11	1.1E-15	6.7E-15			1.7E-11	1.0E-10	1.8E-10	0.84
Beta-BHC	1.3E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.2E-11	2.1E-11	1.1E-15	1.9E-15			1.7E-11	3.0E-11	5.1E-11	0.24
4,4-DDD	2.5E-03	2.4E-01	2.4E-01	NI	1	0.10		2.3E-11	5.4E-12	2.1E-15				3.2E-11	7.6E-12	1.3E-11	0.06
4,4-DDE	2.5E-03	3.4E-01	3.4E-01	NI	1	0.10		2.3E-11	7.7E-12	2.1E-15				3.2E-11	1.1E-11	1.8E-11	0.09
4,4-DDT	5.7E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		5.1E-11	1.7E-11	4.7E-15	1.6E-15			7.2E-11	2.5E-11	4.2E-11	0.20
Delta-BHC	1.3E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.2E-11	2.1E-11	1.1E-15	1.9E-15			1.7E-11	3.0E-11	5.1E-11	0.24
Dieldrin	4.1E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		3.7E-10	5.9E-09	3.4E-14	5.4E-13			5.2E-10	8.3E-09	1.4E-08	66.92
Chlordane	2.5E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-10	7.8E-11	2.0E-14	7.2E-15			3.2E-10	1.1E-10	1.9E-10	0.89
Endosulfan I	1.3E-03	NI	NI	NI	1	0.10		1.2E-11		1.1E-15				1.7E-11			
Endosulfan II	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Endosulfan sulfate	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Endrin	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Endrin aldehyde	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Endrin ketone	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Gamma-BHC (Lindane)	1.3E-03	1.3E+00	1.3E+00	NI	1	0.10		1.2E-11	1.5E-11	1.1E-15				1.7E-11	2.1E-11	3.7E-11	0.17
Heptachlor	4.9E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.4E-11	2.0E-10	4.0E-15	1.9E-14			6.2E-11	2.8E-10	4.8E-10	2.25
Heptachlor epoxide	1.3E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.2E-11	1.1E-10	1.1E-15	9.7E-15			1.7E-11	1.5E-10	2.6E-10	1.21
Methoxychlor	1.3E-02	NI	NI	NI	1	0.10		1.2E-10		1.1E-14				1.7E-10			
Toxaphene	1.3E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.2E-09	1.3E-09	1.1E-13	1.2E-13			1.7E-09	1.8E-09	3.1E-09	14.59
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									6.8E-09		8.1E-13				1.2E-08	2.1E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL157-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.3E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.1E-11	1.9E-10	1.0E-15	1.8E-14			1.6E-11	2.7E-10	4.6E-10	8.76
Alpha-BHC	1.3E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.1E-11	7.1E-11	1.0E-15	6.5E-15			1.6E-11	1.0E-10	1.7E-10	3.25
Beta-BHC	1.3E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	2.0E-11	1.0E-15	1.9E-15			1.6E-11	2.9E-11	4.9E-11	0.93
4,4-DDD	2.5E-03	2.4E-01	2.4E-01	NI	1	0.10		2.2E-11	5.3E-12	2.0E-15				3.1E-11	7.5E-12	1.3E-11	0.24
4,4-DDE	2.5E-03	3.4E-01	3.4E-01	NI	1	0.10		2.2E-11	7.5E-12	2.0E-15				3.1E-11	1.1E-11	1.8E-11	0.34
4,4-DDT	2.5E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.2E-11	7.5E-12	2.0E-15	6.9E-16			3.1E-11	1.1E-11	1.8E-11	0.34
Delta-BHC	1.3E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	2.0E-11	1.0E-15	1.9E-15			1.6E-11	2.9E-11	4.9E-11	0.93
Dieldrin	3.1E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.8E-11	4.5E-10	2.6E-15	4.1E-14			3.9E-11	6.3E-10	1.1E-09	20.46
Chlordane	2.5E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.3E-11	7.9E-12	2.1E-15	7.2E-16			3.2E-11	1.1E-11	1.9E-11	0.36
Endosulfan I	1.3E-03	NI	NI	NI	1	0.10		1.1E-11	-	1.0E-15				1.6E-11			
Endosulfan II	2.5E-03	NI	NI	NI	1	0.10		2.2E-11		2.0E-15				3.1E-11			
Endosulfan sulfate	2.5E-03	NI	NI	NI	1	0.10		2.2E-11		2.0E-15				3.1E-11			
Endrin	2.5E-03	NI	NI	NI	1	0.10		2.2E-11		2.0E-15				3.1E-11			
Endrin aldehyde	2.5E-03	NI	NI	NI	1	0.10		2.2E-11		2.0E-15				3.1E-11			
Endrin ketone	2.5E-03	NI	NI	NI	1	0.10		2.2E-11		2.0E-15				3.1E-11			
Gamma-BHC (Lindane)	1.3E-03	1.3E+00	1.3E+00	NI	1	0.10		1.1E-11	1.5E-11	1.0E-15				1.6E-11	2.1E-11	3.5E-11	0.67
Heptachlor	1.3E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.1E-11	5.1E-11	1.0E-15	4.7E-15			1.6E-11	7.2E-11	1.2E-10	2.32
Heptachlor epoxide	1.3E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.1E-11	1.0E-10	1.0E-15	9.4E-15			1.6E-11	1.4E-10	2.5E-10	4.69
Methoxychlor	1.3E-02	NI	NI	NI	1	0.10		1.1E-10		1.0E-14				1.6E-10			
Toxaphene	1.3E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.1E-09	1.2E-09	1.0E-13	1.1E-13			1.6E-09	1.7E-09	3.0E-09	56.71
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.2E-09		2.0E-13				3.1E-09	5.3E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL158-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	3.6E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.2E-11	5.5E-10	3.0E-15	5.0E-14			4.6E-11	7.8E-10	1.3E-09	0.50
Alpha-BHC	1.3E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.2E-10	7.4E-10	1.1E-14	6.7E-14			1.7E-10	1.0E-09	1.8E-09	0.67
Beta-BHC	1.3E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.2E-10	2.1E-10	1.1E-14	1.9E-14			1.7E-10	3.0E-10	5.1E-10	0.19
4,4-DDD	2.7E-02	2.4E-01	2.4E-01	NI	1	0.10		2.4E-10	5.8E-11	2.2E-14				3.4E-10	8.2E-11	1.4E-10	0.05
4,4-DDE	8.4E-03	3.4E-01	3.4E-01	NI	1	0.10		7.6E-11	2.6E-11	6.9E-15				1.1E-10	3.6E-11	6.2E-11	0.02
4,4-DDT	6.8E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		6.1E-10	2.1E-10	5.6E-14	1.9E-14			8.6E-10	2.9E-10	5.0E-10	0.19
Delta-BHC	1.3E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.2E-10	2.1E-10	1.1E-14	1.9E-14			1.7E-10	3.0E-10	5.1E-10	0.19
Dieldrin	6.2E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.6E-09	8.9E-08	5.1E-13	8.2E-12			7.9E-09	1.3E-07	2.2E-07	81.28
Chlordane	2.2E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.0E-09	7.0E-10	1.8E-13	6.4E-14			2.8E-09	9.8E-10	1.7E-09	0.63
Endosulfan I	1.3E-02	NI	NI	NI	1	0.10		1.2E-10		1.1E-14				1.7E-10			
Endosulfan II	6.6E-03	NI	NI	NI	1	0.10		5.9E-11		5.4E-15				8.4E-11			
Endosulfan sulfate	2.5E-02	NI	NI	NI	1	0.10		2.3E-10		2.1E-14				3.2E-10			
Endrin	3.9E-03	NI	NI	NI	1	0.10		3.5E-11		3.2E-15				5.0E-11			
Endrin aldehyde	2.5E-02	NI	NI	NI	1	0.10		2.3E-10		2.1E-14				3.2E-10			
Endrin ketone	2.0E-02	NI	NI	NI	1	0.10		1.8E-10		1.6E-14				2.5E-10			
Gamma-BHC (Lindane)	1.3E-02	1.3E+00	1.3E+00	NI	1	0.10		1.2E-10	1.5E-10	1.1E-14				1.7E-10	2.1E-10	3.7E-10	0.14
Heptachlor	6.3E-02	4.5E+00	4.5E+00	4.5E+00	1	0.10		5.7E-10	2.6E-09	5.2E-14	2.4E-13			8.0E-10	3.6E-09	6.2E-09	2.32
Heptachlor epoxide	2.8E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.5E-10	2.3E-09	2.3E-14	2.1E-13			3.6E-10	3.2E-09	5.5E-09	2.09
Methoxychlor	3.3E-02	NI	NI	NI	1	0.10		3.0E-10		2.7E-14				4.2E-10			
Toxaphene	1.3E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.2E-08	1.3E-08	1.1E-12	1.2E-12			1.7E-08	1.8E-08	3.1E-08	11.72
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.1E-07		1.0E-11				1.6E-07	2.7E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL159-1

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.5E+02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.4E-06	2.3E-05	1.2E-10	2.1E-09			1.9E-06	3.2E-05	5.5E-05	43.34
Alpha-BHC	2.2E+01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.9E-07	1.2E-06	1.8E-11	1.1E-10			2.7E-07	1.7E-06	2.9E-06	2.30
Beta-BHC	9.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		8.3E-08	1.5E-07	7.6E-12	1.4E-11			1.2E-07	2.1E-07	3.6E-07	0.28
4,4-DDD	2.0E+01	2.4E-01	2.4E-01	NI	1	0.10		1.8E-07	4.3E-08	1.6E-11				2.5E-07	6.1E-08	1.0E-07	0.08
4,4-DDE	4.2E+01	3.4E-01	3.4E-01	NI	1	0.10		3.7E-07	1.3E-07	3.4E-11				5.3E-07	1.8E-07	3.1E-07	0.24
4,4-DDT	1.4E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.3E-07	4.3E-08	1.2E-11	3.9E-12			1.8E-07	6.1E-08	1.0E-07	0.08
Delta-BHC	2.2E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-07	3.5E-07	1.8E-11	3.2E-11			2.7E-07	4.9E-07	8.4E-07	0.65
Dieldrin	3.0E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.7E-07	4.3E-06	2.5E-11	4.0E-10			3.8E-07	6.1E-06	1.0E-05	8.16
Chlordane	4.8E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.3E-07	1.5E-07	3.9E-11	1.4E-11			6.0E-07	2.1E-07	3.6E-07	0.28
Endosulfan I	2.2E+01	NI	NI	NI	1	0.10		1.9E-07		1.8E-11				2.7E-07			
Endosulfan II	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Endosulfan sulfate	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Endrin	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Endrin aldehyde	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Endrin ketone	4.2E+01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.3E-07			
Gamma-BHC (Lindane)	2.2E+01	1.3E+00	1.3E+00	NI	1	0.10		1.9E-07	2.5E-07	1.8E-11				2.7E-07	3.6E-07	6.1E-07	0.47
Heptachlor	7.7E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.9E-08	3.1E-07	6.3E-12	2.9E-11			9.8E-08	4.4E-07	7.5E-07	0.59
Heptachlor epoxide	2.2E+01	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.9E-07	1.8E-06	1.8E-11	1.6E-10			2.7E-07	2.5E-06	4.2E-06	3.32
Methoxychlor	2.2E+02	NI	NI	NI	1	0.10		1.9E-06		1.8E-10				2.7E-06			
Toxaphene	2.2E+03	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.9E-05	2.1E-05	1.8E-09	1.9E-09			2.7E-05	3.0E-05	5.1E-05	40.19
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									5.3E-05		4.8E-09				7.5E-05	1.3E-04	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFO$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL160-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	5.8E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		5.2E-11	8.9E-10	4.8E-15	8.1E-14			7.4E-11	1.3E-09	2.1E-09	0.08
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.01
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.00
4,4-DDD	1.5E-02	2.4E-01	2.4E-01	NI	1	0.10		1.4E-10	3.2E-11	1.2E-14				1.9E-10	4.6E-11	7.8E-11	0.00
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.00
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.00
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.00
Dieldrin	6.0E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.4E-11	8.6E-10	4.9E-15	7.9E-14			7.6E-11	1.2E-09	2.1E-09	0.08
Chlordane	6.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		5.8E-11	2.0E-11	5.3E-15	1.8E-15			8.1E-11	2.8E-11	4.9E-11	0.00
Endosulfan I	1.5E-03	NI	NI	NI	1	0.10		1.4E-11		1.2E-15				1.9E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	4.4E-03	NI	NI	NI	1	0.10		4.0E-11		3.6E-15				5.6E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.00
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.5E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	0.00
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	0.01
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	0.09
DIOXIN																	
2,3,7,8-TCDD	8.2E-04	1.5E+05	1.5E+05	1.5E+05	1	0.10		7.4E-12	1.1E-06	6.8E-16	1.0E-10			1.0E-11	1.6E-06	2.7E-06	99.73
Total Cancer Risk									1.1E-06		1.0E-10				1.6E-06	2.7E-06	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL161-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-10	1.5E-08	8.2E-14	1.4E-12			1.3E-09	2.2E-08	3.7E-08	8.96
Alpha-BHC	2.5E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		2.3E-10	1.4E-09	2.1E-14	1.3E-13			3.2E-10	2.0E-09	3.4E-09	0.83
Beta-BHC	1.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-10	1.6E-09	8.2E-14	1.5E-13			1.3E-09	2.3E-09	3.9E-09	0.95
4,4-DDD	2.0E-01	2.4E-01	2.4E-01	NI	1	0.10		1.8E-09	4.3E-10	1.6E-13				2.5E-09	6.1E-10	1.0E-09	0.25
4,4-DDE	2.0E-01	3.4E-01	3.4E-01	NI	1	0.10		1.8E-09	6.1E-10	1.6E-13				2.5E-09	8.6E-10	1.5E-09	0.36
4,4-DDT	2.0E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-09	6.1E-10	1.6E-13	5.6E-14			2.5E-09	8.6E-10	1.5E-09	0.36
Delta-BHC	1.0E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-10	1.6E-09	8.2E-14	1.5E-13			1.3E-09	2.3E-09	3.9E-09	0.95
Dieldrin	2.6E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-09	3.7E-08	2.1E-13	3.4E-12			3.3E-09	5.3E-08	9.0E-08	21.93
Chlordane	9.3E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		8.4E-10	2.9E-10	7.7E-14	2.7E-14			1.2E-09	4.1E-10	7.1E-10	0.17
Endosulfan I	1.0E-01	NI	NI	NI	1	0.10		9.0E-10		8.2E-14				1.3E-09			
Endosulfan II	7.5E-02	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Endosulfan sulfate	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Endrin	5.3E-01	NI	NI	NI	1	0.10		4.8E-09		4.4E-13				6.7E-09			
Endrin aldehyde	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Endrin ketone	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Gamma-BHC (Lindane)	1.3E-02	1.3E+00	1.3E+00	NI	1	0.10		1.2E-10	1.5E-10	1.1E-14				1.7E-10	2.1E-10	3.7E-10	0.09
Heptachlor	1.0E-01	4.5E+00	4.5E+00	4.5E+00	1	0.10		9.0E-10	4.1E-09	8.2E-14	3.8E-13			1.3E-09	5.7E-09	9.8E-09	2.37
Heptachlor epoxide	1.0E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-10	8.2E-09	8.2E-14	7.5E-13			1.3E-09	1.2E-08	2.0E-08	4.80
Methoxychlor	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Toxaphene	1.0E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-08	9.9E-08	8.2E-12	9.1E-12			1.3E-07	1.4E-07	2.4E-07	57.98
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.7E-07		1.6E-11				2.4E-07	4.1E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL162-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.8E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.6E-08	2.8E-07	1.5E-12	2.5E-11			2.3E-08	3.9E-07	6.6E-07	0.24
Alpha-BHC	1.1E+01	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-08	6.2E-07	9.1E-12	5.7E-11			1.4E-07	8.8E-07	1.5E-06	0.54
Beta-BHC	1.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-08	1.8E-07	9.1E-12	1.6E-11			1.4E-07	2.5E-07	4.3E-07	0.15
4,4-DDD	1.5E+02	2.4E-01	2.4E-01	NI	1	0.10		1.4E-06	3.2E-07	1.2E-10				1.9E-06	4.6E-07	7.8E-07	0.28
4,4-DDE	4.7E+00	3.4E-01	3.4E-01	NI	1	0.10		4.2E-08	1.4E-08	3.9E-12				6.0E-08	2.0E-08	3.5E-08	0.01
4,4-DDT	2.8E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.5E-08	8.6E-09	2.3E-12	7.8E-13			3.6E-08	1.2E-08	2.1E-08	0.01
Delta-BHC	1.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-08	1.8E-07	9.1E-12	1.6E-11			1.4E-07	2.5E-07	4.3E-07	0.15
Dieldrin	2.5E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-07	3.6E-06	2.1E-11	3.3E-10			3.2E-07	5.1E-06	8.7E-06	3.10
Chlordane	4.7E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.2E-08	1.5E-08	3.9E-12	1.4E-12			6.0E-08	2.1E-08	3.6E-08	0.01
Endosulfan I	1.1E+01	NI	NI	NI	1	0.10		9.9E-08		9.1E-12				1.4E-07			
Endosulfan II	7.7E+00	NI	NI	NI	1	0.10		6.9E-08		6.3E-12				9.8E-08			
Endosulfan sulfate	2.2E+01	NI	NI	NI	1	0.10		2.0E-07		1.8E-11				2.8E-07			
Endrin	2.2E+01	NI	NI	NI	1	0.10		2.0E-07		1.8E-11				2.8E-07			
Endrin aldehyde	2.7E+00	NI	NI	NI	1	0.10		2.4E-08		2.2E-12				3.4E-08			
Endrin ketone	2.2E+01	NI	NI	NI	1	0.10		2.0E-07		1.8E-11				2.8E-07			
Gamma-BHC (Lindane)	1.1E+01	1.3E+00	1.3E+00	NI	1	0.10		9.9E-08	1.3E-07	9.1E-12				1.4E-07	1.8E-07	3.1E-07	0.11
Heptachlor	1.1E+01	4.5E+00	4.5E+00	4.5E+00	1	0.10		9.9E-08	4.5E-07	9.1E-12	4.2E-11			1.4E-07	6.3E-07	1.1E-06	0.38
Heptachlor epoxide	1.1E+01	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-08	9.0E-07	9.1E-12	8.2E-11			1.4E-07	1.3E-06	2.2E-06	0.78
Methoxychlor	1.1E+02	NI	NI	NI	1	0.10		9.9E-07		9.1E-11				1.4E-06			
Toxaphene	1.1E+03	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-06	1.1E-05	9.1E-10	1.0E-09			1.4E-05	1.5E-05	2.6E-05	9.38
DIOXIN																	
2,3,7,8-TCDD	7.3E-02	1.5E+05	1.5E+05	1.5E+05	1	0.10		6.6E-10	9.9E-05	6.0E-14	9.0E-09			9.3E-10	1.4E-04	2.4E-04	84.86
Total Cancer Risk									1.2E-04		1.1E-08				1.6E-04	2.8E-04	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL162-6

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.2E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.7E-10	6.3E-09	3.4E-14	5.8E-13			5.3E-10	9.0E-09	1.5E-08	28.56
Alpha-BHC	4.2E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.7E-10	2.4E-09	3.4E-14	2.2E-13			5.3E-10	3.3E-09	5.7E-09	10.58
Beta-BHC	4.2E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.7E-10	6.7E-10	3.4E-14	6.2E-14			5.3E-10	9.5E-10	1.6E-09	3.02
4,4-DDD	3.5E-01	2.4E-01	2.4E-01	NI	1	0.10		3.2E-09	7.6E-10	2.9E-13				4.5E-09	1.1E-09	1.8E-09	3.40
4,4-DDE	9.7E-03	3.4E-01	3.4E-01	NI	1	0.10		8.7E-11	3.0E-11	8.0E-15				1.2E-10	4.2E-11	7.2E-11	0.13
4,4-DDT	8.0E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		7.2E-10	2.4E-10	6.6E-14	2.2E-14			1.0E-09	3.5E-10	5.9E-10	1.10
Delta-BHC	4.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.7E-11	6.7E-11	3.4E-15	6.2E-15			5.3E-11	9.5E-11	1.6E-10	0.30
Dieldrin	4.9E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		4.4E-10	7.1E-09	4.0E-14	6.5E-13			6.2E-10	1.0E-08	1.7E-08	31.74
Chlordane	1.2E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.1E-10	3.8E-11	9.9E-15	3.5E-15			1.5E-10	5.3E-11	9.1E-11	0.17
Endosulfan I	4.2E-03	NI	NI	NI	1	0.10		3.7E-11		3.4E-15				5.3E-11			
Endosulfan II	1.3E-02	NI	NI	NI	1	0.10		1.2E-10		1.1E-14				1.7E-10			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	3.9E-02	NI	NI	NI	1	0.10		3.5E-10		3.2E-14				5.0E-10			
Endrin aldehyde	8.0E-03	NI	NI	NI	1	0.10		7.2E-11		6.6E-15				1.0E-10			
Endrin ketone	8.0E-03	NI	NI	NI	1	0.10		7.2E-11		6.6E-15				1.0E-10			
Gamma-BHC (Lindane)	4.2E-03	1.3E+00	1.3E+00	NI	1	0.10		3.7E-11	4.9E-11	3.4E-15				5.3E-11	6.9E-11	1.2E-10	0.22
Heptachlor	4.2E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		3.7E-11	1.7E-10	3.4E-15	1.6E-14			5.3E-11	2.4E-10	4.1E-10	0.76
Heptachlor epoxide	4.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.7E-11	3.4E-10	3.4E-15	3.1E-14			5.3E-11	4.8E-10	8.2E-10	1.53
Methoxychlor	4.2E-02	NI	NI	NI	1	0.10		3.7E-10		3.4E-14				5.3E-10			
Toxaphene	4.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.7E-09	4.1E-09	3.4E-13	3.8E-13			5.3E-09	5.8E-09	9.9E-09	18.48
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.2E-08		2.0E-12				3.1E-08	5.4E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL163-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	4.3E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.9E-09	6.6E-08	3.5E-13	6.0E-12			5.5E-09	9.3E-08	1.6E-07	65.82
Alpha-BHC	3.5E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.2E-11	2.0E-10	2.9E-15	1.8E-14			4.5E-11	2.8E-10	4.8E-10	0.20
Beta-BHC	3.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.2E-11	5.7E-11	2.9E-15	5.2E-15			4.5E-11	8.0E-11	1.4E-10	0.06
4,4-DDD	8.4E-02	2.4E-01	2.4E-01	NI	1	0.10		7.6E-10	1.8E-10	6.9E-14				1.1E-09	2.6E-10	4.4E-10	0.18
4,4-DDE	1.6E-02	3.4E-01	3.4E-01	NI	1	0.10		1.6E-10	5.5E-11	1.5E-14				2.3E-10	7.8E-11	1.3E-10	0.06
4,4-DDT	3.1E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.8E-10	9.5E-11	2.6E-14	8.7E-15			3.9E-10	1.3E-10	2.3E-10	0.09
Delta-BHC	3.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.2E-11	5.7E-11	2.9E-15	5.2E-15			4.5E-11	8.0E-11	1.4E-10	0.06
Dieldrin	1.1E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		9.9E-10	1.6E-08	9.1E-14	1.5E-12			1.4E-09	2.2E-08	3.8E-08	15.85
Chlordane	3.3E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.0E-09	1.0E-09	2.7E-13	9.6E-14			4.2E-09	1.5E-09	2.5E-09	1.05
Endosulfan I	3.5E-03	NI	NI	NI	1	0.10		3.2E-11		2.9E-15				4.5E-11			
Endosulfan II	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endosulfan sulfate	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin aldehyde	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Endrin ketone	7.0E-03	NI	NI	NI	1	0.10		6.3E-11		5.8E-15				8.9E-11			
Gamma-BHC (Lindane)	3.5E-03	1.3E+00	1.3E+00	NI	1	0.10		3.2E-11	4.1E-11	2.9E-15				4.5E-11	5.8E-11	9.9E-11	0.04
Heptachlor	3.1E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.8E-09	1.3E-08	2.6E-13	1.2E-12			3.9E-09	1.8E-08	3.0E-08	12.56
Heptachlor epoxide	7.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		6.3E-11	5.7E-10	5.8E-15	5.2E-14			8.9E-11	8.1E-10	1.4E-09	0.57
Methoxychlor	3.5E-02	NI	NI	NI	1	0.10		3.2E-10		2.9E-14				4.5E-10			
Toxaphene	3.5E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.2E-09	3.5E-09	2.9E-13	3.2E-13			4.5E-09	4.9E-09	8.4E-09	3.47
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.0E-07		9.2E-12				1.4E-07	2.4E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL164-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.7E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.4E-07	4.1E-06	2.2E-11	3.8E-10			3.4E-07	5.8E-06	1.0E-05	19.21
Alpha-BHC	3.5E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.1E-09	2.0E-08	2.8E-13	1.8E-12			4.4E-09	2.8E-08	4.7E-08	0.09
Beta-BHC	3.5E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.1E-09	5.6E-09	2.8E-13	5.1E-13			4.4E-09	7.9E-09	1.3E-08	0.03
4,4-DDD	2.3E+00	2.4E-01	2.4E-01	NI	1	0.10		2.1E-08	5.0E-09	1.9E-12				2.9E-08	7.0E-09	1.2E-08	0.02
4,4-DDE	2.9E+00	3.4E-01	3.4E-01	NI	1	0.10		2.6E-08	8.9E-09	2.4E-12				3.7E-08	1.3E-08	2.1E-08	0.04
4,4-DDT	1.4E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.3E-07	4.3E-08	1.2E-11	3.9E-12			1.8E-07	6.1E-08	1.0E-07	0.20
Delta-BHC	1.3E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.2E-08	2.1E-08	1.1E-12	1.9E-12			1.7E-08	3.0E-08	5.1E-08	0.10
Dieldrin	1.1E+02	1.6E+01	1.6E+01	1.6E+01	1	0.10		9.9E-07	1.6E-05	9.1E-11	1.5E-09			1.4E-06	2.2E-05	3.8E-05	73.66
Chlordane	3.5E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.1E-07	1.1E-07	2.8E-11	1.0E-11			4.4E-07	1.5E-07	2.6E-07	0.51
Endosulfan I	3.5E-01	NI	NI	NI	1	0.10		3.1E-09		2.8E-13				4.4E-09			
Endosulfan II	9.9E-01	NI	NI	NI	1	0.10		8.9E-09		8.2E-13				1.3E-08			
Endosulfan sulfate	6.5E-01	NI	NI	NI	1	0.10		5.9E-09		5.4E-13				8.3E-09			
Endrin	1.0E+00	NI	NI	NI	1	0.10		9.0E-09		8.2E-13				1.3E-08			
Endrin aldehyde	6.5E-01	NI	NI	NI	1	0.10		5.9E-09		5.4E-13				8.3E-09			
Endrin ketone	5.3E+00	NI	NI	NI	1	0.10		4.8E-08		4.4E-12				6.7E-08			
Gamma-BHC (Lindane)	4.7E-01	1.3E+00	1.3E+00	NI	1	0.10		4.2E-09	5.5E-09	3.9E-13				6.0E-09	7.8E-09	1.3E-08	0.03
Heptachlor	2.0E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.8E-07	8.1E-07	1.6E-11	7.6E-11			2.5E-07	1.1E-06	2.0E-06	3.77
Heptachlor epoxide	2.0E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.8E-08	1.6E-07	1.6E-12	1.5E-11			2.5E-08	2.3E-07	4.0E-07	0.76
Methoxychlor	3.5E+00	NI	NI	NI	1	0.10		3.1E-08		2.8E-12				4.4E-08			
Toxaphene	3.5E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.1E-07	3.4E-07	2.8E-11	3.1E-11			4.4E-07	4.8E-07	8.2E-07	1.59
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.2E-05		2.0E-09				3.0E-05	5.2E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFO$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL165-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.7E+02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.5E-06	2.6E-05	1.4E-10	2.4E-09			2.2E-06	3.7E-05	6.3E-05	21.17
Alpha-BHC	1.1E+01	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-08	6.2E-07	9.1E-12	5.7E-11			1.4E-07	8.8E-07	1.5E-06	0.51
Beta-BHC	1.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-08	1.8E-07	9.1E-12	1.6E-11			1.4E-07	2.5E-07	4.3E-07	0.15
4,4-DDD	3.1E+01	2.4E-01	2.4E-01	NI	1	0.10		2.8E-07	6.7E-08	2.6E-11				3.9E-07	9.5E-08	1.6E-07	0.05
4,4-DDE	2.1E+01	3.4E-01	3.4E-01	NI	1	0.10		1.9E-07	6.4E-08	1.7E-11				2.7E-07	9.1E-08	1.6E-07	0.05
4,4-DDT	9.2E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		8.3E-07	2.8E-07	7.6E-11	2.6E-11			1.2E-06	4.0E-07	6.8E-07	0.23
Delta-BHC	1.1E+01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-08	1.8E-07	9.1E-12	1.6E-11			1.4E-07	2.5E-07	4.3E-07	0.15
Dieldrin	3.1E+02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.8E-06	4.5E-05	2.6E-10	4.1E-09			3.9E-06	6.3E-05	1.1E-04	36.33
Chlordane	5.3E+02	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.7E-06	1.7E-06	4.3E-10	1.5E-10			6.7E-06	2.3E-06	4.0E-06	1.35
Endosulfan I	1.1E+01	NI	NI	NI	1	0.10		9.9E-08		9.1E-12				1.4E-07			
Endosulfan II	2.1E+01	NI	NI	NI	1	0.10		1.9E-07		1.7E-11				2.7E-07			
Endosulfan sulfate	2.1E+01	NI	NI	NI	1	0.10		1.9E-07		1.7E-11				2.7E-07			
Endrin	2.1E+01	NI	NI	NI	1	0.10		1.9E-07		1.7E-11				2.7E-07			
Endrin aldehyde	2.1E+01	NI	NI	NI	1	0.10		1.9E-07		1.7E-11				2.7E-07			
Endrin ketone	2.1E+01	NI	NI	NI	1	0.10		1.9E-07		1.7E-11				2.7E-07			
Gamma-BHC (Lindane)	1.1E+01	1.3E+00	1.3E+00	NI	1	0.10		9.9E-08	1.3E-07	9.1E-12				1.4E-07	1.8E-07	3.1E-07	0.10
Heptachlor	9.2E+02	4.5E+00	4.5E+00	4.6E+00	1	0.10		8.3E-06	3.7E-05	7.6E-10	3.5E-09			1.2E-05	5.3E-05	9.0E-05	30.32
Heptachlor epoxide	1.1E+01	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-08	9.0E-07	9.1E-12	8.2E-11			1.4E-07	1.3E-06	2.2E-06	0.73
Methoxychlor	1.1E+02	NI	NI	NI	1	0.10		9.9E-07		9.1E-11				1.4E-06			
Toxaphene	1.1E+03	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-06	1.1E-05	9.1E-10	1.0E-09			1.4E-05	1.5E-05	2.6E-05	8.86
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.2E-04		1.1E-08				1.7E-04	3.0E-04	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL166-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	2.9E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		2.6E-07	4.4E-06	2.4E-11	4.1E-10			3.7E-07	6.3E-06	1.1E-05	10.19
Alpha-BHC	7.0E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		6.3E-08	4.0E-07	5.8E-12	3.6E-11			8.9E-08	5.6E-07	9.6E-07	0.91
Beta-BHC	7.0E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.3E-08	1.1E-07	5.8E-12	1.0E-11			8.9E-08	1.6E-07	2.7E-07	0.26
4,4-DDD	8.4E+01	2.4E-01	2.4E-01	NI	1	0.10		7.6E-07	1.8E-07	6.9E-11				1.1E-06	2.6E-07	4.4E-07	0.42
4,4-DDE	4.3E+01	3.4E-01	3.4E-01	NI	1	0.10		3.9E-07	1.3E-07	3.5E-11				5.5E-07	1.9E-07	3.2E-07	0.30
4,4-DDT	1.9E+03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.7E-05	5.8E-06	1.6E-09	5.3E-10			2.4E-05	8.2E-06	1.4E-05	13.35
Delta-BHC	7.0E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		6.3E-08	1.1E-07	5.8E-12	1.0E-11			8.9E-08	1.6E-07	2.7E-07	0.26
Dieldrin	1.6E+02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.4E-06	2.3E-05	1.3E-10	2.1E-09			2.0E-06	3.3E-05	5.6E-05	52.91
Chlordane	1.4E+02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.3E-06	4.4E-07	1.1E-10	4.0E-11			1.8E-06	6.2E-07	1.1E-06	1.01
Endosulfan I	7.0E+00	NI	NI	NI	1	0.10		6.3E-08		5.8E-12				8.9E-08			
Endosulfan II	1.7E+01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.2E-07			
Endosulfan sulfate	1.4E+01	NI	NI	NI	1	0.10		1.2E-07		1.1E-11				1.7E-07			
Endrin	1.4E+01	NI	NI	NI	1	0.10		1.2E-07		1.1E-11				1.7E-07			
Endrin aldehyde	1.4E+01	NI	NI	NI	1	0.10		1.2E-07		1.1E-11				1.7E-07			
Endrin ketone	1.4E+01	NI	NI	NI	1	0.10		1.2E-07		1.1E-11				1.7E-07			
Gamma-BHC (Lindane)	7.0E+00	1.3E+00	1.3E+00	NI	1	0.10		6.3E-08	8.2E-08	5.8E-12				8.9E-08	1.2E-07	2.0E-07	0.19
Heptachlor	3.2E+01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.9E-07	1.3E-06	2.6E-11	1.2E-10			4.1E-07	1.8E-06	3.1E-06	2.98
Heptachlor epoxide	7.0E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		6.3E-08	5.7E-07	5.8E-12	5.2E-11			8.9E-08	8.1E-07	1.4E-06	1.32
Methoxychlor	7.0E+01	NI	NI	NI	1	0.10		6.3E-07		5.8E-11				8.9E-07			
Toxaphene	7.0E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		6.3E-06	6.9E-06	5.8E-10	6.3E-10			8.9E-06	9.8E-06	1.7E-05	15.91
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.4E-05		4.0E-09				6.2E-05	1.1E-04	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL167-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	6 3E-01	1.7E+01	1.7E+01	1.7E+01	1	0 10		7.5E-09	1.3E-07	6.8E-13	1.2E-11			1.1E-08	1.8E-07	3.1E-07	67 85
Alpha-BHC	1.1E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		9 9E-11	6.2E-10	9.1E-15	5.7E-14			1.4E-10	8.8E-10	1 5E-09	0.33
Beta-BHC	1.1E-02	1 8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-11	1.8E-10	9.1E-15	1.6E-14			1.4E-10	2 5E-10	4.3E-10	0 10
4,4-DDD	6 3E-01	2 4E-01	2.4E-01	NI	1	0.10		5.7E-09	1.4E-09	5.2E-13				8 0E-09	1.9E-09	3.3E-09	0.73
4,4-DDE	2 2E-02	3.4E-01	3.4E-01	NI	1	0.10		1 9E-10	6.6E-11	1.8E-14				2.7E-10	9.3E-11	1 6E-10	0 04
4,4-DDT	1 9E+00	3.4E-01	3.4E-01	3 4E-01	1	0 10		1.7E-08	5.8E-09	1.8E-12	5.3E-13			2.4E-08	8.2E-09	1 4E-08	3 11
Delta-BHC	1.1E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-11	1.8E-10	9.1E-15	1.6E-14			1.4E-10	2.5E-10	4.3E-10	0.10
Dieldrin	2.5E-01	1 6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-09	3.6E-08	2.1E-13	3.3E-12			3.2E-09	5.1E-08	8.7E-08	19.24
Chlordane	3.4E-01	3.5E-01	3.5E-01	3 5E-01	1	0.10		3.1E-09	1.1E-09	2.8E-13	9.8E-14			4.3E-09	1.5E-09	2 6E-09	0.57
Endosulfan I	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endosulfan II	2.2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Endosulfan sulfate	2 2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Endrin	2.2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Endrin aldehyde	2.2E-02	NI	NI	NI	1	0.10		1.9E-10		1.8E-14				2.7E-10			
Endrin ketone	2.2E-02	NI	NI	NI	1	0 10		1 9E-10		1.8E-14				2.7E-10			
Gamma-BHC (Lindane)	1.1E-02	1.3E+00	1.3E+00	NI	1	0.10		9.9E-11	1.3E-10	9.1E-15				1.4E-10	1.8E-10	3 1E-10	0 07
Heptachlor	7.3E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.6E-10	3.0E-09	6.0E-14	2.8E-13			9.3E-10	4.2E-09	7.1E-09	1.58
Heptachlor epoxide	1.1E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-11	9.0E-10	9.1E-15	8.2E-14			1.4E-10	1.3E-09	2.2E-09	0.48
Methoxychlor	1.1E-01	NI	NI	NI	1	0.10		9.9E-10		9.1E-14				1.4E-09			
Toxaphene	1.1E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-09	1.1E-08	9.1E-13	1.0E-12			1.4E-08	1.5E-08	2.6E-08	5.82
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.9E-07		1.7E-11				2 6E-07	4.5E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL168-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.5E+02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.4E-06	2.3E-05	1.2E-10	2.1E-09			1.9E-06	3.2E-05	5.5E-05	92.93
Alpha-BHC	1.2E+00	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.0E-08	6.5E-08	9.5E-13	6.0E-12			1.5E-08	9.2E-08	1.6E-07	0.26
Beta-BHC	1.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-08	1.9E-08	9.5E-13	1.7E-12			1.5E-08	2.6E-08	4.5E-08	0.08
4,4-DDD	2.3E+00	2.4E-01	2.4E-01	NI	1	0.10		2.0E-08	4.9E-09	1.9E-12				2.9E-08	6.9E-09	1.2E-08	0.02
4,4-DDE	2.3E+00	3.4E-01	3.4E-01	NI	1	0.10		2.0E-08	6.9E-09	1.9E-12				2.9E-08	9.7E-09	1.7E-08	0.03
4,4-DDT	2.3E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.0E-08	6.9E-09	1.9E-12	6.3E-13			2.9E-08	9.7E-09	1.7E-08	0.03
Delta-BHC	1.2E+00	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.0E-08	1.9E-08	9.5E-13	1.7E-12			1.5E-08	2.6E-08	4.5E-08	0.08
Dieldrin	2.3E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-08	3.2E-07	1.9E-12	3.0E-11			2.9E-08	4.6E-07	7.8E-07	1.31
Chlordane	2.3E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.1E-08	7.2E-09	1.9E-12	6.6E-13			2.9E-08	1.0E-08	1.7E-08	0.03
Endosulfan I	1.2E+00	NI	NI	NI	1	0.10		1.0E-08		9.5E-13				1.5E-08			
Endosulfan II	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Endosulfan sulfate	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Endrin	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Endrin aldehyde	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Endrin ketone	2.3E+00	NI	NI	NI	1	0.10		2.0E-08		1.9E-12				2.9E-08			
Gamma-BHC (Lindane)	1.2E+00	1.3E+00	1.3E+00	NI	1	0.10		1.0E-08	1.3E-08	9.5E-13				1.5E-08	1.9E-08	3.2E-08	0.05
Heptachlor	1.2E+00	4.5E+00	4.5E+00	6E+00	1	0.10		1.0E-08	4.7E-08	9.5E-13	4.4E-12			1.5E-08	6.6E-08	1.1E-07	0.19
Heptachlor epoxide	1.2E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-08	9.4E-08	9.5E-13	8.6E-12			1.5E-08	1.3E-07	2.3E-07	0.38
Methoxychlor	1.2E+01	NI	NI	NI	1	0.10		1.0E-07		9.5E-12				1.5E-07			
Toxaphene	1.2E+02	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.0E-06	1.1E-06	9.5E-11	1.0E-10			1.5E-06	1.6E-06	2.7E-06	4.61
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.5E-05		2.3E-09				3.5E-05	6.0E-05	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contamnant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL168-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.2E-01	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.1E-09	1.8E-08	9.9E-14	1.7E-12			1.5E-09	2.6E-08	4.4E-08	80.45
Alpha-BHC	1.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.0E-12	5.7E-11	8.2E-16	5.2E-15			1.3E-11	8.0E-11	1.4E-10	0.25
Beta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.07
4,4-DDD	2.0E-03	2.4E-01	2.4E-01	NI	1	0.10		1.8E-11	4.3E-12	1.6E-15				2.5E-11	6.1E-12	1.0E-11	0.02
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.03
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.03
Delta-BHC	1.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.0E-12	1.6E-11	8.2E-16	1.5E-15			1.3E-11	2.3E-11	3.9E-11	0.07
Dieldrin	2.2E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-10	3.2E-09	1.8E-14	2.9E-13			2.8E-10	4.5E-09	7.6E-09	13.88
Chlordane	2.0E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.8E-10	6.3E-11	1.6E-14	5.8E-15			2.5E-10	8.9E-11	1.5E-10	0.28
Endosulfan I	1.0E-03	NI	NI	NI	1	0.10		9.0E-12		8.2E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.5E-03	NI	NI	NI	1	0.10		2.3E-11		2.1E-15				3.2E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	NI	1	0.10		9.0E-12	1.2E-11	8.2E-16				1.3E-11	1.7E-11	2.8E-11	0.05
Heptachlor	1.0E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.0E-12	4.1E-11	8.2E-16	3.8E-15			1.3E-11	5.7E-11	9.8E-11	0.18
Heptachlor epoxide	1.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.0E-12	8.2E-11	8.2E-16	7.5E-15			1.3E-11	1.2E-10	2.0E-10	0.36
Methoxychlor	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Toxaphene	1.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.0E-10	9.9E-10	8.2E-14	9.1E-14			1.3E-09	1.4E-09	2.4E-09	4.34
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.3E-08		2.1E-12				3.2E-08	5.5E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL169-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	7.2E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.5E-10	1.1E-08	5.9E-14	1.0E-12			9.2E-10	1.6E-08	2.7E-08	71.07
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	0.40
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.11
4,4-DDD	4.3E-03	2.4E-01	2.4E-01	NI	1	0.10		3.9E-11	9.3E-12	3.5E-15				5.5E-11	1.3E-11	2.2E-11	0.06
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.9E-11	6.4E-12	1.7E-15				2.7E-11	9.1E-12	1.6E-11	0.04
4,4-DDT	1.5E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.4E-10	4.6E-11	1.2E-14	4.2E-15			1.9E-10	6.5E-11	1.1E-10	0.30
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.11
Dieldrin	1.9E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.7E-10	2.7E-09	1.6E-14	2.5E-13			2.4E-10	3.9E-09	6.6E-09	17.65
Chlordane	3.3E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.0E-10	1.0E-10	2.7E-14	9.6E-15			4.2E-10	1.5E-10	2.5E-10	0.67
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.08
Heptachlor	4.6E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.1E-11	1.9E-10	3.8E-15	1.7E-14			5.9E-11	2.6E-10	4.5E-10	1.20
Heptachlor epoxide	2.4E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		2.2E-11	2.0E-10	2.0E-15	1.8E-14			3.1E-11	2.8E-10	4.7E-10	1.27
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	7.03
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.6E-08		1.4E-12				2.2E-08	3.7E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL170-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	7.2E+00	1.7E+01	1.7E+01	1.7E+01	1	0.10		6.5E-08	1.1E-06	5.9E-12	1.0E-10			9.2E-08	1.6E-06	2.7E-06	22.49
Alpha-BHC	1.1E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-10	6.0E-09	8.7E-14	5.5E-13			1.3E-09	8.4E-09	1.4E-08	0.12
Beta-BHC	1.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-10	1.7E-09	8.7E-14	1.6E-13			1.3E-09	2.4E-09	4.1E-09	0.03
4,4-DDD	7.0E-01	2.4E-01	2.4E-01	NI	1	0.10		6.3E-09	1.5E-09	5.8E-13				8.9E-09	2.1E-09	3.6E-09	0.03
4,4-DDE	8.7E-01	3.4E-01	3.4E-01	NI	1	0.10		7.8E-09	2.7E-09	7.2E-13				1.1E-08	3.8E-09	6.4E-09	0.05
4,4-DDT	7.1E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		6.4E-08	2.2E-08	5.9E-12	2.0E-12			9.0E-08	3.1E-08	5.2E-08	0.44
Delta-BHC	1.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-10	1.7E-09	8.7E-14	1.6E-13			1.3E-09	2.4E-09	4.1E-09	0.03
Dieldrin	2.4E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.2E-07	3.5E-06	2.0E-11	3.2E-10			3.1E-07	4.9E-06	8.3E-06	70.54
Chlordane	5.0E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		4.5E-08	1.6E-08	4.1E-12	1.4E-12			6.4E-08	2.2E-08	3.8E-08	0.32
Endosulfan I	1.1E-01	NI	NI	NI	1	0.10		9.5E-10		8.7E-14				1.3E-09			
Endosulfan II	3.2E-01	NI	NI	NI	1	0.10		2.9E-09		2.6E-13				4.1E-09			
Endosulfan sulfate	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Endrin	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Endrin aldehyde	2.0E-01	NI	NI	NI	1	0.10		1.8E-09		1.6E-13				2.5E-09			
Endrin ketone	5.9E-01	NI	NI	NI	1	0.10		5.3E-09		4.9E-13				7.5E-09			
Gamma-BHC (Lindane)	1.1E-01	1.3E+00	1.3E+00	NI	1	0.10		9.5E-10	1.2E-09	8.7E-14				1.3E-09	1.7E-09	3.0E-09	0.03
Heptachlor	3.2E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.9E-08	1.3E-07	2.6E-12	1.2E-11			4.1E-08	1.8E-07	3.1E-07	2.65
Heptachlor epoxide	6.8E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		6.1E-09	5.6E-08	5.6E-13	5.1E-12			8.6E-09	7.9E-08	1.3E-07	1.14
Methoxychlor	1.8E+01	NI	NI	NI	1	0.10		1.6E-07		1.5E-11				2.3E-07			
Toxaphene	1.1E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-08	1.0E-07	8.7E-12	9.5E-12			1.3E-07	1.5E-07	2.5E-07	2.12
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.9E-06		4.5E-10				6.9E-06	1.2E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL170-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin		1.7E+01	1.7E+01	1.7E+01	1	0.10											
Alpha-BHC		6.3E+00	6.3E+00	6.3E+00	1	0.10											
Beta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
4,4-DDD		2.4E-01	2.4E-01	NI	1	0.10											
4,4-DDE		3.4E-01	3.4E-01	NI	1	0.10											
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											
Delta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											
Dieldrin		1.6E+01	1.6E+01	1.6E+01	1	0.10											
Chlordane		3.5E-01	3.5E-01	3.5E-01	1	0.10											
Endosulfan I		NI	NI	NI	1	0.10											
Endosulfan II		NI	NI	NI	1	0.10											
Endosulfan sulfate		NI	NI	NI	1	0.10											
Endrin		NI	NI	NI	1	0.10											
Endrin aldehyde		NI	NI	NI	1	0.10											
Endrin ketone		NI	NI	NI	1	0.10											
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											
Heptachlor		4.5E+00	4.5E+00	4.6E+00	1	0.10											
Heptachlor epoxide		9.1E+00	9.1E+00	9.1E+00	1	0.10											
Methoxychlor		NI	NI	NI	1	0.10											
Toxaphene		1.1E+00	1.1E+00	1.1E+00	1	0.10											
DIOXIN																	
2,3,7,8-TCDD	3.66E-06	1.5E+05	1.5E+05	1.5E+05	1	0.10		3.3E-14	4.9E-09	3.0E-18	4.5E-13			4.7E-14	7.0E-09	1.2E-08	100.00
Total Cancer Risk									4.9E-09		4.5E-13				7.0E-09	1.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFO$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL171-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	4.1E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		3.7E-07	6.3E-06	3.4E-11	5.7E-10			5.2E-07	8.9E-06	1.5E-05	67.53
Alpha-BHC	4.3E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		3.8E-09	2.4E-08	3.5E-13	2.2E-12			5.4E-09	3.4E-08	5.8E-08	0.26
Beta-BHC	4.3E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.8E-09	6.9E-09	3.5E-13	6.3E-13			5.4E-09	9.7E-09	1.7E-08	0.07
4,4-DDD	8.0E-01	2.4E-01	2.4E-01	NI	1	0.10		7.2E-09	1.7E-09	6.6E-13				1.0E-08	2.4E-09	4.2E-09	0.02
4,4-DDE	8.0E-01	3.4E-01	3.4E-01	NI	1	0.10		7.2E-09	2.4E-09	6.6E-13				1.0E-08	3.5E-09	5.9E-09	0.03
4,4-DDT	1.3E+00	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.2E-08	4.0E-09	1.1E-12	3.6E-13			1.7E-08	5.6E-09	9.6E-09	0.04
Delta-BHC	4.3E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		3.8E-09	6.9E-09	3.5E-13	6.3E-13			5.4E-09	9.7E-09	1.7E-08	0.07
Dieldrin	1.5E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.4E-07	2.2E-06	1.2E-11	2.0E-10			1.9E-07	3.1E-06	5.2E-06	23.25
Chlordane	3.8E+00	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.4E-08	1.2E-08	3.1E-12	1.1E-12			4.8E-08	1.7E-08	2.9E-08	0.13
Endosulfan I	4.3E-01	NI	NI	NI	1	0.10		3.8E-09		3.5E-13				5.4E-09			
Endosulfan II	8.0E-01	NI	NI	NI	1	0.10		7.2E-09		6.6E-13				1.0E-08			
Endosulfan sulfate	8.0E-01	NI	NI	NI	1	0.10		7.2E-09		6.6E-13				1.0E-08			
Endrin	8.0E-01	NI	NI	NI	1	0.10		7.2E-09		6.6E-13				1.0E-08			
Endrin aldehyde	8.0E-01	NI	NI	NI	1	0.10		7.2E-09		6.6E-13				1.0E-08			
Endrin ketone	8.0E-01	NI	NI	NI	1	0.10		7.2E-09		6.6E-13				1.0E-08			
Gamma-BHC (Lindane)	1.2E+01	1.3E+00	1.3E+00	NI	1	0.10		1.1E-07	1.4E-07	9.9E-12				1.5E-07	2.0E-07	3.4E-07	1.51
Heptachlor	5.0E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		4.5E-08	2.0E-07	4.1E-12	1.9E-11			6.4E-08	2.9E-07	4.9E-07	2.18
Heptachlor epoxide	4.3E-01	9.1E+00	9.1E+00	9.1E+00	1	0.10		3.8E-09	3.5E-08	3.5E-13	3.2E-12			5.4E-09	4.9E-08	8.4E-08	0.37
Methoxychlor	4.3E+00	NI	NI	NI	1	0.10		3.8E-08		3.5E-12				5.4E-08			
Toxaphene	4.3E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		3.8E-07	4.2E-07	3.5E-11	3.9E-11			5.4E-07	5.9E-07	1.0E-06	4.53
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									*9.3E-06*		*8.4E-10*				*1.3E-05*	*2.2E-05*	*100*

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL171-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	5.0E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		4.5E-10	7.7E-09	4.1E-14	7.0E-13			6.4E-10	1.1E-08	1.8E-08	17.54
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	0.14
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.04
4,4-DDD	9.7E-03	2.4E-01	2.4E-01	NI	1	0.10		8.7E-11	2.1E-11	8.0E-15				1.2E-10	3.0E-11	5.1E-11	0.05
4,4-DDE	2.2E-03	3.4E-01	3.4E-01	NI	1	0.10		2.0E-11	6.7E-12	1.8E-15				2.8E-11	9.5E-12	1.6E-11	0.02
4,4-DDT	4.0E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		3.6E-10	1.2E-10	3.3E-14	1.1E-14			5.1E-10	1.7E-10	3.0E-10	0.28
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.04
Dieldrin	2.3E-01	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.1E-09	3.3E-08	1.9E-13	3.0E-12			2.9E-09	4.7E-08	8.0E-08	75.95
Chlordane	3.4E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.1E-10	1.1E-10	2.8E-14	9.8E-15			4.3E-10	1.5E-10	2.6E-10	0.25
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	3.5E-03	NI	NI	NI	1	0.10		3.2E-11		2.9E-15				4.5E-11			
Endosulfan sulfate	2.2E-03	NI	NI	NI	1	0.10		1.9E-11		1.8E-15				2.7E-11			
Endrin	2.2E-03	NI	NI	NI	1	0.10		2.0E-11		1.8E-15				2.8E-11			
Endrin aldehyde	2.2E-03	NI	NI	NI	1	0.10		1.9E-11		1.8E-15				2.7E-11			
Endrin ketone	3.2E-02	NI	NI	NI	1	0.10		2.9E-10		2.6E-14				4.1E-10			
Gamma-BHC (Lindane)	3.9E-03	1.3E+00	1.3E+00	NI	1	0.10		3.5E-11	4.6E-11	3.2E-15				5.0E-11	6.4E-11	1.1E-10	0.10
Heptachlor	2.0E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.8E-10	8.1E-10	1.6E-14	7.6E-14			2.5E-10	1.1E-09	2.0E-09	1.86
Heptachlor epoxide	6.6E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.9E-11	5.4E-10	5.4E-15	4.9E-14			8.4E-11	7.6E-10	1.3E-09	1.24
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	2.50
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.4E-08		4.0E-12				6.2E-08	1.1E-07	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL172-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG), (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.0E+01	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.0E-08	1.5E-06	8.2E-12	1.4E-10			1.3E-07	2.2E-06	3.7E-06	11.25
Alpha-BHC	2.1E-01	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.9E-09	1.2E-08	1.7E-13	1.1E-12			2.7E-09	1.7E-08	2.9E-08	0.09
Beta-BHC	2.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-09	3.4E-09	1.7E-13	3.1E-13			2.7E-09	4.8E-09	8.2E-09	0.03
4,4-DDD	1.0E+00	2.4E-01	2.4E-01	NI	1	0.10		9.0E-09	2.2E-09	8.2E-13				1.3E-08	3.1E-09	5.2E-09	0.02
4,4-DDE	1.7E+00	3.4E-01	3.4E-01	NI	1	0.10		1.5E-08	5.2E-09	1.4E-12				2.2E-08	7.4E-09	1.3E-08	0.04
4,4-DDT	1.2E+01	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.1E-07	3.7E-08	9.9E-12	3.4E-12			1.5E-07	5.2E-08	8.9E-08	0.27
Delta-BHC	2.1E-01	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.9E-09	3.4E-09	1.7E-13	3.1E-13			2.7E-09	4.8E-09	8.2E-09	0.03
Dieldrin	7.8E+01	1.6E+01	1.6E+01	1.6E+01	1	0.10		7.0E-07	1.1E-05	6.4E-11	1.0E-09			9.9E-07	1.6E-05	2.7E-05	82.62
Chlordane	1.1E+01	3.5E-01	3.5E-01	3.5E-01	1	0.10		9.8E-08	3.4E-08	9.0E-12	3.1E-12			1.4E-07	4.9E-08	8.3E-08	0.25
Endosulfan I	2.1E-01	NI	NI	NI	1	0.10		1.9E-09		1.7E-13				2.7E-09			
Endosulfan II	8.5E-01	NI	NI	NI	1	0.10		7.7E-09		7.0E-13				1.1E-08			
Endosulfan sulfate	4.1E-01	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Endrin	4.6E-01	NI	NI	NI	1	0.10		4.1E-09		3.8E-13				5.9E-09			
Endrin aldehyde	4.1E-01	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Endrin ketone	2.8E+00	NI	NI	NI	1	0.10		2.5E-08		2.3E-12				3.6E-08			
Gamma-BHC (Lindane)	6.9E-01	1.3E+00	1.3E+00	NI	1	0.10		6.2E-09	8.1E-09	5.7E-13				8.8E-09	1.1E-08	1.9E-08	0.06
Heptachlor	8.8E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		7.9E-08	3.6E-07	7.3E-12	3.3E-11			1.1E-07	5.0E-07	8.6E-07	2.62
Heptachlor epoxide	2.0E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.8E-08	1.6E-07	1.6E-12	1.5E-11			2.5E-08	2.3E-07	4.0E-07	1.20
Methoxychlor	2.1E+00	NI	NI	NI	1	0.10		1.9E-08		1.7E-12				2.7E-08			
Toxaphene	2.1E+01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.9E-07	2.1E-07	1.7E-11	1.9E-11			2.7E-07	2.9E-07	5.0E-07	1.53
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.4E-05		1.2E-09				1.9E-05	3.3E-05	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL172-4

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.0E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.8E-11	3.1E-10	1.6E-15	2.8E-14			2.5E-11	4.3E-10	7.4E-10	11.86
Alpha-BHC	1.2E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.1E-11	6.8E-11	9.9E-16	6.2E-15			1.5E-11	9.6E-11	1.6E-10	2.64
Beta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	1.9E-11	9.9E-16	1.8E-15			1.5E-11	2.7E-11	4.7E-11	0.75
4,4-DDD	2.3E-03	2.4E-01	2.4E-01	NI	1	0.10		2.1E-11	5.0E-12	1.9E-15				2.9E-11	7.0E-12	1.2E-11	0.19
4,4-DDE	2.3E-03	3.4E-01	3.4E-01	NI	1	0.10		2.1E-11	7.0E-12	1.9E-15				2.9E-11	9.9E-12	1.7E-11	0.27
4,4-DDT	2.3E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.1E-11	7.0E-12	1.9E-15	6.4E-16			2.9E-11	9.9E-12	1.7E-11	0.27
Delta-BHC	1.2E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.1E-11	1.9E-11	9.9E-16	1.8E-15			1.5E-11	2.7E-11	4.7E-11	0.75
Dieldrin	5.5E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.0E-11	7.9E-10	4.5E-15	7.3E-14			7.0E-11	1.1E-09	1.9E-09	30.69
Chlordane	2.4E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-11	7.6E-12	2.0E-15	6.9E-16			3.1E-11	1.1E-11	1.8E-11	0.29
Endosulfan I	1.2E-03	NI	NI	NI	1	0.10		1.1E-11		9.9E-16				1.5E-11			
Endosulfan II	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endosulfan sulfate	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin aldehyde	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Endrin ketone	2.3E-03	NI	NI	NI	1	0.10		2.1E-11		1.9E-15				2.9E-11			
Gamma-BHC (Lindane)	1.2E-03	1.3E+00	1.3E+00	NI	1	0.10		1.1E-11	1.4E-11	9.9E-16				1.5E-11	2.0E-11	3.4E-11	0.54
Heptachlor	1.2E-03	4.5E+00	4.5E+00	6E+00	1	0.10		1.1E-11	4.9E-11	9.9E-16	4.5E-15			1.5E-11	6.9E-11	1.2E-10	1.88
Heptachlor epoxide	1.2E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.1E-11	9.8E-11	9.9E-16	9.0E-15			1.5E-11	1.4E-10	2.4E-10	3.81
Methoxychlor	1.2E-02	NI	NI	NI	1	0.10		1.1E-10		9.9E-15				1.5E-10			
Toxaphene	1.2E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.1E-09	1.2E-09	9.9E-14	1.1E-13			1.5E-09	1.7E-09	2.9E-09	46.04
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.6E-09		2.3E-13				3.6E-09	6.2E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL173-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Dm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Dermal Absorption Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Ingestion Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.1E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.9E-12	1.7E-10	9.1E-16	1.5E-14			1.4E-11	2.4E-10	4.1E-10	8.65
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	3.21
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.92
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.9E-11	4.5E-12	1.7E-15				2.7E-11	6.4E-12	1.1E-11	0.23
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.9E-11	6.4E-12	1.7E-15				2.7E-11	9.1E-12	1.6E-11	0.33
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.9E-11	6.4E-12	1.7E-15	5.9E-16			2.7E-11	9.1E-12	1.6E-11	0.33
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.92
Dieldrin	2.9E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.6E-11	4.2E-10	2.4E-15	3.8E-14			3.7E-11	5.9E-10	1.0E-09	21.47
Chlordane	2.2E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.0E-11	6.9E-12	1.8E-15	6.3E-16			2.8E-11	9.8E-12	1.7E-11	0.36
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.66
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-12	4.5E-11	9.1E-16	4.2E-15			1.4E-11	6.3E-11	1.1E-10	2.29
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-12	9.0E-11	9.1E-16	8.2E-15			1.4E-11	1.3E-10	2.2E-10	4.63
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	56.00
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.9E-09		1.8E-13				2.7E-09	4.7E-09	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL174-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.1E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		9.9E-11	1.7E-09	9.1E-15	1.5E-13			1.4E-10	2.4E-09	4.1E-09	5.40
Alpha-BHC	1.1E-02	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-11	6.2E-10	9.1E-15	5.7E-14			1.4E-10	8.8E-10	1.5E-09	2.00
Beta-BHC	1.1E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-11	1.8E-10	9.1E-15	1.6E-14			1.4E-10	2.5E-10	4.3E-10	0.57
4,4-DDD	7.9E-01	2.4E-01	2.4E-01	NI	1	0.10		7.1E-09	1.7E-09	6.5E-13				1.0E-08	2.4E-09	4.1E-09	5.47
4,4-DDE	2.1E-02	3.4E-01	3.4E-01	NI	1	0.10		1.9E-10	6.4E-11	1.7E-14				2.7E-10	9.1E-11	1.6E-10	0.21
4,4-DDT	5.1E-02	3.4E-01	3.4E-01	3.4E-01	1	0.10		4.6E-10	1.6E-10	4.2E-14	1.4E-14			6.5E-10	2.2E-10	3.8E-10	0.50
Delta-BHC	1.1E-02	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-11	1.8E-10	9.1E-15	1.6E-14			1.4E-10	2.5E-10	4.3E-10	0.57
Dieldrin	9.1E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		8.2E-10	1.3E-08	7.5E-14	1.2E-12			1.2E-09	1.9E-08	3.2E-08	42.01
Chlordane	3.6E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.2E-09	1.1E-09	3.0E-13	1.0E-13			4.6E-09	1.6E-09	2.7E-09	3.64
Endosulfan I	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Endosulfan II	1.8E-01	NI	NI	NI	1	0.10		1.6E-09		1.5E-13				2.3E-09			
Endosulfan sulfate	2.5E-02	NI	NI	NI	1	0.10		2.3E-10		2.1E-14				3.2E-10			
Endrin	7.1E-02	NI	NI	NI	1	0.10		6.4E-10		5.9E-14				9.0E-10			
Endrin aldehyde	2.1E-02	NI	NI	NI	1	0.10		1.9E-10		1.7E-14				2.7E-10			
Endrin ketone	2.1E-02	NI	NI	NI	1	0.10		1.9E-10		1.7E-14				2.7E-10			
Gamma-BHC (Lindane)	1.1E-02	1.3E+00	1.3E+00	NI	1	0.10		9.9E-11	1.3E-10	9.1E-15				1.4E-10	1.8E-10	3.1E-10	0.41
Heptachlor	1.1E-02	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.9E-11	4.5E-10	9.1E-15	4.2E-14			1.4E-10	6.3E-10	1.1E-09	1.43
Heptachlor epoxide	1.1E-02	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-11	9.0E-10	9.1E-15	8.2E-14			1.4E-10	1.3E-09	2.2E-09	2.89
Methoxychlor	1.1E-01	NI	NI	NI	1	0.10		9.9E-10		9.1E-14				1.4E-09			
Toxaphene	1.1E+00	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-09	1.1E-08	9.1E-13	1.0E-12			1.4E-08	1.5E-08	2.6E-08	34.91
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									3.1E-08		2.7E-12				4.4E-08	7.5E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL175-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	7.9E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		7.1E-11	1.2E-09	6.5E-15	1.1E-13			1.0E-10	1.7E-09	2.9E-09	13.53
Alpha-BHC	2.0E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		1.8E-11	1.1E-10	1.6E-15	1.0E-14			2.5E-11	1.6E-10	2.7E-10	1.27
Beta-BHC	2.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.8E-11	3.2E-11	1.6E-15	3.0E-15			2.5E-11	4.6E-11	7.8E-11	0.36
4,4-DDD	9.5E-02	2.4E-01	2.4E-01	NI	1	0.10		8.6E-10	2.1E-10	7.8E-14				1.2E-09	2.9E-10	5.0E-10	2.30
4,4-DDE	1.1E-02	3.4E-01	3.4E-01	NI	1	0.10		9.9E-11	3.4E-11	9.1E-15				1.4E-10	4.8E-11	8.1E-11	0.38
4,4-DDT	2.9E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.6E-09	8.9E-10	2.4E-13	8.1E-14			3.7E-09	1.3E-09	2.1E-09	9.94
Delta-BHC	2.0E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		1.8E-11	3.2E-11	1.6E-15	3.0E-15			2.5E-11	4.6E-11	7.8E-11	0.36
Dieldrin	2.7E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.4E-10	3.9E-09	2.2E-14	3.6E-13			3.4E-10	5.5E-09	9.4E-09	43.53
Chlordane	2.4E-02	3.5E-01	3.5E-01	3.5E-01	1	0.10		2.2E-10	7.5E-11	2.0E-14	6.9E-15			3.0E-10	1.1E-10	1.8E-10	0.84
Endosulfan I	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan II	8.8E-03	NI	NI	NI	1	0.10		7.9E-11		7.3E-15				1.1E-10			
Endosulfan sulfate	3.9E-03	NI	NI	NI	1	0.10		3.5E-11		3.2E-15				5.0E-11			
Endrin	1.0E-02	NI	NI	NI	1	0.10		9.0E-11		8.2E-15				1.3E-10			
Endrin aldehyde	3.9E-03	NI	NI	NI	1	0.10		3.5E-11		3.2E-15				5.0E-11			
Endrin ketone	3.9E-03	NI	NI	NI	1	0.10		3.5E-11		3.2E-15				5.0E-11			
Gamma-BHC (Lindane)	2.0E-03	1.3E+00	1.3E+00	NI	1	0.10		1.8E-11	2.3E-11	1.6E-15				2.5E-11	3.3E-11	5.6E-11	0.26
Heptachlor	7.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		6.4E-11	2.9E-10	5.9E-15	2.7E-14			9.0E-11	4.1E-10	6.9E-10	3.22
Heptachlor epoxide	2.0E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.8E-11	1.6E-10	1.6E-15	1.5E-14			2.5E-11	2.3E-10	4.0E-10	1.83
Methoxychlor	2.0E-02	NI	NI	NI	1	0.10		1.8E-10		1.6E-14				2.5E-10			
Toxaphene	2.0E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		1.8E-09	2.0E-09	1.6E-13	1.8E-13			2.5E-09	2.8E-09	4.8E-09	22.17
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									8.9E-09		7.9E-13				1.3E-08	2.2E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL176-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Absorption factor, unitless Oral (ABO)	Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Volatile Inhalation from soil dust Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Volatile Inhalation from volatiles Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Ingestion Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)	Total Risk	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.2E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.1E-10	1.8E-09	9.9E-15	1.7E-13			1.5E-10	2.6E-09	4.4E-09	7.56
Alpha-BHC	5.5E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		5.0E-11	3.1E-10	4.5E-15	2.9E-14			7.0E-11	4.4E-10	7.5E-10	1.28
Beta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.37
4,4-DDD	9.7E-01	2.4E-01	2.4E-01	NI	1	0.10		8.7E-09	2.1E-09	8.0E-13				1.2E-08	3.0E-09	5.1E-09	8.63
4,4-DDE	1.1E-02	3.4E-01	3.4E-01	NI	1	0.10		9.5E-11	3.2E-11	8.7E-15				1.3E-10	4.5E-11	7.8E-11	0.13
4,4-DDT	2.6E-01	3.4E-01	3.4E-01	3.4E-01	1	0.10		2.3E-09	8.0E-10	2.1E-13	7.3E-14			3.3E-09	1.1E-09	1.9E-09	3.28
Delta-BHC	5.5E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		5.0E-11	8.9E-11	4.5E-15	8.2E-15			7.0E-11	1.3E-10	2.2E-10	0.37
Dieldrin	2.6E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.3E-10	3.7E-09	2.1E-14	3.4E-13			3.3E-10	5.3E-09	9.0E-09	15.43
Chlordane	1.3E-01	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.2E-09	4.1E-10	1.1E-13	3.7E-14			1.7E-09	5.8E-10	9.9E-10	1.69
Endosulfan I	5.5E-03	NI	NI	NI	1	0.10		5.0E-11		4.5E-15				7.0E-11			
Endosulfan II	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endosulfan sulfate	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin aldehyde	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin ketone	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Gamma-BHC (Lindane)	5.5E-03	1.3E+00	1.3E+00	NI	1	0.10		5.0E-11	6.4E-11	4.5E-15				7.0E-11	9.1E-11	1.6E-10	0.27
Heptachlor	2.2E-01	4.5E+00	4.5E+00	4.6E+00	1	0.10		2.0E-09	8.9E-09	1.8E-13	8.3E-13			2.8E-09	1.3E-08	2.2E-08	36.71
Heptachlor epoxide	5.5E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		5.0E-11	4.5E-10	4.5E-15	4.1E-14			7.0E-11	6.4E-10	1.1E-09	1.86
Methoxychlor	5.5E-02	NI	NI	NI	1	0.10		5.0E-10		4.5E-14				7.0E-10			
Toxaphene	5.5E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		5.0E-09	5.4E-09	4.5E-13	5.0E-13			7.0E-09	7.7E-09	1.3E-08	22.43
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									2.4E-08		2.0E-12				3.4E-08	5.9E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL177-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	9.1E-02	1.7E+01	1.7E+01	1.7E+01	1	0.10		8.2E-10	1.4E-08	7.5E-14	1.3E-12			1.2E-09	2.0E-08	3.4E-08	86.83
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.5E-12	6.0E-11	8.7E-16	5.5E-15			1.3E-11	8.4E-11	1.4E-10	0.37
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.11
4,4-DDD	2.5E-03	2.4E-01	2.4E-01	NI	1	0.10		2.3E-11	5.4E-12	2.1E-15				3.2E-11	7.6E-12	1.3E-11	0.03
4,4-DDE	2.0E-03	3.4E-01	3.4E-01	NI	1	0.10		1.8E-11	6.1E-12	1.6E-15				2.5E-11	8.6E-12	1.5E-11	0.04
4,4-DDT	2.0E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.8E-11	6.1E-12	1.6E-15	5.6E-16			2.5E-11	8.6E-12	1.5E-11	0.04
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.5E-12	1.7E-11	8.7E-16	1.6E-15			1.3E-11	2.4E-11	4.1E-11	0.11
Dieldrin	5.6E-03	1.6E+01	1.6E+01	1.6E+01	1	0.10		5.0E-11	8.1E-10	4.6E-15	7.4E-14			7.1E-11	1.1E-09	1.9E-09	5.03
Chlordane	4.3E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		3.9E-11	1.4E-11	3.5E-15	1.2E-15			5.5E-11	1.9E-11	3.3E-11	0.08
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.5E-12		8.7E-16				1.3E-11			
Endosulfan II	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endosulfan sulfate	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin aldehyde	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Endrin ketone	2.0E-03	NI	NI	NI	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.5E-12	1.2E-11	8.7E-16				1.3E-11	1.7E-11	3.0E-11	0.08
Heptachlor	1.1E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		9.5E-12	4.3E-11	8.7E-16	4.0E-15			1.3E-11	6.0E-11	1.0E-10	0.27
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.5E-12	8.6E-11	8.7E-16	7.9E-15			1.3E-11	1.2E-10	2.1E-10	0.54
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.5E-10	1.0E-09	8.7E-14	9.5E-14			1.3E-09	1.5E-09	2.5E-09	6.48
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									1.6E-08		1.5E-12				2.3E-08	3.9E-08	100

ASSUMPTIONS:

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL178-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d)			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Risk	Risk Percentage %
		Oral Slope Factor (SFO)	Dermal Slope Factor (SFD)	Inhalation Slope Factor (SFI)	Oral (ABO)	Drm (ARS)		Amount Absorbed (IDD), mg/kg-d	Lifetime Risks (CRD) (unitless)	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime Risks (CRIS) (unitless)	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime Risks (CRIV) (unitless)	Amount Ingested (IDIG) (mg/kg-d)	Lifetime Risks (CRIG) (unitless)		
PESTICIDES/PCBs																	
Aldrin	1.5E-03	1.7E+01	1.7E+01	1.7E+01	1	0.10		1.4E-11	2.3E-10	1.2E-15	2.1E-14			1.9E-11	3.2E-10	5.5E-10	5.47
Alpha-BHC	1.1E-03	6.3E+00	6.3E+00	6.3E+00	1	0.10		9.9E-12	6.2E-11	9.1E-16	5.7E-15			1.4E-11	8.8E-11	1.5E-10	1.49
Beta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.43
4,4-DDD	2.1E-03	2.4E-01	2.4E-01	NI	1	0.10		1.9E-11	4.5E-12	1.7E-15				2.7E-11	6.4E-12	1.1E-11	0.11
4,4-DDE	2.1E-03	3.4E-01	3.4E-01	NI	1	0.10		1.9E-11	6.4E-12	1.7E-15				2.7E-11	9.1E-12	1.6E-11	0.15
4,4-DDT	2.1E-03	3.4E-01	3.4E-01	3.4E-01	1	0.10		1.9E-11	6.4E-12	1.7E-15	5.9E-16			2.7E-11	9.1E-12	1.6E-11	0.15
Delta-BHC	1.1E-03	1.8E+00	1.8E+00	1.8E+00	1	0.10		9.9E-12	1.8E-11	9.1E-16	1.6E-15			1.4E-11	2.5E-11	4.3E-11	0.43
Dieldrin	1.8E-02	1.6E+01	1.6E+01	1.6E+01	1	0.10		1.6E-10	2.6E-09	1.5E-14	2.4E-13			2.3E-10	3.7E-09	6.3E-09	61.83
Chlordane	2.1E-03	3.5E-01	3.5E-01	3.5E-01	1	0.10		1.9E-11	6.6E-12	1.7E-15	6.1E-16			2.7E-11	9.3E-12	1.6E-11	0.16
Endosulfan I	1.1E-03	NI	NI	NI	1	0.10		9.9E-12		9.1E-16				1.4E-11			
Endosulfan II	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endosulfan sulfate	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin aldehyde	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	NI	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	NI	1	0.10		9.9E-12	1.3E-11	9.1E-16				1.4E-11	1.8E-11	3.1E-11	0.31
Heptachlor	1.4E-03	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.3E-11	5.7E-11	1.2E-15	5.3E-15			1.8E-11	8.0E-11	1.4E-10	1.35
Heptachlor epoxide	1.1E-03	9.1E+00	9.1E+00	9.1E+00	1	0.10		9.9E-12	9.0E-11	9.1E-16	8.2E-15			1.4E-11	1.3E-10	2.2E-10	2.15
Methoxychlor	1.1E-02	NI	NI	NI	1	0.10		9.9E-11		9.1E-15				1.4E-10			
Toxaphene	1.1E-01	1.1E+00	1.1E+00	1.1E+00	1	0.10		9.9E-10	1.1E-09	9.1E-14	1.0E-13			1.4E-09	1.5E-09	2.6E-09	25.98
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
Total Cancer Risk									4.2E-09		3.8E-13				5.9E-09	1.0E-08	100

ASSUMPTIONS

Averaging Time, AT (yr)	75
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD * ET}{BW * AT * TCF * TC}$$

$$CRD = IDD * SFD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{EW * AT * TCF * PEF}$$

$$CRI = IDI * SFI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$CRIV = IDIV * SFI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$CRIG = IDIG * SFO$$

Total Non-Cancer Hazard Index
Removal Action Sampling
Riverdale Chemical Company - Chicago Heights, Illinois

Sampling Location	Analyte														Total Non-Cancer HI
	Aldrin	4,4-DDT	Dieldrin	Chlordane	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Gamma-BHC	Heptachlor	Heptachlor Epoxide	Methoxychlor	
SL90-7	1.09E-04	6.35E-06	3.26E-05	6.35E-06	5.43E-07	2.71E-07	5.29E-07	1.06E-05	0.00E+00	1.06E-05	1.06E-05	0.00E+00	1.25E-04	3.26E-07	3.13E-04
SL91-6	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04
SL92-7	5.70E-05	6.52E-06	6.52E-05	6.84E-06	2.85E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	3.14E-04
SL93-2	3.20E-04	8.14E-06	3.26E-04	1.39E-04	8.69E-07	1.63E-06	1.63E-06	3.26E-05	3.26E-05	3.26E-05	1.74E-05	1.73E-04	4.01E-04	1.04E-05	1.50E-03
SL94-1	1.14E-01	7.17E-04	2.77E-03	1.24E-04	3.12E-05	5.97E-05	5.97E-05	1.19E-03	1.19E-03	1.19E-03	6.24E-04	6.84E-05	1.44E-02	3.75E-04	1.37E-01
SL95-8	1.63E-02	8.80E-05	2.31E-03	1.64E-04	1.06E-06	1.90E-06	1.90E-06	3.80E-05	3.80E-05	3.80E-05	2.12E-05	2.05E-04	4.64E-04	1.21E-05	1.97E-02
SL96-6	1.52E-01	1.47E-04	1.04E-03	1.43E-04	2.71E-05	5.16E-05	5.16E-05	1.03E-03	1.03E-03	1.03E-03	8.14E-05	5.54E-04	1.25E-02	3.26E-04	1.70E-01
SL97-6	2.71E-04	6.35E-06	6.35E-05	7.07E-05	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-05	3.26E-06	1.25E-04	3.26E-06	6.31E-04
SL98-1	1.36E-04	7.17E-06	7.17E-05	7.17E-06	2.99E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	5.97E-06	4.24E-06	1.38E-04	3.58E-06	4.11E-04
SL100-3	1.57E-04	6.68E-06	6.68E-05	8.76E-06	2.85E-07	5.57E-07	5.57E-07	1.11E-05	1.11E-05	1.11E-05	5.70E-06	3.58E-06	1.32E-04	3.42E-06	4.19E-04
SL101-7	2.23E-01	1.99E-02	5.54E-02	7.[illegible]E-03	1.26E-04	2.44E-04	2.44E-04	4.89E-03	4.89E-03	4.89E-03	2.52E-03	1.69E-03	1.03E-02	1.51E-03	3.37E-01
SL102-2	3.37E-01	3.58E-03	2.77E-01	1.[illegible]E-02	1.49E-05	7.87E-05	2.99E-05	9.23E-04	5.97E-04	1.57E-03	2.39E-02	1.27E-02	2.00E-02	1.79E-04	6.92E-01
SL102-4	1.47E-02	4.56E-04	2.25E-01	2.51[illegible]3	1.49E-04	2.71E-04	2.71E-04	5.43E-03	5.43E-03	1.95E-03	2.99E-03	9.77E-04	3.26E-02	1.79E-03	2.94E-01
SL103-2	4.13E-01	1.73E-02	7.49E-01	2.5[illegible]E-02	5.16E-04	1.33E-04	1.02E-03	2.04E-02	2.04E-02	4.24E-03	1.36E-03	1.21E-02	4.64E-02	6.19E-03	1.32E+00
SL103-4	4.13E-01	3.58E-02	1.73E+00	2.90E-02	6.11E-05	1.55E-04	1.19E-04	2.39E-03	2.39E-03	9.77E-03	2.17E-03	3.26E-02	2.00E-01	7.33E-04	2.46E+00
SL104-2	2.33E-01	8.80E-03	8.47E-01	1.56E-02	5.97E-04	1.17E-03	1.17E-03	2.33E-02	2.33E-02	7.60E-03	1.19E-02	1.17E-02	2.26E-01	7.17E-03	1.42E+00
SL104-4	7.06E-03	1.53E-05	1.01E-02	3.84E-04	4.48E-07	1.28E-06	8.69E-07	1.74E-05	1.74E-05	8.69E-05	8.96E-06	5.38E-06	1.00E-03	5.38E-06	1.87E-02
SL105-2	3.64E-01	2.96E-03	2.31E-01	7.49E-03	2.99E-04	2.55E-04	5.70E-04	5.38E-03	1.14E-02	1.14E-02	5.97E-03	3.58E-03	3.38E-02	3.58E-03	6.82E-01
SL106-2	1.90E+00	2.80E-02	5.86E-01	1.27E-01	2.58E-03	5.43E-04	5.02E-03	1.00E-01	1.00E-01	1.00E-01	8.14E-03	2.31E-01	1.19E+00	3.10E-02	4.41E+00
SL106-4	1.36E+00	2.22E-02	5.54E-01	8.15E-02	5.97E-05	3.26E-04	1.17E-04	4.29E-03	2.33E-03	2.66E-03	1.85E-03	8.80E-02	5.14E-02	1.27E-03	2.17E+00
SL107-2	2.33E+00	1.73E-02	5.86E-01	1.60E-01	5.84E-04	8.69E-04	1.14E-04	4.67E-02	2.25E-02	1.95E-02	5.00E-03	8.47E-02	1.01E-01	7.00E-03	3.39E+00
SL107-4	1.03E+00	1.60E-02	3.91E-01	5.34E-02	1.36E-05	1.76E-04	4.34E-05	6.52E-03	5.43E-04	3.58E-03	8.14E-04	4.89E-02	3.51E-02	1.63E-04	1.59E+00
SL108-2	1.09E+00	2.35E-02	7.82E-01	8.83E-02	1.13E-03	4.07E-04	2.99E-04	2.06E-02	4.62E-03	7.60E-03	2.25E-02	1.24E-01	1.07E-01	1.35E-02	2.28E+00
SL108-4	3.69E+00	1.11E-02	9.77E-01	1.04E-01	1.25E-04	5.97E-04	2.63E-04	1.52E-02	4.89E-03	4.89E-03	2.50E-03	8.14E-02	5.76E-02	1.50E-03	4.95E+00
SL109-2	1.79E-01	5.21E-04	1.11E-01	5.96E-03	7.19E-05	1.57E-05	1.36E-04	5.21E-04	2.71E-03	3.31E-03	1.44E-03	1.04E-03	7.89E-03	8.63E-04	3.14E-01
SL110-2	2.44E+00	3.91E-02	4.89E-01	2.67E-02	1.49E-04	3.00E-04	3.00E-04	6.00E-03	6.00E-03	6.52E-03	2.99E-03	5.54E-02	6.89E-02	1.79E-03	3.15E+00
SL110-4	1.30E-02	3.10E-04	5.54E-02	1.79E-03	2.04E-06	3.94E-06	3.94E-06	1.09E-04	7.87E-05	2.12E-03	7.60E-05	2.44E-05	1.38E-02	2.44E-05	8.67E-02
SL111-2	1.09E+00	6.84E-03	1.82E-01	2.80E-02	2.99E-04	5.70E-04	5.70E-04	1.14E-02	1.14E-02	2.39E-03	5.97E-03	3.58E-02	2.00E-02	3.58E-04	1.39E+00
SL111-4	1.47E+00	3.91E-02	2.74E+00	4.07E-02	4.48E-05	8.69E-05	8.69E-05	1.19E-02	2.23E-03	7.06E-03	8.96E-03	6.52E-03	3.76E-02	5.38E-04	4.36E+00
SL112-2	1.19E+01	1.60E-02	4.56E-01	1.91E-02	5.57E-03	1.07E-02	1.07E-02	2.14E-01	2.14E-01	2.14E-01	1.11E-01	2.38E-02	2.57E+00	6.68E-02	1.59E+01
SL112-4	3.42E-03	9.45E-05	1.34E-02	3.29E-04	8.55E-07	4.34E-06	1.63E-06	5.10E-05	3.26E-05	2.71E-04	1.71E-05	1.82E-04	2.51E-03	1.03E-05	2.03E-02
SL113-4	2.55E+00	3.13E-02	3.10E-01	2.70E-02	6.38E-04	1.22E-03	1.22E-03	2.44E-02	2.44E-02	3.86E-03	1.28E-02	3.91E-02	2.94E-01	7.66E-03	3.33E+00
SL113-6	5.97E-04	8.47E-05	1.89E-04	3.75E-05	2.85E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.70E-06	5.86E-05	1.32E-04	3.42E-06	1.14E-03
SL114-2	3.75E+00	1.08E-01	7.82E+00	4.37E-01	3.80E-03	7.33E-03	7.33E-03	1.47E-01	1.47E-01	1.47E-01	7.60E-02	1.95E-01	1.75E+00	4.56E-02	1.46E+01
SL115-2	1.85E-02	4.89E-05	2.77E-03	2.28E-04	8.96E-06	1.76E-05	1.76E-05	3.53E-04	3.53E-04	3.53E-04	1.79E-04	1.27E-04	4.14E-03	1.08E-04	2.72E-02
SL116-5	6.52E-04	7.17E-06	1.27E-04	1.16E-05	3.12E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	6.24E-06	3.75E-06	1.44E-04	3.75E-06	9.93E-04
SL117-6	3.10E-03	2.77E-05	7.82E-04	8.80E-06	1.18E-06	2.31E-06	2.31E-06	4.62E-05	4.62E-05	4.62E-05	2.36E-05	9.12E-06	5.45E-04	1.42E-05	4.65E-03
SL118-2	1.09E-03	6.68E-06	1.60E-04	6.84E-06	2.85E-07	5.57E-07	5.57E-07	1.11E-05	1.11E-05	1.11E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	1.44E-03
SL119-2	1.63E-03	2.09E-05	7.17E-04	1.63E-05	2.99E-07	5.70E-07	5.70E-07	1.14E-05	1.14E-05	1.14E-05	5.97E-06	3.58E-06	1.38E-04	3.58E-06	2.57E-03
SL120-2	2.71E-04	6.52E-06	8.47E-05	6.84E-06	2.85E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	5.48E-04
SL121-1	8.69E-03	8.14E-06	2.25E-03	3.26E-05	3.53E-07	6.24E-06	6.24E-06	1.25E-04	1.25E-04	2.61E-05	6.52E-05	3.58E-05	1.50E-03	3.91E-05	1.29E-02
SL122-5	4.13E-03	3.58E-05	4.89E-04	3.58E-05	5.70E-06	2.99E-06	2.99E-06	5.97E-05	5.97E-05	5.97E-05	2.99E-05	6.52E-06	6.89E-04	1.79E-05	5.62E-03
SL123-5	2.39E-03	7.17E-06	7.49E-04	1.19E-05	4.89E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	6.24E-06	1.14E-05	1.44E-04	3.75E-06	3.36E-03
SL124-5	1.09E-03	7.17E-06	6.19E-04	1.40E-05	3.12E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	6.24E-06	3.75E-06	1.44E-04	3.75E-06	1.92E-03
SL125-5	4.89E-02	7.17E-04	4.56E-03	7.49E-04	3.12E-05	5.97E-05	5.97E-05	1.19E-03	1.19E-03	1.19E-03	6.24E-04	3.75E-04	1.44E-02	3.75E-04	7.44E-02
SL126-4	1.95E-03	6.84E-06	4.89E-04	3.39E-05	5.84E-07	1.14E-06	1.14E-06	2.28E-05	2.28E-05	2.28E-05	1.17E-05	7.17E-06	2.69E-04	7.00E-06	2.85E-03

Notes:
(1) Risk was calculated based on assumptions in EE/CA created by Ecology and Environment, Inc. (with revised assumption)
(2) If the analyte concentration was below method detection limit, half of the method detection limit was used as the exposure point concentration (EPC).
NA - Not Analyzed

Total Non-Cancer Hazard Index
Removal Action Sampling
Riverdale Chemical Company - Chicago Heights, Illinois

Sampling Location	Analyte															Total Non-Cancer HI
	Aldrin	4,4-DDT	Dieldrin	Chlordane	Endosulfan I	Endosulfan II	Endosulfan sulfate	Endrin	Endrin aldehyde	Endrin ketone	Gamma-BHC	Heptachlor	Heptachlor Epoxide	Methoxychlor		
SL127-5	5.70E-05	6.68E-06	9.45E-05	7.98E-06	2.85E-07	5.57E-07	5.57E-07	1.11E-05	1.11E-05	1.11E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	3.45E-04	
SL128-7	2.77E-04	6.35E-06	6.52E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.58E-06	1.25E-04	3.26E-06	5.26E-04	
SL129-5	1.09E-03	1.92E-04	3.10E-03	4.66E-04	1.49E-06	2.12E-06	2.85E-06	5.70E-05	5.70E-05	5.70E-05	3.68E-05	2.99E-05	1.34E-04	8.02E-04	1.79E-05	5.96E-03
SL130-2	6.52E-05	7.49E-06	7.49E-05	7.82E-06	3.26E-07	6.24E-07	6.24E-07	1.25E-05	1.25E-05	1.25E-05	6.52E-06	6.19E-06	1.50E-04	3.91E-06	3.61E-04	
SL131-2	1.14E-02	2.12E-05	2.44E-03	2.57E-04	5.84E-06	1.13E-05	1.13E-05	2.25E-04	2.25E-04	2.25E-04	1.17E-04	1.30E-05	2.69E-03	7.00E-05	1.77E-02	
SL132-2	5.43E-05	6.52E-06	6.52E-05	6.52E-06	2.71E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.04E-04	
SL133-2	1.36E-04	6.35E-06	6.35E-05	7.82E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	7.17E-06	1.25E-04	3.26E-06	3.88E-04	
SL134-2	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL135-2	5.43E-05	6.35E-06	9.12E-05	6.52E-06	3.80E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.29E-04	
SL136-2	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL137-2	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL138-1	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL139-1	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL140-1	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL141-1	1.14E-03	2.54E-05	6.52E-04	3.45E-05	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	2.02E-03	
SL142-2	5.43E-05	6.35E-06	8.47E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.22E-04	
SL143-2	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL144-2	5.43E-05	6.35E-06	6.84E-05	7.82E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.07E-04	
SL145-2	5.43E-05	6.35E-06	6.35E-05	6.52E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	3.01E-04	
SL146-1	5.70E-05	6.68E-06	6.68E-05	6.84E-06	2.85E-07	5.57E-07	5.57E-07	1.11E-05	1.11E-05	1.11E-05	5.70E-06	3.42E-06	4.01E-04	3.42E-06	5.86E-04	
SL147-2	1.63E-03	1.53E-05	4.56E-03	6.91E-05	9.77E-07	8.42E-07	6.11E-06	1.22E-04	1.22E-04	1.22E-04	6.24E-05	3.91E-06	2.13E-03	3.75E-05	8.88E-03	
SL149-2	7.00E-05	7.17E-06	7.17E-05	1.69E-05	3.12E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	6.24E-06	3.75E-06	1.44E-04	3.75E-06	3.67E-04	
SL150-1	3.64E-04	1.63E-05	5.86E-04	2.99E-05	3.12E-07	5.97E-07	5.97E-07	1.19E-05	1.19E-05	1.19E-05	6.24E-06	1.30E-05	1.44E-04	3.75E-06	1.20E-03	
SL151-2	1.36E-03	1.92E-05	2.18E-04	2.83E-05	2.71E-07	5.16E-07	5.16E-07	1.03E-05	1.03E-05	1.03E-05	5.43E-06	1.79E-05	1.25E-04	3.26E-06	1.81E-03	
SL152-2	2.01E-04	6.52E-06	6.52E-05	9.94E-06	2.85E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	4.61E-04	
SL153-2	1.14E+00	1.17E-02	9.77E-02	3.39E-02	2.44E-04	7.06E-05	4.75E-04	9.50E-03	9.50E-03	2.17E-03	4.89E-03	3.91E-02	1.13E-01	2.93E-03	1.47E+00	
SL153-4	9.23E-04	6.52E-05	3.58E-04	2.41E-05	2.99E-07	5.70E-07	5.70E-07	1.14E-05	1.14E-05	1.14E-05	5.97E-06	1.43E-05	1.38E-04	3.58E-06	1.57E-03	
SL154-2	1.25E-03	7.49E-06	6.35E-05	8.47E-06	2.71E-07	5.29E-07	5.29E-07	1.06E-05	1.06E-05	1.06E-05	5.43E-06	5.21E-06	1.25E-04	3.26E-06	1.50E-03	
SL155-2	3.14E-03	1.79E-03	3.58E-02	3.94E-03	1.96E-05	2.99E-05	3.67E-05	8.16E-05	7.33E-04	2.55E-04	3.80E-04	7.49E-04	7.52E-03	2.28E-04	5.52E-02	
SL156-2	3.86E-04	1.86E-05	1.34E-03	8.08E-05	3.53E-07	6.79E-07	6.79E-07	1.36E-05	1.36E-05	1.36E-05	7.06E-06	1.61E-05	1.63E-04	4.24E-06	2.05E-03	
SL157-2	6.79E-05	7.98E-06	1.01E-04	8.15E-06	3.39E-07	6.65E-07	6.65E-07	1.33E-05	1.33E-05	1.33E-05	6.79E-06	4.07E-06	1.57E-04	4.07E-06	3.98E-04	
SL158-2	1.95E-04	2.22E-04	2.02E-02	7.20E-04	3.53E-06	1.79E-06	6.79E-06	2.12E-05	1.36E-04	1.09E-04	7.06E-05	2.05E-04	3.51E-03	1.08E-05	2.54E-02	
SL159-1	8.13E+00	4.56E-02	9.77E-01	1.55E-01	5.84E-03	1.13E-02	1.13E-02	2.25E-01	2.25E-01	2.25E-01	1.17E-01	2.51E-02	2.69E+00	7.00E-02	1.29E+01	
SL160-2	3.15E-04	6.52E-06	1.95E-04	2.09E-05	4.07E-07	5.43E-07	5.43E-07	2.39E-05	1.09E-05	1.09E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	7.22E-04	
SL161-2	5.43E-03	6.52E-04	8.47E-03	3.03E-04	2.71E-05	2.04E-05	5.43E-05	2.88E-03	1.09E-03	1.09E-03	7.06E-05	3.26E-04	1.25E-02	3.26E-04	3.33E-02	
SL162-4	9.77E-02	9.12E-03	8.14E-01	1.53E-02	2.99E-03	2.09E-03	5.97E-03	1.19E-01	1.47E-02	1.19E-01	5.97E-02	3.58E-02	1.38E+00	3.58E-02	2.71E+00	
SL162-6	2.25E-04	2.61E-05	1.60E-03	3.91E-05	2.17E-05	3.57E-06	2.17E-06	2.12E-04	4.34E-05	4.34E-05	2.25E-05	1.35E-05	5.20E-04	1.35E-05	2.79E-03	
SL163-2	2.33E-02	1.01E-04	3.58E-03	1.08E-03	9.50E-07	1.90E-06	1.90E-06	3.80E-05	3.80E-05	3.80E-05	1.90E-05	1.01E-03	8.77E-04	1.14E-05	3.02E-02	
SL164-2	1.47E+00	4.56E-02	3.58E+00	1.12E-01	9.37E-05	2.69E-04	1.76E-04	5.43E-03	3.53E-03	2.88E-02	2.56E-03	6.52E-02	2.51E-01	1.12E-03	5.57E+00	
SL165-2	9.23E+00	3.00E-01	1.01E+01	1.71E+00	2.99E-03	5.70E-03	5.70E-03	1.14E-01	1.14E-01	1.14E-01	5.97E-02	3.00E+00	1.38E+00	3.58E-02	2.62E+01	
SL166-2	1.57E+00	6.19E+00	5.21E+00	4.53E-01	1.90E-03	4.62E-03	3.67E-03	7.33E-02	7.33E-02	7.33E-02	3.80E-02	1.04E-01	8.77E-01	2.28E-02	1.47E+01	
SL167-2	4.51E-02	6.19E-03	8.14E-03	1.11E-03	2.99E-06	5.84E-06	5.84E-06	1.17E-04	1.17E-04	1.17E-04	5.97E-05	2.38E-04	1.38E-03	3.58E-05	6.26E-02	
SL168-2	8.14E+00	7.33E-03	7.33E-02	7.49E-03	3.12E-04	6.11E-04	6.11E-04	1.22E-02	1.22E-02	1.22E-02	6.24E-03	3.75E-03	1.44E-01	3.75E-03	8.43E+00	
SL168-4	6.52E-03	6.52E-04	7.17E-04	6.52E-05	2.71E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.36E-05	5.43E-06	3.26E-06	1.25E-04	3.26E-06	7.48E-03	
SL169-2	3.91E-03	4.89E-05	6.19E-04	1.08E-04	2.99E-07	5.70E-07	5.70E-07	1.14E-05	1.14E-05	1.14E-05	5.97E-06	1.50E-05	3.01E-04	3.58E-06	5.05E-03	
SL170-2	3.91E-01	2.31E-02	7.82E-01	1.63E-02	2.85E-05	8.69E-05	5.43E-05	1.09E-03	1.09E-03	3.80E-03	5.70E-04	1.04E-02	8.52E-02	5.86E-03	1.32E+00	
SL171-2	2.23E+00	4.24E-03	4.89E-01	1.23E-02	1.15E-04	2.17E-04	2.17E-04	4.34E-03	4.34E-03	4.34E-03	6.52E-02	1.63E-02	5.33E-02	1.38E-03	2.88E+00	
SL171-4	2.71E-03	1.30E-04	7.49E-03	1.11E-04	2.99E-07	9.50E-07	5.84E-07	1.19E-05	1.17E-05	1.74E-04	2.12E-05	6.52E-05	8.27E-04	3.58E-06	1.16E-02	
SL172-2	5.43E-01	3.91E-02	2.54E+00	3.55E-02	5.70E-05	2.31E-04	1.11E-04	2.90E-03	2.28E-03	1.52E-02	3.75E-03	2.87E-02	2.51E-01	6.84E-04	3.46E+00	
SL172-4	1.09E-04	7.49E-06	1.79E-04	7.82E-06	3.26E-07	6.24E-07	6.24E-07	1.25E-05	1.25E-05	1.25E-05	6.52E-06	3.91E-06	1.50E-04	3.91E-06	5.07E-04	
SL173-2	5.97E-05	6.84E-06	9.45E-05	7.17E-06	2.99E-07	5.70E-07	5.70E-07	1.14E-05	1.14E-05	1.14E-05	5.97E-06	3.58E-06	1.38E-04	3.58E-06	3.55E-04	
SL174-2	5.97E-04	1.66E-04	2.98E-03	1.17E-03	2.99E-06	4.89E-05	6.79E-06	3.86E-04	1.14E-04	1.14E-04	5.97E-05	3.58E-05	1.38E-03	3.58E-05	7.08E-03	
SL175-2	4.29E-04	9.45E-04	8.80E-04	7.79E-05	5.43E-07	2.39E-06	1.06E-06	5.43E-06	2.12E-05	2.12E-06	1.09E-05	2.31E-05	2.51E-04	6.52E-06	2.72E-03	
SL176-2	6.52E-04	8.47E-04	8.47E-04	4.24E-04	1.49E-06	2.85E-06	2.85E-06	5.70E-05	5.70E-05	5.70E-05	2.99E-05	7.17E-04	6.89E-04	1.79E-05	4.81E-03	
SL177-2	4.94E-03	6.52E-06	1.82E-04	1.40E-05	2.85E-07	5.43E-07	5.43E-07	1.09E-05	1.09E-05	1.09E-05	5.70E-06	3.42E-06	1.32E-04	3.42E-06	5.32E-03	
SL178-2	8.14E-05	6.84E-06	5.86E-04	6.84E-06	2.99E-07	5.70E-07	5.70E-07	1.14E-05	1.14E-05	1.14E-05	5.97E-06	4.56E-06	1.38E-04	3.58E-06	8.69E-04	

Notes
(1) Risk was calculated based on assumptions in EE/CA created by Ecology and Environment, Inc (with revised assumption)
(2) If the analyte concentration was below method detection limit, half of the method detection limit was used as the exposure point concentration (EPC)
NA - Not Analyzed

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL90-7

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E-03	3.0E-05	3.0E-05	NI	1	0.10		1.4E-09	4.5E-05	1.2E-13				1.9E-09	6.4E-05	1.1E-04	34.74
Alpha-BHC	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.03
Delta-BHC		NI	NI	NI	1	0.10											
Dieldrin	1.0E-03	5.0E-05	5.0E-05	NI	1	0.10		6.8E-10	1.4E-05	6.2E-14				9.5E-10	1.9E-05	3.3E-05	10.42
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.3E-09	2.6E-06	1.2E-13	2.4E-10			1.9E-09	3.7E-06	6.4E-06	2.03
Endosulfan I	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.17
Endosulfan II	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.17
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.39
Endrin aldehyde		3.0E-04	3.0E-04	NI	1	0.10											
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.39
Gamma-BHC (Lindane)	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.39
Heptachlor		5.0E-04	5.0E-04	NI	1	0.10											
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	40.08
Methoxychlor	1.0E-03	5.0E-03	5.0E-03	NI	1	0.10		6.8E-10	1.4E-07	6.2E-14				9.5E-10	1.9E-07	3.3E-07	0.10
Toxaphene	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E-04		2.4E-10				1.8E-04	3.1E-04	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL91-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL92-7

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG) (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.1E-03	3.0E-05	3.0E-05	NI	1	0.10		7.1E-10	2.4E-05	6.5E-14				1.0E-09	3.3E-05	5.7E-05	18.18
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	2.08
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.7E-05	1.2E-13				1.9E-09	3.8E-05	6.5E-05	20.78
Chlordane	2.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.8E-06	1.3E-13	2.6E-10			2.0E-09	4.0E-06	6.8E-06	2.18
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.17
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.17
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.46
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.46
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.46
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	1.82
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	1.09
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	41.96
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	1.09
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E-04		2.6E-10				1.8E-04	3.1E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL93-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.9E-03	3.0E-05	3.0E-05	NI	1	0.10		4.0E-09	1.3E-04	3.6E-13				5.6E-09	1.9E-04	3.2E-04	21.41
Alpha-BHC	3.2E-03	NI	NI	NI	1	0.10		2.2E-09		2.0E-13				3.1E-09			
Beta-BHC	3.2E-03	NI	NI	NI	1	0.10		2.2E-09		2.0E-13				3.1E-09			
4,4-DDD	6.0E-03	NI	NI	NI	1	0.10		4.1E-09		3.7E-13				5.7E-09			
4,4-DDE	6.0E-03	NI	NI	NI	1	0.10		4.1E-09		3.7E-13				5.7E-09			
4,4-DDT	2.5E-03	5.0E-04	5.0E-04	NI	1	0.10		1.7E-09	3.4E-06	1.5E-13				2.4E-09	4.8E-06	8.1E-06	0.54
Delta-BHC	3.2E-03	NI	NI	NI	1	0.10		2.2E-09		2.0E-13				3.1E-09			
Dieldrin	1.0E-02	5.0E-05	5.0E-05	NI	1	0.10		6.8E-09	1.4E-04	6.2E-13				9.5E-09	1.9E-04	3.3E-04	21.77
Chlordane	4.3E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.9E-08	5.8E-05	2.6E-12	5.3E-09			4.1E-08	8.1E-05	1.4E-04	9.28
Endosulfan I	3.2E-03	6.0E-03	6.0E-03	NI	1	0.10		2.2E-09	3.6E-07	2.0E-13				3.1E-09	5.1E-07	8.7E-07	0.06
Endosulfan II	6.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.1E-09	6.8E-07	3.7E-13				5.7E-09	9.5E-07	1.6E-06	0.11
Endosulfan sulfate	6.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.1E-09	6.8E-07	3.7E-13				5.7E-09	9.5E-07	1.6E-06	0.11
Endrin	6.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.1E-09	1.4E-05	3.7E-13				5.7E-09	1.9E-05	3.3E-05	2.18
Endrin aldehyde	6.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.1E-09	1.4E-05	3.7E-13				5.7E-09	1.9E-05	3.3E-05	2.18
Endrin ketone	6.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.1E-09	1.4E-05	3.7E-13				5.7E-09	1.9E-05	3.3E-05	2.18
Gamma-BHC (Lindane)	3.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.2E-09	7.2E-06	2.0E-13				3.1E-09	1.0E-05	1.7E-05	1.16
Heptachlor	5.3E-02	5.0E-04	5.0E-04	NI	1	0.10		3.6E-08	7.2E-05	3.3E-12				5.1E-08	1.0E-04	1.7E-04	11.54
Heptachlor epoxide	3.2E-03	1.3E-05	1.3E-05	NI	1	0.10		2.2E-09	1.7E-04	2.0E-13				3.1E-09	2.3E-04	4.0E-04	26.80
Methoxychlor	3.2E-02	5.0E-03	5.0E-03	NI	1	0.10		2.2E-08	4.3E-06	2.0E-12				3.1E-08	6.1E-06	1.0E-05	0.70
Toxaphene	3.2E-01	NI	NI	NI	1	0.10		2.2E-07		2.0E-11				3.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No sample collected																	
Total Noncancer Hazard									6.2E-04		5.3E-09				8.8E-04	1.5E-03	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$HQD = IDD / RFDO$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$HQIS = IDIS / RFDI$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$HQIV = IDIV / RFDI$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$HQIG = IDIG / RFDO$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL94-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG) (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.1E+00	3.0E-05	3.0E-05	NI	1	0.10		1.4E-06	4.7E-02	1.3E-10				2.0E-06	6.7E-02	1.1E-01	83.32
Alpha-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
Beta-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
4,4-DDD	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDE	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDT	2.2E-01	5.0E-04	5.0E-04	NI	1	0.10		1.5E-07	3.0E-04	1.4E-11				2.1E-07	4.2E-04	7.2E-04	0.52
Delta-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
Dieldrin	8.5E-02	5.0E-05	5.0E-05	NI	1	0.10		5.7E-08	1.1E-03	5.3E-12				8.1E-08	1.6E-03	2.8E-03	2.02
Chlordane	3.8E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.6E-08	5.1E-05	2.3E-12	4.7E-09			3.6E-08	7.2E-05	1.2E-04	0.09
Endosulfan I	1.2E-01	6.0E-03	6.0E-03	NI	1	0.10		7.8E-08	1.3E-05	7.1E-12				1.1E-07	1.8E-05	3.1E-05	0.02
Endosulfan II	2.2E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.5E-05	6.0E-05	0.04
Endosulfan sulfate	2.2E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.5E-05	6.0E-05	0.04
Endrin	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	0.87
Endrin aldehyde	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	0.87
Endrin ketone	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	0.87
Gamma-BHC (Lindane)	1.2E-01	3.0E-04	3.0E-04	NI	1	0.10		7.8E-08	2.6E-04	7.1E-12				1.1E-07	3.7E-04	6.2E-04	0.46
Heptachlor	2.1E-02	5.0E-04	5.0E-04	NI	1	0.10		1.4E-08	2.8E-05	1.3E-12				2.0E-08	4.0E-05	6.8E-05	0.05
Heptachlor epoxide	1.2E-01	1.3E-05	1.3E-05	NI	1	0.10		7.8E-08	6.0E-03	7.1E-12				1.1E-07	8.4E-03	1.4E-02	10.53
Methoxychlor	1.2E+00	5.0E-03	5.0E-03	NI	1	0.10		7.8E-07	1.6E-04	7.1E-11				1.1E-06	2.2E-04	3.7E-04	0.27
Toxaphene	1.2E+01	NI	NI	NI	1	0.10		7.8E-06		7.1E-10				1.1E-05			
DIOXIN																	
2,3,7,8-TCDD	1.2E-06				1	0.10		8.1E-13		7.4E-17				1.1E-12			
Total Noncancer Hazard									5.7E-02		4.7E-09				8.0E-02	1.4E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL95-8

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.0E-01	3.0E-05	3.0E-05	NI	1	0.10		2.0E-07	6.8E-03	1.9E-11				2.9E-07	9.5E-03	1.6E-02	82.79
Alpha-BHC	3.9E-03	NI	NI	NI	1	0.10		2.6E-09		2.4E-13				3.7E-09			
Beta-BHC	3.9E-03	NI	NI	NI	1	0.10		2.6E-09		2.4E-13				3.7E-09			
4,4-DDD	1.2E-02	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
4,4-DDE	7.0E-03	NI	NI	NI	1	0.10		4.7E-09		4.3E-13				6.7E-09			
4,4-DDT	2.7E-02	5.0E-04	5.0E-04	NI	1	0.10		1.8E-08	3.6E-05	1.7E-12				2.6E-08	5.2E-05	8.8E-05	0.45
Delta-BHC	3.9E-03	NI	NI	NI	1	0.10		2.6E-09		2.4E-13				3.7E-09			
Dieldrin	7.1E-02	5.0E-05	5.0E-05	NI	1	0.10		4.8E-08	9.6E-04	4.4E-12				6.8E-08	1.4E-03	2.3E-03	11.76
Chlordane	5.0E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.4E-08	6.8E-05	3.1E-12	6.2E-09			4.8E-08	9.6E-05	1.6E-04	0.83
Endosulfan I	3.9E-03	6.0E-03	6.0E-03	NI	1	0.10		2.6E-09	4.4E-07	2.4E-13				3.7E-09	6.2E-07	1.1E-06	0.01
Endosulfan II	7.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.7E-09	7.9E-07	4.3E-13				6.7E-09	1.1E-06	1.9E-06	0.01
Endosulfan sulfate	7.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.7E-09	7.9E-07	4.3E-13				6.7E-09	1.1E-06	1.9E-06	0.01
Endrin	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.19
Endrin aldehyde	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.19
Endrin ketone	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.19
Gamma-BHC (Lindane)	3.9E-03	3.0E-04	3.0E-04	NI	1	0.10		2.6E-09	8.8E-06	2.4E-13				3.7E-09	1.2E-05	2.1E-05	0.11
Heptachlor	6.3E-02	5.0E-04	5.0E-04	NI	1	0.10		4.3E-08	8.5E-05	3.9E-12				6.0E-08	1.2E-04	2.1E-04	1.04
Heptachlor epoxide	3.7E-03	1.3E-05	1.3E-05	NI	1	0.10		2.5E-09	1.9E-04	2.3E-13				3.5E-09	2.7E-04	4.6E-04	2.36
Methoxychlor	3.7E-02	5.0E-03	5.0E-03	NI	1	0.10		2.5E-08	5.0E-06	2.3E-12				3.5E-08	7.1E-06	1.2E-05	0.06
Toxaphene	3.7E-01	NI	NI	NI	1	0.10		2.5E-07		2.3E-11				3.5E-07			
DIOXIN																	
2,3,7,8-TCDD	1.7E-07				1	0.10		1.1E-13		1.1E-17				1.6E-13			
Total Noncancer Hazard									8.2E-03		6.2E-09				1.2E-02	2.0E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL96-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.8E+00	3.0E-05	3.0E-05	NI	1	0.10		1.9E-06	6.3E-02	1.7E-10				2.7E-06	8.9E-02	1.5E-01	89.39
Alpha-BHC	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
Beta-BHC	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
4,4-DDD	1.9E-01	NI	NI	NI	1	0.10		1.3E-07		1.2E-11				1.8E-07			
4,4-DDE	1.9E-01	NI	NI	NI	1	0.10		1.3E-07		1.2E-11				1.8E-07			
4,4-DDT	4.5E-02	5.0E-04	5.0E-04	NI	1	0.10		3.0E-08	6.1E-05	2.8E-12				4.3E-08	8.6E-05	1.5E-04	0.09
Delta-BHC	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
Dieldrin	3.2E-02	5.0E-05	5.0E-05	NI	1	0.10		2.2E-08	4.3E-04	2.0E-12				3.1E-08	6.1E-04	1.0E-03	0.61
Chlordane	4.4E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.0E-08	5.9E-05	2.7E-12	5.4E-09			4.2E-08	8.4E-05	1.4E-04	0.08
Endosulfan I	1.0E-01	6.0E-03	6.0E-03	NI	1	0.10		6.8E-08	1.1E-05	6.2E-12				9.5E-08	1.6E-05	2.7E-05	0.02
Endosulfan II	1.9E-01	6.0E-03	6.0E-03	NI	1	0.10		1.3E-07	2.1E-05	1.2E-11				1.8E-07	3.0E-05	5.2E-05	0.03
Endosulfan sulfate	1.9E-01	6.0E-03	6.0E-03	NI	1	0.10		1.3E-07	2.1E-05	1.2E-11				1.8E-07	3.0E-05	5.2E-05	0.03
Endrin	1.9E-01	3.0E-04	3.0E-04	NI	1	0.10		1.3E-07	4.3E-04	1.2E-11				1.8E-07	6.0E-04	1.0E-03	0.61
Endrin aldehyde	1.9E-01	3.0E-04	3.0E-04	NI	1	0.10		1.3E-07	4.3E-04	1.2E-11				1.8E-07	6.0E-04	1.0E-03	0.61
Endrin ketone	1.9E-01	3.0E-04	3.0E-04	NI	1	0.10		1.3E-07	4.3E-04	1.2E-11				1.8E-07	6.0E-04	1.0E-03	0.61
Gamma-BHC (Lindane)	1.5E-02	3.0E-04	3.0E-04	NI	1	0.10		1.0E-08	3.4E-05	9.3E-13				1.4E-08	4.8E-05	8.1E-06	0.05
Heptachlor	1.7E-01	5.0E-04	5.0E-04	NI	1	0.10		1.1E-07	2.3E-04	1.1E-11				1.6E-07	3.2E-04	5.5E-04	0.33
Heptachlor epoxide	1.0E-01	1.3E-05	1.3E-05	NI	1	0.10		6.8E-08	5.2E-03	6.2E-12				9.5E-08	7.3E-03	1.3E-02	7.37
Methoxychlor	1.0E+00	5.0E-03	5.0E-03	NI	1	0.10		6.8E-07	1.4E-04	6.2E-11				9.5E-07	1.9E-04	3.3E-04	0.19
Toxaphene	1.0E+01	NI	NI	NI	1	0.10		6.8E-06		6.2E-10				9.5E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									7.0E-02		5.4E-09				1.0E-01	1.7E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL97-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.0E-03	3.0E-05	3.0E-05	NI	1	0.10		3.4E-09	1.1E-04	3.1E-13				4.8E-09	1.6E-04	2.7E-04	43.01
Alpha-BHC	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
Beta-BHC	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	1.01
Delta-BHC	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	10.06
Chlordane	2.2E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.5E-08	2.9E-05	1.3E-12	2.7E-09			2.1E-08	4.1E-05	7.1E-05	11.20
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.04
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.08
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.08
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	1.68
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	1.68
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	1.68
Gamma-BHC (Lindane)	1.0E-02	3.0E-04	3.0E-04	NI	1	0.10		6.8E-09	2.3E-05	6.2E-13				9.5E-09	3.2E-05	5.4E-05	8.60
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	0.52
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	19.85
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.52
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.6E-04		2.7E-09				3.7E-04	6.3E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL98-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.5E-03	3.0E-05	3.0E-05	NI	1	0.10		1.7E-09	5.6E-05	1.5E-13				2.4E-09	7.9E-05	1.4E-04	33.05
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	1.75
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	2.2E-03	5.0E-05	5.0E-05	NI	1	0.10		1.5E-09	3.0E-05	1.4E-13				2.1E-09	4.2E-05	7.2E-05	17.45
Chlordane	2.2E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.5E-09	3.0E-06	1.4E-13	2.7E-10			2.1E-09	4.2E-06	7.2E-06	1.75
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.07
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.15
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.15
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	2.91
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	2.91
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	2.91
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	1.45
Heptachlor	1.3E-03	5.0E-04	5.0E-04	NI	1	0.10		8.8E-10	1.8E-06	8.0E-14				1.2E-09	2.5E-06	4.2E-06	1.03
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.4E-10	5.7E-05	6.8E-14				1.0E-09	8.1E-05	1.4E-04	33.56
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.87
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.7E-04		2.7E-10				2.4E-04	4.1E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL100-3

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.9E-03	3.0E-05	3.0E-05	NI	1	0.10		2.0E-09	6.5E-05	1.8E-13				2.8E-09	9.2E-05	1.6E-04	37.59
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	3.9E-06	6.7E-06	1.59
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.1E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.8E-05	1.3E-13				2.0E-09	3.9E-05	6.7E-05	15.94
Chlordane	2.8E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.9E-09	3.7E-06	1.7E-13	3.4E-10			2.6E-09	5.2E-06	9.0E-06	2.14
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.07
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.13
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.13
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	2.66
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	2.66
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	2.66
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	1.36
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.4E-10	1.5E-06	6.8E-14				1.0E-09	2.1E-06	3.6E-06	0.86
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	31.40
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.82
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.7E-04		3.4E-10				2.5E-04	4.2E-04	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL101-7

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.1E+00	3.0E-05	3.0E-05	NI	1	0.10		2.8E-06	9.2E-02	2.5E-10				3.9E-06	1.3E-01	2.2E-01	66.04
Alpha-BHC	4.7E-01	NI	NI	NI	1	0.10		3.1E-07		2.9E-11				4.4E-07			
Beta-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDD	2.0E+00	NI	NI	NI	1	0.10		1.4E-06		1.2E-10				1.9E-06			
4,4-DDE	7.9E-01	NI	NI	NI	1	0.10		5.3E-07		4.9E-11				7.5E-07			
4,4-DDT	6.1E+00	5.0E-04	5.0E-04	NI	1	0.10		4.1E-06	8.2E-03	3.8E-10				5.8E-06	1.2E-02	2.0E-02	5.90
Delta-BHC	4.7E-01	NI	NI	NI	1	0.10		3.1E-07		2.9E-11				4.4E-07			
Dieldrin	1.7E+00	5.0E-05	5.0E-05	NI	1	0.10		1.1E-06	2.3E-02	1.1E-10				1.6E-06	3.2E-02	5.5E-02	16.43
Chlordane	2.4E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-06	3.3E-03	1.5E-10	3.0E-07			2.3E-06	4.6E-03	7.9E-03	2.35
Endosulfan I	4.7E-01	6.0E-03	6.0E-03	NI	1	0.10		3.1E-07	5.2E-05	2.9E-11				4.4E-07	7.4E-05	1.3E-04	0.04
Endosulfan II	9.0E-01	6.0E-03	6.0E-03	NI	1	0.10		6.1E-07	1.0E-04	5.6E-11				8.6E-07	1.4E-04	2.4E-04	0.07
Endosulfan sulfate	9.0E-01	6.0E-03	6.0E-03	NI	1	0.10		6.1E-07	1.0E-04	5.6E-11				8.6E-07	1.4E-04	2.4E-04	0.07
Endrin	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	1.45
Endrin aldehyde	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	1.45
Endrin ketone	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	1.45
Gamma-BHC (Lindane)	4.7E-01	3.0E-04	3.0E-04	NI	1	0.10		3.1E-07	1.0E-03	2.9E-11				4.4E-07	1.5E-03	2.5E-03	0.75
Heptachlor	5.2E-01	5.0E-04	5.0E-04	NI	1	0.10		3.5E-07	7.0E-04	3.2E-11				5.0E-07	9.9E-04	1.7E-03	0.50
Heptachlor epoxide	8.2E-02	1.3E-05	1.3E-05	NI	1	0.10		5.5E-08	4.3E-03	5.1E-12				7.8E-08	6.0E-03	1.0E-02	3.05
Methoxychlor	4.7E+00	5.0E-03	5.0E-03	NI	1	0.10		3.1E-06	6.3E-04	2.9E-10				4.4E-06	8.9E-04	1.5E-03	0.45
Toxaphene	4.7E+01	NI	NI	NI	1	0.10		3.1E-05		2.9E-09				4.4E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E-01		3.0E-07				2.0E-01	3.4E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL102-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	6.2E+00	3.0E-05	3.0E-05	NI	1	0.10		4.2E-06	1.4E-01	3.8E-10				5.9E-06	2.0E-01	3.4E-01	48.68
Alpha-BHC	5.5E-02	NI	NI	NI	1	0.10		3.7E-08		3.4E-12				5.2E-08			
Beta-BHC	5.5E-02	NI	NI	NI	1	0.10		3.7E-08		3.4E-12				5.2E-08			
4,4-DDD	3.3E-01	NI	NI	NI	1	0.10		2.2E-07		2.0E-11				3.1E-07			
4,4-DDE	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDT	1.1E+00	5.0E-04	5.0E-04	NI	1	0.10		7.4E-07	1.5E-03	6.8E-11				1.0E-06	2.1E-03	3.6E-03	0.52
Delta-BHC	5.5E-02	NI	NI	NI	1	0.10		3.7E-08		3.4E-12				5.2E-08			
Dieldrin	8.5E+00	5.0E-05	5.0E-05	NI	1	0.10		5.7E-06	1.1E-01	5.3E-10				8.1E-06	1.6E-01	2.8E-01	40.04
Chlordane	4.4E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.0E-06	5.9E-03	2.7E-10	5.4E-07			4.2E-06	8.4E-03	1.4E-02	2.07
Endosulfan I	5.5E-02	6.0E-03	6.0E-03	NI	1	0.10		3.7E-08	6.2E-06	3.4E-12				5.2E-08	8.7E-06	1.5E-05	0.00
Endosulfan II	2.9E-01	6.0E-03	6.0E-03	NI	1	0.10		2.0E-07	3.3E-05	1.8E-11				2.8E-07	4.6E-05	7.9E-05	0.01
Endosulfan sulfate	1.1E-01	6.0E-03	6.0E-03	NI	1	0.10		7.4E-08	1.2E-05	6.8E-12				1.0E-07	1.7E-05	3.0E-05	0.00
Endrin	1.7E-01	3.0E-04	3.0E-04	NI	1	0.10		1.1E-07	3.8E-04	1.1E-11				1.6E-07	5.4E-04	9.2E-04	0.13
Endrin aldehyde	1.1E-01	3.0E-04	3.0E-04	NI	1	0.10		7.4E-08	2.5E-04	6.8E-12				1.0E-07	3.5E-04	6.0E-04	0.09
Endrin ketone	2.9E-01	3.0E-04	3.0E-04	NI	1	0.10		2.0E-07	6.5E-04	1.8E-11				2.8E-07	9.2E-04	1.6E-03	0.23
Gamma-BHC (Lindane)	4.4E+00	3.0E-04	3.0E-04	NI	1	0.10		3.0E-06	9.9E-03	2.7E-10				4.2E-06	1.4E-02	2.4E-02	3.45
Heptachlor	3.9E+00	5.0E-04	5.0E-04	NI	1	0.10		2.6E-06	5.3E-03	2.4E-10				3.7E-06	7.4E-03	1.3E-02	1.84
Heptachlor epoxide	1.6E-01	1.3E-05	1.3E-05	NI	1	0.10		1.1E-07	8.3E-03	9.9E-12				1.5E-07	1.2E-02	2.0E-02	2.90
Methoxychlor	5.5E-01	5.0E-03	5.0E-03	NI	1	0.10		3.7E-07	7.4E-05	3.4E-11				5.2E-07	1.0E-04	1.8E-04	0.03
Toxaphene	5.5E+00	NI	NI	NI	1	0.10		3.7E-06		3.4E-10				5.2E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.9E-01		5.4E-07				4.0E-01	6.9E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$HQD = IDD / RfDD$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$HQIS = IDIS / RFDI$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$HQIV = IDIV / RFDI$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$HQIG = IDIG / RFDO$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL102-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.7E-01	3.0E-05	3.0E-05	NI	1	0.10		1.8E-07	6.1E-03	1.7E-11				2.6E-07	8.6E-03	1.5E-02	4.98
Alpha-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
Beta-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
4,4-DDD	1.0E+00	NI	NI	NI	1	0.10		6.8E-07		6.2E-11				9.5E-07			
4,4-DDE	1.0E+00	NI	NI	NI	1	0.10		6.8E-07		6.2E-11				9.5E-07			
4,4-DDT	1.4E-01	5.0E-04	5.0E-04	NI	1	0.10		9.5E-08	1.9E-04	8.7E-12				1.3E-07	2.7E-04	4.6E-04	0.16
Delta-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
Dieldrin	6.9E+00	5.0E-05	5.0E-05	NI	1	0.10		4.7E-06	9.3E-02	4.3E-10				6.6E-06	1.3E-01	2.2E-01	78.39
Chlordane	7.7E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.2E-07	1.0E-03	4.8E-11	9.5E-08			7.3E-07	1.5E-03	2.5E-03	0.85
Endosulfan I	5.5E-01	6.0E-03	6.0E-03	NI	1	0.10		3.7E-07	6.2E-05	3.4E-11				5.2E-07	8.7E-05	1.5E-04	0.05
Endosulfan II	1.0E+00	6.0E-03	6.0E-03	NI	1	0.10		6.8E-07	1.1E-04	6.2E-11				9.5E-07	1.6E-04	2.7E-04	0.09
Endosulfan sulfate	1.0E+00	6.0E-03	6.0E-03	NI	1	0.10		6.8E-07	1.1E-04	6.2E-11				9.5E-07	1.6E-04	2.7E-04	0.09
Endrin	1.0E+00	3.0E-04	3.0E-04	NI	1	0.10		6.8E-07	2.3E-03	6.2E-11				9.5E-07	3.2E-03	5.4E-03	1.85
Endrin aldehyde	1.0E+00	3.0E-04	3.0E-04	NI	1	0.10		6.8E-07	2.3E-03	6.2E-11				9.5E-07	3.2E-03	5.4E-03	1.85
Endrin ketone	3.6E-01	3.0E-04	3.0E-04	NI	1	0.10		2.4E-07	8.1E-04	2.2E-11				3.4E-07	1.1E-03	2.0E-03	0.66
Gamma-BHC (Lindane)	5.5E-01	3.0E-04	3.0E-04	NI	1	0.10		3.7E-07	1.2E-03	3.4E-11				5.2E-07	1.7E-03	3.0E-03	1.01
Heptachlor	3.0E-01	5.0E-04	5.0E-04	NI	1	0.10		2.0E-07	4.1E-04	1.9E-11				2.9E-07	5.7E-04	9.8E-04	0.33
Heptachlor epoxide	2.6E-01	1.3E-05	1.3E-05	NI	1	0.10		1.8E-07	1.4E-02	1.6E-11				2.5E-07	1.9E-02	3.3E-02	11.07
Methoxychlor	5.5E+00	5.0E-03	5.0E-03	NI	1	0.10		3.7E-06	7.4E-04	3.4E-10				5.2E-06	1.0E-03	1.8E-03	0.61
Toxaphene	5.5E+01	NI	NI	NI	1	0.10		3.7E-05		3.4E-09				5.2E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-01		9.5E-08				1.7E-01	2.9E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL103-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.6E+00	3.0E-05	3.0E-05	NI	1	0.10		5.1E-06	1.7E-01	4.7E-10				7.2E-06	2.4E-01	4.1E-01	31.33
Alpha-BHC	1.9E+00	NI	NI	NI	1	0.10		1.3E-06		1.2E-10				1.8E-06			
Beta-BHC	1.9E+00	NI	NI	NI	1	0.10		1.3E-06		1.2E-10				1.8E-06			
4,4-DDD	8.4E-01	NI	NI	NI	1	0.10		5.7E-07		5.2E-11				8.0E-07			
4,4-DDE	7.0E-01	NI	NI	NI	1	0.10		4.7E-07		4.3E-11				6.7E-07			
4,4-DDT	5.3E+00	5.0E-04	5.0E-04	NI	1	0.10		3.6E-06	7.2E-03	3.3E-10				5.1E-06	1.0E-02	1.7E-02	1.31
Delta-BHC	1.9E+00	NI	NI	NI	1	0.10		1.3E-06		1.2E-10				1.8E-06			
Dieldrin	2.3E+01	5.0E-05	5.0E-05	NI	1	0.10		1.6E-05	3.1E-01	1.4E-09				2.2E-05	4.4E-01	7.5E-01	56.88
Chlordane	7.8E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.3E-06	1.1E-02	4.8E-10	9.6E-07			7.4E-06	1.5E-02	2.5E-02	1.93
Endosulfan I	1.9E+00	6.0E-03	6.0E-03	NI	1	0.10		1.3E-06	2.1E-04	1.2E-10				1.8E-06	3.0E-04	5.2E-04	0.04
Endosulfan II	4.9E-01	6.0E-03	6.0E-03	NI	1	0.10		3.3E-07	5.5E-05	3.0E-11				4.7E-07	7.8E-05	1.3E-04	0.01
Endosulfan sulfate	3.8E+00	6.0E-03	6.0E-03	NI	1	0.10		2.5E-06	4.2E-04	2.3E-10				3.6E-06	6.0E-04	1.0E-03	0.08
Endrin	3.8E+00	3.0E-04	3.0E-04	NI	1	0.10		2.5E-06	8.4E-03	2.3E-10				3.6E-06	1.2E-02	2.0E-02	1.55
Endrin aldehyde	3.8E+00	3.0E-04	3.0E-04	NI	1	0.10		2.5E-06	8.4E-03	2.3E-10				3.6E-06	1.2E-02	2.0E-02	1.55
Endrin ketone	7.8E-01	3.0E-04	3.0E-04	NI	1	0.10		5.3E-07	1.8E-03	4.8E-11				7.4E-07	2.5E-03	4.2E-03	0.32
Gamma-BHC (Lindane)	2.5E-01	3.0E-04	3.0E-04	NI	1	0.10		1.7E-07	5.6E-04	1.5E-11				2.4E-07	7.9E-04	1.4E-03	0.10
Heptachlor	3.7E+00	5.0E-04	5.0E-04	NI	1	0.10		2.5E-06	5.0E-03	2.3E-10				3.5E-06	7.1E-03	1.2E-02	0.92
Heptachlor epoxide	3.7E-01	1.3E-05	1.3E-05	NI	1	0.10		2.5E-07	1.9E-02	2.3E-11				3.5E-07	2.7E-02	4.6E-02	3.52
Methoxychlor	1.9E+01	5.0E-03	5.0E-03	NI	1	0.10		1.3E-05	2.6E-03	1.2E-09				1.8E-05	3.6E-03	6.2E-03	0.47
Toxaphene	1.9E+02	NI	NI	NI	1	0.10		1.3E-04		1.2E-08				1.8E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.5E-01		9.6E-07				7.7E-01	1.3E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL103-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.6E+00	3.0E-05	3.0E-05	NI	1	0.10		5.1E-06	1.7E-01	4.7E-10				7.2E-06	2.4E-01	4.1E-01	16.81
Alpha-BHC	2.3E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
Beta-BHC	2.3E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDD	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDE	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDT	1.1E+01	5.0E-04	5.0E-04	NI	1	0.10		7.4E-06	1.5E-02	6.8E-10				1.0E-05	2.1E-02	3.6E-02	1.46
Delta-BHC	2.4E-01	NI	NI	NI	1	0.10		1.6E-07		1.5E-11				2.3E-07			
Dieldrin	5.3E+01	5.0E-05	5.0E-05	NI	1	0.10		3.6E-05	7.2E-01	3.3E-09				5.1E-05	1.0E+00	1.7E+00	70.33
Chlordane	8.9E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		6.0E-06	1.2E-02	5.5E-10	1.1E-06			8.5E-06	1.7E-02	2.9E-02	1.18
Endosulfan I	2.3E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.6E-05	6.1E-05	0.00
Endosulfan II	5.7E-01	6.0E-03	6.0E-03	NI	1	0.10		3.8E-07	6.4E-05	3.5E-11				5.4E-07	9.1E-05	1.5E-04	0.01
Endosulfan sulfate	4.4E-01	6.0E-03	6.0E-03	NI	1	0.10		3.0E-07	5.0E-05	2.7E-11				4.2E-07	7.0E-05	1.2E-04	0.00
Endrin	4.4E-01	3.0E-04	3.0E-04	NI	1	0.10		3.0E-07	9.9E-04	2.7E-11				4.2E-07	1.4E-03	2.4E-03	0.10
Endrin aldehyde	4.4E-01	3.0E-04	3.0E-04	NI	1	0.10		3.0E-07	9.9E-04	2.7E-11				4.2E-07	1.4E-03	2.4E-03	0.10
Endrin ketone	1.8E+00	3.0E-04	3.0E-04	NI	1	0.10		1.2E-06	4.1E-03	1.1E-10				1.7E-06	5.7E-03	9.8E-03	0.40
Gamma-BHC (Lindane)	4.0E-01	3.0E-04	3.0E-04	NI	1	0.10		2.7E-07	9.0E-04	2.5E-11				3.8E-07	1.3E-03	2.2E-03	0.09
Heptachlor	1.0E+01	5.0E-04	5.0E-04	NI	1	0.10		6.8E-06	1.4E-02	6.2E-10				9.5E-06	1.9E-02	3.3E-02	1.33
Heptachlor epoxide	1.6E+00	1.3E-05	1.3E-05	NI	1	0.10		1.1E-06	8.3E-02	9.9E-11				1.5E-06	1.2E-01	2.0E-01	8.17
Methoxychlor	2.3E+00	5.0E-03	5.0E-03	NI	1	0.10		1.5E-06	3.0E-04	1.4E-10				2.1E-06	4.3E-04	7.3E-04	0.03
Toxaphene	2.3E+01	NI	NI	NI	1	0.10		1.5E-05		1.4E-09				2.1E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.0E+00		1.1E-06				1.4E+00	2.5E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL104-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.3E+00	3.0E-05	3.0E-05	NI	1	0.10		2.9E-06	9.7E-02	2.7E-10				4.1E-06	1.4E-01	2.3E-01	16.46
Alpha-BHC	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
Beta-BHC	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
4,4-DDD	4.3E+00	NI	NI	NI	1	0.10		2.9E-06		2.7E-10				4.1E-06			
4,4-DDE	4.6E-01	NI	NI	NI	1	0.10		3.1E-07		2.8E-11				4.4E-07			
4,4-DDT	2.7E+00	5.0E-04	5.0E-04	NI	1	0.10		1.8E-06	3.6E-03	1.7E-10				2.6E-06	5.2E-03	8.8E-03	0.62
Delta-BHC	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
Dieldrin	2.6E+01	5.0E-05	5.0E-05	NI	1	0.10		1.8E-05	3.5E-01	1.6E-09				2.5E-05	5.0E-01	8.5E-01	59.71
Chlordane	4.8E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.2E-06	6.5E-03	3.0E-10	5.9E-07			4.6E-06	9.2E-03	1.6E-02	1.10
Endosulfan I	2.2E+00	6.0E-03	6.0E-03	NI	1	0.10		1.5E-06	2.5E-04	1.4E-10				2.1E-06	3.5E-04	6.0E-04	0.04
Endosulfan II	4.3E+00	6.0E-03	6.0E-03	NI	1	0.10		2.9E-06	4.8E-04	2.7E-10				4.1E-06	6.8E-04	1.2E-03	0.08
Endosulfan sulfate	4.3E+00	6.0E-03	6.0E-03	NI	1	0.10		2.9E-06	4.8E-04	2.7E-10				4.1E-06	6.8E-04	1.2E-03	0.08
Endrin	4.3E+00	3.0E-04	3.0E-04	NI	1	0.10		2.9E-06	9.7E-03	2.7E-10				4.1E-06	1.4E-02	2.3E-02	1.65
Endrin aldehyde	4.3E+00	3.0E-04	3.0E-04	NI	1	0.10		2.9E-06	9.7E-03	2.7E-10				4.1E-06	1.4E-02	2.3E-02	1.65
Endrin ketone	1.4E+00	3.0E-04	3.0E-04	NI	1	0.10		9.5E-07	3.2E-03	8.7E-11				1.3E-06	4.5E-03	7.6E-03	0.54
Gamma-BHC (Lindane)	2.2E+00	3.0E-04	3.0E-04	NI	1	0.10		1.5E-06	5.0E-03	1.4E-10				2.1E-06	7.0E-03	1.2E-02	0.84
Heptachlor	3.6E+00	5.0E-04	5.0E-04	NI	1	0.10		2.4E-06	4.9E-03	2.2E-10				3.4E-06	6.9E-03	1.2E-02	0.83
Heptachlor epoxide	1.8E+00	1.3E-05	1.3E-05	NI	1	0.10		1.2E-06	9.3E-02	1.1E-10				1.7E-06	1.3E-01	2.3E-01	15.90
Methoxychlor	2.2E+01	5.0E-03	5.0E-03	NI	1	0.10		1.5E-05	3.0E-03	1.4E-09				2.1E-05	4.2E-03	7.2E-03	0.51
Toxaphene	2.2E+02	NI	NI	NI	1	0.10		1.5E-04		1.4E-08				2.1E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.9E-01		5.9E-07				8.3E-01	1.4E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL104-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.3E-01	3.0E-05	3.0E-05	NI	1	0.10		8.8E-08	2.9E-03	8.0E-12				1.2E-07	4.1E-03	7.1E-03	37.74
Alpha-BHC	1.7E-03	NI	NI	NI	1	0.10		1.1E-09		1.0E-13				1.6E-09			
Beta-BHC	1.7E-03	NI	NI	NI	1	0.10		1.1E-09		1.0E-13				1.6E-09			
4,4-DDD	9.3E-03	NI	NI	NI	1	0.10		6.3E-09		5.7E-13				8.9E-09			
4,4-DDE	3.2E-03	NI	NI	NI	1	0.10		2.2E-09		2.0E-13				3.1E-09			
4,4-DDT	4.7E-03	5.0E-04	5.0E-04	NI	1	0.10		3.2E-09	6.3E-06	2.9E-13				4.5E-09	9.0E-06	1.5E-05	0.08
Delta-BHC	1.7E-03	NI	NI	NI	1	0.10		1.1E-09		1.0E-13				1.6E-09			
Dieldrin	3.1E-01	5.0E-05	5.0E-05	NI	1	0.10		2.1E-07	4.2E-03	1.9E-11				3.0E-07	5.9E-03	1.0E-02	54.00
Chlordane	1.2E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		8.0E-08	1.6E-04	7.3E-12	1.5E-08			1.1E-07	2.3E-04	3.8E-04	2.06
Endosulfan I	1.7E-03	6.0E-03	6.0E-03	NI	1	0.10		1.1E-09	1.9E-07	1.0E-13				1.6E-09	2.6E-07	4.5E-07	0.00
Endosulfan II	4.7E-03	6.0E-03	6.0E-03	NI	1	0.10		3.2E-09	5.3E-07	2.9E-13				4.5E-09	7.5E-07	1.3E-06	0.01
Endosulfan sulfate	3.2E-03	6.0E-03	6.0E-03	NI	1	0.10		2.2E-09	3.6E-07	2.0E-13				3.1E-09	5.1E-07	8.7E-07	0.00
Endrin	3.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.2E-09	7.2E-06	2.0E-13				3.1E-09	1.0E-05	1.7E-05	0.09
Endrin aldehyde	3.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.2E-09	7.2E-06	2.0E-13				3.1E-09	1.0E-05	1.7E-05	0.09
Endrin ketone	1.6E-02	3.0E-04	3.0E-04	NI	1	0.10		1.1E-08	3.6E-05	9.9E-13				1.5E-08	5.1E-05	8.7E-05	0.46
Gamma-BHC (Lindane)	1.7E-03	3.0E-04	3.0E-04	NI	1	0.10		1.1E-09	3.7E-06	1.0E-13				1.6E-09	5.2E-06	9.0E-06	0.05
Heptachlor	1.7E-03	5.0E-04	5.0E-04	NI	1	0.10		1.1E-09	2.2E-06	1.0E-13				1.6E-09	3.1E-06	5.4E-06	0.03
Heptachlor epoxide	8.0E-03	1.3E-05	1.3E-05	NI	1	0.10		5.4E-09	4.2E-04	4.9E-13				7.6E-09	5.9E-04	1.0E-03	5.36
Methoxychlor	1.7E-02	5.0E-03	5.0E-03	NI	1	0.10		1.1E-08	2.2E-06	1.0E-12				1.6E-08	3.1E-06	5.4E-06	0.03
Toxaphene	1.7E-01	NI	NI	NI	1	0.10		1.1E-07		1.0E-11				1.6E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									7.8E-03		1.5E-08				1.1E-02	1.9E-02	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL105-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	6.7E+00	3.0E-05	3.0E-05	NI	1	0.10		4.5E-06	1.5E-01	4.1E-10				6.4E-06	2.1E-01	3.6E-01	53.36
Alpha-BHC	1.1E+00	NI	NI	NI	1	0.10											
Beta-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDD	6.5E+00	NI	NI	NI	1	0.10		4.4E-06		4.0E-10				6.2E-06			
4,4-DDE	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDT	9.1E-01	5.0E-04	5.0E-04	NI	1	0.10		6.1E-07	1.2E-03	5.6E-11				8.7E-07	1.7E-03	3.0E-03	0.43
Delta-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
Dieldrin	7.1E+00	5.0E-05	5.0E-05	NI	1	0.10		4.8E-06	9.6E-02	4.4E-10				6.8E-06	1.4E-01	2.3E-01	33.92
Chlordane	2.3E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-06	3.1E-03	1.4E-10	2.8E-07			2.2E-06	4.4E-03	7.5E-03	1.10
Endosulfan I	1.1E+00	6.0E-03	6.0E-03	NI	1	0.10		7.4E-07	1.2E-04	6.8E-11				1.0E-06	1.7E-04	3.0E-04	0.04
Endosulfan II	9.4E-01	6.0E-03	6.0E-03	NI	1	0.10		6.3E-07	1.1E-04	5.8E-11				9.0E-07	1.5E-04	2.6E-04	0.04
Endosulfan sulfate	2.1E+00	6.0E-03	6.0E-03	NI	1	0.10		1.4E-06	2.4E-04	1.3E-10				2.0E-06	3.3E-04	5.7E-04	0.08
Endrin	9.9E-01	3.0E-04	3.0E-04	NI	1	0.10		6.7E-07	2.2E-03	6.1E-11				9.4E-07	3.1E-03	5.4E-03	0.79
Endrin aldehyde	2.1E+00	3.0E-04	3.0E-04	NI	1	0.10		1.4E-06	4.7E-03	1.3E-10				2.0E-06	6.7E-03	1.1E-02	1.67
Endrin ketone	2.1E+00	3.0E-04	3.0E-04	NI	1	0.10		1.4E-06	4.7E-03	1.3E-10				2.0E-06	6.7E-03	1.1E-02	1.67
Gamma-BHC (Lindane)	1.1E+00	3.0E-04	3.0E-04	NI	1	0.10		7.4E-07	2.5E-03	6.8E-11				1.0E-06	3.5E-03	6.0E-03	0.88
Heptachlor	1.1E+00	5.0E-04	5.0E-04	NI	1	0.10		7.4E-07	1.5E-03	6.8E-11				1.0E-06	2.1E-03	3.6E-03	0.53
Heptachlor epoxide	2.7E-01	1.3E-05	1.3E-05	NI	1	0.10		1.8E-07	1.4E-02	1.7E-11				2.6E-07	2.0E-02	3.4E-02	4.96
Methoxychlor	1.1E+01	5.0E-03	5.0E-03	NI	1	0.10		7.4E-06	1.5E-03	6.8E-10				1.0E-05	2.1E-03	3.6E-03	0.53
Toxaphene	1.1E+02	NI	NI	NI	1	0.10		7.4E-05		6.8E-09				1.0E-04			
DIOXIN																	
2,3,7,8-TCDD	3.2E-01				1	0.10		2.2E-07		2.0E-11				3.1E-07			
No samples collected																	
Total Noncancer Hazard									2.8E-01		2.8E-07				4.0E-01	6.8E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL106-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.5E+01	3.0E-05	3.0E-05	NI	1	0.10		2.4E-05	7.9E-01	2.2E-09				3.3E-05	1.1E+00	1.9E+00	43.07
Alpha-BHC	9.5E+00	NI	NI	NI	1	0.10		6.4E-06		5.9E-10				9.1E-06			
Beta-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
4,4-DDD	3.0E+01	NI	NI	NI	1	0.10		2.0E-05		1.9E-09				2.9E-05			
4,4-DDE	2.3E+00	NI	NI	NI	1	0.10		1.6E-06		1.4E-10				2.2E-06			
4,4-DDT	8.6E+00	5.0E-04	5.0E-04	NI	1	0.10		5.8E-06	1.2E-02	5.3E-10				8.2E-06	1.6E-02	2.8E-02	0.64
Delta-BHC	9.5E+00	NI	NI	NI	1	0.10		6.4E-06		5.9E-10				9.1E-06			
Dieldrin	1.8E+01	5.0E-05	5.0E-05	NI	1	0.10		1.2E-05	2.4E-01	1.1E-09				1.7E-05	3.4E-01	5.9E-01	13.29
Chlordane	3.9E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.6E-05	5.3E-02	2.4E-09	4.8E-06			3.7E-05	7.4E-02	1.3E-01	2.88
Endosulfan I	9.5E+00	6.0E-03	6.0E-03	NI	1	0.10		6.4E-06	1.1E-03	5.9E-10				9.1E-06	1.5E-03	2.6E-03	0.06
Endosulfan II	2.0E+00	6.0E-03	6.0E-03	NI	1	0.10		1.4E-06	2.3E-04	1.2E-10				1.9E-06	3.2E-04	5.4E-04	0.01
Endosulfan sulfate	1.9E+01	6.0E-03	6.0E-03	NI	1	0.10		1.2E-05	2.1E-03	1.1E-09				1.8E-05	2.9E-03	5.0E-03	0.11
Endrin	1.9E+01	3.0E-04	3.0E-04	NI	1	0.10		1.2E-05	4.2E-02	1.1E-09				1.8E-05	5.9E-02	1.0E-01	2.28
Endrin aldehyde	1.9E+01	3.0E-04	3.0E-04	NI	1	0.10		1.2E-05	4.2E-02	1.1E-09				1.8E-05	5.9E-02	1.0E-01	2.28
Endrin ketone	1.9E+01	3.0E-04	3.0E-04	NI	1	0.10		1.2E-05	4.2E-02	1.1E-09				1.8E-05	5.9E-02	1.0E-01	2.28
Gamma-BHC (Lindane)	1.5E+00	3.0E-04	3.0E-04	NI	1	0.10		1.0E-06	3.4E-03	9.3E-11				1.4E-06	4.8E-03	8.1E-03	0.18
Heptachlor	7.1E+01	5.0E-04	5.0E-04	NI	1	0.10		4.8E-05	9.6E-02	4.4E-09				6.8E-05	1.4E-01	2.3E-01	5.24
Heptachlor epoxide	9.5E+00	1.3E-05	1.3E-05	NI	1	0.10		6.4E-06	4.9E-01	5.9E-10				9.1E-06	7.0E-01	1.2E+00	26.98
Methoxychlor	9.5E+01	5.0E-03	5.0E-03	NI	1	0.10		6.4E-05	1.3E-02	5.9E-09				9.1E-05	1.8E-02	3.1E-02	0.70
Toxaphene	9.5E+02	NI	NI	NI	1	0.10		6.4E-04		5.9E-08				9.1E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.8E+00		4.8E-06				2.6E+00	4.4E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL106-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.5E+01	3.0E-05	3.0E-05	NI	1	0.10		1.7E-05	5.6E-01	1.5E-09				2.4E-05	7.9E-01	1.4E+00	62.64
Alpha-BHC	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
Beta-BHC	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDD	2.5E+01	NI	NI	NI	1	0.10		1.7E-05		1.5E-09				2.4E-05			
4,4-DDE	1.8E+00	NI	NI	NI	1	0.10		1.2E-06		1.1E-10				1.7E-06			
4,4-DDT	6.8E+00	5.0E-04	5.0E-04	NI	1	0.10		4.6E-06	9.2E-03	4.2E-10				6.5E-06	1.3E-02	2.2E-02	1.02
Delta-BHC	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
Dieldrin	1.7E+01	5.0E-05	5.0E-05	NI	1	0.10		1.1E-05	2.3E-01	1.1E-09				1.6E-05	3.2E-01	5.5E-01	25.56
Chlordane	2.5E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.7E-05	3.4E-02	1.5E-09	3.1E-06			2.4E-05	4.8E-02	8.1E-02	3.76
Endosulfan I	2.2E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.5E-05	6.0E-05	0.00
Endosulfan II	1.2E+00	6.0E-03	6.0E-03	NI	1	0.10		8.1E-07	1.4E-04	7.4E-11				1.1E-06	1.9E-04	3.3E-04	0.02
Endosulfan sulfate	4.3E-01	6.0E-03	6.0E-03	NI	1	0.10		2.9E-07	4.8E-05	2.7E-11				4.1E-07	6.8E-05	1.2E-04	0.01
Endrin	7.9E-01	3.0E-04	3.0E-04	NI	1	0.10		5.3E-07	1.8E-03	4.9E-11				7.5E-07	2.5E-03	4.3E-03	0.20
Endrin aldehyde	4.3E-01	3.0E-04	3.0E-04	NI	1	0.10		2.9E-07	9.7E-04	2.7E-11				4.1E-07	1.4E-03	2.3E-03	0.11
Endrin ketone	4.9E-01	3.0E-04	3.0E-04	NI	1	0.10		3.3E-07	1.1E-03	3.0E-11				4.7E-07	1.6E-03	2.7E-03	0.12
Gamma-BHC (Lindane)	3.4E-01	3.0E-04	3.0E-04	NI	1	0.10		2.3E-07	7.7E-04	2.1E-11				3.2E-07	1.1E-03	1.8E-03	0.09
Heptachlor	2.7E+01	5.0E-04	5.0E-04	NI	1	0.10		1.8E-05	3.6E-02	1.7E-09				2.6E-05	5.2E-02	8.8E-02	4.06
Heptachlor epoxide	4.1E-01	1.3E-05	1.3E-05	NI	1	0.10		2.8E-07	2.1E-02	2.5E-11				3.9E-07	3.0E-02	5.1E-02	2.37
Methoxychlor	3.9E+00	5.0E-03	5.0E-03	NI	1	0.10		2.6E-06	5.3E-04	2.4E-10				3.7E-06	7.4E-04	1.3E-03	0.06
Toxaphene	2.2E+01	NI	NI	NI	1	0.10		1.5E-05		1.4E-09				2.1E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									9.0E-01		3.1E-06				1.3E+00	2.2E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL107-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Dermal (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.3E+01	3.0E-05	3.0E-05	NI	1	0.10		2.9E-05	9.7E-01	2.7E-09				4.1E-05	1.4E+00	2.3E+00	68.94
Alpha-BHC	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.3E-10				2.1E-06			
Beta-BHC	7.6E+00	NI	NI	NI	1	0.10		5.1E-06		4.7E-10				7.2E-06			
4,4-DDD	3.1E+01	NI	NI	NI	1	0.10		2.1E-05		1.9E-09				3.0E-05			
4,4-DDE	1.3E+00	NI	NI	NI	1	0.10		8.8E-07		8.0E-11				1.2E-06			
4,4-DDT	5.3E+00	5.0E-04	5.0E-04	NI	1	0.10		3.6E-06	7.2E-03	3.3E-10				5.1E-06	1.0E-02	1.7E-02	0.51
Delta-BHC	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.3E-10				2.1E-06			
Dieldrin	1.8E+01	5.0E-05	5.0E-05	NI	1	0.10		1.2E-05	2.4E-01	1.1E-09				1.7E-05	3.4E-01	5.9E-01	17.32
Chlordane	4.9E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.3E-05	6.6E-02	3.0E-09	6.1E-06			4.7E-05	9.3E-02	1.6E-01	4.71
Endosulfan I	2.2E+00	6.0E-03	6.0E-03	NI	1	0.10		1.5E-06	2.4E-04	1.3E-10				2.1E-06	3.4E-04	5.8E-04	0.02
Endosulfan II	3.2E+00	6.0E-03	6.0E-03	NI	1	0.10		2.2E-06	3.6E-04	2.0E-10				3.1E-06	5.1E-04	8.7E-04	0.03
Endosulfan sulfate	4.2E-01	6.0E-03	6.0E-03	NI	1	0.10		2.8E-07	4.7E-05	2.6E-11				4.0E-07	6.7E-05	1.1E-04	0.00
Endrin	8.6E+00	3.0E-04	3.0E-04	NI	1	0.10		5.8E-06	1.9E-02	5.3E-10				8.2E-06	2.7E-02	4.7E-02	1.38
Endrin aldehyde	4.2E+00	3.0E-04	3.0E-04	NI	1	0.10		2.8E-06	9.3E-03	2.6E-10				4.0E-06	1.3E-02	2.3E-02	0.67
Endrin ketone	3.6E+00	3.0E-04	3.0E-04	NI	1	0.10		2.4E-06	8.1E-03	2.2E-10				3.4E-06	1.1E-02	2.0E-02	0.58
Gamma-BHC (Lindane)	9.2E-01	3.0E-04	3.0E-04	NI	1	0.10		6.2E-07	2.1E-03	5.7E-11				8.8E-07	2.9E-03	5.0E-03	0.15
Heptachlor	2.6E+01	5.0E-04	5.0E-04	NI	1	0.10		1.8E-05	3.5E-02	1.6E-09				2.5E-05	5.0E-02	8.5E-02	2.50
Heptachlor epoxide	8.1E-01	1.3E-05	1.3E-05	NI	1	0.10		5.5E-07	4.2E-02	5.0E-11				7.7E-07	5.9E-02	1.0E-01	3.00
Methoxychlor	2.2E+01	5.0E-03	5.0E-03	NI	1	0.10		1.5E-05	2.9E-03	1.3E-09				2.1E-05	4.1E-03	7.0E-03	0.21
Toxaphene	2.2E+02	NI	NI	NI	1	0.10		1.5E-04		1.3E-08				2.1E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E+00		6.1E-06				2.0E+00	3.4E+00	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL107-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.9E+01	3.0E-05	3.0E-05	NI	1	0.10		1.3E-05	4.3E-01	1.2E-09				1.8E-05	6.0E-01	1.0E+00	64.97
Alpha-BHC	5.0E-02	NI	NI	NI	1	0.10		3.4E-08		3.1E-12				4.8E-08			
Beta-BHC	5.0E-02	NI	NI	NI	1	0.10		3.4E-08		3.1E-12				4.8E-08			
4,4-DDD	5.1E+00	NI	NI	NI	1	0.10		3.4E-06		3.2E-10				4.9E-06			
4,4-DDE	6.0E-01	NI	NI	NI	1	0.10		4.1E-07		3.7E-11				5.7E-07			
4,4-DDT	4.9E+00	5.0E-04	5.0E-04	NI	1	0.10		3.3E-06	6.6E-03	3.0E-10				4.7E-06	9.3E-03	1.6E-02	1.01
Delta-BHC	8.1E-02	NI	NI	NI	1	0.10		5.5E-08		5.0E-12				7.7E-08			
Dieldrin	1.2E+01	5.0E-05	5.0E-05	NI	1	0.10		8.1E-06	1.6E-01	7.4E-10				1.1E-05	2.3E-01	3.9E-01	24.62
Chlordane	1.6E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.1E-05	2.2E-02	1.0E-09	2.0E-06			1.6E-05	3.1E-02	5.3E-02	3.37
Endosulfan I	5.0E-02	6.0E-03	6.0E-03	NI	1	0.10		3.4E-08	5.6E-06	3.1E-12				4.8E-08	7.9E-06	1.4E-05	0.00
Endosulfan II	6.5E-01	6.0E-03	6.0E-03	NI	1	0.10		4.4E-07	7.3E-05	4.0E-11				6.2E-07	1.0E-04	1.8E-04	0.01
Endosulfan sulfate	1.6E-01	6.0E-03	6.0E-03	NI	1	0.10		1.1E-07	1.8E-05	9.9E-12				1.5E-07	2.5E-05	4.3E-05	0.00
Endrin	1.2E+00	3.0E-04	3.0E-04	NI	1	0.10		8.1E-07	2.7E-03	7.4E-11				1.1E-06	3.8E-03	6.5E-03	0.41
Endrin aldehyde	1.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.8E-08	2.3E-04	6.2E-12				9.5E-08	3.2E-04	5.4E-04	0.03
Endrin ketone	6.6E-01	3.0E-04	3.0E-04	NI	1	0.10		4.5E-07	1.5E-03	4.1E-11				6.3E-07	2.1E-03	3.6E-03	0.23
Gamma-BHC (Lindane)	1.5E-01	3.0E-04	3.0E-04	NI	1	0.10		1.0E-07	3.4E-04	9.3E-12				1.4E-07	4.8E-04	8.1E-04	0.05
Heptachlor	1.5E+01	5.0E-04	5.0E-04	NI	1	0.10		1.0E-05	2.0E-02	9.3E-10				1.4E-05	2.9E-02	4.9E-02	3.08
Heptachlor epoxide	2.8E-01	1.3E-05	1.3E-05	NI	1	0.10		1.9E-07	1.5E-02	1.7E-11				2.7E-07	2.1E-02	3.5E-02	2.21
Methoxychlor	5.0E-01	5.0E-03	5.0E-03	NI	1	0.10		3.4E-07	6.8E-05	3.1E-11				4.8E-07	9.5E-05	1.6E-04	0.01
Toxaphene	5.0E+00	NI	NI	NI	1	0.10		3.4E-06		3.1E-10				4.8E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.6E-01		2.0E-06				9.3E-01	1.6E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL108-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E+01	3.0E-05	3.0E-05	NI	1	0.10		1.4E-05	4.5E-01	1.2E-09				1.9E-05	6.4E-01	1.1E+00	47.62
Alpha-BHC	4.2E+00	NI	NI	NI	1	0.10		2.8E-06		2.6E-10				4.0E-06			
Beta-BHC	4.2E+00	NI	NI	NI	1	0.10		2.8E-06		2.6E-10				4.0E-06			
4,4-DDD	6.6E+00	NI	NI	NI	1	0.10		4.5E-06		4.1E-10				6.3E-06			
4,4-DDE	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDT	7.2E+00	5.0E-04	5.0E-04	NI	1	0.10		4.9E-06	9.7E-03	4.5E-10				6.9E-06	1.4E-02	2.3E-02	1.03
Delta-BHC	4.2E+00	NI	NI	NI	1	0.10		2.8E-06		2.6E-10				4.0E-06			
Dieldrin	2.4E+01	5.0E-05	5.0E-05	NI	1	0.10		1.6E-05	3.2E-01	1.5E-09				2.3E-05	4.6E-01	7.8E-01	34.28
Chlordane	2.7E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.8E-05	3.7E-02	1.7E-09	3.4E-06			2.6E-05	5.2E-02	8.8E-02	3.87
Endosulfan I	4.2E+00	6.0E-03	6.0E-03	NI	1	0.10		2.8E-06	4.7E-04	2.6E-10				4.0E-06	6.6E-04	1.1E-03	0.05
Endosulfan II	1.5E+00	6.0E-03	6.0E-03	NI	1	0.10		1.0E-06	1.7E-04	9.3E-11				1.4E-06	2.4E-04	4.1E-04	0.02
Endosulfan sulfate	1.1E+00	6.0E-03	6.0E-03		1	0.10		7.4E-07	1.2E-04	6.8E-11				1.0E-06	1.7E-04	3.0E-04	0.01
Endrin	3.8E+00	3.0E-04	3.0E-04		1	0.10		2.6E-06	8.6E-03	2.3E-10				3.6E-06	1.2E-02	2.1E-02	0.90
Endrin aldehyde	8.5E-01	3.0E-04	3.0E-04	NI	1	0.10		5.7E-07	1.9E-03	5.3E-11				8.1E-07	2.7E-03	4.6E-03	0.20
Endrin ketone	1.4E+00	3.0E-04	3.0E-04	NI	1	0.10		9.5E-07	3.2E-03	8.7E-11				1.3E-06	4.5E-03	7.6E-03	0.33
Gamma-BHC (Lindane)	4.2E+00	3.0E-04	3.0E-04	NI	1	0.10		2.8E-06	9.3E-03	2.6E-10				4.0E-06	1.3E-02	2.3E-02	0.99
Heptachlor	3.8E+01	5.0E-04	5.0E-04	NI	1	0.10		2.6E-05	5.1E-02	2.3E-09				3.6E-05	7.2E-02	1.2E-01	5.43
Heptachlor epoxide	8.5E-01	1.3E-05	1.3E-05	NI	1	0.10		5.7E-07	4.4E-02	5.3E-11				8.1E-07	6.2E-02	1.1E-01	4.67
Methoxychlor	4.2E+01	5.0E-03	5.0E-03	NI	1	0.10		2.8E-05	5.6E-03	2.6E-09				4.0E-05	7.9E-03	1.4E-02	0.59
Toxaphene	4.2E+02	NI	NI	NI	1	0.10		2.8E-04		2.6E-08				4.0E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									9.5E-01		3.4E-06				1.3E+00	2.3E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contamnant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL108-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	6.8E+01	3.0E-05	3.0E-05	NI	1	0.10		4.6E-05	1.5E+00	4.2E-09				6.5E-05	2.2E+00	3.7E+00	74.53
Alpha-BHC	4.6E-01	NI	NI	NI	1	0.10		3.1E-07		2.8E-11				4.4E-07			
Beta-BHC	4.6E-01	NI	NI	NI	1	0.10		3.1E-07		2.8E-11				4.4E-07			
4,4-DDD	3.4E+00	NI	NI	NI	1	0.10		2.3E-06		2.1E-10				3.2E-06			
4,4-DDE	1.3E+00	NI	NI	NI	1	0.10		8.8E-07		8.0E-11				1.2E-06			
4,4-DDT	3.4E+00	5.0E-04	5.0E-04	NI	1	0.10		2.3E-06	4.6E-03	2.1E-10				3.2E-06	6.5E-03	1.1E-02	0.22
Delta-BHC	4.6E-01	NI	NI	NI	1	0.10		3.1E-07		2.8E-11				4.4E-07			
Dieldrin	3.0E+01	5.0E-05	5.0E-05	NI	1	0.10		2.0E-05	4.1E-01	1.9E-09				2.9E-05	5.7E-01	9.8E-01	19.73
Chlordane	3.2E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.2E-05	4.3E-02	2.0E-09	4.0E-06			3.1E-05	6.1E-02	1.0E-01	2.10
Endosulfan I	4.6E-01	6.0E-03	6.0E-03	NI	1	0.10		3.1E-07	5.2E-05	2.8E-11				4.4E-07	7.3E-05	1.2E-04	0.00
Endosulfan II	2.2E+00	6.0E-03	6.0E-03	NI	1	0.10		1.5E-06	2.5E-04	1.4E-10				2.1E-06	3.5E-04	6.0E-04	0.01
Endosulfan sulfate	9.7E-01	6.0E-03	6.0E-03	NI	1	0.10		6.5E-07	1.1E-04	6.0E-11				9.3E-07	1.5E-04	2.6E-04	0.01
Endrin	2.8E+00	3.0E-04	3.0E-04	NI	1	0.10		1.9E-06	6.3E-03	1.7E-10				2.7E-06	8.9E-03	1.5E-02	0.31
Endrin aldehyde	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	0.10
Endrin ketone	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	0.10
Gamma-BHC (Lindane)	4.6E-01	3.0E-04	3.0E-04	NI	1	0.10		3.1E-07	1.0E-03	2.8E-11				4.4E-07	1.5E-03	2.5E-03	0.05
Heptachlor	2.5E+01	5.0E-04	5.0E-04	NI	1	0.10		1.7E-05	3.4E-02	1.5E-09				2.4E-05	4.8E-02	8.1E-02	1.64
Heptachlor epoxide	4.6E-01	1.3E-05	1.3E-05	NI	1	0.10		3.1E-07	2.4E-02	2.8E-11				4.4E-07	3.4E-02	5.8E-02	1.16
Methoxychlor	4.6E+00	5.0E-03	5.0E-03	NI	1	0.10		3.1E-06	6.2E-04	2.8E-10				4.4E-06	8.8E-04	1.5E-03	0.03
Toxaphene	4.6E+01	NI	NI	NI	1	0.10		3.1E-05		2.8E-09				4.4E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.1E+00		4.0E-06				2.9E+00	5.0E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL109-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.3E+00	3.0E-05	3.0E-05	NI	1	0.10		2.2E-06	7.4E-02	2.0E-10				3.1E-06	1.0E-01	1.8E-01	56.98
Alpha-BHC	2.7E-01	NI	NI	NI	1	0.10		1.8E-07		1.6E-11				2.5E-07			
Beta-BHC	4.4E-01	NI	NI	NI	1	0.10		3.0E-07		2.7E-11				4.2E-07			
4,4-DDD	1.9E-01	NI	NI	NI	1	0.10		1.3E-07		1.2E-11				1.8E-07			
4,4-DDE	7.5E-02	NI	NI	NI	1	0.10		5.1E-08		4.6E-12				7.2E-08			
4,4-DDT	1.6E-01	5.0E-04	5.0E-04	NI	1	0.10		1.1E-07	2.2E-04	9.9E-12				1.5E-07	3.1E-04	5.2E-04	0.17
Delta-BHC	9.6E-02	NI	NI	NI	1	0.10		6.5E-08		5.9E-12				9.2E-08			
Dieldrin	3.4E+00	5.0E-05	5.0E-05	NI	1	0.10		2.3E-06	4.6E-02	2.1E-10				3.2E-06	6.5E-02	1.1E-01	35.23
Chlordane	1.8E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.2E-06	2.5E-03	1.1E-10	2.3E-07			1.7E-06	3.5E-03	6.0E-03	1.90
Endosulfan I	2.7E-01	6.0E-03	6.0E-03	NI	1	0.10		1.8E-07	3.0E-05	1.6E-11				2.5E-07	4.2E-05	7.2E-05	0.02
Endosulfan II	5.8E-02	6.0E-03	6.0E-03	NI	1	0.10		3.9E-08	6.5E-06	3.6E-12				5.5E-08	9.2E-06	1.6E-05	0.01
Endosulfan sulfate	5.0E-01	6.0E-03	6.0E-03	NI	1	0.10		3.4E-07	5.6E-05	3.1E-11				4.8E-07	7.9E-05	1.4E-04	0.04
Endrin	9.6E-02	3.0E-04	3.0E-04	NI	1	0.10		6.5E-08	2.2E-04	5.9E-12				9.2E-08	3.1E-04	5.2E-04	0.17
Endrin aldehyde	5.0E-01	3.0E-04	3.0E-04	NI	1	0.10		3.4E-07	1.1E-03	3.1E-11				4.8E-07	1.6E-03	2.7E-03	0.86
Endrin ketone	6.1E-01	3.0E-04	3.0E-04	NI	1	0.10		4.1E-07	1.4E-03	3.8E-11				5.8E-07	1.9E-03	3.3E-03	1.05
Gamma-BHC (Lindane)	2.7E-01	3.0E-04	3.0E-04	NI	1	0.10		1.8E-07	6.0E-04	1.6E-11				2.5E-07	8.4E-04	1.4E-03	0.46
Heptachlor	3.2E-01	5.0E-04	5.0E-04	NI	1	0.10		2.2E-07	4.3E-04	2.0E-11				3.1E-07	6.1E-04	1.0E-03	0.33
Heptachlor epoxide	6.3E-02	1.3E-05	1.3E-05	NI	1	0.10		4.3E-08	3.3E-03	3.9E-12				6.0E-08	4.6E-03	7.9E-03	2.51
Methoxychlor	2.7E+00	5.0E-03	5.0E-03	NI	1	0.10		1.8E-06	3.6E-04	1.6E-10				2.5E-06	5.1E-04	8.6E-04	0.27
Toxaphene	2.7E+01	NI	NI	NI	1	0.10		1.8E-05		1.6E-09				2.5E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E-01		2.3E-07				1.8E-01	3.1E-01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL110-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.5E+01	3.0E-05	3.0E-05	NI	1	0.10		3.0E-05	1.0E+00	2.8E-09				4.3E-05	1.4E+00	2.4E+00	77.66
Alpha-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
Beta-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
4,4-DDD	2.0E+00	NI	NI	NI	1	0.10		1.4E-06		1.2E-10				1.9E-06			
4,4-DDE	1.1E+00	NI	NI	NI	1	0.10		7.1E-07		6.5E-11				1.0E-06			
4,4-DDT	1.2E+01	5.0E-04	5.0E-04	NI	1	0.10		8.1E-06	1.6E-02	7.4E-10				1.1E-05	2.3E-02	3.9E-02	1.24
Delta-BHC	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
Dieldrin	1.5E+01	5.0E-05	5.0E-05	NI	1	0.10		1.0E-05	2.0E-01	9.3E-10				1.4E-05	2.9E-01	4.9E-01	15.53
Chlordane	8.2E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.5E-06	1.1E-02	5.1E-10	1.0E-06			7.8E-06	1.6E-02	2.7E-02	0.85
Endosulfan I	5.5E-01	6.0E-03	6.0E-03	NI	1	0.10		3.7E-07	6.2E-05	3.4E-11				5.2E-07	8.7E-05	1.5E-04	0.00
Endosulfan II	1.1E+00	6.0E-03	6.0E-03	NI	1	0.10		7.5E-07	1.2E-04	6.8E-11				1.1E-06	1.8E-04	3.0E-04	0.01
Endosulfan sulfate	1.1E+00	6.0E-03	6.0E-03	NI	1	0.10		7.5E-07	1.2E-04	6.8E-11				1.1E-06	1.8E-04	3.0E-04	0.01
Endrin	1.1E+00	3.0E-04	3.0E-04	NI	1	0.10		7.5E-07	2.5E-03	6.8E-11				1.1E-06	3.5E-03	6.0E-03	0.19
Endrin aldehyde	1.1E+00	3.0E-04	3.0E-04	NI	1	0.10		7.5E-07	2.5E-03	6.8E-11				1.1E-06	3.5E-03	6.0E-03	0.19
Endrin ketone	1.2E+00	3.0E-04	3.0E-04	NI	1	0.10		8.1E-07	2.7E-03	7.4E-11				1.1E-06	3.8E-03	6.5E-03	0.21
Gamma-BHC (Lindane)	5.5E-01	3.0E-04	3.0E-04	NI	1	0.10		3.7E-07	1.2E-03	3.4E-11				5.2E-07	1.7E-03	3.0E-03	0.09
Heptachlor	1.7E+01	5.0E-04	5.0E-04	NI	1	0.10		1.1E-05	2.3E-02	1.1E-09				1.6E-05	3.2E-02	5.5E-02	1.76
Heptachlor epoxide	5.5E-01	1.3E-05	1.3E-05	NI	1	0.10		3.7E-07	2.9E-02	3.4E-11				5.2E-07	4.0E-02	6.9E-02	2.19
Methoxychlor	5.5E+00	5.0E-03	5.0E-03	NI	1	0.10		3.7E-06	7.4E-04	3.4E-10				5.2E-06	1.0E-03	1.8E-03	0.06
Toxaphene	5.5E+01	NI	NI	NI	1	0.10		3.7E-05		3.4E-09				5.2E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E+00		1.0E-06				1.8E+00	3.1E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL110-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.4E-01	3.0E-05	3.0E-05	NI	1	0.10		1.6E-07	5.4E-03	1.5E-11				2.3E-07	7.6E-03	1.3E-02	15.02
Alpha-BHC	2.2E-02	NI	NI	NI	1	0.10		1.5E-08		1.4E-12				2.1E-08			
Beta-BHC	3.3E-01	NI	NI	NI	1	0.10		2.2E-07		2.0E-11				3.1E-07			
4,4-DDD	5.7E-02	NI	NI	NI	1	0.10		3.8E-08		3.5E-12				5.4E-08			
4,4-DDE	8.9E-02	NI	NI	NI	1	0.10		6.0E-08		5.5E-12				8.5E-08			
4,4-DDT	9.5E-02	5.0E-04	5.0E-04	NI	1	0.10		6.4E-08	1.3E-04	5.9E-12				9.1E-08	1.8E-04	3.1E-04	0.36
Delta-BHC	7.4E-02	NI	NI	NI	1	0.10		5.0E-08		4.6E-12				7.1E-08			
Dieldrin	1.7E+00	5.0E-05	5.0E-05	NI	1	0.10		1.1E-06	2.3E-02	1.1E-10				1.6E-06	3.2E-02	5.5E-02	63.85
Chlordane	5.5E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.7E-07	7.4E-04	3.4E-11	6.8E-08			5.2E-07	1.0E-03	1.8E-03	2.07
Endosulfan I	7.5E-03	6.0E-03	6.0E-03	NI	1	0.10		5.1E-09	8.4E-07	4.6E-13				7.2E-09	1.2E-06	2.0E-06	0.00
Endosulfan II	1.5E-02	6.0E-03	6.0E-03	NI	1	0.10		9.8E-09	1.6E-06	9.0E-13				1.4E-08	2.3E-06	3.9E-06	0.00
Endosulfan sulfate	1.5E-02	6.0E-03	6.0E-03	NI	1	0.10		9.8E-09	1.6E-06	9.0E-13				1.4E-08	2.3E-06	3.9E-06	0.00
Endrin	2.0E-02	3.0E-04	3.0E-04	NI	1	0.10		1.4E-08	4.5E-05	1.2E-12				1.9E-08	6.4E-05	1.1E-04	0.13
Endrin aldehyde	1.5E-02	3.0E-04	3.0E-04	NI	1	0.10		9.8E-09	3.3E-05	9.0E-13				1.4E-08	4.6E-05	7.9E-05	0.09
Endrin ketone	3.9E-01	3.0E-04	3.0E-04	NI	1	0.10		2.6E-07	8.8E-04	2.4E-11				3.7E-07	1.2E-03	2.1E-03	2.44
Gamma-BHC (Lindane)	1.4E-02	3.0E-04	3.0E-04	NI	1	0.10		9.5E-09	3.2E-05	8.7E-13				1.3E-08	4.5E-05	7.6E-05	0.09
Heptachlor	7.5E-03	5.0E-04	5.0E-04	NI	1	0.10		5.1E-09	1.0E-05	4.6E-13				7.2E-09	1.4E-05	2.4E-05	0.03
Heptachlor epoxide	1.1E-01	1.3E-05	1.3E-05	NI	1	0.10		7.4E-08	5.7E-03	6.8E-12				1.0E-07	8.1E-03	1.4E-02	15.89
Methoxychlor	7.5E-02	5.0E-03	5.0E-03	NI	1	0.10		5.1E-08	1.0E-05	4.6E-12				7.2E-08	1.4E-05	2.4E-05	0.03
Toxaphene	7.5E-01	NI	NI	NI	1	0.10		5.1E-07		4.6E-11				7.2E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.6E-02		6.8E-08				5.1E-02	8.7E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contamnant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL111-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E+01	3.0E-05	3.0E-05	NI	1	0.10		1.4E-05	4.5E-01	1.2E-09				1.9E-05	6.4E-01	1.1E+00	78.01
Alpha-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
Beta-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
4,4-DDD	1.4E+00	NI	NI	NI	1	0.10		9.5E-07		8.7E-11				1.3E-06			
4,4-DDE	2.9E-01	NI	NI	NI	1	0.10		2.0E-07		1.8E-11				2.8E-07			
4,4-DDT	2.1E+00	5.0E-04	5.0E-04	NI	1	0.10		1.4E-06	2.8E-03	1.3E-10				2.0E-06	4.0E-03	6.8E-03	0.49
Delta-BHC	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
Dieldrin	5.6E+00	5.0E-05	5.0E-05	NI	1	0.10		3.8E-06	7.6E-02	3.5E-10				5.3E-06	1.1E-01	1.8E-01	13.11
Chlordane	8.6E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.8E-06	1.2E-02	5.3E-10	1.1E-06			8.2E-06	1.6E-02	2.8E-02	2.01
Endosulfan I	1.1E+00	6.0E-03	6.0E-03	NI	1	0.10		7.4E-07	1.2E-04	6.8E-11				1.0E-06	1.7E-04	3.0E-04	0.02
Endosulfan II	2.1E+00	6.0E-03	6.0E-03	NI	1	0.10		1.4E-06	2.4E-04	1.3E-10				2.0E-06	3.3E-04	5.7E-04	0.04
Endosulfan sulfate	2.1E+00	6.0E-03	6.0E-03	NI	1	0.10		1.4E-06	2.4E-04	1.3E-10				2.0E-06	3.3E-04	5.7E-04	0.04
Endrin	2.1E+00	3.0E-04	3.0E-04	NI	1	0.10		1.4E-06	4.7E-03	1.3E-10				2.0E-06	6.7E-03	1.1E-02	0.82
Endrin aldehyde	2.1E+00	3.0E-04	3.0E-04	NI	1	0.10		1.4E-06	4.7E-03	1.3E-10				2.0E-06	6.7E-03	1.1E-02	0.82
Endrin ketone	4.4E-01	3.0E-04	3.0E-04	NI	1	0.10		3.0E-07	9.9E-04	2.7E-11				4.2E-07	1.4E-03	2.4E-03	0.17
Gamma-BHC (Lindane)	1.1E+00	3.0E-04	3.0E-04	NI	1	0.10		7.4E-07	2.5E-03	6.8E-11				1.0E-06	3.5E-03	6.0E-03	0.43
Heptachlor	1.1E+01	5.0E-04	5.0E-04	NI	1	0.10		7.4E-06	1.5E-02	6.8E-10				1.0E-05	2.1E-02	3.6E-02	2.57
Heptachlor epoxide	1.6E-01	1.3E-05	1.3E-05	NI	1	0.10		1.1E-07	8.3E-03	9.9E-12				1.5E-07	1.2E-02	2.0E-02	1.44
Methoxychlor	1.1E+00	5.0E-03	5.0E-03	NI	1	0.10		7.4E-07	1.5E-04	6.8E-11				1.0E-06	2.1E-04	3.6E-04	0.03
Toxaphene	1.1E+02	NI	NI	NI	1	0.10		7.4E-05		6.8E-09				1.0E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.8E-01		1.1E-06				8.2E-01	1.4E+00	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDO$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL111-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.7E+01	3.0E-05	3.0E-05	NI	1	0.10		1.8E-05	6.1E-01	1.7E-09				2.6E-05	8.6E-01	1.5E+00	33.64
Alpha-BHC	1.7E-01	NI	NI	NI	1	0.10		1.1E-07		1.0E-11				1.6E-07			
Beta-BHC	1.7E-01	NI	NI	NI	1	0.10		1.1E-07		1.0E-11				1.6E-07			
4,4-DDD	3.8E+00	NI	NI	NI	1	0.10		2.6E-06		2.3E-10				3.6E-06			
4,4-DDE	1.3E+00	NI	NI	NI	1	0.10		8.8E-07		8.0E-11				1.2E-06			
4,4-DDT	1.2E+01	5.0E-04	5.0E-04	NI	1	0.10		8.1E-06	1.6E-02	7.4E-10				1.1E-05	2.3E-02	3.9E-02	0.90
Delta-BHC	1.7E-01	NI	NI	NI	1	0.10		1.1E-07		1.1E-11				1.6E-07			
Dieldrin	8.4E+01	5.0E-05	5.0E-05	NI	1	0.10		5.7E-05	1.1E+00	5.2E-09				8.0E-05	1.6E+00	2.7E+00	62.80
Chlordane	1.3E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		8.4E-06	1.7E-02	7.7E-10	1.5E-06			1.2E-05	2.4E-02	4.1E-02	0.93
Endosulfan I	1.7E-01	6.0E-03	6.0E-03	NI	1	0.10		1.1E-07	1.9E-05	1.0E-11				1.6E-07	2.6E-05	4.5E-05	0.00
Endosulfan II	3.2E-01	6.0E-03	6.0E-03	NI	1	0.10		2.2E-07	3.6E-05	2.0E-11				3.1E-07	5.1E-05	8.7E-05	0.00
Endosulfan sulfate	3.2E-01	6.0E-03	6.0E-03	NI	1	0.10		2.2E-07	3.6E-05	2.0E-11				3.1E-07	5.1E-05	8.7E-05	0.00
Endrin	2.2E+00	3.0E-04	3.0E-04	NI	1	0.10		1.5E-06	5.0E-03	1.4E-10				2.1E-06	7.0E-03	1.2E-02	0.27
Endrin aldehyde	4.1E-01	3.0E-04	3.0E-04	NI	1	0.10		2.8E-07	9.2E-04	2.5E-11				3.9E-07	1.3E-03	2.2E-03	0.05
Endrin ketone	1.3E+00	3.0E-04	3.0E-04	NI	1	0.10		8.8E-07	2.9E-03	8.0E-11				1.2E-06	4.1E-03	7.1E-03	0.16
Gamma-BHC (Lindane)	1.7E+00	3.0E-04	3.0E-04	NI	1	0.10		1.1E-06	3.7E-03	1.0E-10				1.6E-06	5.2E-03	9.0E-03	0.21
Heptachlor	2.0E+00	5.0E-04	5.0E-04	NI	1	0.10		1.4E-06	2.7E-03	1.2E-10				1.9E-06	3.8E-03	6.5E-03	0.15
Heptachlor epoxide	3.0E-01	1.3E-05	1.3E-05	NI	1	0.10		2.0E-07	1.6E-02	1.9E-11				2.9E-07	2.2E-02	3.8E-02	0.86
Methoxychlor	1.7E+00	5.0E-03	5.0E-03	NI	1	0.10		1.1E-06	2.2E-04	1.0E-10				1.6E-06	3.1E-04	5.4E-04	0.01
Toxaphene	1.7E+01	NI	NI	NI	1	0.10		1.1E-05		1.0E-09				1.6E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.8E+00		1.5E-06				2.6E+00	4.4E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL112-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.2E+02	3.0E-05	3.0E-05	NI	1	0.10		1.5E-04	5.0E+00	1.4E-08				2.1E-04	7.0E+00	1.2E+01	75.23
Alpha-BHC	2.1E+01	NI	NI	NI	1	0.10		1.4E-05		1.3E-09				2.0E-05			
Beta-BHC	2.1E+01	NI	NI	NI	1	0.10		1.4E-05		1.3E-09				2.0E-05			
4,4-DDD	4.0E+01	NI	NI	NI	1	0.10		2.7E-05		2.4E-09				3.8E-05			
4,4-DDE	4.0E+01	NI	NI	NI	1	0.10		2.7E-05		2.4E-09				3.8E-05			
4,4-DDT	4.9E+00	5.0E-04	5.0E-04	NI	1	0.10		3.3E-06	6.6E-03	3.0E-10				4.7E-06	9.3E-03	1.6E-02	0.10
Delta-BHC	2.1E+01	NI	NI	NI	1	0.10		1.4E-05		1.3E-09				2.0E-05			
Dieldrin	1.4E+01	5.0E-05	5.0E-05	NI	1	0.10		9.5E-06	1.9E-01	8.7E-10				1.3E-05	2.7E-01	4.6E-01	2.87
Chlordane	5.9E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.9E-06	7.9E-03	3.6E-10	7.2E-07			5.6E-06	1.1E-02	1.9E-02	0.12
Endosulfan I	2.1E+01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-05	2.3E-03	1.3E-09				2.0E-05	3.3E-03	5.6E-03	0.04
Endosulfan II	4.0E+01	6.0E-03	6.0E-03	NI	1	0.10		2.7E-05	4.4E-03	2.4E-09				3.8E-05	6.3E-03	1.1E-02	0.07
Endosulfan sulfate	4.0E+01	6.0E-03	6.0E-03	NI	1	0.10		2.7E-05	4.4E-03	2.4E-09				3.8E-05	6.3E-03	1.1E-02	0.07
Endrin	4.0E+01	3.0E-04	3.0E-04	NI	1	0.10		2.7E-05	8.9E-02	2.4E-09				3.8E-05	1.3E-01	2.1E-01	1.35
Endrin aldehyde	4.0E+01	3.0E-04	3.0E-04	NI	1	0.10		2.7E-05	8.9E-02	2.4E-09				3.8E-05	1.3E-01	2.1E-01	1.35
Endrin ketone	4.0E+01	3.0E-04	3.0E-04	NI	1	0.10		2.7E-05	8.9E-02	2.4E-09				3.8E-05	1.3E-01	2.1E-01	1.35
Gamma-BHC (Lindane)	2.1E+01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-05	4.6E-02	1.3E-09				2.0E-05	6.5E-02	1.1E-01	0.70
Heptachlor	7.3E+00	5.0E-04	5.0E-04	NI	1	0.10		4.9E-06	9.9E-03	4.5E-10				7.0E-06	1.4E-02	2.4E-02	0.15
Heptachlor epoxide	2.1E+01	1.3E-05	1.3E-05	NI	1	0.10		1.4E-05	1.1E+00	1.3E-09				2.0E-05	1.5E+00	2.6E+00	16.18
Methoxychlor	2.1E+02	5.0E-03	5.0E-03	NI	1	0.10		1.4E-04	2.8E-02	1.3E-08				2.0E-04	3.9E-02	6.7E-02	0.42
Toxaphene	2.1E+03	NI	NI	NI	1	0.10		1.4E-03		1.3E-07				2.0E-03			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.6E+00		7.2E-07				9.3E+00	1.6E+01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL112-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG), (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	6.3E-02	3.0E-05	3.0E-05	NI	1	0.10		4.3E-08	1.4E-03	3.9E-12				6.0E-08	2.0E-03	3.4E-03	16.87
Alpha-BHC	3.2E-03	NI	NI	NI	1	0.10		2.1E-09		1.9E-13				3.0E-09			
Beta-BHC	3.2E-03	NI	NI	NI	1	0.10		2.1E-09		1.9E-13				3.0E-09			
4,4-DDD	2.1E-02	NI	NI	NI	1	0.10		1.4E-08		1.3E-12				2.0E-08			
4,4-DDE	1.6E-02	NI	NI	NI	1	0.10		1.1E-08		9.9E-13				1.5E-08			
4,4-DDT	2.9E-02	5.0E-04	5.0E-04	NI	1	0.10		2.0E-08	3.9E-05	1.8E-12				2.8E-08	5.5E-05	9.4E-05	0.47
Delta-BHC	3.2E-03	NI	NI	NI	1	0.10		2.1E-09		1.9E-13				3.0E-09			
Dieldrin	4.1E-01	5.0E-05	5.0E-05	NI	1	0.10		2.8E-07	5.5E-03	2.5E-11				3.9E-07	7.8E-03	1.3E-02	65.87
Chlordane	1.0E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		6.8E-08	1.4E-04	6.2E-12	1.2E-08			9.6E-08	1.9E-04	3.3E-04	1.62
Endosulfan I	3.2E-03	6.0E-03	6.0E-03	NI	1	0.10		2.1E-09	3.5E-07	1.9E-13				3.0E-09	5.0E-07	8.6E-07	0.00
Endosulfan II	1.6E-02	6.0E-03	6.0E-03	NI	1	0.10		1.1E-08	1.8E-06	9.9E-13				1.5E-08	2.5E-06	4.3E-06	0.02
Endosulfan sulfate	6.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.1E-09	6.8E-07	3.7E-13				5.7E-09	9.5E-07	1.6E-06	0.01
Endrin	9.4E-03	3.0E-04	3.0E-04	NI	1	0.10		6.3E-09	2.1E-05	5.8E-13				9.0E-09	3.0E-05	5.1E-05	0.25
Endrin aldehyde	6.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.1E-09	1.4E-05	3.7E-13				5.7E-09	1.9E-05	3.3E-05	0.16
Endrin ketone	5.0E-02	3.0E-04	3.0E-04	NI	1	0.10		3.4E-08	1.1E-04	3.1E-12				4.8E-08	1.6E-04	2.7E-04	1.34
Gamma-BHC (Lindane)	3.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.1E-09	7.1E-06	1.9E-13				3.0E-09	1.0E-05	1.7E-05	0.08
Heptachlor	5.6E-02	5.0E-04	5.0E-04	NI	1	0.10		3.8E-08	7.6E-05	3.5E-12				5.3E-08	1.1E-04	1.8E-04	0.90
Heptachlor epoxide	2.0E-02	1.3E-05	1.3E-05	NI	1	0.10		1.4E-08	1.0E-03	1.2E-12				1.9E-08	1.5E-03	2.5E-03	12.36
Methoxychlor	3.2E-02	5.0E-03	5.0E-03	NI	1	0.10		2.1E-08	4.3E-06	1.9E-12				3.0E-08	6.0E-06	1.0E-05	0.05
Toxaphene	3.2E-01	NI	NI	NI	1	0.10		2.1E-07		1.9E-11				3.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									8.4E-03		1.2E-08				1.2E-02	2.0E-02	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL113-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.7E+01	3.0E-05	3.0E-05	NI	1	0.10		3.2E-05	1.1E+00	2.9E-09				4.5E-05	1.5E+00	2.6E+00	76.65
Alpha-BHC	2.4E+00	NI	NI	NI	1	0.10		1.6E-06		1.5E-10				2.2E-06			
Beta-BHC	2.4E+00	NI	NI	NI	1	0.10		1.6E-06		1.5E-10				2.2E-06			
4,4-DDD	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
4,4-DDE	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
4,4-DDT	9.6E+00	5.0E-04	5.0E-04	NI	1	0.10		6.5E-06	1.3E-02	5.9E-10				9.2E-06	1.8E-02	3.1E-02	0.94
Delta-BHC	2.4E+00	NI	NI	NI	1	0.10		1.6E-06		1.5E-10				2.2E-06			
Dieldrin	9.5E+00	5.0E-05	5.0E-05	NI	1	0.10		6.4E-06	1.3E-01	5.9E-10				9.1E-06	1.8E-01	3.1E-01	9.30
Chlordane	8.3E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.6E-06	1.1E-02	5.1E-10	1.0E-06			7.9E-06	1.6E-02	2.7E-02	0.81
Endosulfan I	2.4E+00	6.0E-03	6.0E-03	NI	1	0.10		1.6E-06	2.6E-04	1.5E-10				2.2E-06	3.7E-04	6.4E-04	0.02
Endosulfan II	4.5E+00	6.0E-03	6.0E-03	NI	1	0.10		3.0E-06	5.1E-04	2.8E-10				4.3E-06	7.2E-04	1.2E-03	0.04
Endosulfan sulfate	4.5E+00	6.0E-03	6.0E-03	NI	1	0.10		3.0E-06	5.1E-04	2.8E-10				4.3E-06	7.2E-04	1.2E-03	0.04
Endrin	4.5E+00	3.0E-04	3.0E-04	NI	1	0.10		3.0E-06	1.0E-02	2.8E-10				4.3E-06	1.4E-02	2.4E-02	0.73
Endrin aldehyde	4.5E+00	3.0E-04	3.0E-04	NI	1	0.10		3.0E-06	1.0E-02	2.8E-10				4.3E-06	1.4E-02	2.4E-02	0.73
Endrin ketone	7.1E-01	3.0E-04	3.0E-04	NI	1	0.10		4.8E-07	1.6E-03	4.4E-11				6.8E-07	2.3E-03	3.9E-03	0.12
Gamma-BHC (Lindane)	2.4E+00	3.0E-04	3.0E-04	NI	1	0.10		1.6E-06	5.3E-03	1.5E-10				2.2E-06	7.5E-03	1.3E-02	0.38
Heptachlor	1.2E+01	5.0E-04	5.0E-04	NI	1	0.10		8.1E-06	1.6E-02	7.4E-10				1.1E-05	2.3E-02	3.9E-02	1.17
Heptachlor epoxide	2.4E+00	1.3E-05	1.3E-05	NI	1	0.10		1.6E-06	1.2E-01	1.5E-10				2.2E-06	1.7E-01	2.9E-01	8.84
Methoxychlor	2.4E+01	5.0E-03	5.0E-03	NI	1	0.10		1.6E-05	3.2E-03	1.5E-09				2.2E-05	4.5E-03	7.7E-03	0.23
Toxaphene	2.4E+02	NI	NI	NI	1	0.10		1.6E-04		1.5E-08				2.2E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E+00		1.0E-06				1.9E+00	3.3E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL113-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HOD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.1E-02	3.0E-05	3.0E-05	NI	1	0.10		7.4E-09	2.5E-04	6.8E-13				1.0E-08	3.5E-04	6.0E-04	52.32
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.8E-03	NI	NI	NI	1	0.10		1.9E-09		1.7E-13				2.7E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.6E-02	5.0E-04	5.0E-04	NI	1	0.10		1.8E-08	3.5E-05	1.6E-12				2.5E-08	5.0E-05	8.5E-05	7.42
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	5.8E-03	5.0E-05	5.0E-05	NI	1	0.10		3.9E-09	7.8E-05	3.6E-13				5.5E-09	1.1E-04	1.9E-04	16.55
Chlordane	1.2E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.8E-09	1.6E-05	7.1E-13	1.4E-09			1.1E-08	2.2E-05	3.7E-05	3.28
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.02
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.05
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.05
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.95
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.95
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.95
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	0.50
Heptachlor	1.8E-02	5.0E-04	5.0E-04	NI	1	0.10		1.2E-08	2.4E-05	1.1E-12				1.7E-08	3.4E-05	5.9E-05	5.14
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	11.52
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.30
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									4.7E-04		1.4E-09				6.7E-04	1.1E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL114-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	6.9E+01	3.0E-05	3.0E-05	NI	1	0.10		4.7E-05	1.6E+00	4.3E-09				6.6E-05	2.2E+00	3.7E+00	25.59
Alpha-BHC	1.4E+01	NI	NI	NI	1	0.10		9.5E-06		8.7E-10				1.3E-05			
Beta-BHC	1.5E+01	NI	NI	NI	1	0.10		1.0E-05		9.3E-10				1.4E-05			
4,4-DDD	6.6E+00	NI	NI	NI	1	0.10		4.5E-06		4.1E-10				6.3E-06			
4,4-DDE	2.7E+01	NI	NI	NI	1	0.10		1.8E-05		1.7E-09				2.6E-05			
4,4-DDT	3.3E+01	5.0E-04	5.0E-04	NI	1	0.10		2.2E-05	4.5E-02	2.0E-09				3.1E-05	6.3E-02	1.1E-01	0.73
Delta-BHC	1.4E+01	NI	NI	NI	1	0.10		9.5E-06		8.7E-10				1.3E-05			
Dieldrin	2.4E+02	5.0E-05	5.0E-05	NI	1	0.10		1.6E-04	3.2E+00	1.5E-08				2.3E-04	4.6E+00	7.8E+00	53.41
Chlordane	1.3E+02	5.0E-04	5.0E-04	5.0E-04	1	0.10		9.0E-05	1.8E-01	8.3E-09	1.7E-05			1.3E-04	2.6E-01	4.4E-01	2.98
Endosulfan I	1.4E+01	6.0E-03	6.0E-03	NI	1	0.10		9.5E-06	1.6E-03	8.7E-10				1.3E-05	2.2E-03	3.8E-03	0.03
Endosulfan II	2.7E+01	6.0E-03	6.0E-03	NI	1	0.10		1.8E-05	3.0E-03	1.7E-09				2.6E-05	4.3E-03	7.3E-03	0.05
Endosulfan sulfate	2.7E+01	6.0E-03	6.0E-03	NI	1	0.10		1.8E-05	3.0E-03	1.7E-09				2.6E-05	4.3E-03	7.3E-03	0.05
Endrin	2.7E+01	3.0E-04	3.0E-04	NI	1	0.10		1.8E-05	6.1E-02	1.7E-09				2.6E-05	8.6E-02	1.5E-01	1.00
Endrin aldehyde	2.7E+01	3.0E-04	3.0E-04	NI	1	0.10		1.8E-05	6.1E-02	1.7E-09				2.6E-05	8.6E-02	1.5E-01	1.00
Endrin ketone	2.7E+01	3.0E-04	3.0E-04	NI	1	0.10		1.8E-05	6.1E-02	1.7E-09				2.6E-05	8.6E-02	1.5E-01	1.00
Gamma-BHC (Lindane)	1.4E+01	3.0E-04	3.0E-04	NI	1	0.10		9.5E-06	3.2E-02	8.7E-10				1.3E-05	4.5E-02	7.6E-02	0.52
Heptachlor	6.0E+01	5.0E-04	5.0E-04	NI	1	0.10		4.1E-05	8.1E-02	3.7E-09				5.7E-05	1.1E-01	2.0E-01	1.34
Heptachlor epoxide	1.4E+01	1.3E-05	1.3E-05	NI	1	0.10		9.5E-06	7.3E-01	8.7E-10				1.3E-05	1.0E+00	1.8E+00	11.98
Methoxychlor	1.4E+02	5.0E-03	5.0E-03	NI	1	0.10		9.5E-05	1.9E-02	8.7E-09				1.3E-04	2.7E-02	4.6E-02	0.31
Toxaphene	1.4E+03	NI	NI	NI	1	0.10		9.5E-04		8.7E-08				1.3E-03			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.1E+00		1.7E-05				8.6E+00	1.5E+01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL115-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.4E-01	3.0E-05	3.0E-05	NI	1	0.10		2.3E-07	7.7E-03	2.1E-11				3.2E-07	1.1E-02	1.8E-02	67.97
Alpha-BHC	3.3E-02	NI	NI	NI	1	0.10		2.2E-08		2.0E-12				3.1E-08			
Beta-BHC	5.9E-03	NI	NI	NI	1	0.10		4.0E-09		3.6E-13				5.6E-09			
4,4-DDD	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
4,4-DDE	6.5E-02	NI	NI	NI	1	0.10		4.4E-08		4.0E-12				6.2E-08			
4,4-DDT	1.5E-02	5.0E-04	5.0E-04	NI	1	0.10		1.0E-08	2.0E-05	9.3E-13				1.4E-08	2.9E-05	4.9E-05	0.18
Delta-BHC	3.3E-02	NI	NI	NI	1	0.10		2.2E-08		2.0E-12				3.1E-08			
Dieldrin	8.5E-02	5.0E-05	5.0E-05	NI	1	0.10		5.7E-08	1.1E-03	5.3E-12				8.1E-08	1.6E-03	2.8E-03	10.20
Chlordane	7.0E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		4.7E-08	9.5E-05	4.3E-12	8.7E-09			6.7E-08	1.3E-04	2.3E-04	0.84
Endosulfan I	3.3E-02	6.0E-03	6.0E-03	NI	1	0.10		2.2E-08	3.7E-06	2.0E-12				3.1E-08	5.2E-06	9.0E-06	0.03
Endosulfan II	6.5E-02	6.0E-03	6.0E-03	NI	1	0.10		4.4E-08	7.3E-06	4.0E-12				6.2E-08	1.0E-05	1.8E-05	0.06
Endosulfan sulfate	6.5E-02	6.0E-03	6.0E-03	NI	1	0.10		4.4E-08	7.3E-06	4.0E-12				6.2E-08	1.0E-05	1.8E-05	0.06
Endrin	6.5E-02	3.0E-04	3.0E-04	NI	1	0.10		4.4E-08	1.5E-04	4.0E-12				6.2E-08	2.1E-04	3.5E-04	1.30
Endrin aldehyde	6.5E-02	3.0E-04	3.0E-04	NI	1	0.10		4.4E-08	1.5E-04	4.0E-12				6.2E-08	2.1E-04	3.5E-04	1.30
Endrin ketone	6.5E-02	3.0E-04	3.0E-04	NI	1	0.10		4.4E-08	1.5E-04	4.0E-12				6.2E-08	2.1E-04	3.5E-04	1.30
Gamma-BHC (Lindane)	3.3E-02	3.0E-04	3.0E-04	NI	1	0.10		2.2E-08	7.4E-05	2.0E-12				3.1E-08	1.0E-04	1.8E-04	0.66
Heptachlor	3.9E-02	5.0E-04	5.0E-04	NI	1	0.10		2.6E-08	5.3E-05	2.4E-12				3.7E-08	7.4E-05	1.3E-04	0.47
Heptachlor epoxide	3.3E-02	1.3E-05	1.3E-05	NI	1	0.10		2.2E-08	1.7E-03	2.0E-12				3.1E-08	2.4E-03	4.1E-03	15.23
Methoxychlor	3.3E-01	5.0E-03	5.0E-03	NI	1	0.10		2.2E-07	4.5E-05	2.0E-11				3.1E-07	6.3E-05	1.1E-04	0.40
Toxaphene	3.3E+00	NI	NI	NI	1	0.10		2.2E-06		2.0E-10				3.1E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E-02		8.7E-09				1.6E-02	2.7E-02	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * CF * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL116-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.2E-02	3.0E-05	3.0E-05	NI	1	0.10		8.1E-09	2.7E-04	7.4E-13				1.1E-08	3.8E-04	6.5E-04	65.65
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
4,4-DDD	3.0E-03	NI	NI	NI	1	0.10		2.0E-09		1.9E-13				2.9E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	0.72
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Dieldrin	3.9E-03	5.0E-05	5.0E-05	NI	1	0.10		2.6E-09	5.3E-05	2.4E-13				3.7E-09	7.4E-05	1.3E-04	12.80
Chlordane	3.6E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.4E-09	4.8E-06	2.2E-13	4.4E-10			3.4E-09	6.8E-06	1.2E-05	1.17
Endosulfan I	1.2E-03	6.0E-03	6.0E-03	NI	1	0.10		7.8E-10	1.3E-07	7.1E-14				1.1E-09	1.8E-07	3.1E-07	0.03
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.06
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.06
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	1.20
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	1.20
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	1.20
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		7.8E-10	2.6E-06	7.1E-14				1.1E-09	3.7E-06	6.2E-06	0.63
Heptachlor	1.2E-03	5.0E-04	5.0E-04	NI	1	0.10		7.8E-10	1.6E-06	7.1E-14				1.1E-09	2.2E-06	3.7E-06	0.38
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		7.8E-10	6.0E-05	7.1E-14				1.1E-09	8.4E-05	1.4E-04	14.52
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		7.8E-09	1.6E-06	7.1E-13				1.1E-08	2.2E-06	3.7E-06	0.38
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									4.1E-04		4.4E-10				5.8E-04	9.9E-04	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL117-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.7E-02	3.0E-05	3.0E-05	NI	1	0.10		3.8E-08	1.3E-03	3.5E-12				5.4E-08	1.8E-03	3.1E-03	66.56
Alpha-BHC	4.4E-03	NI	NI	NI	1	0.10		2.9E-09		2.7E-13				4.1E-09			
Beta-BHC	4.4E-03	NI	NI	NI	1	0.10		2.9E-09		2.7E-13				4.1E-09			
4,4-DDD	8.5E-03	NI	NI	NI	1	0.10		5.7E-09		5.3E-13				8.1E-09			
4,4-DDE	8.5E-03	NI	NI	NI	1	0.10		5.7E-09		5.3E-13				8.1E-09			
4,4-DDT	8.5E-03	5.0E-04	5.0E-04	NI	1	0.10		5.7E-09	1.1E-05	5.3E-13				8.1E-09	1.6E-05	2.8E-05	0.60
Delta-BHC	4.4E-03	NI	NI	NI	1	0.10		2.9E-09		2.7E-13				4.1E-09			
Dieldrin	2.4E-02	5.0E-05	5.0E-05	NI	1	0.10		1.6E-08	3.2E-04	1.5E-12				2.3E-08	4.6E-04	7.8E-04	16.82
Chlordane	2.7E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.8E-09	3.6E-06	1.7E-13	3.3E-10			2.6E-09	5.2E-06	8.8E-06	0.19
Endosulfan I	4.4E-03	6.0E-03	6.0E-03	NI	1	0.10		2.9E-09	4.9E-07	2.7E-13				4.1E-09	6.9E-07	1.2E-06	0.03
Endosulfan II	8.5E-03	6.0E-03	6.0E-03	NI	1	0.10		5.7E-09	9.6E-07	5.3E-13				8.1E-09	1.4E-06	2.3E-06	0.05
Endosulfan sulfate	8.5E-03	6.0E-03	6.0E-03	NI	1	0.10		5.7E-09	9.6E-07	5.3E-13				8.1E-09	1.4E-06	2.3E-06	0.05
Endrin	8.5E-03	3.0E-04	3.0E-04	NI	1	0.10		5.7E-09	1.9E-05	5.3E-13				8.1E-09	2.7E-05	4.6E-05	0.99
Endrin aldehyde	8.5E-03	3.0E-04	3.0E-04	NI	1	0.10		5.7E-09	1.9E-05	5.3E-13				8.1E-09	2.7E-05	4.6E-05	0.99
Endrin ketone	8.5E-03	3.0E-04	3.0E-04	NI	1	0.10		5.7E-09	1.9E-05	5.3E-13				8.1E-09	2.7E-05	4.6E-05	0.99
Gamma-BHC (Lindane)	4.4E-03	3.0E-04	3.0E-04	NI	1	0.10		2.9E-09	9.8E-06	2.7E-13				4.1E-09	1.4E-05	2.4E-05	0.51
Heptachlor	2.8E-03	5.0E-04	5.0E-04	NI	1	0.10		1.9E-09	3.8E-06	1.7E-13				2.7E-09	5.3E-06	9.1E-06	0.20
Heptachlor epoxide	4.4E-03	1.3E-05	1.3E-05	NI	1	0.10		2.9E-09	2.3E-04	2.7E-13				4.1E-09	3.2E-04	5.5E-04	11.72
Methoxychlor	4.4E-02	5.0E-03	5.0E-03	NI	1	0.10		2.9E-08	5.9E-06	2.7E-12				4.1E-08	8.3E-06	1.4E-05	0.30
Toxaphene	4.4E-01	NI	NI	NI	1	0.10		2.9E-07		2.7E-11				4.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.9E-03		3.3E-10				2.7E-03	4.6E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL118-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E-02	3.0E-05	3.0E-05	NI	1	0.10		1.4E-08	4.5E-04	1.2E-12				1.9E-08	6.4E-04	1.1E-03	75.52
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	3.9E-06	6.7E-06	0.46
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	4.9E-03	5.0E-05	5.0E-05	NI	1	0.10		3.3E-09	6.6E-05	3.0E-13				4.7E-09	9.3E-05	1.6E-04	11.10
Chlordane	2.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.8E-06	1.3E-13	2.6E-10			2.0E-09	4.0E-06	6.8E-06	0.48
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.02
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.04
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.04
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	0.77
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	0.77
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	0.77
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	0.40
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.24
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	9.15
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.24
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.0E-04		2.6E-10				8.4E-04	1.4E-03	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL119-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG), (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	3.0E-02	3.0E-05	3.0E-05	NI	1	0.10		2.0E-08	6.8E-04	1.9E-12				2.9E-08	9.5E-04	1.6E-03	63.40
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	2.7E-03	NI	NI	NI	1	0.10		1.8E-09		1.7E-13				2.6E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	6.4E-03	5.0E-04	5.0E-04	NI	1	0.10		4.3E-09	8.6E-06	4.0E-13				6.1E-09	1.2E-05	2.1E-05	0.81
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	2.2E-02	5.0E-05	5.0E-05	NI	1	0.10		1.5E-08	3.0E-04	1.4E-12				2.1E-08	4.2E-04	7.2E-04	27.89
Chlordane	5.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.4E-09	6.8E-06	3.1E-13	6.2E-10			4.8E-09	9.5E-06	1.6E-05	0.63
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.01
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.02
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.02
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.44
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.44
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.44
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	0.23
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.4E-10	1.5E-06	6.8E-14				1.0E-09	2.1E-06	3.6E-06	0.14
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.4E-10	5.7E-05	6.8E-14				1.0E-09	8.1E-05	1.4E-04	5.36
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.14
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E-03		6.2E-10				1.5E-03	2.6E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL120-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.0E-03	3.0E-05	3.0E-05	NI	1	0.10		3.4E-09	1.1E-04	3.1E-13				4.8E-09	1.6E-04	2.7E-04	49.58
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	1.19
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.6E-03	5.0E-05	5.0E-05	NI	1	0.10		1.8E-09	3.5E-05	1.6E-13				2.5E-09	5.0E-05	8.5E-05	15.47
Chlordane	2.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.8E-06	1.3E-13	2.6E-10			2.0E-09	4.0E-06	6.8E-06	1.25
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.05
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.10
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.10
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	1.98
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	1.98
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	1.98
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	1.04
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.62
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	24.03
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.62
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.3E-04		2.6E-10				3.2E-04	5.5E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL121-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.6E-01	3.0E-05	3.0E-05	NI	1	0.10		1.1E-07	3.6E-03	9.9E-12				1.5E-07	5.1E-03	8.7E-03	67.30
Alpha-BHC	1.2E-02	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Beta-BHC	1.2E-02	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
4,4-DDD	2.3E-02	NI	NI	NI	1	0.10		1.6E-08		1.4E-12				2.2E-08			
4,4-DDE	2.3E-02	NI	NI	NI	1	0.10		1.6E-08		1.4E-12				2.2E-08			
4,4-DDT	2.5E-03	5.0E-04	5.0E-04	NI	1	0.10		1.7E-09	3.4E-06	1.5E-13				2.4E-09	4.8E-06	8.1E-06	0.06
Delta-BHC	1.2E-02	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
Dieldrin	6.9E-02	5.0E-05	5.0E-05	NI	1	0.10		4.7E-08	9.3E-04	4.3E-12				6.6E-08	1.3E-03	2.2E-03	17.41
Chlordane	1.0E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		6.8E-09	1.4E-05	6.2E-13	1.2E-09			9.5E-09	1.9E-05	3.3E-05	0.25
Endosulfan I	1.3E-03	6.0E-03	6.0E-03	NI	1	0.10		8.8E-10	1.5E-07	8.0E-14				1.2E-09	2.1E-07	3.5E-07	0.00
Endosulfan II	2.3E-02	6.0E-03	6.0E-03	NI	1	0.10		1.6E-08	2.6E-06	1.4E-12				2.2E-08	3.7E-06	6.2E-06	0.05
Endosulfan sulfate	2.3E-02	6.0E-03	6.0E-03	NI	1	0.10		1.6E-08	2.6E-06	1.4E-12				2.2E-08	3.7E-06	6.2E-06	0.05
Endrin	2.3E-02	3.0E-04	3.0E-04	NI	1	0.10		1.6E-08	5.2E-05	1.4E-12				2.2E-08	7.3E-05	1.2E-04	0.97
Endrin aldehyde	2.3E-02	3.0E-04	3.0E-04	NI	1	0.10		1.6E-08	5.2E-05	1.4E-12				2.2E-08	7.3E-05	1.2E-04	0.97
Endrin ketone	4.8E-03	3.0E-04	3.0E-04	NI	1	0.10		3.2E-09	1.1E-05	3.0E-13				4.6E-09	1.5E-05	2.6E-05	0.20
Gamma-BHC (Lindane)	1.2E-02	3.0E-04	3.0E-04	NI	1	0.10		8.1E-09	2.7E-05	7.4E-13				1.1E-08	3.8E-05	6.5E-05	0.50
Heptachlor	1.1E-02	5.0E-04	5.0E-04	NI	1	0.10		7.4E-09	1.5E-05	6.8E-13				1.0E-08	2.1E-05	3.6E-05	0.28
Heptachlor epoxide	1.2E-02	1.3E-05	1.3E-05	NI	1	0.10		8.1E-09	6.2E-04	7.4E-13				1.1E-08	8.8E-04	1.5E-03	11.65
Methoxychlor	1.2E-01	5.0E-03	5.0E-03	NI	1	0.10		8.1E-08	1.6E-05	7.4E-12				1.1E-07	2.3E-05	3.9E-05	0.30
Toxaphene	1.2E+00	NI	NI	NI	1	0.10		8.1E-07		7.4E-11				1.1E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.3E-03		1.2E-09				7.6E-03	1.3E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL122-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.6E-02	3.0E-05	3.0E-05	NI	1	0.10		5.1E-08	1.7E-03	4.7E-12				7.2E-08	2.4E-03	4.1E-03	73.41
Alpha-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Beta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
4,4-DDD	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
4,4-DDE	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
4,4-DDT	1.1E-02	5.0E-04	5.0E-04	NI	1	0.10		7.4E-09	1.5E-05	6.8E-13				1.0E-08	2.1E-05	3.6E-05	0.64
Delta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Dieldrin	1.5E-02	5.0E-05	5.0E-05	NI	1	0.10		1.0E-08	2.0E-04	9.3E-13				1.4E-08	2.9E-04	4.9E-04	8.69
Chlordane	1.1E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.4E-09	1.5E-05	6.8E-13	1.4E-09			1.0E-08	2.1E-05	3.6E-05	0.64
Endosulfan I	2.1E-02	6.0E-03	6.0E-03	NI	1	0.10		1.4E-08	2.4E-06	1.3E-12				2.0E-08	3.3E-06	5.7E-06	0.10
Endosulfan II	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.4E-09	1.2E-06	6.8E-13				1.0E-08	1.7E-06	3.0E-06	0.05
Endosulfan sulfate	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.4E-09	1.2E-06	6.8E-13				1.0E-08	1.7E-06	3.0E-06	0.05
Endrin	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.4E-09	2.5E-05	6.8E-13				1.0E-08	3.5E-05	6.0E-05	1.06
Endrin aldehyde	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.4E-09	2.5E-05	6.8E-13				1.0E-08	3.5E-05	6.0E-05	1.06
Endrin ketone	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.4E-09	2.5E-05	6.8E-13				1.0E-08	3.5E-05	6.0E-05	1.06
Gamma-BHC (Lindane)	5.5E-03	3.0E-04	3.0E-04	NI	1	0.10		3.7E-09	1.2E-05	3.4E-13				5.2E-09	1.7E-05	3.0E-05	0.53
Heptachlor	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	0.12
Heptachlor epoxide	5.5E-03	1.3E-05	1.3E-05	NI	1	0.10		3.7E-09	2.9E-04	3.4E-13				5.2E-09	4.0E-04	6.9E-04	12.26
Methoxychlor	5.5E-02	5.0E-03	5.0E-03	NI	1	0.10		3.7E-08	7.4E-06	3.4E-12				5.2E-08	1.0E-05	1.8E-05	0.32
Toxaphene	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.3E-03		1.4E-09				3.3E-03	5.6E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL123-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.4E-02	3.0E-05	3.0E-05	NI	1	0.10		3.0E-08	9.9E-04	2.7E-12				4.2E-08	1.4E-03	2.4E-03	71.09
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
4,4-DDD	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	0.21
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Dieldrin	2.3E-02	5.0E-05	5.0E-05	NI	1	0.10		1.6E-08	3.1E-04	1.4E-12				2.2E-08	4.4E-04	7.5E-04	22.30
Chlordane	3.7E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.5E-09	4.9E-06	2.3E-13	4.5E-10			3.5E-09	7.0E-06	1.2E-05	0.35
Endosulfan I	1.8E-03	6.0E-03	6.0E-03	NI	1	0.10		1.2E-09	2.0E-07	1.1E-13				1.7E-09	2.9E-07	4.9E-07	0.01
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.02
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.02
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.36
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.36
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.36
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		7.8E-10	2.6E-06	7.1E-14				1.1E-09	3.7E-06	6.2E-06	0.19
Heptachlor	3.5E-03	5.0E-04	5.0E-04	NI	1	0.10		2.4E-09	4.7E-06	2.2E-13				3.3E-09	6.7E-06	1.1E-05	0.34
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		7.8E-10	6.0E-05	7.1E-14				1.1E-09	8.4E-05	1.4E-04	4.29
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		7.8E-09	1.6E-06	7.1E-13				1.1E-08	2.2E-06	3.7E-06	0.11
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD	1.2E-06				1	0.10		8.1E-13		7.4E-17				1.1E-12			
No samples collected																	
Total Noncancer Hazard									1.4E-03		4.5E-10				2.0E-03	3.4E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL124-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E-02	3.0E-05	3.0E-05	NI	1	0.10		1.4E-08	4.5E-04	1.2E-12				1.9E-08	6.4E-04	1.1E-03	56.52
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
4,4-DDD	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	0.37
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Dieldrin	1.9E-02	5.0E-05	5.0E-05	NI	1	0.10		1.3E-08	2.6E-04	1.2E-12				1.8E-08	3.6E-04	6.2E-04	32.22
Chlordane	4.3E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.9E-09	5.8E-06	2.7E-13	5.3E-10			4.1E-09	8.2E-06	1.4E-05	0.73
Endosulfan I	1.2E-03	6.0E-03	6.0E-03	NI	1	0.10		7.8E-10	1.3E-07	7.1E-14				1.1E-09	1.8E-07	3.1E-07	0.02
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.03
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.03
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.62
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.62
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.62
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		7.8E-10	2.6E-06	7.1E-14				1.1E-09	3.7E-06	6.2E-06	0.33
Heptachlor	1.2E-03	5.0E-04	5.0E-04	NI	1	0.10		7.8E-10	1.6E-06	7.1E-14				1.1E-09	2.2E-06	3.7E-06	0.20
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		7.8E-10	6.0E-05	7.1E-14				1.1E-09	8.4E-05	1.4E-04	7.50
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		7.8E-09	1.6E-06	7.1E-13				1.1E-08	2.2E-06	3.7E-06	0.20
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD	1.2E-06				1	0.10		8.1E-13		7.4E-17				1.1E-12			
No samples collected																	
Total Noncancer Hazard									8.0E-04		5.3E-10				1.1E-03	1.9E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL125-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	9.0E-01	3.0E-05	3.0E-05	NI	1	0.10		6.1E-07	2.0E-02	5.6E-11				8.6E-07	2.9E-02	4.9E-02	65.67
Alpha-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
Beta-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
4,4-DDD	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDE	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.4E-11				2.1E-07			
4,4-DDT	2.2E-01	5.0E-04	5.0E-04	NI	1	0.10		1.5E-07	3.0E-04	1.4E-11				2.1E-07	4.2E-04	7.2E-04	0.96
Delta-BHC	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
Dieldrin	1.4E-01	5.0E-05	5.0E-05	NI	1	0.10		9.5E-08	1.9E-03	8.7E-12				1.3E-07	2.7E-03	4.6E-03	6.13
Chlordane	2.3E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-07	3.1E-04	1.4E-11	2.8E-08			2.2E-07	4.4E-04	7.5E-04	1.01
Endosulfan I	1.2E-01	6.0E-03	6.0E-03	NI	1	0.10		7.8E-08	1.3E-05	7.1E-12				1.1E-07	1.8E-05	3.1E-05	0.04
Endosulfan II	2.2E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.5E-05	6.0E-05	0.08
Endosulfan sulfate	2.2E-01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-07	2.5E-05	1.4E-11				2.1E-07	3.5E-05	6.0E-05	0.08
Endrin	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	1.61
Endrin aldehyde	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	1.61
Endrin ketone	2.2E-01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-07	5.0E-04	1.4E-11				2.1E-07	7.0E-04	1.2E-03	1.61
Gamma-BHC (Lindane)	1.2E-01	3.0E-04	3.0E-04	NI	1	0.10		7.8E-08	2.6E-04	7.1E-12				1.1E-07	3.7E-04	6.2E-04	0.84
Heptachlor	1.2E-01	5.0E-04	5.0E-04	NI	1	0.10		7.8E-08	1.6E-04	7.1E-12				1.1E-07	2.2E-04	3.7E-04	0.50
Heptachlor epoxide	1.2E-01	1.3E-05	1.3E-05	NI	1	0.10		7.8E-08	6.0E-03	7.1E-12				1.1E-07	8.4E-03	1.4E-02	19.36
Methoxychlor	1.2E+00	5.0E-03	5.0E-03	NI	1	0.10		7.8E-07	1.6E-04	7.1E-11				1.1E-06	2.2E-04	3.7E-04	0.50
Toxaphene	1.2E+01	NI	NI	NI	1	0.10		7.8E-06		7.1E-10				1.1E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.1E-02		2.8E-08				4.4E-02	7.4E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL126-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.6E-02	3.0E-05	3.0E-05	NI	1	0.10		2.4E-08	8.1E-04	2.2E-12				3.4E-08	1.1E-03	2.0E-03	68.57
Alpha-BHC	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.3E-13				2.1E-09			
Beta-BHC	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.3E-13				2.1E-09			
4,4-DDD	4.8E-03	NI	NI	NI	1	0.10		3.2E-09		3.0E-13				4.6E-09			
4,4-DDE	4.2E-03	NI	NI	NI	1	0.10		2.8E-09		2.6E-13				4.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	4.0E-06	6.8E-06	0.24
Delta-BHC	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.3E-13				2.1E-09			
Dieldrin	1.5E-02	5.0E-05	5.0E-05	NI	1	0.10		1.0E-08	2.0E-04	9.3E-13				1.4E-08	2.9E-04	4.9E-04	17.14
Chlordane	1.0E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.0E-09	1.4E-05	6.4E-13	1.3E-09			9.9E-09	2.0E-05	3.4E-05	1.19
Endosulfan I	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.4E-07	1.3E-13				2.1E-09	3.4E-07	5.8E-07	0.02
Endosulfan II	4.2E-03	6.0E-03	6.0E-03	NI	1	0.10		2.8E-09	4.7E-07	2.6E-13				4.0E-09	6.7E-07	1.1E-06	0.04
Endosulfan sulfate	4.2E-03	6.0E-03	6.0E-03	NI	1	0.10		2.8E-09	4.7E-07	2.6E-13				4.0E-09	6.7E-07	1.1E-06	0.04
Endrin	4.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.8E-09	9.5E-06	2.6E-13				4.0E-09	1.3E-05	2.3E-05	0.80
Endrin aldehyde	4.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.8E-09	9.5E-06	2.6E-13				4.0E-09	1.3E-05	2.3E-05	0.80
Endrin ketone	4.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.8E-09	9.5E-06	2.6E-13				4.0E-09	1.3E-05	2.3E-05	0.80
Gamma-BHC (Lindane)	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	4.8E-06	1.3E-13				2.1E-09	6.8E-06	1.2E-05	0.41
Heptachlor	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	0.25
Heptachlor epoxide	2.2E-03	1.3E-05	1.3E-05	NI	1	0.10		1.5E-09	1.1E-04	1.3E-13				2.1E-09	1.6E-04	2.7E-04	9.45
Methoxychlor	2.2E-02	5.0E-03	5.0E-03	NI	1	0.10		1.5E-08	2.9E-06	1.3E-12				2.1E-08	4.1E-06	7.0E-06	0.25
Toxaphene	2.2E-01	NI	NI	NI	1	0.10		1.5E-07		1.3E-11				2.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-03		1.3E-09				1.7E-03	2.9E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL127-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG), (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.1E-03	3.0E-05	3.0E-05	NI	1	0.10		7.1E-10	2.4E-05	6.5E-14				1.0E-09	3.3E-05	5.7E-05	16.52
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	3.9E-06	6.7E-06	1.94
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.9E-03	5.0E-05	5.0E-05	NI	1	0.10		2.0E-09	3.9E-05	1.8E-13				2.8E-09	5.5E-05	9.4E-05	27.38
Chlordane	2.5E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.7E-09	3.3E-06	1.5E-13	3.0E-10			2.3E-09	4.7E-06	8.0E-06	2.31
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.08
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.16
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.16
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	3.23
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	3.23
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	3.23
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	1.65
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.99
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	38.13
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.99
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD	2.5E-06				1	0.10		1.7E-12		1.5E-16				2.4E-12			
No samples collected																	
Total Noncancer Hazard									1.4E-04		3.0E-10				2.0E-04	3.5E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL128-7

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.1E-03	3.0E-05	3.0E-05	NI	1	0.10		3.4E-09	1.1E-04	3.2E-13				4.9E-09	1.6E-04	2.8E-04	52 68
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	1.21
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.7E-05	1.2E-13				1.9E-09	3.8E-05	6.5E-05	12.40
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	1.24
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0 05
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.10
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.10
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2 01
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2.01
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2.01
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.03
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.4E-10	1.5E-06	6.8E-14				1.0E-09	2.1E-06	3.6E-06	0.68
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	23.84
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.62
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.2E-04		2.5E-10				3.1E-04	5.3E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL129-5

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.0E-02	3.0E-05	3.0E-05	NI	1	0.10		1.4E-08	4.5E-04	1.2E-12				1.9E-08	6.4E-04	1.1E-03	18.23
Alpha-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Beta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
4,4-DDD	1.0E-02	NI	NI	NI	1	0.10		6.8E-09		6.2E-13				9.5E-09			
4,4-DDE	1.8E-02	NI	NI	NI	1	0.10		1.2E-08		1.1E-12				1.7E-08			
4,4-DDT	5.9E-02	5.0E-04	5.0E-04	NI	1	0.10		4.0E-08	6.0E-05	3.6E-12				5.6E-08	1.1E-04	1.9E-04	3.23
Delta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Dieldrin	9.5E-02	5.0E-05	5.0E-05	NI	1	0.10		6.4E-08	1.3E-03	5.9E-12				9.1E-08	1.8E-03	3.1E-03	51.95
Chlordane	1.4E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		9.2E-08	1.8E-04	8.5E-12	1.7E-08			1.3E-07	2.6E-04	4.5E-04	7.49
Endosulfan I	5.5E-03	6.0E-03	6.0E-03	NI	1	0.10		3.7E-09	6.2E-07	3.4E-13				5.2E-09	8.7E-07	1.5E-06	0.03
Endosulfan II	7.8E-03	6.0E-03	6.0E-03	NI	1	0.10		5.3E-09	8.8E-07	4.8E-13				7.4E-09	1.2E-06	2.1E-06	0.04
Endosulfan sulfate	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.1E-09	1.2E-06	6.5E-13				1.0E-08	1.7E-06	2.9E-06	0.05
Endrin	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.1E-09	2.4E-05	6.5E-13				1.0E-08	3.3E-05	5.7E-05	0.96
Endrin aldehyde	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.1E-09	2.4E-05	6.5E-13				1.0E-08	3.3E-05	5.7E-05	0.96
Endrin ketone	6.4E-03	3.0E-04	3.0E-04	NI	1	0.10		4.3E-09	1.4E-05	4.0E-13				6.1E-09	2.0E-05	3.5E-05	0.58
Gamma-BHC (Lindane)	5.5E-03	3.0E-04	3.0E-04	NI	1	0.10		3.7E-09	1.2E-05	3.4E-13				5.2E-09	1.7E-05	3.0E-05	0.50
Heptachlor	4.1E-02	5.0E-04	5.0E-04	NI	1	0.10		2.8E-08	5.5E-05	2.5E-12				3.9E-08	7.8E-05	1.3E-04	2.24
Heptachlor epoxide	6.4E-03	1.3E-05	1.3E-05	NI	1	0.10		4.3E-09	3.3E-04	4.0E-13				6.1E-09	4.7E-04	8.0E-04	13.46
Methoxychlor	5.5E-02	5.0E-03	5.0E-03	NI	1	0.10		3.7E-08	7.4E-06	3.4E-12				5.2E-08	1.0E-05	1.8E-05	0.30
Toxaphene	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
DIOXIN																	
2,3,7,8-TCDD	2.7E-04				1	0.10		1.8E-10		1.7E-14				2.6E-10			
No samples collected																	
Total Noncancer Hazard									2.5E-03		1.7E-08				3.5E-03	6.0E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL130-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.2E-03	3.0E-05	3.0E-05	NI	1	0.10		8.1E-10	2.7E-05	7.4E-14				1.1E-09	3.8E-05	6.5E-05	18.03
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1.1E-09			
4,4-DDD	2.3E-03	NI	NI	NI	1	0.10		1.6E-09		1.4E-13				2.2E-09			
4,4-DDE	2.3E-03	NI	NI	NI	1	0.10		1.6E-09		1.4E-13				2.2E-09			
4,4-DDT	2.3E-03	5.0E-04	5.0E-04	NI	1	0.10		1.6E-09	3.1E-06	1.4E-13				2.2E-09	4.4E-06	7.5E-06	2.07
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1.1E-09			
Dieldrin	2.3E-03	5.0E-05	5.0E-05	NI	1	0.10		1.6E-09	3.1E-05	1.4E-13				2.2E-09	4.4E-05	7.5E-05	20.73
Chlordane	2.4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-09	3.2E-06	1.5E-13	3.0E-10			2.3E-09	4.6E-06	7.8E-06	2.16
Endosulfan I	1.2E-03	6.0E-03	6.0E-03	NI	1	0.10		8.1E-10	1.4E-07	7.4E-14				1.1E-09	1.9E-07	3.3E-07	0.09
Endosulfan II	2.3E-03	6.0E-03	6.0E-03	NI	1	0.10		1.6E-09	2.6E-07	1.4E-13				2.2E-09	3.7E-07	6.2E-07	0.17
Endosulfan sulfate	2.3E-03	6.0E-03	6.0E-03	NI	1	0.10		1.6E-09	2.6E-07	1.4E-13				2.2E-09	3.7E-07	6.2E-07	0.17
Endrin	2.3E-03	3.0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1.4E-13				2.2E-09	7.3E-06	1.2E-05	3.46
Endrin aldehyde	2.3E-03	3.0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1.4E-13				2.2E-09	7.3E-06	1.2E-05	3.46
Endrin ketone	2.3E-03	3.0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1.4E-13				2.2E-09	7.3E-06	1.2E-05	3.46
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		8.1E-10	2.7E-06	7.4E-14				1.1E-09	3.8E-06	6.5E-06	1.80
Heptachlor	1.9E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.8E-09	3.6E-06	6.2E-06	1.71
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		8.1E-10	6.2E-05	7.4E-14				1.1E-09	8.8E-05	1.5E-04	41.60
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		8.1E-09	1.6E-06	7.4E-13				1.1E-08	2.3E-06	3.9E-06	1.08
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		8.1E-08		7.4E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No sample collected																	
Total Noncancer Hazard									1.5E-04		3.0E-10				2.1E-04	3.6E-04	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	*5,800*

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL131-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.1E-01	3.0E-05	3.0E-05	NI	1	0.10		1.4E-07	4.7E-03	1.3E-11				2.0E-07	6.7E-03	1.1E-02	64.34
Alpha-BHC	2.2E-02	NI	NI	NI	1	0.10		1.5E-08		1.3E-12				2.1E-08			
Beta-BHC	2.2E-02	NI	NI	NI	1	0.10		1.5E-08		1.3E-12				2.1E-08			
4,4-DDD	1.2E-02	NI	NI	NI	1	0.10		8.1E-09		7.4E-13				1.1E-08			
4,4-DDE	5.1E-03	NI	NI	NI	1	0.10		3.4E-09		3.2E-13				4.9E-09			
4,4-DDT	6.5E-03	5.0E-04	5.0E-04	NI	1	0.10		4.4E-09	8.8E-06	4.0E-13				6.2E-09	1.2E-05	2.1E-05	0.12
Delta-BHC	2.2E-02	NI	NI	NI	1	0.10		1.5E-08		1.3E-12				2.1E-08			
Dieldrin	7.5E-02	5.0E-05	5.0E-05	NI	1	0.10		5.1E-08	1.0E-03	4.6E-12				7.2E-08	1.4E-03	2.4E-03	13.79
Chlordane	7.9E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.3E-08	1.1E-04	4.9E-12	9.8E-09			7.5E-08	1.5E-04	2.6E-04	1.45
Endosulfan I	2.2E-02	6.0E-03	6.0E-03	NI	1	0.10		1.5E-08	2.4E-06	1.3E-12				2.1E-08	3.4E-06	5.8E-06	0.03
Endosulfan II	4.2E-02	6.0E-03	6.0E-03	NI	1	0.10		2.8E-08	4.7E-06	2.6E-12				4.0E-08	6.6E-06	1.1E-05	0.06
Endosulfan sulfate	4.2E-02	6.0E-03	6.0E-03	NI	1	0.10		2.8E-08	4.7E-06	2.6E-12				4.0E-08	6.6E-06	1.1E-05	0.06
Endrin	4.2E-02	3.0E-04	3.0E-04	NI	1	0.10		2.8E-08	9.3E-05	2.6E-12				4.0E-08	1.3E-04	2.3E-04	1.27
Endrin aldehyde	4.2E-02	3.0E-04	3.0E-04	NI	1	0.10		2.8E-08	9.3E-05	2.6E-12				4.0E-08	1.3E-04	2.3E-04	1.27
Endrin ketone	4.2E-02	3.0E-04	3.0E-04	NI	1	0.10		2.8E-08	9.3E-05	2.6E-12				4.0E-08	1.3E-04	2.3E-04	1.27
Gamma-BHC (Lindane)	2.2E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	4.8E-05	1.3E-12				2.1E-08	6.8E-05	1.2E-04	0.66
Heptachlor	4.0E-03	5.0E-04	5.0E-04	NI	1	0.10		2.7E-09	5.4E-06	2.5E-13				3.8E-09	7.6E-06	1.3E-05	0.07
Heptachlor epoxide	2.2E-02	1.3E-05	1.3E-05	NI	1	0.10		1.5E-08	1.1E-03	1.3E-12				2.1E-08	1.6E-03	2.7E-03	15.20
Methoxychlor	2.2E-01	5.0E-03	5.0E-03	NI	1	0.10		1.5E-07	2.9E-05	1.3E-11				2.1E-07	4.1E-05	7.0E-05	0.40
Toxaphene	2.2E+00	NI	NI	NI	1	0.10		1.5E-06		1.3E-10				2.1E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
Total Noncancer Hazard									7.3E-03		9.8E-09				1.0E-02	1.8E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * MCF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL132-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	17.88
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	2.15
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.7E-05	1.2E-13				1.9E-09	3.8E-05	6.5E-05	21.46
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.15
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.58
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.58
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	3.58
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.79
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.07
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.26
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.07
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
Total Noncancer Hazard									1.3E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL133-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.5E-03	3.0E-05	3.0E-05	NI	1	0.10		1.7E-09	5.6E-05	1.5E-13				2.4E-09	7.9E-05	1.4E-04	35.01
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	1.64
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	16.39
Chlordane	2.4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-09	3.2E-06	1.5E-13	3.0E-10			2.3E-09	4.6E-06	7.8E-06	2.02
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.07
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.14
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.14
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2.73
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2.73
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	2.73
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.40
Heptachlor	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	1.85
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	32.32
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.84
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.6E-04		3.0E-10				2.3E-04	3.9E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contamnant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$HQD = IDD / RFDD$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$HQIS = IDIS / RFDI$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$HQIV = IDIV / RFDI$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$HQIG = IDIG / RFDO$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL134-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL135-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG) (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	16.51
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	1.93
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.8E-03	5.0E-05	5.0E-05	NI	1	0.10		1.9E-09	3.8E-05	1.7E-13				2.7E-09	5.3E-05	9.1E-05	27.74
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	1.98
Endosulfan I	1.4E-03	6.0E-03	6.0E-03	NI	1	0.10		9.5E-10	1.6E-07	8.7E-14				1.3E-09	2.2E-07	3.8E-07	0.12
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.16
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.16
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.22
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.22
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.22
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.65
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	0.99
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	38.10
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.99
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E-04		2.5E-10				1.9E-04	3.3E-04	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL136-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL137-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									*1.2E-04*		*2.5E-10*				*1.8E-04*	*3.0E-04*	*100*

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDO$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL138-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-06	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL139-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL140-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL141-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.1E-02	3.0E-05	3.0E-05	NI	1	0.10		1.4E-08	4.7E-04	1.3E-12				2.0E-08	6.7E-04	1.1E-03	56.39
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	7.8E-03	5.0E-04	5.0E-04	NI	1	0.10		5.3E-09	1.1E-05	4.8E-13				7.4E-09	1.5E-05	2.5E-05	1.26
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-02	5.0E-05	5.0E-05	NI	1	0.10		1.4E-08	2.7E-04	1.2E-12				1.9E-08	3.8E-04	6.5E-04	32.22
Chlordane	1.1E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.2E-09	1.4E-05	6.6E-13	1.3E-09			1.0E-08	2.0E-05	3.5E-05	1.71
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.01
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.03
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.03
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	0.27
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	0.16
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	6.20
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.16
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									8.4E-04		1.3E-09				1.2E-03	2.0E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL142-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	16.85
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	1.5E-02	NI	NI	NI	1	0.10		1.0E-08		9.3E-13				1.4E-08			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	1.97
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.6E-03	5.0E-05	5.0E-05	NI	1	0.10		1.8E-09	3.5E-05	1.6E-13				2.5E-09	5.0E-05	8.5E-05	26.29
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.02
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.08
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.16
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.16
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.29
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.29
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.29
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.69
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.01
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	38.89
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.01
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E-04		2.5E-10				1.9E-04	3.2E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL143-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDO)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL144-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	17.67
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.07
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.1E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.8E-05	1.3E-13				2.0E-09	4.0E-05	6.8E-05	22.27
Chlordane	2.4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-09	3.2E-06	1.5E-13	3.0E-10			2.3E-09	4.6E-06	7.8E-06	2.55
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.17
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.17
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.45
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.45
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.45
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.77
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.06
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	40.78
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.06
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.3E-04		3.0E-10				1.8E-04	3.1E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL145-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-03	3.0E-05	3.0E-05	NI	1	0.10		6.8E-10	2.3E-05	6.2E-14				9.5E-10	3.2E-05	5.4E-05	18.04
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.3E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-09	2.6E-06	1.2E-13				1.9E-09	3.7E-06	6.4E-06	2.11
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	21.10
Chlordane	2.0E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.7E-06	1.2E-13	2.5E-10			1.9E-09	3.8E-06	6.5E-06	2.16
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.09
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.18
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	3.52
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	1.80
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	1.08
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	41.62
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	1.08
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-04		2.5E-10				1.8E-04	3.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL146-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.1E-03	3.0E-05	3.0E-05	NI	1	0.10		7.1E-10	2.4E-05	6.5E-14				1.0E-09	3.3E-05	5.7E-05	9.74
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	3.9E-06	6.7E-06	1.14
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.1E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.8E-05	1.3E-13				2.0E-09	3.9E-05	6.7E-05	11.40
Chlordane	2.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.8E-06	1.3E-13	2.6E-10			2.0E-09	4.0E-06	6.8E-06	1.17
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.05
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.10
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.3E-13				2.0E-09	3.3E-07	5.6E-07	0.10
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	1.90
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	1.90
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.6E-06	1.3E-13				2.0E-09	6.5E-06	1.1E-05	1.90
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	0.97
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.58
Heptachlor epoxide	3.2E-03	1.3E-05	1.3E-05	NI	1	0.10		2.2E-09	1.7E-04	2.0E-13				3.1E-09	2.3E-04	4.0E-04	68.47
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.58
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.4E-04		2.6E-10				3.4E-04	5.9E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL147-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.0E-02	3.0E-05	3.0E-05	NI	1	0.10		2.0E-08	6.8E-04	1.9E-12				2.9E-08	9.5E-04	1.6E-03	18.34
Alpha-BHC	1.2E-02	NI	NI	NI	1	0.10		7.8E-09		7.1E-13				1.1E-08			
Beta-BHC	1.2E-02	NI	NI	NI	1	0.10		7.8E-09		7.1E-13				1.1E-08			
4,4-DDD	6.0E-02	NI	NI	NI	1	0.10		4.1E-08		3.7E-12				5.7E-08			
4,4-DDE	4.9E-03	NI	NI	NI	1	0.10		3.3E-09		3.0E-13				4.7E-09			
4,4-DDT	4.7E-03	5.0E-04	5.0E-04	NI	1	0.10		3.2E-09	6.3E-06	2.9E-13				4.5E-09	9.0E-06	1.5E-05	0.17
Delta-BHC	1.2E-02	NI	NI	NI	1	0.10		7.8E-09		7.1E-13				1.1E-08			
Dieldrin	1.4E-01	5.0E-05	5.0E-05	NI	1	0.10		9.5E-08	1.9E-03	8.7E-12				1.3E-07	2.7E-03	4.6E-03	51.35
Chlordane	2.1E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-08	2.9E-05	1.3E-12	2.6E-09			2.0E-08	4.0E-05	6.9E-05	0.78
Endosulfan I	3.6E-03	6.0E-03	6.0E-03	NI	1	0.10		2.4E-09	4.1E-07	2.2E-13				3.4E-09	5.7E-07	9.8E-07	0.01
Endosulfan II	3.1E-03	6.0E-03	6.0E-03	NI	1	0.10		2.1E-09	3.5E-07	1.9E-13				3.0E-09	4.9E-07	8.4E-07	0.01
Endosulfan sulfate	2.3E-02	6.0E-03	6.0E-03	NI	1	0.10		1.5E-08	2.5E-06	1.4E-12				2.1E-08	3.6E-06	6.1E-06	0.07
Endrin	2.3E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	5.1E-05	1.4E-12				2.1E-08	7.2E-05	1.2E-04	1.38
Endrin aldehyde	2.3E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	5.1E-05	1.4E-12				2.1E-08	7.2E-05	1.2E-04	1.38
Endrin ketone	2.3E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	5.1E-05	1.4E-12				2.1E-08	7.2E-05	1.2E-04	1.38
Gamma-BHC (Lindane)	1.2E-02	3.0E-04	3.0E-04	NI	1	0.10		7.8E-09	2.6E-05	7.1E-13				1.1E-08	3.7E-05	6.2E-05	0.70
Heptachlor	1.2E-03	5.0E-04	5.0E-04	NI	1	0.10		8.1E-10	1.6E-06	7.4E-14				1.1E-09	2.3E-06	3.9E-06	0.04
Heptachlor epoxide	1.7E-02	1.3E-05	1.3E-05	NI	1	0.10		1.1E-08	8.8E-04	1.1E-12				1.6E-08	1.2E-03	2.1E-03	23.98
Methoxychlor	1.2E-01	5.0E-03	5.0E-03	NI	1	0.10		7.8E-08	1.6E-05	7.1E-12				1.1E-07	2.2E-05	3.7E-05	0.42
Toxaphene	1.2E+00	NI	NI	NI	1	0.10		7.8E-07		7.1E-11				1.1E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.7E-03		2.6E-09				5.2E-03	8.9E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL149-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.4E-03	3.0E-05	3.0E-05	NI	1	0.10		9.5E-10	3.2E-05	8.7E-14				1.3E-09	4.5E-05	7.6E-05	20.71
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
4,4-DDD	2.0E-02	NI	NI	NI	1	0.10		1.4E-08		1.2E-12				1.9E-08			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	2.2E-03	5.0E-04	5.0E-04	NI	1	0.10		1.5E-09	3.0E-06	1.4E-13				2.1E-09	4.2E-06	7.2E-06	1.95
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Dieldrin	2.2E-03	5.0E-05	5.0E-05	NI	1	0.10		1.5E-09	3.0E-05	1.4E-13				2.1E-09	4.2E-05	7.2E-05	19.53
Chlordane	5.2E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.5E-09	7.0E-06	3.2E-13	6.4E-10			5.0E-09	9.9E-06	1.7E-05	4.62
Endosulfan I	1.2E-03	6.0E-03	6.0E-03	NI	1	0.10		7.8E-10	1.3E-07	7.1E-14				1.1E-09	1.8E-07	3.1E-07	0.09
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.16
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.16
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	3.26
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	3.26
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	3.26
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		7.8E-10	2.6E-06	7.1E-14				1.1E-09	3.7E-06	6.2E-06	1.70
Heptachlor	1.2E-03	5.0E-04	5.0E-04	NI	1	0.10		7.8E-10	1.6E-06	7.1E-14				1.1E-09	2.2E-06	3.7E-06	1.02
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		7.8E-10	6.0E-05	7.1E-14				1.1E-09	8.4E-05	1.4E-04	39.27
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		7.8E-09	1.6E-06	7.1E-13				1.1E-08	2.2E-06	3.7E-06	1.02
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.5E-04		6.4E-10				2.1E-04	3.7E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL150-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m³/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG), (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	6.7E-03	3.0E-05	3.0E-05	NI	1	0.10		4.5E-09	1.5E-04	4.1E-13				6.4E-09	2.1E-04	3.6E-04	30.30
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Beta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
4,4-DDD	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	5.0E-03	5.0E-04	5.0E-04	NI	1	0.10		3.4E-09	6.8E-06	3.1E-13				4.8E-09	9.5E-06	1.6E-05	1.36
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		7.8E-10		7.1E-14				1.1E-09			
Dieldrin	1.8E-02	5.0E-05	5.0E-05	NI	1	0.10		1.2E-08	2.4E-04	1.1E-12				1.7E-08	3.4E-04	5.9E-04	48.84
Chlordane	9.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		6.1E-09	1.2E-05	5.6E-13	1.1E-09			8.7E-09	1.7E-05	3.0E-05	2.47
Endosulfan I	1.2E-03	6.0E-03	6.0E-03	NI	1	0.10		7.8E-10	1.3E-07	7.1E-14				1.1E-09	1.8E-07	3.1E-07	0.03
Endosulfan II	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.05
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.5E-07	1.4E-13				2.1E-09	3.5E-07	6.0E-07	0.05
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.99
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.99
Endrin ketone	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.99
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		7.8E-10	2.6E-06	7.1E-14				1.1E-09	3.7E-06	6.2E-06	0.52
Heptachlor	4.0E-03	5.0E-04	5.0E-04	NI	1	0.10		2.7E-09	5.4E-06	2.5E-13				3.8E-09	7.6E-06	1.3E-05	1.09
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		7.8E-10	6.0E-05	7.1E-14				1.1E-09	8.4E-05	1.4E-04	12.00
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		7.8E-09	1.6E-06	7.1E-13				1.1E-08	2.2E-06	3.7E-06	0.31
Toxaphene	1.2E-01	NI	NI	NI	1	0.10		7.8E-08		7.1E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.0E-04		1.1E-09				7.0E-04	1.2E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL151-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.5E-02	3.0E-05	3.0E-05	NI	1	0.10		1.7E-08	5.6E-04	1.5E-12				2.4E-08	7.9E-04	1.4E-03	75.12
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	4.2E-03	NI	NI	NI	1	0.10		2.8E-09		2.6E-13				4.0E-09			
4,4-DDE	6.6E-03	NI	NI	NI	1	0.10		4.5E-09		4.1E-13				6.3E-09			
4,4-DDT	5.9E-03	5.0E-04	5.0E-04	NI	1	0.10		4.0E-09	8.0E-06	3.6E-13				5.6E-09	1.1E-05	1.9E-05	1.06
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	6.7E-03	5.0E-05	5.0E-05	NI	1	0.10		4.5E-09	9.0E-05	4.1E-13				6.4E-09	1.3E-04	2.2E-04	12.08
Chlordane	8.7E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.9E-09	1.2E-05	5.4E-13	1.1E-09			8.3E-09	1.7E-05	2.8E-05	1.57
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.02
Endosulfan II	1.9E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.1E-07	1.2E-13				1.8E-09	3.0E-07	5.2E-07	0.03
Endosulfan sulfate	1.9E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.1E-07	1.2E-13				1.8E-09	3.0E-07	5.2E-07	0.03
Endrin	1.9E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.3E-06	1.2E-13				1.8E-09	6.0E-06	1.0E-05	0.57
Endrin aldehyde	1.9E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.3E-06	1.2E-13				1.8E-09	6.0E-06	1.0E-05	0.57
Endrin ketone	1.9E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.3E-06	1.2E-13				1.8E-09	6.0E-06	1.0E-05	0.57
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	0.30
Heptachlor	5.4E-03	5.0E-04	5.0E-04	NI	1	0.10		3.6E-09	7.3E-06	3.3E-13				5.2E-09	1.0E-05	1.8E-05	0.97
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	6.93
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.18
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									7.5E-04		1.1E-09				1.1E-03	1.8E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL152-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.7E-03	3.0E-05	3.0E-05	NI	1	0.10		2.5E-09	8.3E-05	2.3E-13				3.5E-09	1.2E-04	2.0E-04	43.62
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	1.41
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.4E-09	2.7E-05	1.2E-13				1.9E-09	3.8E-05	6.5E-05	14.15
Chlordane	3.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.1E-09	4.1E-06	1.9E-13	3.8E-10			2.9E-09	5.8E-06	9.9E-06	2.16
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.06
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.12
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.12
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	2.36
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	2.36
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	2.36
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	1.24
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.74
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	28.57
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.74
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.9E-04		3.8E-10				2.7E-04	4.6E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL153-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.1E+01	3.0E-05	3.0E-05	NI	1	0.10		1.4E-05	4.7E-01	1.3E-09				2.0E-05	6.7E-01	1.1E+00	77.82
Alpha-BHC	9.0E-01	NI	NI	NI	1	0.10		6.1E-07		5.6E-11				8.6E-07			
Beta-BHC	9.0E-01	NI	NI	NI	1	0.10		6.1E-07		5.6E-11				8.6E-07			
4,4-DDD	2.3E+00	NI	NI	NI	1	0.10		1.6E-06		1.4E-10				2.2E-06			
4,4-DDE	2.3E-01	NI	NI	NI	1	0.10		1.6E-07		1.4E-11				2.2E-07			
4,4-DDT	3.6E+00	5.0E-04	5.0E-04	NI	1	0.10		2.4E-06	4.9E-03	2.2E-10				3.4E-06	6.9E-03	1.2E-02	0.80
Delta-BHC	9.0E-01	NI	NI	NI	1	0.10		6.1E-07		5.6E-11				8.6E-07			
Dieldrin	3.0E+00	5.0E-05	5.0E-05	NI	1	0.10		2.0E-06	4.1E-02	1.9E-10				2.9E-06	5.7E-02	9.8E-02	6.67
Chlordane	1.0E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.0E-06	1.4E-02	6.4E-10	1.3E-06			9.9E-06	2.0E-02	3.4E-02	2.31
Endosulfan I	9.0E-01	6.0E-03	6.0E-03	NI	1	0.10		6.1E-07	1.0E-04	5.6E-11				8.6E-07	1.4E-04	2.4E-04	0.02
Endosulfan II	2.6E-01	6.0E-03	6.0E-03	NI	1	0.10		1.8E-07	2.9E-05	1.6E-11				2.5E-07	4.1E-05	7.1E-05	0.00
Endosulfan sulfate	1.8E+00	6.0E-03	6.0E-03	NI	1	0.10		1.2E-06	2.0E-04	1.1E-10				1.7E-06	2.8E-04	4.8E-04	0.03
Endrin	1.8E+00	3.0E-04	3.0E-04	NI	1	0.10		1.2E-06	3.9E-03	1.1E-10				1.7E-06	5.6E-03	9.5E-03	0.65
Endrin aldehyde	1.8E+00	3.0E-04	3.0E-04	NI	1	0.10		1.2E-06	3.9E-03	1.1E-10				1.7E-06	5.6E-03	9.5E-03	0.65
Endrin ketone	4.0E-01	3.0E-04	3.0E-04	NI	1	0.10		2.7E-07	9.0E-04	2.5E-11				3.8E-07	1.3E-03	2.2E-03	0.15
Gamma-BHC (Lindane)	9.0E-01	3.0E-04	3.0E-04	NI	1	0.10		6.1E-07	2.0E-03	5.6E-11				8.6E-07	2.9E-03	4.9E-03	0.33
Heptachlor	1.2E+01	5.0E-04	5.0E-04	NI	1	0.10		8.1E-06	1.6E-02	7.4E-10				1.1E-05	2.3E-02	3.9E-02	2.67
Heptachlor epoxide	9.0E-01	1.3E-05	1.3E-05	NI	1	0.10		6.1E-07	4.7E-02	5.6E-11				8.6E-07	6.6E-02	1.1E-01	7.70
Methoxychlor	9.0E+00	5.0E-03	5.0E-03	NI	1	0.10		6.1E-06	1.2E-03	5.6E-10				8.6E-06	1.7E-03	2.9E-03	0.20
Toxaphene	9.0E+01	NI	NI	NI	1	0.10		6.1E-05		5.6E-09				8.6E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.1E-01		1.3E-06				8.6E-01	1.5E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL153-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.7E-02	3.0E-05	3.0E-05	NI	1	0.10		1.1E-08	3.8E-04	1.1E-12				1.6E-08	5.4E-04	9.2E-04	58.87
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	4.3E-03	NI	NI	NI	1	0.10		2.9E-09		2.7E-13				4.1E-09			
4,4-DDE	6.6E-03	NI	NI	NI	1	0.10		4.5E-09		4.1E-13				6.3E-09			
4,4-DDT	2.0E-02	5.0E-04	5.0E-04	NI	1	0.10		1.4E-08	2.7E-05	1.2E-12				1.9E-08	3.8E-05	6.5E-05	4.16
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	1.1E-02	5.0E-05	5.0E-05	NI	1	0.10		7.4E-09	1.5E-04	6.8E-13				1.0E-08	2.1E-04	3.6E-04	22.85
Chlordane	7.4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		5.0E-09	1.0E-05	4.6E-13	9.1E-10			7.1E-09	1.4E-05	2.4E-05	1.54
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.02
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.04
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.04
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.73
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.73
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.73
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	0.38
Heptachlor	4.4E-03	5.0E-04	5.0E-04	NI	1	0.10		3.0E-09	5.9E-06	2.7E-13				4.2E-09	8.4E-06	1.4E-05	0.91
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.4E-10	5.7E-05	6.8E-14				1.0E-09	8.1E-05	1.4E-04	8.79
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.23
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.5E-04		9.1E-10				9.2E-04	1.6E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL154-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.3E-02	3.0E-05	3.0E-05	NI	1	0.10		1.6E-08	5.2E-04	1.4E-12				2.2E-08	7.3E-04	1.2E-03	83.22
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	5.6E-03	NI	NI	NI	1	0.10		3.8E-09		3.5E-13				5.3E-09			
4,4-DDE	2.8E-03	NI	NI	NI	1	0.10		1.9E-09		1.7E-13				2.7E-09			
4,4-DDT	2.3E-03	5.0E-04	5.0E-04	NI	1	0.10		1.6E-09	3.1E-06	1.4E-13				2.2E-09	4.4E-06	7.5E-06	0.50
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.0E-03	5.0E-05	5.0E-05	NI	1	0.10		1.3E-09	2.6E-05	1.2E-13				1.9E-09	3.7E-05	6.4E-05	4.23
Chlordane	2.6E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.8E-09	3.5E-06	1.6E-13	3.2E-10			2.5E-09	5.0E-06	8.5E-06	0.56
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.02
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.04
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.3E-09	2.2E-07	1.2E-13				1.9E-09	3.1E-07	5.3E-07	0.04
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.71
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.71
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.3E-09	4.4E-06	1.2E-13				1.9E-09	6.2E-06	1.1E-05	0.71
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	0.36
Heptachlor	1.6E-03	5.0E-04	5.0E-04	NI	1	0.10		1.1E-09	2.2E-06	9.9E-14				1.5E-09	3.1E-06	5.2E-06	0.35
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	8.35
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-05	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.22
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.2E-04		3.2E-10				8.8E-04	1.5E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL155-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	6.7E-02	3.0E-05	3.0E-05	NI	1	0.10		4.5E-08	1.5E-03	4.1E-12				6.4E-08	2.1E-03	3.6E-03	6.59
Alpha-BHC	7.0E-02	NI	NI	NI	1	0.10		4.7E-08		4.3E-12				6.7E-08			
Beta-BHC	7.0E-02	NI	NI	NI	1	0.10		4.7E-08		4.3E-12				6.7E-08			
4,4-DDD	9.7E-02	NI	NI	NI	1	0.10		6.5E-08		6.0E-12				9.3E-08			
4,4-DDE	5.8E-02	NI	NI	NI	1	0.10		3.9E-08		3.6E-12				5.5E-08			
4,4-DDT	5.5E-01	5.0E-04	5.0E-04	NI	1	0.10		3.7E-07	7.4E-04	3.4E-11				5.2E-07	1.0E-03	1.8E-03	3.24
Delta-BHC	7.0E-02	NI	NI	NI	1	0.10		4.7E-08		4.3E-12				6.7E-08			
Dieldrin	1.1E+00	5.0E-05	5.0E-05	NI	1	0.10		7.4E-07	1.5E-02	6.8E-11				1.0E-06	2.1E-02	3.6E-02	64.88
Chlordane	1.2E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		8.2E-07	1.6E-03	7.5E-11	1.5E-07			1.2E-06	2.3E-03	3.9E-03	7.14
Endosulfan I	7.0E-02	6.0E-03	6.0E-03	NI	1	0.10		4.7E-08	7.9E-06	4.3E-12				6.7E-08	1.1E-05	1.9E-05	0.03
Endosulfan II	1.1E-01	6.0E-03	6.0E-03	NI	1	0.10		7.4E-08	1.2E-05	6.8E-12				1.0E-07	1.7E-05	3.0E-05	0.05
Endosulfan sulfate	1.4E-01	6.0E-03	6.0E-03	NI	1	0.10		9.1E-08	1.5E-05	8.3E-12				1.3E-07	2.1E-05	3.7E-05	0.07
Endrin	1.5E-02	3.0E-04	3.0E-04	NI	1	0.10		1.0E-08	3.4E-05	9.3E-13				1.4E-08	4.8E-05	8.1E-05	0.15
Endrin aldehyde	1.4E-01	3.0E-04	3.0E-04	NI	1	0.10		9.1E-08	3.0E-04	8.3E-12				1.3E-07	4.3E-04	7.3E-04	1.33
Endrin ketone	4.7E-02	3.0E-04	3.0E-04	NI	1	0.10		3.2E-08	1.1E-04	2.9E-12				4.5E-08	1.5E-04	2.6E-04	0.46
Gamma-BHC (Lindane)	7.0E-02	3.0E-04	3.0E-04	NI	1	0.10		4.7E-08	1.6E-04	4.3E-12				6.7E-08	2.2E-04	3.8E-04	0.69
Heptachlor	2.3E-01	5.0E-04	5.0E-04	NI	1	0.10		1.6E-07	3.1E-04	1.4E-11				2.2E-07	4.4E-04	7.5E-04	1.36
Heptachlor epoxide	6.0E-02	1.3E-05	1.3E-05	NI	1	0.10		4.1E-08	3.1E-03	3.7E-12				5.7E-08	4.4E-03	7.5E-03	13.61
Methoxychlor	7.0E-01	5.0E-03	5.0E-03	NI	1	0.10		4.7E-07	9.5E-05	4.3E-11				6.7E-07	1.3E-04	2.3E-04	0.41
Toxaphene	7.0E+00	NI	NI	NI	1	0.10		4.7E-06		4.3E-10				6.7E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.3E-02		1.5E-07				3.2E-02	5.5E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL156-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.1E-03	3.0E-05	3.0E-05	NI	1	0.10		4.8E-09	1.6E-04	4.4E-13				6.8E-09	2.3E-04	3.9E-04	18.78
Alpha-BHC	1.3E-03	NI	NI	NI	1	0.10		8.8E-10		8.0E-14				1.2E-09			
Beta-BHC	1.3E-03	NI	NI	NI	1	0.10		8.8E-10		8.0E-14				1.2E-09			
4,4-DDD	2.5E-03	NI	NI	NI	1	0.10		1.7E-09		1.5E-13				2.4E-09			
4,4-DDE	2.5E-03	NI	NI	NI	1	0.10		1.7E-09		1.5E-13				2.4E-09			
4,4-DDT	5.7E-03	5.0E-04	5.0E-04	NI	1	0.10		3.8E-09	7.7E-06	3.5E-13				5.4E-09	1.1E-05	1.9E-05	0.90
Delta-BHC	1.3E-03	NI	NI	NI	1	0.10		8.8E-10		8.0E-14				1.2E-09			
Dieldrin	4.1E-02	5.0E-05	5.0E-05	NI	1	0.10		2.8E-08	5.5E-04	2.5E-12				3.9E-08	7.8E-04	1.3E-03	65.06
Chlordane	2.5E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.7E-08	3.3E-05	1.5E-12	3.1E-09			2.4E-08	4.7E-05	8.1E-05	3.94
Endosulfan I	1.3E-03	6.0E-03	6.0E-03	NI	1	0.10		8.8E-10	1.5E-07	8.0E-14				1.2E-09	2.1E-07	3.5E-07	0.02
Endosulfan II	2.5E-03	6.0E-03	6.0E-03	NI	1	0.10		1.7E-09	2.8E-07	1.5E-13				2.4E-09	4.0E-07	6.8E-07	0.03
Endosulfan sulfate	2.5E-03	6.0E-03	6.0E-03	NI	1	0.10		1.7E-09	2.8E-07	1.5E-13				2.4E-09	4.0E-07	6.8E-07	0.03
Endrin	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.6E-06	1.5E-13				2.4E-09	7.9E-06	1.4E-05	0.66
Endrin aldehyde	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.6E-06	1.5E-13				2.4E-09	7.9E-06	1.4E-05	0.66
Endrin ketone	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.6E-06	1.5E-13				2.4E-09	7.9E-06	1.4E-05	0.66
Gamma-BHC (Lindane)	1.3E-03	3.0E-04	3.0E-04	NI	1	0.10		8.8E-10	2.9E-06	8.0E-14				1.2E-09	4.1E-06	7.1E-06	0.34
Heptachlor	4.9E-03	5.0E-04	5.0E-04	NI	1	0.10		3.3E-09	6.6E-06	3.0E-13				4.7E-09	9.3E-06	1.6E-05	0.78
Heptachlor epoxide	1.3E-03	1.3E-05	1.3E-05	NI	1	0.10		8.8E-10	6.8E-05	8.0E-14				1.2E-09	9.5E-05	1.6E-04	7.93
Methoxychlor	1.3E-02	5.0E-03	5.0E-03	NI	1	0.10		8.8E-09	1.8E-06	8.0E-13				1.2E-08	2.5E-06	4.2E-06	0.21
Toxaphene	1.3E-01	NI	NI	NI	1	0.10		8.8E-08		8.0E-12				1.2E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									8.5E-04		3.1E-09				1.2E-03	2.1E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL157-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG) (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	1.3E-03	3.0E-05	3.0E-05	NI	1	0.10		8.4E-10	2.8E-05	7.7E-14				1.2E-09	4.0E-05	6.8E-05	17.05
Alpha-BHC	1.3E-03	NI	NI	NI	1	0.10		8.4E-10		7.7E-14				1.2E-09			
Beta-BHC	1.3E-03	NI	NI	NI	1	0.10		8.4E-10		7.7E-14				1.2E-09			
4,4-DDD	2.5E-03	NI	NI	NI	1	0.10		1.7E-09		1.5E-13				2.3E-09			
4,4-DDE	2.5E-03	NI	NI	NI	1	0.10		1.7E-09		1.5E-13				2.3E-09			
4,4-DDT	2.5E-03	5.0E-04	5.0E-04	NI	1	0.10		1.7E-09	3.3E-06	1.5E-13				2.3E-09	4.7E-06	8.0E-06	2.00
Delta-BHC	1.3E-03	NI	NI	NI	1	0.10		8.4E-10		7.7E-14				1.2E-09			
Dieldrin	3.1E-03	5.0E-05	5.0E-05	NI	1	0.10		2.1E-09	4.2E-05	1.9E-13				3.0E-09	5.9E-05	1.0E-04	25.37
Chlordane	2.5E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.7E-09	3.4E-06	1.5E-13	3.1E-10			2.4E-09	4.8E-06	8.1E-06	2.05
Endosulfan I	1.3E-03	6.0E-03	6.0E-03	NI	1	0.10		8.4E-10	1.4E-07	7.7E-14				1.2E-09	2.0E-07	3.4E-07	0.09
Endosulfan II	2.5E-03	6.0E-03	6.0E-03	NI	1	0.10		1.7E-09	2.8E-07	1.5E-13				2.3E-09	3.9E-07	6.7E-07	0.17
Endosulfan sulfate	2.5E-03	6.0E-03	6.0E-03	NI	1	0.10		1.7E-09	2.8E-07	1.5E-13				2.3E-09	3.9E-07	6.7E-07	0.17
Endrin	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.5E-06	1.5E-13				2.3E-09	7.8E-06	1.3E-05	3.34
Endrin aldehyde	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.5E-06	1.5E-13				2.3E-09	7.8E-06	1.3E-05	3.34
Endrin ketone	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.5E-06	1.5E-13				2.3E-09	7.8E-06	1.3E-05	3.34
Gamma-BHC (Lindane)	1.3E-03	3.0E-04	3.0E-04	NI	1	0.10		8.4E-10	2.8E-06	7.7E-14				1.2E-09	4.0E-06	6.8E-06	1.70
Heptachlor	1.3E-03	5.0E-04	5.0E-04	NI	1	0.10		8.4E-10	1.7E-06	7.7E-14				1.2E-09	2.4E-06	4.1E-06	1.02
Heptachlor epoxide	1.3E-03	1.3E-05	1.3E-05	NI	1	0.10		8.4E-10	6.5E-05	7.7E-14				1.2E-09	9.2E-05	1.6E-04	39.34
Methoxychlor	1.3E-02	5.0E-03	5.0E-03	NI	1	0.10		8.4E-09	1.7E-06	7.7E-13				1.2E-08	2.4E-06	4.1E-06	1.02
Toxaphene	1.3E-01	NI	NI	NI	1	0.10		8.4E-08		7.7E-12				1.2E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.6E-04		3.1E-10				2.3E-04	4.0E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL158-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	3.6E-03	3.0E-05	3.0E-05	NI	1	0.10		2.4E-09	8.1E-05	2.2E-13				3.4E-09	1.1E-04	2.0E-04	0.77
Alpha-BHC	1.3E-02	NI	NI	NI	1	0.10		8.8E-09		8.0E-13				1.2E-08			
Beta-BHC	1.3E-02	NI	NI	NI	1	0.10		8.8E-09		8.0E-13				1.2E-08			
4,4-DDD	2.7E-02	NI	NI	NI	1	0.10		1.8E-08		1.7E-12				2.6E-08			
4,4-DDE	8.4E-03	NI	NI	NI	1	0.10		5.7E-09		5.2E-13				8.0E-09			
4,4-DDT	6.8E-02	5.0E-04	5.0E-04	NI	1	0.10		4.6E-08	9.2E-05	4.2E-12				6.5E-08	1.3E-04	2.2E-04	0.87
Delta-BHC	1.3E-02	NI	NI	NI	1	0.10		8.8E-09		8.0E-13				1.2E-08			
Dieldrin	6.2E-01	5.0E-05	5.0E-05	NI	1	0.10		4.2E-07	8.4E-03	3.8E-11				5.9E-07	1.2E-02	2.0E-02	79.50
Chlordane	2.2E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.5E-07	3.0E-04	1.4E-11	2.7E-08			2.1E-07	4.2E-04	7.2E-04	2.83
Endosulfan I	1.3E-02	6.0E-03	6.0E-03	NI	1	0.10		8.8E-09	1.5E-06	8.0E-13				1.2E-08	2.1E-06	3.5E-06	0.01
Endosulfan II	6.6E-03	6.0E-03	6.0E-03	NI	1	0.10		4.5E-09	7.4E-07	4.1E-13				6.3E-09	1.0E-06	1.8E-06	0.01
Endosulfan sulfate	2.5E-02	6.0E-03	6.0E-03	NI	1	0.10		1.7E-08	2.8E-06	1.5E-12				2.4E-08	4.0E-06	6.8E-06	0.03
Endrin	3.9E-03	3.0E-04	3.0E-04	NI	1	0.10		2.6E-09	8.8E-06	2.4E-13				3.7E-09	1.2E-05	2.1E-05	0.08
Endrin aldehyde	2.5E-02	3.0E-04	3.0E-04	NI	1	0.10		1.7E-08	5.6E-05	1.5E-12				2.4E-08	7.9E-05	1.4E-04	0.53
Endrin ketone	2.0E-02	3.0E-04	3.0E-04	NI	1	0.10		1.4E-08	4.5E-05	1.2E-12				1.9E-08	6.4E-05	1.1E-04	0.43
Gamma-BHC (Lindane)	1.3E-02	3.0E-04	3.0E-04	NI	1	0.10		8.8E-09	2.9E-05	8.0E-13				1.2E-08	4.1E-05	7.1E-05	0.28
Heptachlor	6.3E-02	5.0E-04	5.0E-04	NI	1	0.10		4.3E-08	8.5E-05	3.9E-12				6.0E-08	1.2E-04	2.1E-04	0.81
Heptachlor epoxide	2.8E-02	1.3E-05	1.3E-05	NI	1	0.10		1.9E-08	1.5E-03	1.7E-12				2.7E-08	2.1E-03	3.5E-03	13.81
Methoxychlor	3.3E-02	5.0E-03	5.0E-03	NI	1	0.10		2.2E-08	4.5E-06	2.0E-12				3.1E-08	6.3E-06	1.1E-05	0.04
Toxaphene	1.3E+00	NI	NI	NI	1	0.10		8.8E-07		8.0E-11				1.2E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E-02		2.7E-08				1.5E-02	2.5E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL159-1

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.5E+02	3.0E-05	3.0E-05	NI	1	0.10		1.0E-04	3.4E+00	9.3E-09				1.4E-04	4.8E+00	8.1E+00	62.98
Alpha-BHC	2.2E+01	NI	NI	NI	1	0.10		1.5E-05		1.3E-09				2.1E-05			
Beta-BHC	9.2E+00	NI	NI	NI	1	0.10		6.2E-06		5.7E-10				8.8E-06			
4,4-DDD	2.0E+01	NI	NI	NI	1	0.10		1.4E-05		1.2E-09				1.9E-05			
4,4-DDE	4.2E+01	NI	NI	NI	1	0.10		2.8E-05		2.6E-09				4.0E-05			
4,4-DDT	1.4E+01	5.0E-04	5.0E-04	NI	1	0.10		9.5E-06	1.9E-02	8.7E-10				1.3E-05	2.7E-02	4.6E-02	0.35
Delta-BHC	2.2E+01	NI	NI	NI	1	0.10		1.5E-05		1.3E-09				2.1E-05			
Dieldrin	3.0E+01	5.0E-05	5.0E-05	NI	1	0.10		2.0E-05	4.1E-01	1.9E-09				2.9E-05	5.7E-01	9.8E-01	7.56
Chlordane	4.8E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.2E-05	6.4E-02	2.9E-09	5.9E-06			4.5E-05	9.1E-02	1.5E-01	1.20
Endosulfan I	2.2E+01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-05	2.4E-03	1.3E-09				2.1E-05	3.4E-03	5.8E-03	0.05
Endosulfan II	4.2E+01	6.0E-03	6.0E-03	NI	1	0.10		2.8E-05	4.7E-03	2.6E-09				4.0E-05	6.6E-03	1.1E-02	0.09
Endosulfan sulfate	4.2E+01	6.0E-03	6.0E-03	NI	1	0.10		2.8E-05	4.7E-03	2.6E-09				4.0E-05	6.6E-03	1.1E-02	0.09
Endrin	4.2E+01	3.0E-04	3.0E-04	NI	1	0.10		2.8E-05	9.3E-02	2.6E-09				4.0E-05	1.3E-01	2.3E-01	1.74
Endrin aldehyde	4.2E+01	3.0E-04	3.0E-04	NI	1	0.10		2.8E-05	9.3E-02	2.6E-09				4.0E-05	1.3E-01	2.3E-01	1.74
Endrin ketone	4.2E+01	3.0E-04	3.0E-04	NI	1	0.10		2.8E-05	9.3E-02	2.6E-09				4.0E-05	1.3E-01	2.3E-01	1.74
Gamma-BHC (Lindane)	2.2E+01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-05	4.8E-02	1.3E-09				2.1E-05	6.8E-02	1.2E-01	0.90
Heptachlor	7.7E+00	5.0E-04	5.0E-04	NI	1	0.10		5.2E-06	1.0E-02	4.8E-10				7.3E-06	1.5E-02	2.5E-02	0.19
Heptachlor epoxide	2.2E+01	1.3E-05	1.3E-05	NI	1	0.10		1.5E-05	1.1E+00	1.3E-09				2.1E-05	1.6E+00	2.7E+00	20.83
Methoxychlor	2.2E+02	5.0E-03	5.0E-03	NI	1	0.10		1.5E-04	2.9E-02	1.3E-08				2.1E-04	4.1E-02	7.0E-02	0.54
Toxaphene	2.2E+03	NI	NI	NI	1	0.10		1.5E-03		1.3E-07				2.1E-03			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.4E+00		5.9E-06				7.6E+00	1.3E+01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL160-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.8E-03	3.0E-05	3.0E-05	NI	1	0.10		3.9E-09	1.3E-04	3.6E-13				5.5E-09	1.8E-04	3.1E-04	43.61
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	1.5E-02	NI	NI	NI	1	0.10		1.0E-08		9.3E-13				1.4E-08			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	0.90
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	6.0E-03	5.0E-05	5.0E-05	NI	1	0.10		4.1E-09	8.1E-05	3.7E-13				5.7E-09	1.1E-04	2.0E-04	27.07
Chlordane	6.4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		4.3E-09	8.6E-06	4.0E-13	7.9E-10			6.1E-09	1.2E-05	2.1E-05	2.89
Endosulfan I	1.5E-03	6.0E-03	6.0E-03	NI	1	0.10		1.0E-09	1.7E-07	9.3E-14				1.4E-09	2.4E-07	4.1E-07	0.06
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.08
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.08
Endrin	4.4E-03	3.0E-04	3.0E-04	NI	1	0.10		3.0E-09	9.9E-06	2.7E-13				4.2E-09	1.4E-05	2.4E-05	3.31
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	1.50
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	1.50
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	0.75
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	0.45
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	17.35
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.45
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.0E-04		7.9E-10				4.2E-04	7.2E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL161-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E-01	3.0E-05	3.0E-05	NI	1	0.10		6.8E-08	2.3E-03	6.2E-12				9.5E-08	3.2E-03	5.4E-03	16.33
Alpha-BHC	2.5E-02	NI	NI	NI	1	0.10		1.7E-08		1.5E-12				2.4E-08			
Beta-BHC	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
4,4-DDD	2.0E-01	NI	NI	NI	1	0.10		1.4E-07		1.2E-11				1.9E-07			
4,4-DDE	2.0E-01	NI	NI	NI	1	0.10		1.4E-07		1.2E-11				1.9E-07			
4,4-DDT	2.0E-01	5.0E-04	5.0E-04	NI	1	0.10		1.4E-07	2.7E-04	1.2E-11				1.9E-07	3.8E-04	6.5E-04	1.96
Delta-BHC	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
Dieldrin	2.6E-01	5.0E-05	5.0E-05	NI	1	0.10		1.8E-07	3.5E-03	1.6E-11				2.5E-07	5.0E-03	8.5E-03	25.47
Chlordane	9.3E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		6.3E-08	1.3E-04	5.7E-12	1.1E-08			8.9E-08	1.8E-04	3.0E-04	0.91
Endosulfan I	1.0E-01	6.0E-03	6.0E-03	NI	1	0.10		6.8E-08	1.1E-05	6.2E-12				9.5E-08	1.6E-05	2.7E-05	0.08
Endosulfan II	7.5E-02	6.0E-03	6.0E-03	NI	1	0.10		5.1E-08	8.4E-06	4.6E-12				7.2E-08	1.2E-05	2.0E-05	0.06
Endosulfan sulfate	2.0E-01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-07	2.3E-05	1.2E-11				1.9E-07	3.2E-05	5.4E-05	0.16
Endrin	5.3E-01	3.0E-04	3.0E-04	NI	1	0.10		3.6E-07	1.2E-03	3.3E-11				5.1E-07	1.7E-03	2.9E-03	8.65
Endrin aldehyde	2.0E-01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-07	4.5E-04	1.2E-11				1.9E-07	6.4E-04	1.1E-03	3.27
Endrin ketone	2.0E-01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-07	4.5E-04	1.2E-11				1.9E-07	6.4E-04	1.1E-03	3.27
Gamma-BHC (Lindane)	1.3E-02	3.0E-04	3.0E-04	NI	1	0.10		8.8E-09	2.9E-05	8.0E-13				1.2E-08	4.1E-05	7.1E-05	0.21
Heptachlor	1.0E-01	5.0E-04	5.0E-04	NI	1	0.10		6.8E-08	1.4E-04	6.2E-12				9.5E-08	1.9E-04	3.3E-04	0.98
Heptachlor epoxide	1.0E-01	1.3E-05	1.3E-05	NI	1	0.10		6.8E-08	5.2E-03	6.2E-12				9.5E-08	7.3E-03	1.3E-02	37.68
Methoxychlor	1.0E+00	5.0E-03	5.0E-03	NI	1	0.10		6.8E-07	1.4E-04	6.2E-11				9.5E-07	1.9E-04	3.3E-04	0.98
Toxaphene	1.0E+01	NI	NI	NI	1	0.10		6.8E-06		6.2E-10				9.5E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E-02		1.1E-08				1.9E-02	3.3E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL162-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.8E+00	3.0E-05	3.0E-05	NI	1	0.10		1.2E-06	4.1E-02	1.1E-10				1.7E-06	5.7E-02	9.8E-02	3.61
Alpha-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
Beta-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
4,4-DDD	1.5E+02	NI	NI	NI	1	0.10		1.0E-04		9.3E-09				1.4E-04			
4,4-DDE	4.7E+00	NI	NI	NI	1	0.10		3.2E-06		2.9E-10				4.5E-06			
4,4-DDT	2.8E+00	5.0E-04	5.0E-04	NI	1	0.10		1.9E-06	3.8E-03	1.7E-10				2.7E-06	5.3E-03	9.1E-03	0.34
Delta-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
Dieldrin	2.5E+01	5.0E-05	5.0E-05	NI	1	0.10		1.7E-05	3.4E-01	1.5E-09				2.4E-05	4.8E-01	8.1E-01	30.04
Chlordane	4.7E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.2E-06	6.3E-03	2.9E-10	5.8E-07			4.5E-06	9.0E-03	1.5E-02	0.56
Endosulfan I	1.1E+01	6.0E-03	6.0E-03	NI	1	0.10		7.4E-06	1.2E-03	6.8E-10				1.0E-05	1.7E-03	3.0E-03	0.11
Endosulfan II	7.7E+00	6.0E-03	6.0E-03	NI	1	0.10		5.2E-06	8.7E-04	4.8E-10				7.3E-06	1.2E-03	2.1E-03	0.08
Endosulfan sulfate	2.2E+01	6.0E-03	6.0E-03	NI	1	0.10		1.5E-05	2.5E-03	1.4E-09				2.1E-05	3.5E-03	6.0E-03	0.22
Endrin	2.2E+01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-05	5.0E-02	1.4E-09				2.1E-05	7.0E-02	1.2E-01	4.41
Endrin aldehyde	2.7E+00	3.0E-04	3.0E-04	NI	1	0.10		1.8E-06	6.1E-03	1.7E-10				2.6E-06	8.6E-03	1.5E-02	0.54
Endrin ketone	2.2E+01	3.0E-04	3.0E-04	NI	1	0.10		1.5E-05	5.0E-02	1.4E-09				2.1E-05	7.0E-02	1.2E-01	4.41
Gamma-BHC (Lindane)	1.1E+01	3.0E-04	3.0E-04	NI	1	0.10		7.4E-06	2.5E-02	6.8E-10				1.0E-05	3.5E-02	6.0E-02	2.20
Heptachlor	1.1E+01	5.0E-04	5.0E-04	NI	1	0.10		7.4E-06	1.5E-02	6.8E-10				1.0E-05	2.1E-02	3.6E-02	1.32
Heptachlor epoxide	1.1E+01	1.3E-05	1.3E-05	NI	1	0.10		7.4E-06	5.7E-01	6.8E-10				1.0E-05	8.1E-01	1.4E+00	50.84
Methoxychlor	1.1E+02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-05	1.5E-02	6.8E-09				1.0E-04	2.1E-02	3.6E-02	1.32
Toxaphene	1.1E+03	NI	NI	NI	1	0.10		7.4E-04		6.8E-08				1.0E-03			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E+00		5.8E-07				1.6E+00	2.7E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL162-6

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.2E-03	3.0E-05	3.0E-05	NI	1	0.10		2.8E-09	9.3E-05	2.6E-13				4.0E-09	1.3E-04	2.3E-04	8.10
Alpha-BHC	4.2E-03	NI	NI	NI	1	0.10		2.8E-09		2.6E-13				4.0E-09			
Beta-BHC	4.2E-03	NI	NI	NI	1	0.10		2.8E-09		2.6E-13				4.0E-09			
4,4-DDD	3.5E-01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.3E-07			
4,4-DDE	9.7E-03	NI	NI	NI	1	0.10		6.5E-09		6.0E-13				9.3E-09			
4,4-DDT	8.0E-03	5.0E-04	5.0E-04	NI	1	0.10		5.4E-09	1.1E-05	4.9E-13				7.6E-09	1.5E-05	2.6E-05	0.94
Delta-BHC	4.2E-03	NI	NI	NI	1	0.10		2.8E-09		2.6E-13				4.0E-09			
Dieldrin	4.9E-02	5.0E-05	5.0E-05	NI	1	0.10		3.3E-08	6.6E-04	3.0E-12				4.7E-08	9.3E-04	1.6E-03	57.37
Chlordane	1.2E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		8.1E-09	1.6E-05	7.4E-13	1.5E-09			1.1E-08	2.3E-05	3.9E-05	1.41
Endosulfan I	8.0E-02	6.0E-03	6.0E-03	NI	1	0.10		5.4E-08	9.0E-06	4.9E-12				7.6E-08	1.3E-05	2.2E-05	0.78
Endosulfan II	1.3E-02	6.0E-03	6.0E-03	NI	1	0.10		8.8E-09	1.5E-06	8.0E-13				1.2E-08	2.1E-06	3.5E-06	0.13
Endosulfan sulfate	8.0E-03	6.0E-03	6.0E-03	NI	1	0.10		5.4E-09	9.0E-07	4.9E-13				7.6E-09	1.3E-06	2.2E-06	0.08
Endrin	3.9E-02	3.0E-04	3.0E-04	NI	1	0.10		2.6E-08	8.8E-05	2.4E-12				3.7E-08	1.2E-04	2.1E-04	7.61
Endrin aldehyde	8.0E-03	3.0E-04	3.0E-04	NI	1	0.10		5.4E-09	1.8E-05	4.9E-13				7.6E-09	2.5E-05	4.3E-05	1.56
Endrin ketone	8.0E-03	3.0E-04	3.0E-04	NI	1	0.10		5.4E-09	1.8E-05	4.9E-13				7.6E-09	2.5E-05	4.3E-05	1.56
Gamma-BHC (Lindane)	4.2E-03	3.0E-04	3.0E-04	NI	1	0.10		2.8E-09	9.3E-06	2.6E-13				4.0E-09	1.3E-05	2.3E-05	0.81
Heptachlor	4.2E-03	5.0E-04	5.0E-04	NI	1	0.10		2.8E-09	5.6E-06	2.6E-13				4.0E-09	7.9E-06	1.4E-05	0.49
Heptachlor epoxide	4.2E-03	1.3E-05	1.3E-05	NI	1	0.10		2.8E-09	2.2E-04	2.6E-13				4.0E-09	3.0E-04	5.2E-04	18.69
Methoxychlor	4.2E-02	5.0E-03	5.0E-03	NI	1	0.10		2.8E-08	5.6E-06	2.6E-12				4.0E-08	7.9E-06	1.4E-05	0.49
Toxaphene	4.2E-01	NI	NI	NI	1	0.10		2.8E-07		2.6E-11				4.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-03		1.5E-09				1.6E-03	2.8E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL163-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.3E-01	3.0E-05	3.0E-05	NI	1	0.10		2.9E-07	9.7E-03	2.7E-11				4.1E-07	1.4E-02	2.3E-02	77.44
Alpha-BHC	3.5E-03	NI	NI	NI	1	0.10		2.4E-09		2.2E-13				3.3E-09			
Beta-BHC	3.5E-03	NI	NI	NI	1	0.10		2.4E-09		2.2E-13				3.3E-09			
4,4-DDD	8.4E-02	NI	NI	NI	1	0.10		5.7E-08		5.2E-12				8.0E-08			
4,4-DDE	1.8E-02	NI	NI	NI	1	0.10		1.2E-08		1.1E-12				1.7E-08			
4,4-DDT	3.1E-02	5.0E-04	5.0E-04	NI	1	0.10		2.1E-08	4.2E-05	1.9E-12				3.0E-08	5.9E-05	1.0E-04	0.33
Delta-BHC	3.5E-03	NI	NI	NI	1	0.10		2.4E-09		2.2E-13				3.3E-09			
Dieldrin	1.1E-01	5.0E-05	5.0E-05	NI	1	0.10		7.4E-08	1.5E-03	6.8E-12				1.0E-07	2.1E-03	3.6E-03	11.89
Chlordane	3.3E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.2E-07	4.5E-04	2.1E-11	4.1E-08			3.2E-07	6.3E-04	1.1E-03	3.59
Endosulfan I	3.5E-03	6.0E-03	6.0E-03	NI	1	0.10		2.4E-09	3.9E-07	2.2E-13				3.3E-09	5.6E-07	9.5E-07	0.00
Endosulfan II	7.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.7E-09	7.9E-07	4.3E-13				6.7E-09	1.1E-06	1.9E-06	0.01
Endosulfan sulfate	7.0E-03	6.0E-03	6.0E-03	NI	1	0.10		4.7E-09	7.9E-07	4.3E-13				6.7E-09	1.1E-06	1.9E-06	0.01
Endrin	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.13
Endrin aldehyde	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.13
Endrin ketone	7.0E-03	3.0E-04	3.0E-04	NI	1	0.10		4.7E-09	1.6E-05	4.3E-13				6.7E-09	2.2E-05	3.8E-05	0.13
Gamma-BHC (Lindane)	3.5E-03	3.0E-04	3.0E-04	NI	1	0.10		2.4E-09	7.9E-06	2.2E-13				3.3E-09	1.1E-05	1.9E-05	0.06
Heptachlor	3.1E-01	5.0E-04	5.0E-04	NI	1	0.10		2.1E-07	4.2E-04	1.9E-11				3.0E-07	5.9E-04	1.0E-03	3.35
Heptachlor epoxide	7.0E-03	1.3E-05	1.3E-05	NI	1	0.10		4.7E-09	3.6E-04	4.3E-13				6.7E-09	5.1E-04	8.8E-04	2.91
Methoxychlor	3.5E-02	5.0E-03	5.0E-03	NI	1	0.10		2.4E-08	4.7E-06	2.2E-12				3.3E-08	6.7E-06	1.1E-05	0.04
Toxaphene	3.5E-01	NI	NI	NI	1	0.10		2.4E-07		2.2E-11				3.3E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E-02		4.1E-08				1.8E-02	3.0E-02	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL164-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2.7E+01	3.0E-05	3.0E-05	NI	1	0.10		1.8E-05	6.1E-01	1.7E-09				2.6E-05	8.6E-01	1.5E+00	26.34
Alpha-BHC	3.5E-01	NI	NI	NI	1	0.10		2.3E-07		2.1E-11				3.3E-07			
Beta-BHC	3.5E-01	NI	NI	NI	1	0.10		2.3E-07		2.1E-11				3.3E-07			
4,4-DDD	2.3E+00	NI	NI	NI	1	0.10		1.6E-06		1.4E-10				2.2E-06			
4,4-DDE	2.9E+00	NI	NI	NI	1	0.10		2.0E-06		1.8E-10				2.8E-06			
4,4-DDT	1.4E+01	5.0E-04	5.0E-04	NI	1	0.10		9.5E-06	1.9E-02	8.7E-10				1.3E-05	2.7E-02	4.6E-02	0.82
Delta-BHC	1.3E+00	NI	NI	NI	1	0.10		8.8E-07		8.0E-11				1.2E-06			
Dieldrin	1.1E+02	5.0E-05	5.0E-05	NI	1	0.10		7.4E-05	1.5E+00	6.8E-09				1.0E-04	2.1E+00	3.6E+00	64.39
Chlordane	3.5E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.3E-05	4.7E-02	2.1E-09	4.3E-06			3.3E-05	6.6E-02	1.1E-01	2.02
Endosulfan I	3.5E-01	6.0E-03	6.0E-03	NI	1	0.10		2.3E-07	3.9E-05	2.1E-11				3.3E-07	5.5E-05	9.4E-05	0.00
Endosulfan II	9.9E-01	6.0E-03	6.0E-03	NI	1	0.10		6.7E-07	1.1E-04	6.1E-11				9.4E-07	1.6E-04	2.7E-04	0.00
Endosulfan sulfate	6.5E-01	6.0E-03	6.0E-03	NI	1	0.10		4.4E-07	7.3E-05	4.0E-11				6.2E-07	1.0E-04	1.8E-04	0.00
Endrin	1.0E+00	3.0E-04	3.0E-04	NI	1	0.10		6.8E-07	2.3E-03	6.2E-11				9.5E-07	3.2E-03	5.4E-03	0.10
Endrin aldehyde	6.5E-01	3.0E-04	3.0E-04	NI	1	0.10		4.4E-07	1.5E-03	4.0E-11				6.2E-07	2.1E-03	3.5E-03	0.06
Endrin ketone	5.3E+00	3.0E-04	3.0E-04	NI	1	0.10		3.6E-06	1.2E-02	3.3E-10				5.1E-06	1.7E-02	2.9E-02	0.52
Gamma-BHC (Lindane)	4.7E-01	3.0E-04	3.0E-04	NI	1	0.10		3.2E-07	1.1E-03	2.9E-11				4.5E-07	1.5E-03	2.6E-03	0.05
Heptachlor	2.0E+01	5.0E-04	5.0E-04	NI	1	0.10		1.4E-05	2.7E-02	1.2E-09				1.9E-05	3.8E-02	6.5E-02	1.17
Heptachlor epoxide	2.0E+00	1.3E-05	1.3E-05	NI	1	0.10		1.4E-06	1.0E-01	1.2E-10				1.9E-06	1.5E-01	2.5E-01	4.50
Methoxychlor	3.5E+00	5.0E-03	5.0E-03	NI	1	0.10		2.3E-06	4.7E-04	2.1E-10				3.3E-06	6.6E-04	1.1E-03	0.02
Toxaphene	3.5E+01	NI	NI	NI	1	0.10		2.3E-05		2.1E-09				3.3E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.3E+00		4.3E-06				3.3E+00	5.6E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL165-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.7E+02	3.0E-05	3.0E-05	NI	1	0.10		1.1E-04	3.8E+00	1.1E-08				1.6E-04	5.4E+00	9.2E+00	35.27
Alpha-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
Beta-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
4,4-DDD	3.1E+01	NI	NI	NI	1	0.10		2.1E-05		1.9E-09				3.0E-05			
4,4-DDE	2.1E+01	NI	NI	NI	1	0.10		1.4E-05		1.3E-09				2.0E-05			
4,4-DDT	9.2E+01	5.0E-04	5.0E-04	NI	1	0.10		6.2E-05	1.2E-01	5.7E-09				8.8E-05	1.8E-01	3.0E-01	1.15
Delta-BHC	1.1E+01	NI	NI	NI	1	0.10		7.4E-06		6.8E-10				1.0E-05			
Dieldrin	3.1E+02	5.0E-05	5.0E-05	NI	1	0.10		2.1E-04	4.2E+00	1.9E-08				3.0E-04	5.9E+00	1.0E+01	38.59
Chlordane	5.3E+02	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.6E-04	7.1E-01	3.3E-08	6.5E-05			5.0E-04	1.0E+00	1.7E+00	6.55
Endosulfan I	1.1E+01	6.0E-03	6.0E-03	NI	1	0.10		7.4E-06	1.2E-03	6.8E-10				1.0E-05	1.7E-03	3.0E-03	0.01
Endosulfan II	2.1E+01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-05	2.4E-03	1.3E-09				2.0E-05	3.3E-03	5.7E-03	0.02
Endosulfan sulfate	2.1E+01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-05	2.4E-03	1.3E-09				2.0E-05	3.3E-03	5.7E-03	0.02
Endrin	2.1E+01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-05	4.7E-02	1.3E-09				2.0E-05	6.7E-02	1.1E-01	0.44
Endrin aldehyde	2.1E+01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-05	4.7E-02	1.3E-09				2.0E-05	6.7E-02	1.1E-01	0.44
Endrin ketone	2.1E+01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-05	4.7E-02	1.3E-09				2.0E-05	6.7E-02	1.1E-01	0.44
Gamma-BHC (Lindane)	1.1E+01	3.0E-04	3.0E-04	NI	1	0.10		7.4E-06	2.5E-02	6.8E-10				1.0E-05	3.5E-02	6.0E-02	0.23
Heptachlor	9.2E+02	5.0E-04	5.0E-04	NI	1	0.10		6.2E-04	1.2E+00	5.7E-08				8.8E-04	1.8E+00	3.0E+00	11.45
Heptachlor epoxide	1.1E+01	1.3E-05	1.3E-05	NI	1	0.10		7.4E-06	5.7E-01	6.8E-10				1.0E-05	8.1E-01	1.4E+00	5.27
Methoxychlor	1.1E+02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-05	1.5E-02	6.8E-09				1.0E-04	2.1E-02	3.6E-02	0.14
Toxaphene	1.1E+03	NI	NI	NI	1	0.10		7.4E-04		6.8E-08				1.0E-03			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E+01		6.5E-05				1.5E+01	2.6E+01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL166-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS), (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV), (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG), (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	2.9E+01	3.0E-05	3.0E-05	NI	1	0.10		2.0E-05	6.5E-01	1.8E-09				2.8E-05	9.2E-01	1.6E+00	10.71
Alpha-BHC	7.0E+00	NI	NI	NI	1	0.10		4.7E-06		4.3E-10				6.7E-06			
Beta-BHC	7.0E+00	NI	NI	NI	1	0.10		4.7E-06		4.3E-10				6.7E-06			
4,4-DDD	8.4E+01	NI	NI	NI	1	0.10		5.7E-05		5.2E-09				8.0E-05			
4,4-DDE	4.3E+01	NI	NI	NI	1	0.10		2.9E-05		2.7E-09				4.1E-05			
4,4-DDT	1.9E+03	5.0E-04	5.0E-04	NI	1	0.10		1.3E-03	2.6E+00	1.2E-07				1.8E-03	3.6E+00	6.2E+00	42.10
Delta-BHC	7.0E+00	NI	NI	NI	1	0.10		4.7E-06		4.3E-10				6.7E-06			
Dieldrin	1.6E+02	5.0E-05	5.0E-05	NI	1	0.10		1.1E-04	2.2E+00	9.9E-09				1.5E-04	3.1E+00	5.2E+00	35.45
Chlordane	1.4E+02	5.0E-04	5.0E-04	5.0E-04	1	0.10		9.4E-05	1.9E-01	8.6E-09	1.7E-05			1.3E-04	2.7E-01	4.5E-01	3.08
Endosulfan I	7.0E+00	6.0E-03	6.0E-03	NI	1	0.10		4.7E-06	7.9E-04	4.3E-10				6.7E-06	1.1E-03	1.9E-03	0.01
Endosulfan II	1.7E+01	6.0E-03	6.0E-03	NI	1	0.10		1.1E-05	1.9E-03	1.1E-09				1.6E-05	2.7E-03	4.6E-03	0.03
Endosulfan sulfate	1.4E+01	6.0E-03	6.0E-03	NI	1	0.10		9.1E-06	1.5E-03	8.3E-10				1.3E-05	2.1E-03	3.7E-03	0.02
Endrin	1.4E+01	3.0E-04	3.0E-04	NI	1	0.10		9.1E-06	3.0E-02	8.3E-10				1.3E-05	4.3E-02	7.3E-02	0.50
Endrin aldehyde	1.4E+01	3.0E-04	3.0E-04	NI	1	0.10		9.1E-06	3.0E-02	8.3E-10				1.3E-05	4.3E-02	7.3E-02	0.50
Endrin ketone	1.4E+01	3.0E-04	3.0E-04	NI	1	0.10		9.1E-06	3.0E-02	8.3E-10				1.3E-05	4.3E-02	7.3E-02	0.50
Gamma-BHC (Lindane)	7.0E+00	3.0E-04	3.0E-04	NI	1	0.10		4.7E-06	1.6E-02	4.3E-10				6.7E-06	2.2E-02	3.8E-02	0.26
Heptachlor	3.2E+01	5.0E-04	5.0E-04	NI	1	0.10		2.2E-05	4.3E-02	2.0E-09				3.1E-05	6.1E-02	1.0E-01	0.71
Heptachlor epoxide	7.0E+00	1.3E-05	1.3E-05	NI	1	0.10		4.7E-06	3.6E-01	4.3E-10				6.7E-06	5.1E-01	8.8E-01	5.97
Methoxychlor	7.0E+01	5.0E-03	5.0E-03	NI	1	0.10		4.7E-05	9.5E-03	4.3E-09				6.7E-05	1.3E-02	2.3E-02	0.16
Toxaphene	7.0E+02	NI	NI	NI	1	0.10		4.7E-04		4.3E-08				6.7E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									6.1E+00		1.7E-05				8.6E+00	1.5E+01	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL167-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	8.3E-01	3.0E-05	3.0E-05	NI	1	0.10		5.6E-07	1.9E-02	5.1E-11				7.9E-07	2.6E-02	4.5E-02	72.01
Alpha-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
Beta-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
4,4-DDD	6.3E-01	NI	NI	NI	1	0.10		4.3E-07		3.9E-11				6.0E-07			
4,4-DDE	2.2E-02	NI	NI	NI	1	0.10		1.5E-08		1.3E-12				2.1E-08			
4,4-DDT	1.9E+00	5.0E-04	5.0E-04	NI	1	0.10		1.3E-06	2.6E-03	1.2E-10				1.8E-06	3.6E-03	6.2E-03	9.89
Delta-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
Dieldrin	2.5E-01	5.0E-05	5.0E-05	NI	1	0.10		1.7E-07	3.4E-03	1.5E-11				2.4E-07	4.8E-03	8.1E-03	13.01
Chlordane	3.4E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.3E-07	4.6E-04	2.1E-11	4.2E-08			3.2E-07	6.5E-04	1.1E-03	1.77
Endosulfan I	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.4E-09	1.2E-06	6.8E-13				1.0E-08	1.7E-06	3.0E-06	0.00
Endosulfan II	2.2E-02	6.0E-03	6.0E-03	NI	1	0.10		1.5E-08	2.4E-06	1.3E-12				2.1E-08	3.4E-06	5.8E-06	0.01
Endosulfan sulfate	2.2E-02	6.0E-03	6.0E-03	NI	1	0.10		1.5E-08	2.4E-06	1.3E-12				2.1E-08	3.4E-06	5.8E-06	0.01
Endrin	2.2E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	4.8E-05	1.3E-12				2.1E-08	6.8E-05	1.2E-04	0.19
Endrin aldehyde	2.2E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	4.8E-05	1.3E-12				2.1E-08	6.8E-05	1.2E-04	0.19
Endrin ketone	2.2E-02	3.0E-04	3.0E-04	NI	1	0.10		1.5E-08	4.8E-05	1.3E-12				2.1E-08	6.8E-05	1.2E-04	0.19
Gamma-BHC (Lindane)	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.4E-09	2.5E-05	6.8E-13				1.0E-08	3.5E-05	6.0E-05	0.10
Heptachlor	7.3E-02	5.0E-04	5.0E-04	NI	1	0.10		4.9E-08	9.9E-05	4.5E-12				7.0E-08	1.4E-04	2.4E-04	0.38
Heptachlor epoxide	1.1E-02	1.3E-05	1.3E-05	NI	1	0.10		7.4E-09	5.7E-04	6.8E-13				1.0E-08	8.1E-04	1.4E-03	2.20
Methoxychlor	1.1E-01	5.0E-03	5.0E-03	NI	1	0.10		7.4E-08	1.5E-05	6.8E-12				1.0E-07	2.1E-05	3.6E-05	0.06
Toxaphene	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.6E-02		4.2E-08				3.7E-02	6.3E-02	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL168-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.5E+02	3.0E-05	3.0E-05	NI	1	0.10		1.0E-04	3.4E+00	9.3E-09				1.4E-04	4.8E+00	8.1E+00	96.63
Alpha-BHC	1.2E+00	NI	NI	NI	1	0.10		7.8E-07		7.1E-11				1.1E-06			
Beta-BHC	1.2E+00	NI	NI	NI	1	0.10		7.8E-07		7.1E-11				1.1E-06			
4,4-DDD	2.3E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
4,4-DDE	2.3E+00	NI	NI	NI	1	0.10		1.5E-06		1.4E-10				2.1E-06			
4,4-DDT	2.3E+00	5.0E-04	5.0E-04	NI	1	0.10		1.5E-06	3.0E-03	1.4E-10				2.1E-06	4.3E-03	7.3E-03	0.09
Delta-BHC	1.2E+00	NI	NI	NI	1	0.10		7.8E-07		7.1E-11				1.1E-06			
Dieldrin	2.3E+00	5.0E-05	5.0E-05	NI	1	0.10		1.5E-06	3.0E-02	1.4E-10				2.1E-06	4.3E-02	7.3E-02	0.87
Chlordane	2.3E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-06	3.1E-03	1.4E-10	2.8E-07			2.2E-06	4.4E-03	7.5E-03	0.09
Endosulfan I	1.2E+00	6.0E-03	6.0E-03	NI	1	0.10		7.8E-07	1.3E-04	7.1E-11				1.1E-06	1.8E-04	3.1E-04	0.00
Endosulfan II	2.3E+00	6.0E-03	6.0E-03	NI	1	0.10		1.5E-06	2.5E-04	1.4E-10				2.1E-06	3.6E-04	6.1E-04	0.01
Endosulfan sulfate	2.3E+00	6.0E-03	6.0E-03	NI	1	0.10		1.5E-06	2.5E-04	1.4E-10				2.1E-06	3.6E-04	6.1E-04	0.01
Endrin	2.3E+00	3.0E-04	3.0E-04	NI	1	0.10		1.5E-06	5.1E-03	1.4E-10				2.1E-06	7.2E-03	1.2E-02	0.14
Endrin aldehyde	2.3E+00	3.0E-04	3.0E-04	NI	1	0.10		1.5E-06	5.1E-03	1.4E-10				2.1E-06	7.2E-03	1.2E-02	0.14
Endrin ketone	2.3E+00	3.0E-04	3.0E-04	NI	1	0.10		1.5E-06	5.1E-03	1.4E-10				2.1E-06	7.2E-03	1.2E-02	0.14
Gamma-BHC (Lindane)	1.2E+00	3.0E-04	3.0E-04	NI	1	0.10		7.8E-07	2.6E-03	7.1E-11				1.1E-06	3.7E-03	6.2E-03	0.07
Heptachlor	1.2E+00	5.0E-04	5.0E-04	NI	1	0.10		7.8E-07	1.6E-03	7.1E-11				1.1E-06	2.2E-03	3.7E-03	0.04
Heptachlor epoxide	1.2E+00	1.3E-05	1.3E-05	NI	1	0.10		7.8E-07	6.0E-02	7.1E-11				1.1E-06	8.4E-02	1.4E-01	1.71
Methoxychlor	1.2E+01	5.0E-03	5.0E-03	NI	1	0.10		7.8E-06	1.6E-03	7.1E-10				1.1E-05	2.2E-03	3.7E-03	0.04
Toxaphene	1.2E+02	NI	NI	NI	1	0.10		7.8E-05		7.1E-09				1.1E-04			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.5E+00		2.8E-07				4.9E+00	8.4E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL168-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.2E-01	3.0E-05	3.0E-05	NI	1	0.10		8.1E-08	2.7E-03	7.4E-12				1.1E-07	3.8E-03	6.5E-03	87.13
Alpha-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Beta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
4,4-DDD	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	0.09
Delta-BHC	1.0E-03	NI	NI	NI	1	0.10		6.8E-10		6.2E-14				9.5E-10			
Dieldrin	2.2E-02	5.0E-05	5.0E-05	NI	1	0.10		1.5E-08	3.0E-04	1.4E-12				2.1E-08	4.2E-04	7.2E-04	9.58
Chlordane	2.0E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-08	2.7E-05	1.2E-12	2.5E-09			1.9E-08	3.8E-05	6.5E-05	0.87
Endosulfan I	1.0E-03	6.0E-03	6.0E-03	NI	1	0.10		6.8E-10	1.1E-07	6.2E-14				9.5E-10	1.6E-07	2.7E-07	0.00
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.01
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.01
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.15
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.15
Endrin ketone	2.5E-03	3.0E-04	3.0E-04	NI	1	0.10		1.7E-09	5.6E-06	1.5E-13				2.4E-09	7.9E-06	1.4E-05	0.18
Gamma-BHC (Lindane)	1.0E-03	3.0E-04	3.0E-04	NI	1	0.10		6.8E-10	2.3E-06	6.2E-14				9.5E-10	3.2E-06	5.4E-06	0.07
Heptachlor	1.0E-03	5.0E-04	5.0E-04	NI	1	0.10		6.8E-10	1.4E-06	6.2E-14				9.5E-10	1.9E-06	3.3E-06	0.04
Heptachlor epoxide	1.0E-03	1.3E-05	1.3E-05	NI	1	0.10		6.8E-10	5.2E-05	6.2E-14				9.5E-10	7.3E-05	1.3E-04	1.68
Methoxychlor	1.0E-02	5.0E-03	5.0E-03	NI	1	0.10		6.8E-09	1.4E-06	6.2E-13				9.5E-09	1.9E-06	3.3E-06	0.04
Toxaphene	1.0E-01	NI	NI	NI	1	0.10		6.8E-08		6.2E-12				9.5E-08			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.1E-03		2.5E-09				4.4E-03	7.5E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL169-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d: Oral (RFDO)	Reference Doses, mg/kg-d: Dermal (RFDD)	Reference Doses, mg/kg-d: Inhalation (RFDI)	Absorption factor, unitless: Oral (ABO)	Absorption factor, unitless: Drm (ABS)	Volatilization factor (VF), m^3/kg	Dermal Absorption: Amount Absorbed (IDD), mg/kg-d	Dermal Absorption: Lifetime HQ (HQD), unitless	Volatile Inhalation from soil dust: Amount Inhaled (IDIS) (mg/kg-d)	Volatile Inhalation from soil dust: Lifetime HQ (HQIS), unitless	Volatile Inhalation from volatiles: Amount Inhaled (IDIV) (mg/kg-d)	Volatile Inhalation from volatiles: Lifetime HQ (HQIV), unitless	Ingestion: Amount Ingested (IDIG) (mg/kg-d)	Ingestion: Lifetime HQ (HQIG), unitless	Total Hazard Index	Risk Percentage %
PESTICIDES/PCBs																	
Aldrin	7.2E-02	3.0E-05	3.0E-05	NI	1	0.10		4.9E-08	1.6E-03	4.5E-12				6.9E-08	2.3E-03	3.9E-03	77.47
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	4.3E-03	NI	NI	NI	1	0.10		2.9E-09		2.7E-13				4.1E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	1.5E-02	5.0E-04	5.0E-04	NI	1	0.10		1.0E-08	2.0E-05	9.3E-13				1.4E-08	2.9E-05	4.9E-05	0.97
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	1.9E-02	5.0E-05	5.0E-05	NI	1	0.10		1.3E-08	2.6E-04	1.2E-12				1.8E-08	3.6E-04	6.2E-04	12.27
Chlordane	3.3E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.2E-08	4.5E-05	2.1E-12	4.1E-09			3.2E-08	6.3E-05	1.1E-04	2.14
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.01
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.01
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.01
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.23
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.23
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	0.23
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	0.12
Heptachlor	4.6E-03	5.0E-04	5.0E-04	NI	1	0.10		3.1E-09	6.2E-06	2.8E-13				4.4E-09	8.8E-06	1.5E-05	0.30
Heptachlor epoxide	2.4E-03	1.3E-05	1.3E-05	NI	1	0.10		1.6E-09	1.2E-04	1.5E-13				2.3E-09	1.8E-04	3.0E-04	5.96
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.07
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.1E-03		4.1E-09				3.0E-03	5.0E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	*1.00E-06*
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL170-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.2E+00	3.0E-05	3.0E-05	NI	1	0.10		4.9E-06	1.6E-01	4.5E-10				6.9E-06	2.3E-01	3.9E-01	29.62
Alpha-BHC	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
Beta-BHC	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
4,4-DDD	7.0E-01	NI	NI	NI	1	0.10		4.7E-07		4.3E-11				6.7E-07			
4,4-DDE	8.7E-01	NI	NI	NI	1	0.10		5.9E-07		5.4E-11				8.3E-07			
4,4-DDT	7.1E+00	5.0E-04	5.0E-04	NI	1	0.10		4.8E-06	9.6E-03	4.4E-10				6.8E-06	1.4E-02	2.3E-02	1.75
Delta-BHC	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
Dieldrin	2.4E+01	5.0E-05	5.0E-05	NI	1	0.10		1.6E-05	3.2E-01	1.5E-09				2.3E-05	4.6E-01	7.8E-01	59.24
Chlordane	5.0E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		3.4E-06	6.8E-03	3.1E-10	6.2E-07			4.8E-06	9.5E-03	1.6E-02	1.23
Endosulfan I	1.1E-01	6.0E-03	6.0E-03	NI	1	0.10		7.1E-08	1.2E-05	6.5E-12				1.0E-07	1.7E-05	2.9E-05	0.00
Endosulfan II	3.2E-01	6.0E-03	6.0E-03	NI	1	0.10		2.2E-07	3.6E-05	2.0E-11				3.1E-07	5.1E-05	8.7E-05	0.01
Endosulfan sulfate	2.0E-01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-07	2.3E-05	1.2E-11				1.9E-07	3.2E-05	5.4E-05	0.00
Endrin	2.0E-01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-07	4.5E-04	1.2E-11				1.9E-07	6.4E-04	1.1E-03	0.08
Endrin aldehyde	2.0E-01	3.0E-04	3.0E-04	NI	1	0.10		1.4E-07	4.5E-04	1.2E-11				1.9E-07	6.4E-04	1.1E-03	0.08
Endrin ketone	5.9E-01	3.0E-04	3.0E-04	NI	1	0.10		4.0E-07	1.3E-03	3.6E-11				5.6E-07	1.9E-03	3.2E-03	0.24
Gamma-BHC (Lindane)	1.1E-01	3.0E-04	3.0E-04	NI	1	0.10		7.1E-08	2.4E-04	6.5E-12				1.0E-07	3.3E-04	5.7E-04	0.04
Heptachlor	3.2E+00	5.0E-04	5.0E-04	NI	1	0.10		2.2E-06	4.3E-03	2.0E-10				3.1E-06	6.1E-03	1.0E-02	0.79
Heptachlor epoxide	6.8E-01	1.3E-05	1.3E-05	NI	1	0.10		4.6E-07	3.5E-02	4.2E-11				6.5E-07	5.0E-02	8.5E-02	6.46
Methoxychlor	1.8E+01	5.0E-03	5.0E-03	NI	1	0.10		1.2E-05	2.4E-03	1.1E-09				1.7E-05	3.4E-03	5.9E-03	0.44
Toxaphene	1.1E+01	NI	NI	NI	1	0.10		7.1E-06		6.5E-10				1.0E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									5.5E-01		6.2E-07				7.7E-01	1.3E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL171-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	4.1E+01	3.0E-05	3.0E-05	NI	1	0.10		2.8E-05	9.2E-01	2.5E-09				3.9E-05	1.3E+00	2.2E+00	77.27
Alpha-BHC	4.3E-01	NI	NI	NI	1	0.10		2.9E-07		2.6E-11				4.1E-07			
Beta-BHC	4.3E-01	NI	NI	NI	1	0.10		2.9E-07		2.6E-11				4.1E-07			
4,4-DDD	8.0E-01	NI	NI	NI	1	0.10		5.4E-07		4.9E-11				7.6E-07			
4,4-DDE	8.0E-01	NI	NI	NI	1	0.10		5.4E-07		4.9E-11				7.6E-07			
4,4-DDT	1.3E+00	5.0E-04	5.0E-04	NI	1	0.10		8.8E-07	1.8E-03	8.0E-11				1.2E-06	2.5E-03	4.2E-03	0.15
Delta-BHC	4.3E-01	NI	NI	NI	1	0.10		2.9E-07		2.6E-11				4.1E-07			
Dieldrin	1.5E+01	5.0E-05	5.0E-05	NI	1	0.10		1.0E-05	2.0E-01	9.3E-10				1.4E-05	2.9E-01	4.9E-01	16.96
Chlordane	3.8E+00	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.6E-06	5.1E-03	2.3E-10	4.7E-07			3.6E-06	7.2E-03	1.2E-02	0.43
Endosulfan I	4.3E-01	6.0E-03	6.0E-03	NI	1	0.10		2.9E-07	4.8E-05	2.6E-11				4.1E-07	6.8E-05	1.2E-04	0.00
Endosulfan II	8.0E-01	6.0E-03	6.0E-03	NI	1	0.10		5.4E-07	9.0E-05	4.9E-11				7.6E-07	1.3E-04	2.2E-04	0.01
Endosulfan sulfate	8.0E-01	6.0E-03	6.0E-03	NI	1	0.10		5.4E-07	9.0E-05	4.9E-11				7.6E-07	1.3E-04	2.2E-04	0.01
Endrin	8.0E-01	3.0E-04	3.0E-04	NI	1	0.10		5.4E-07	1.8E-03	4.9E-11				7.6E-07	2.5E-03	4.3E-03	0.15
Endrin aldehyde	8.0E-01	3.0E-04	3.0E-04	NI	1	0.10		5.4E-07	1.8E-03	4.9E-11				7.6E-07	2.5E-03	4.3E-03	0.15
Endrin ketone	8.0E-01	3.0E-04	3.0E-04	NI	1	0.10		5.4E-07	1.8E-03	4.9E-11				7.6E-07	2.5E-03	4.3E-03	0.15
Gamma-BHC (Lindane)	1.2E+01	3.0E-04	3.0E-04	NI	1	0.10		8.1E-06	2.7E-02	7.4E-10				1.1E-05	3.8E-02	6.5E-02	2.26
Heptachlor	5.0E+00	5.0E-04	5.0E-04	NI	1	0.10		3.4E-06	6.8E-03	3.1E-10				4.8E-06	9.5E-03	1.6E-02	0.57
Heptachlor epoxide	4.3E-01	1.3E-05	1.3E-05	NI	1	0.10		2.9E-07	2.2E-02	2.6E-11				4.1E-07	3.1E-02	5.3E-02	1.85
Methoxychlor	4.3E+00	5.0E-03	5.0E-03	NI	1	0.10		2.9E-06	5.7E-04	2.6E-10				4.1E-06	8.1E-04	1.4E-03	0.05
Toxaphene	4.3E+01	NI	NI	NI	1	0.10		2.9E-05		2.6E-09				4.1E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.2E+00		4.7E-07				1.7E+00	2.9E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL171-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	5.0E-02	3.0E-05	3.0E-05	NI	1	0.10		3.4E-08	1.1E-03	3.1E-12				4.8E-08	1.6E-03	2.7E-03	23.47
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	9.7E-03	NI	NI	NI	1	0.10		6.5E-09		6.0E-13				9.3E-09			
4,4-DDE	2.2E-03	NI	NI	NI	1	0.10		1.5E-09		1.4E-13				2.1E-09			
4,4-DDT	4.0E-02	5.0E-04	5.0E-04	NI	1	0.10		2.7E-08	5.4E-05	2.5E-12				3.8E-08	7.6E-05	1.3E-04	1.13
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	2.3E-01	5.0E-05	5.0E-05	NI	1	0.10		1.6E-07	3.1E-03	1.4E-11				2.2E-07	4.4E-03	7.5E-03	64.79
Chlordane	3.4E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.3E-08	4.6E-05	2.1E-12	4.2E-09			3.2E-08	6.5E-05	1.1E-04	0.96
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.00
Endosulfan II	3.5E-03	6.0E-03	6.0E-03	NI	1	0.10		2.4E-09	3.9E-07	2.2E-13				3.3E-09	5.6E-07	9.5E-07	0.01
Endosulfan sulfate	2.2E-03	6.0E-03	6.0E-03	NI	1	0.10		1.5E-09	2.4E-07	1.3E-13				2.1E-09	3.4E-07	5.8E-07	0.01
Endrin	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	5.0E-06	1.4E-13				2.1E-09	7.0E-06	1.2E-05	0.10
Endrin aldehyde	2.2E-03	3.0E-04	3.0E-04	NI	1	0.10		1.5E-09	4.8E-06	1.3E-13				2.1E-09	6.8E-06	1.2E-05	0.10
Endrin ketone	3.2E-02	3.0E-04	3.0E-04	NI	1	0.10		2.2E-08	7.2E-05	2.0E-12				3.1E-08	1.0E-04	1.7E-04	1.50
Gamma-BHC (Lindane)	3.9E-03	3.0E-04	3.0E-04	NI	1	0.10		2.6E-09	8.8E-06	2.4E-13				3.7E-09	1.2E-05	2.1E-05	0.18
Heptachlor	2.0E-02	5.0E-04	5.0E-04	NI	1	0.10		1.4E-08	2.7E-05	1.2E-12				1.9E-08	3.8E-05	6.5E-05	0.56
Heptachlor epoxide	6.6E-03	1.3E-05	1.3E-05	NI	1	0.10		4.5E-09	3.4E-04	4.1E-13				6.3E-09	4.8E-04	8.3E-04	7.15
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.03
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									4.8E-03		4.2E-09				6.8E-03	1.2E-02	100

NI = No Information Available

ASSUMPTIONS

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL172-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.0E+01	3.0E-05	3.0E-05	NI	1	0.10		6.8E-06	2.3E-01	6.2E-10				9.5E-06	3.2E-01	5.4E-01	15.68
Alpha-BHC	2.1E-01	NI	NI	NI	1	0.10		1.4E-07		1.3E-11				2.0E-07			
Beta-BHC	2.1E-01	NI	NI	NI	1	0.10		1.4E-07		1.3E-11				2.0E-07			
4,4-DDD	1.0E+00	NI	NI	NI	1	0.10		6.8E-07		6.2E-11				9.5E-07			
4,4-DDE	1.7E+00	NI	NI	NI	1	0.10		1.1E-06		1.1E-10				1.6E-06			
4,4-DDT	1.2E+01	5.0E-04	5.0E-04	NI	1	0.10		8.1E-06	1.6E-02	7.4E-10				1.1E-05	2.3E-02	3.9E-02	1.13
Delta-BHC	2.1E-01	NI	NI	NI	1	0.10		1.4E-07		1.3E-11				2.0E-07			
Dieldrin	7.8E+01	5.0E-05	5.0E-05	NI	1	0.10		5.3E-05	1.1E+00	4.8E-09				7.4E-05	1.5E+00	2.5E+00	73.38
Chlordane	1.1E+01	5.0E-04	5.0E-04	5.0E-04	1	0.10		7.4E-06	1.5E-02	6.7E-10	1.3E-06			1.0E-05	2.1E-02	3.6E-02	1.03
Endosulfan I	2.1E-01	6.0E-03	6.0E-03	NI	1	0.10		1.4E-07	2.4E-05	1.3E-11				2.0E-07	3.3E-05	5.7E-05	0.00
Endosulfan II	8.5E-01	6.0E-03	6.0E-03	NI	1	0.10		5.7E-07	9.6E-05	5.3E-11				8.1E-07	1.4E-04	2.3E-04	0.01
Endosulfan sulfate	4.1E-01	6.0E-03	6.0E-03	NI	1	0.10		2.8E-07	4.6E-05	2.5E-11				3.9E-07	6.5E-05	1.1E-04	0.00
Endrin	4.6E-01	3.0E-04	3.0E-04	NI	1	0.10		3.1E-07	1.0E-03	2.8E-11				4.4E-07	1.5E-03	2.5E-03	0.07
Endrin aldehyde	4.1E-01	3.0E-04	3.0E-04	NI	1	0.10		2.8E-07	9.2E-04	2.5E-11				3.9E-07	1.3E-03	2.2E-03	0.06
Endrin ketone	2.8E+00	3.0E-04	3.0E-04	NI	1	0.10		1.9E-06	6.3E-03	1.7E-10				2.7E-06	8.9E-03	1.5E-02	0.44
Gamma-BHC (Lindane)	6.9E-01	3.0E-04	3.0E-04	NI	1	0.10		4.7E-07	1.6E-03	4.3E-11				6.6E-07	2.2E-03	3.7E-03	0.11
Heptachlor	8.8E+00	5.0E-04	5.0E-04	NI	1	0.10		5.9E-06	1.2E-02	5.4E-10				8.4E-06	1.7E-02	2.9E-02	0.83
Heptachlor epoxide	2.0E+00	1.3E-05	1.3E-05	NI	1	0.10		1.4E-06	1.0E-01	1.2E-10				1.9E-06	1.5E-01	2.5E-01	7.24
Methoxychlor	2.1E+00	5.0E-03	5.0E-03	NI	1	0.10		1.4E-06	2.8E-04	1.3E-10				2.0E-06	4.0E-04	6.8E-04	0.02
Toxaphene	2.1E+01	NI	NI	NI	1	0.10		1.4E-05		1.3E-09				2.0E-05			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.4E+00		1.3E-06				2.0E+00	3.5E+00	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL172-4

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	2 0E-03	3 0E-05	3 0E-05	NI	1	0.10		1.4E-09	4.5E-05	1.2E-13				1.9E-09	6.4E-05	1 1E-04	21 43
Alpha-BHC	1.2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1.1E-09			
Beta-BHC	1 2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1.1E-09			
4,4-DDD	2 3E-03	NI	NI	NI	1	0.10		1.6E-09		1.4E-13				2.2E-09			
4,4-DDE	2 3E-03	NI	NI	NI	1	0.10		1.6E-09		1.4E-13				2.2E-09			
4,4-DDT	2.3E-03	5.0E-04	5.0E-04	NI	1	0.10		1.6E-09	3.1E-06	1.4E-13				2.2E-09	4 4E-06	7 5E-06	1 48
Delta-BHC	1.2E-03	NI	NI	NI	1	0.10		8.1E-10		7.4E-14				1 1E-09			
Dieldrin	5.5E-03	5.0E-05	5.0E-05	NI	1	0.10		3.7E-09	7.4E-05	3.4E-13				5.2E-09	1.0E-04	1.8E-04	35.35
Chlordane	2 4E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-09	3.2E-06	1.5E-13	3.0E-10			2.3E-09	4 6E-06	7 8E-06	1.54
Endosulfan I	1 2E-03	6.0E-03	6.0E-03	NI	1	0.10		8.1E-10	1.4E-07	7.4E-14				1.1E-09	1 9E-07	3 3E-07	0 06
Endosulfan II	2 3E-03	6.0E-03	6.0E-03	NI	1	0.10		1.6E-09	2.6E-07	1.4E-13				2.2E-09	3 7E-07	6.2E-07	0.12
Endosulfan sulfate	2 3E-03	6.0E-03	6.0E-03	NI	1	0.10		1.6E-09	2.6E-07	1.4E-13				2.2E-09	3 7E-07	6.2E-07	0.12
Endrin	2 3E-03	3 0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1 4E-13				2.2E-09	7.3E-06	1.2E-05	2 46
Endrin aldehyde	2 3E-03	3.0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1.4E-13				2.2E-09	7.3E-06	1.2E-05	2 46
Endrin ketone	2.3E-03	3.0E-04	3.0E-04	NI	1	0.10		1.6E-09	5.2E-06	1.4E-13				2.2E-09	7.3E-06	1.2E-05	2.46
Gamma-BHC (Lindane)	1.2E-03	3.0E-04	3.0E-04	NI	1	0.10		8.1E-10	2.7E-06	7.4E-14				1.1E-09	3.8E-06	6.5E-06	1.29
Heptachlor	1.2E-03	5.0E-04	5.0E-04	NI	1	0.10		8.1E-10	1.6E-06	7.4E-14				1.1E-09	2.3E-06	3.9E-06	0.77
Heptachlor epoxide	1.2E-03	1.3E-05	1.3E-05	NI	1	0.10		8.1E-10	6.2E-05	7.4E-14				1.1E-09	8.8E-05	1.5E-04	29 67
Methoxychlor	1.2E-02	5.0E-03	5.0E-03	NI	1	0.10		8.1E-09	1.6E-06	7.4E-13				1.1E-08	2.3E-06	3.9E-06	0.77
Toxaphene	1 2E-01	NI	NI	NI	1	0.10		8.1E-08		7.4E-12				1.1E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.1E-04		3.0E-10				3.0E-04	5.1E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.6
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL173-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS) (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG) (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.1E-03	3.0E-05	3.0E-05	NI	1	0.10		7.4E-10	2.5E-05	6.8E-14				1.0E-09	3.5E-05	6.0E-05	16.83
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	4.0E-06	6.8E-06	1.93
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	2.9E-03	5.0E-05	5.0E-05	NI	1	0.10		2.0E-09	3.9E-05	1.8E-13				2.8E-09	5.5E-05	9.4E-05	26.63
Chlordane	2.2E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.5E-09	3.0E-06	1.4E-13	2.7E-10			2.1E-09	4.2E-06	7.2E-06	2.02
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.08
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.16
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.16
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	3.21
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	3.21
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	3.21
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	1.68
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.4E-10	1.5E-06	6.8E-14				1.0E-09	2.1E-06	3.6E-06	1.01
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.4E-10	5.7E-05	6.8E-14				1.0E-09	8.1E-05	1.4E-04	38.84
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	1.01
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.5E-04		2.7E-10				2.1E-04	3.5E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^3/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL174-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.1E-02	3.0E-05	3.0E-05	NI	1	0.10		7.4E-09	2.5E-04	6.8E-13				1.0E-08	3.5E-04	6.0E-04	8.43
Alpha-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
Beta-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
4,4-DDD	7.9E-01	NI	NI	NI	1	0.10		5.3E-07		4.9E-11				7.5E-07			
4,4-DDE	2.1E-02	NI	NI	NI	1	0.10		1.4E-08		1.3E-12				2.0E-08			
4,4-DDT	5.1E-02	5.0E-04	5.0E-04	NI	1	0.10		3.4E-08	6.9E-05	3.2E-12				4.9E-08	9.7E-05	1.7E-04	2.35
Delta-BHC	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
Dieldrin	9.1E-02	5.0E-05	5.0E-05	NI	1	0.10		6.1E-08	1.2E-03	5.6E-12				8.7E-08	1.7E-03	3.0E-03	41.86
Chlordane	3.6E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.4E-07	4.9E-04	2.2E-11	4.5E-08			3.4E-07	6.9E-04	1.2E-03	16.56
Endosulfan I	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.4E-09	1.2E-06	6.8E-13				1.0E-08	1.7E-06	3.0E-06	0.04
Endosulfan II	1.8E-01	6.0E-03	6.0E-03	NI	1	0.10		1.2E-07	2.0E-05	1.1E-11				1.7E-07	2.9E-05	4.9E-05	0.69
Endosulfan sulfate	2.5E-02	6.0E-03	6.0E-03	NI	1	0.10		1.7E-08	2.8E-06	1.5E-12				2.4E-08	4.0E-06	6.8E-06	0.10
Endrin	7.1E-02	3.0E-04	3.0E-04	NI	1	0.10		4.8E-08	1.6E-04	4.4E-12				6.8E-08	2.3E-04	3.9E-04	5.44
Endrin aldehyde	2.1E-02	3.0E-04	3.0E-04	NI	1	0.10		1.4E-08	4.7E-05	1.3E-12				2.0E-08	6.7E-05	1.1E-04	1.61
Endrin ketone	2.1E-02	3.0E-04	3.0E-04	NI	1	0.10		1.4E-08	4.7E-05	1.3E-12				2.0E-08	6.7E-05	1.1E-04	1.61
Gamma-BHC (Lindane)	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.4E-09	2.5E-05	6.8E-13				1.0E-08	3.5E-05	6.0E-05	0.84
Heptachlor	1.1E-02	5.0E-04	5.0E-04	NI	1	0.10		7.4E-09	1.5E-05	6.8E-13				1.0E-08	2.1E-05	3.6E-05	0.51
Heptachlor epoxide	1.1E-02	1.3E-05	1.3E-05	NI	1	0.10		7.4E-09	5.7E-04	6.8E-13				1.0E-08	8.1E-04	1.4E-03	19.46
Methoxychlor	1.1E-01	5.0E-03	5.0E-03	NI	1	0.10		7.4E-08	1.5E-05	6.8E-12				1.0E-07	2.1E-05	3.6E-05	0.51
Toxaphene	1.1E+00	NI	NI	NI	1	0.10		7.4E-07		6.8E-11				1.0E-06			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.9E-03		4.5E-08				4.1E-03	7.1E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL175-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	7.9E-03	3.0E-05	3.0E-05	NI	1	0.10		5.3E-09	1.8E-04	4.9E-13				7.5E-09	2.5E-04	4.3E-04	15.75
Alpha-BHC	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
Beta-BHC	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDD	9.5E-02	NI	NI	NI	1	0.10		6.4E-08		5.9E-12				9.1E-08			
4,4-DDE	1.1E-02	NI	NI	NI	1	0.10		7.4E-09		6.8E-13				1.0E-08			
4,4-DDT	2.9E-01	5.0E-04	5.0E-04	NI	1	0.10		2.0E-07	3.9E-04	1.8E-11				2.8E-07	5.5E-04	9.4E-04	34.70
Delta-BHC	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
Dieldrin	2.7E-02	5.0E-05	5.0E-05	NI	1	0.10		1.8E-08	3.6E-04	1.7E-12				2.6E-08	5.2E-04	8.8E-04	32.30
Chlordane	2.4E-02	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.6E-08	3.2E-05	1.5E-12	3.0E-09			2.3E-08	4.6E-05	7.8E-05	2.86
Endosulfan I	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.02
Endosulfan II	8.8E-03	6.0E-03	6.0E-03	NI	1	0.10		5.9E-09	9.9E-07	5.4E-13				8.4E-09	1.4E-06	2.4E-06	0.09
Endosulfan sulfate	3.9E-03	6.0E-03	6.0E-03	NI	1	0.10		2.6E-09	4.4E-07	2.4E-13				3.7E-09	6.2E-07	1.1E-06	0.04
Endrin	1.0E-02	3.0E-04	3.0E-04	NI	1	0.10		6.8E-09	2.3E-05	6.2E-13				9.5E-09	3.2E-05	5.4E-05	1.99
Endrin aldehyde	3.9E-03	3.0E-04	3.0E-04	NI	1	0.10		2.6E-09	8.8E-06	2.4E-13				3.7E-09	1.2E-05	2.1E-05	0.78
Endrin ketone	3.9E-03	3.0E-04	3.0E-04	NI	1	0.10		2.6E-09	8.8E-06	2.4E-13				3.7E-09	1.2E-05	2.1E-05	0.78
Gamma-BHC (Lindane)	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.40
Heptachlor	7.1E-03	5.0E-04	5.0E-04	NI	1	0.10		4.8E-09	9.6E-06	4.4E-13				6.8E-09	1.4E-05	2.3E-05	0.85
Heptachlor epoxide	2.0E-03	1.3E-05	1.3E-05	NI	1	0.10		1.4E-09	1.0E-04	1.2E-13				1.9E-09	1.5E-04	2.5E-04	9.20
Methoxychlor	2.0E-02	5.0E-03	5.0E-03	NI	1	0.10		1.4E-08	2.7E-06	1.2E-12				1.9E-08	3.8E-06	6.5E-06	0.24
Toxaphene	2.0E-01	NI	NI	NI	1	0.10		1.4E-07		1.2E-11				1.9E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.1E-03		3.0E-09				1.6E-03	2.7E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$HQD = IDD / RFDD$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$HQIS = IDIS / RFDI$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$HQIV = IDIV / RFDI$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$HQIG = IDIG / RFDO$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL176-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m³/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV) (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.2E-02	3.0E-05	3.0E-05	NI	1	0.10		8.1E-09	2.7E-04	7.4E-13				1.1E-08	3.8E-04	6.5E-04	14.80
Alpha-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Beta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
4,4-DDD	9.7E-01	NI	NI	NI	1	0.10		6.5E-07		6.0E-11				9.3E-07			
4,4-DDE	1.1E-02	NI	NI	NI	1	0.10		7.1E-09		6.5E-13				1.0E-08			
4,4-DDT	2.6E-01	5.0E-04	5.0E-04	NI	1	0.10		1.8E-07	3.5E-04	1.6E-11				2.5E-07	5.0E-04	8.5E-04	19.25
Delta-BHC	5.5E-03	NI	NI	NI	1	0.10		3.7E-09		3.4E-13				5.2E-09			
Dieldrin	2.6E-02	5.0E-05	5.0E-05	NI	1	0.10		1.8E-08	3.5E-04	1.6E-12				2.5E-08	5.0E-04	8.5E-04	19.25
Chlordane	1.3E-01	5.0E-04	5.0E-04	5.0E-04	1	0.10		8.8E-08	1.8E-04	8.0E-12	1.6E-08			1.2E-07	2.5E-04	4.2E-04	9.62
Endosulfan I	5.5E-03	6.0E-03	6.0E-03	NI	1	0.10		3.7E-09	6.2E-07	3.4E-13				5.2E-09	8.7E-07	1.5E-06	0.03
Endosulfan II	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.1E-09	1.2E-06	6.5E-13				1.0E-08	1.7E-06	2.9E-06	0.06
Endosulfan sulfate	1.1E-02	6.0E-03	6.0E-03	NI	1	0.10		7.1E-09	1.2E-06	6.5E-13				1.0E-08	1.7E-06	2.9E-06	0.06
Endrin	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.1E-09	2.4E-05	6.5E-13				1.0E-08	3.3E-05	5.7E-05	1.30
Endrin aldehyde	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.1E-09	2.4E-05	6.5E-13				1.0E-08	3.3E-05	5.7E-05	1.30
Endrin ketone	1.1E-02	3.0E-04	3.0E-04	NI	1	0.10		7.1E-09	2.4E-05	6.5E-13				1.0E-08	3.3E-05	5.7E-05	1.30
Gamma-BHC (Lindane)	5.5E-03	3.0E-04	3.0E-04	NI	1	0.10		3.7E-09	1.2E-05	3.4E-13				5.2E-09	1.7E-05	3.0E-05	0.68
Heptachlor	2.2E-01	5.0E-04	5.0E-04	NI	1	0.10		1.5E-07	3.0E-04	1.4E-11				2.1E-07	4.2E-04	7.2E-04	16.29
Heptachlor epoxide	5.5E-03	1.3E-05	1.3E-05	NI	1	0.10		3.7E-09	2.9E-04	3.4E-13				5.2E-09	4.0E-04	6.9E-04	15.66
Methoxychlor	5.5E-02	5.0E-03	5.0E-03	NI	1	0.10		3.7E-08	7.4E-06	3.4E-12				5.2E-08	1.0E-05	1.8E-05	0.41
Toxaphene	5.5E-01	NI	NI	NI	1	0.10		3.7E-07		3.4E-11				5.2E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									1.8E-03		1.6E-08				2.6E-03	4.4E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm²)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, *MCF* (kg/mg)	*1.00E-06*
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m³/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m³/kg)	4630000000
Respirable Fraction, *RF* (unitless)	1
Skin surface area, SA (cm²/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL177-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	9.1E-02	3.0E-05	3.0E-05	NI	1	0.10		6.1E-08	2.0E-03	5.6E-12				8.7E-08	2.9E-03	4.9E-03	92.84
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
4,4-DDD	2.5E-03	NI	NI	NI	1	0.10		1.7E-09		1.5E-13				2.4E-09			
4,4-DDE	2.0E-03	NI	NI	NI	1	0.10		1.4E-09		1.2E-13				1.9E-09			
4,4-DDT	2.0E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.7E-06	1.2E-13				1.9E-09	3.8E-06	6.5E-06	0.12
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.1E-10		6.5E-14				1.0E-09			
Dieldrin	5.6E-03	5.0E-05	5.0E-05	NI	1	0.10		3.8E-09	7.6E-05	3.5E-13				5.3E-09	1.1E-04	1.8E-04	3.43
Chlordane	4.3E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		2.9E-09	5.8E-06	2.7E-13	5.3E-10			4.1E-09	8.2E-06	1.4E-05	0.26
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.1E-10	1.2E-07	6.5E-14				1.0E-09	1.7E-07	2.9E-07	0.01
Endosulfan II	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.01
Endosulfan sulfate	2.0E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.3E-07	1.2E-13				1.9E-09	3.2E-07	5.4E-07	0.01
Endrin	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.20
Endrin aldehyde	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.20
Endrin ketone	2.0E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.5E-06	1.2E-13				1.9E-09	6.4E-06	1.1E-05	0.20
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.1E-10	2.4E-06	6.5E-14				1.0E-09	3.3E-06	5.7E-06	0.11
Heptachlor	1.1E-03	5.0E-04	5.0E-04	NI	1	0.10		7.1E-10	1.4E-06	6.5E-14				1.0E-09	2.0E-06	3.4E-06	0.06
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.1E-10	5.5E-05	6.5E-14				1.0E-09	7.7E-05	1.3E-04	2.47
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.1E-09	1.4E-06	6.5E-13				1.0E-08	2.0E-06	3.4E-06	0.06
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.1E-08		6.5E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									2.2E-03		5.3E-10				3.1E-03	5.3E-03	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^2)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION SL178-2

Chemical Name	Concentration in soil (CS), mg/kg	Reference Doses, mg/kg-d			Absorption factor, unitless		Volatilization factor (VF), m^3/kg	Dermal Absorption		Volatile Inhalation from soil dust		Volatile Inhalation from volatiles		Ingestion		Total Hazard Index	Risk Percentage %
		Oral (RFDO)	Dermal (RFDD)	Inhalation (RFDI)	Oral (ABO)	Drm (ABS)		Amount Absorbed (IDD), mg/kg-d	Lifetime HQ (HQD), unitless	Amount Inhaled (IDIS), (mg/kg-d)	Lifetime HQ (HQIS), unitless	Amount Inhaled (IDIV), (mg/kg-d)	Lifetime HQ (HQIV), unitless	Amount Ingested (IDIG), (mg/kg-d)	Lifetime HQ (HQIG), unitless		
PESTICIDES/PCBs																	
Aldrin	1.5E-03	3.0E-05	3.0E-05	NI	1	0.10		1.0E-09	3.4E-05	9.3E-14				1.4E-09	4.8E-05	8.1E-05	9.37
Alpha-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Beta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
4,4-DDD	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDE	2.1E-03	NI	NI	NI	1	0.10		1.4E-09		1.3E-13				2.0E-09			
4,4-DDT	2.1E-03	5.0E-04	5.0E-04	NI	1	0.10		1.4E-09	2.8E-06	1.3E-13				2.0E-09	4.0E-06	6.8E-06	0.79
Delta-BHC	1.1E-03	NI	NI	NI	1	0.10		7.4E-10		6.8E-14				1.0E-09			
Dieldrin	1.8E-02	5.0E-05	5.0E-05	NI	1	0.10		1.2E-08	2.4E-04	1.1E-12				1.7E-08	3.4E-04	5.9E-04	67.47
Chlordane	2.1E-03	5.0E-04	5.0E-04	5.0E-04	1	0.10		1.4E-09	2.8E-06	1.3E-13	2.6E-10			2.0E-09	4.0E-06	6.8E-06	0.79
Endosulfan I	1.1E-03	6.0E-03	6.0E-03	NI	1	0.10		7.4E-10	1.2E-07	6.8E-14				1.0E-09	1.7E-07	3.0E-07	0.03
Endosulfan II	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.07
Endosulfan sulfate	2.1E-03	6.0E-03	6.0E-03	NI	1	0.10		1.4E-09	2.4E-07	1.3E-13				2.0E-09	3.3E-07	5.7E-07	0.07
Endrin	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	1.31
Endrin aldehyde	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	1.31
Endrin ketone	2.1E-03	3.0E-04	3.0E-04	NI	1	0.10		1.4E-09	4.7E-06	1.3E-13				2.0E-09	6.7E-06	1.1E-05	1.31
Gamma-BHC (Lindane)	1.1E-03	3.0E-04	3.0E-04	NI	1	0.10		7.4E-10	2.5E-06	6.8E-14				1.0E-09	3.5E-06	6.0E-06	0.69
Heptachlor	1.4E-03	5.0E-04	5.0E-04	NI	1	0.10		9.5E-10	1.9E-06	8.7E-14				1.3E-09	2.7E-06	4.6E-06	0.52
Heptachlor epoxide	1.1E-03	1.3E-05	1.3E-05	NI	1	0.10		7.4E-10	5.7E-05	6.8E-14				1.0E-09	8.1E-05	1.4E-04	15.86
Methoxychlor	1.1E-02	5.0E-03	5.0E-03	NI	1	0.10		7.4E-09	1.5E-06	6.8E-13				1.0E-08	2.1E-06	3.6E-06	0.41
Toxaphene	1.1E-01	NI	NI	NI	1	0.10		7.4E-08		6.8E-12				1.0E-07			
DIOXIN																	
2,3,7,8-TCDD					1	0.10											
No samples collected																	
Total Noncancer Hazard									3.6E-04		2.6E-10				5.1E-04	8.7E-04	100

NI = No Information Available

ASSUMPTIONS:

Averaging Time, AT (yr)	1
Adherence Factor, AF (mg/cm^4)	0.122
Body Weight, BW (kg)	71.8
Contaminant Fraction, CF (unitless)	1
Conversion Factors	
Mass, MCF (kg/mg)	1.00E-06
Time, TCF (d/yr)	365
Exposure Duration	
Dermal, EDD (yr)	1
Inhalation from soil, EDIS (yr)	1
Inhalation from volatiles, EDIV (yr)	1
Ingestion, EDIG (yr)	1
Exposure Frequency, EF (d/yr)	250
Fraction Ingested, FIIG (unitless)	1
Fraction Inhaled, FIIV (unitless)	1
Inhalation Rate, IR (m^3/d)	30
Ingestion Rate, IGR (mg/d)	100
Particulate Emission Factor, PEF (m^3/kg)	4630000000
Respirable Fraction, RF (unitless)	1
Skin surface area, SA (cm^2/d)	5,800

EQUATIONS

$$IDD = \frac{CS * MCF * SA * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

$$IDIS = \frac{CS * IR * RF * CF * EF * EDIS}{BW * AT * TCF * PEF}$$

$$HQIS = IDIS / RFDI$$

$$IDIV = \frac{CS * (1/VF) * IR * FIIV * EF * EDIV}{BW * AT * TCF}$$

$$HQIV = IDIV / RFDI$$

$$IDIG = \frac{CS * IGR * FIIG * MCF * EF * EDIG}{BW * AT * TCF}$$

$$HQIG = IDIG / RFDO$$

Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration Calculations Using International Toxic Equivilant Factors

ANALYTE		SL104-2 ng/kg		SL105-2 ng/kg		SL105-4 ng/kg		SL113-2 ng/kg		SL123-5 ng/kg		SL124-5 ng/kg	
	I-TEFs												
2378-TCDD	1	1.10E+01	1.10E+01	3.20E+05	3.20E+05	7.80E+01	7.80E+01	6.90E+03	6.90E+03	1.20E+00	1.20E+00	1.20E+00	1.20E+00
12378-PeCDD	0.5	6.20E+00	3.10E+00	1.50E+04	7.50E+03	8.40E+00	4.20E+00	1.30E+02	6.50E+01	2.50E+00	1.25E+00	2.50E+00	1.25E+00
123478-HxCDD	0.1	2.50E+00	2.50E-01	3.50E+02	3.50E+01	3.30E-01	3.30E-02	1.60E+01	1.60E+00	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123678-HxCDD	0.1	2.50E+00	2.50E-01	9.60E+01	9.60E+00	3.65E-01	3.65E-02	7.80E+02	7.80E+01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123789-HxCDD	0.1	2.50E+00	2.50E-01	9.40E+01	9.40E+00	9.50E-01	9.50E-02	3.10E+02	3.10E+01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
1234678-HpCDD	0.01	2.50E+00	2.50E-02	5.50F+02	5.50E+00	2.60E+00	2.60E-02	5.30E+02	5.30E+00	2.50E+00	2.50E-02	2.50E+00	2.50E-02
OCDD	0.001	2.30E+01	2.30E-02	7.30I +03	7.30E+00	2.10E+01	2.10E-02	4.40E+03	4.40E+00	5.00E+00	5.00E-03	5.00E+00	5.00E-03
2378-TCDF	0.1	5.00E-01	5.00E-02	4.10E+02	4.10E+01	8.60E-01	8.60E-02	3.80E+01	3.80E+00	5.00E-01	5.00E-02	5.00E-01	5.00E-02
12378-PeCDF	0.05	2.50E+00	1.25E-01	2.60E+01	1.30E+00	3.10E-01	1.55E-02	7.10E+00	3.55E-01	2.50E+00	1.25E-01	2.50E+00	1.25E-01
23478-PeCDF	0.5	2.50E+00	1.25E+00	9.20E+01	4.60E+01	2.00E-01	1.00E-01	6.80E+00	3.40E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00
123478-HxCDF	0.1	2.50E+00	2.50E-01	2.70E+01	2.70E+00	4.60E-01	4.60E-02	4.00E+01	4.00E+00	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123678-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.10E-01	2.10E-02	1.30E+01	1.30E+00	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123789-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	1.50E-01	1.50E-02	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
234678-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	1.45E-01	1.45E-02	9.00E+00	9.00E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
1234678-HpCDF	0.01	2.50E+00	2.50E-02	1.20E+02	1.20E+00	6.50E-01	6.50E-03	2.70E+03	2.70E+01	2.50E+00	2.50E-02	2.50E+00	2.50E-02
1234789-HpCDF	0.01	2.50E+00	2.50E-02	7.80E+00	7.80E-02	1.20E-01	1.20E-03	3.50E+01	3.50E-01	2.50E+00	2.50E-02	2.50E+00	2.50E-02
OCDF	0.001	5.00E+00	5.00E-03	4.70E+02	4.70E-01	8.00E-01	8.00E-04	1.40E+03	1.40E+00	5.00E+00	5.00E-03	5.00E+00	5.00E-03
	ng/kg	TEQ	1.74E+01	TEQ	3.28E+05	TEQ	8.27E+01	TEQ	7.13E+03	TEQ	5.71E+00	TEQ	5.71E+00
	mg/kg		1.74E-05		3.3E-01		8.3E-05		7.1E-03		5.7E-06		5.7E-06
	µg/kg		0.0174		330		0.0827		7.1		0.0057		0.0057

Riverdale Chemical
h:/data/projects/Riverdale/Remedy/teqsall.xls

Created by: Brendan McLennan
Checked by: Rae Mindock
6/26/2001

Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration Calculations Using International Toxic Equivilant Factors

ANALYTE		SL127-5 ng/kg		SL129-5 ng/kg		SL133-2 ng/kg		SL136-2 ng/kg		SL160-2 ng/kg		SL162-4 ng/kg	
	I-TEFs												
2378-TCDD	1	2.50E+00	2.50E+00	2.70E+02	2.70E+02	1.10E+00	1.10E+00	1.50E+00	1.50E+00	8.20E+02	8.20E+02	7.30E+04	7.30E+04
12378-PeCDD	0.5	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	6.30E+01	3.15E+01
123478-HxCDD	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123678-HxCDD	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.20E+01	2.20E+00
123789-HxCDD	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	6.50E+01	6.50E+00
1234678-HpCDD	0.01	2.50E+00	2.50E-02	9.00E+00	9.00E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	3.10E+01	3.10E-01
OCDD	0.001	5.00E+00	5.00E-03	8.50E+01	8.50E-02	5.00E+00	5.00E-03	5.00E+00	5.00E-03	5.00E+00	5.00E-03	1.30E+02	1.30E-01
2378-TCDF	0.1	5.00E-01	5.00E-02	3.60E+00	3.60E-01	5.00E-01	5.00E-02	5.00E-01	5.00E-02	8.00E-01	8.00E-02	1.50E+02	1.50E+01
12378-PeCDF	0.05	2.50E+00	1.25E-01	2.50E+00	1.25E-01	2.50E+00	1.25E-01	2.50E+00	1.25E-01	2.50E+00	1.25E-01	2.50E+00	1.25E-01
23478-PeCDF	0.5	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	2.50E+00	1.25E+00	7.80E+00	3.90E+00
123478-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123678-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
123789-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
234678-HxCDF	0.1	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01	2.50E+00	2.50E-01
1234678-HpCDF	0.01	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	1.90E+01	1.90E-01
1234789-HpCDF	0.01	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02	2.50E+00	2.50E-02
OCDF	0.001	5.00E+00	5.00E-03	5.00E+00	5.00E-03	5.00E+00	5.00E-03	5.00E+00	5.00E-03	5.00E+00	5.00E-03	3.50E+01	3.50E-02
	ng/kg	TEQ	7.01E+00	TEQ	2.75E+02	TEQ	5.61E+00	TEQ	6.01E+00	TEQ	8.25E+02	TEQ	7.31E+04
	mg/kg		7.01E-06		2.75E-04		5.61E-06		6.01E-06		8.25E-04		7.31E-02
	µg/kg		0.007010		0.275		0.005610		0.006010		0.825		73.06

Riverdale Chemical
h:/data/projects/Riverdale/Remedy/teqsall.xls

Created by: Brendan McLennan
Checked by: Rae Mindock
6/26/2001

Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration Calculations Using International Toxic Equivilant Factors

ANALYTE		SL170-4 ng/kg	
	I-TEFs		
2378-TCDD	1	**1.10E+00**	1.10E+00
12378-PeCDD	0.5	**3.15E-01**	1.58E-01
123478-HxCDD	0.1	**1.30E-01**	1.30E-02
123678-HxCDD	0.1	**2.25E-01**	2.25E-02
123789-HxCDD	0.1	**4.20E-01**	4.20E-02
1234678-HpCDD	0.01	**1.20E+00**	1.20E-02
OCDD	0.001	**1.30E+01**	1.30E-02
2378-TCDF	0.1	**2.70E+00**	2.70E-01
12378-PeCDF	0.05	**2.70E+00**	1.35E-01
23478-PeCDF	0.5	**2.60E+00**	1.30E+00
123478-HxCDF	0.1	**4.10E+00**	4.10E-01
123678-HxCDF	0.1	**9.00E-01**	9.00E-02
123789-HxCDF	0.1	**1.30E-01**	1.30E-02
234678-HxCDF	0.1	**5.00E-01**	5.00E-02
1234678-HpCDF	0.01	**3.30E+00**	3.30E-02
1234789-HpCDF	0.01	**1.75E-01**	1.75E-03
OCDF	0.001	**6.00E-01**	6.00E-04
	ng/kg	**TEQ**	**3.66E+00**
	mg/kg		3.66E-06
	µg/kg		0.00366