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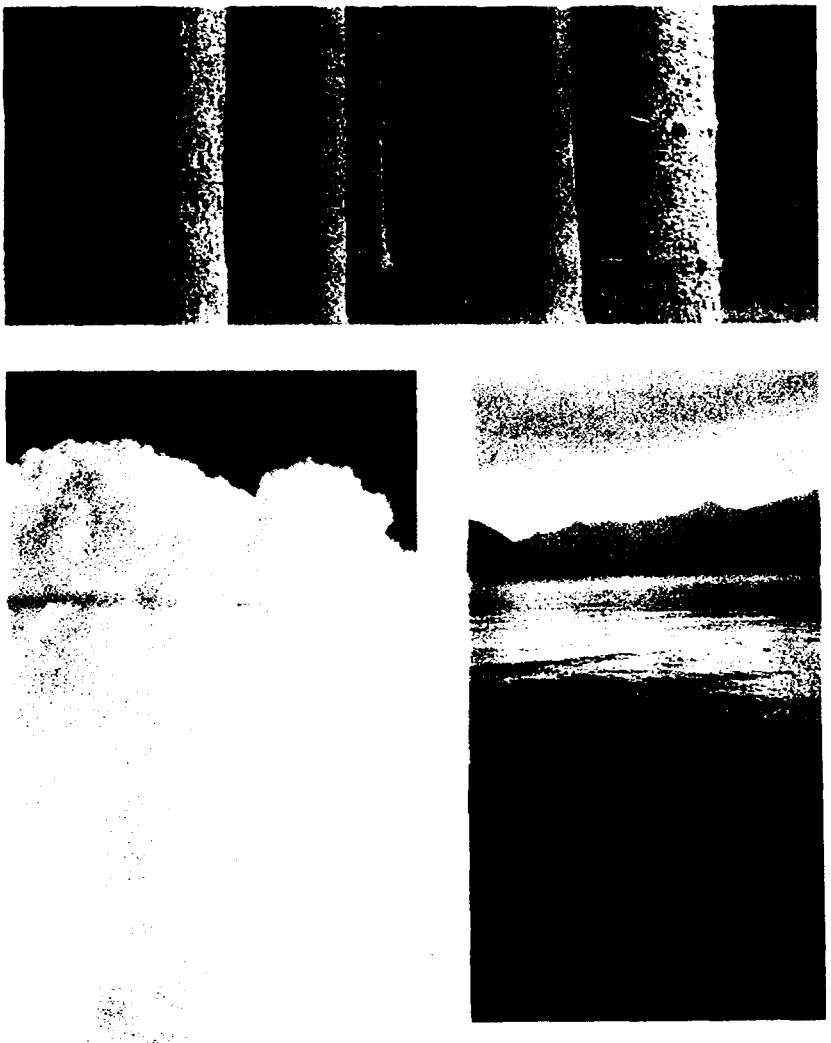
Report



Phase I Removal Action Report Addendum

Riverdale Chemical Company

June 2001

Proposed Excavation Areas

Prepared For

Nufarm

Prepared By

RMT

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

RMT
Integrated
Environmental
Solutions

222 South Riverside Plaza
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Chicago, IL 60606
Telephone: 312-575-0200
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June 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 Removal Action Work Plan

Dear Callie:

Riverdale Chemical Company (Riverdale) is submitting this Addendum to the Phase I Removal Action Work Plan based on discussions during our meeting on May 31, 2001. Riverdale proposes to excavate some 15 discrete areas of impacted soil prior to conducting the Phase II Removal Action. It is our understanding that the Phase II Removal Action will consist of installation of an engineered asphalt barrier at the site. Riverdale is currently preparing the Phase II Removal Action Work Plan for submittal to the Agency.

Soil will be excavated from the 15 areas shown on Figure 1, Proposed Excavation Areas. The areas are also described in Table 1. The basis for the removal activities includes the excavation and off-site disposal of soil at these 15 specified areas where the level of compounds detected in the soil exceed a total cumulative cancer risk of 1 x 10^{-4} and/or a hazard index of 1, or dioxin (2,3,7,8 – TCDD) above 15 parts per billion (ppb) toxicity equivalents (TEQs). The horizontal extent of excavation has been defined by confirmatory sampling. The vertical extent has been defined by confirmatory sampling or a maximum depth of 8 feet below ground surface (bgs). If the concentrations of compounds exceed a noncancer hazard index greater that 1 at the base of the excavation (8 feet bgs), markers will be installed to document the residual contamination.

The confirmatory samples were collected during the recent sampling activities as described in:

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

The results of the confirmatory sampling indicate the remaining soil risk levels at the site will be less than a total cancer risk of than 1 x10^{-4}, a hazard index less than 1, and dioxin (2,3,7,8 – TCDD) below 15 ppb TEQs.

At three locations, the deepest samples collected to date still indicate hazard indices greater than 1. Rather than continue to sample, the assumed depth of the excavation will be 8 feet bgs. For all excavations to 8 feet bgs, one sample will be collected at the base of the excavation to document

residual contamination, if any. Risk calculations are provided in Appendix A. TEQ calculations are provided in Appendix B.

In addition to the previously discussed excavation, Riverdale will be constructing a bermed concrete containment area (with canopy) south of the walkway between Buildings No. 2 and No. 3. Sample SL176 was collected from that area to determine the potential impact, if any. The results indicated the concentrations detected were below risk levels. Riverdale anticipates initiating construction in mid-June.

The excavation activities will be conducted using procedures described in the Phase I Removal 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.

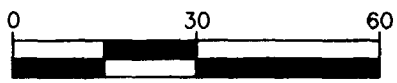
Sincerely,

RMT, Inc.

Rae Mindock
Project Manager

Attachments: Figure 1, Proposed Excavation Areas

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



NO.	BY	DATE	REVISION	APP'D.
3.				
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RIVERDALE CHEMICAL COMPANY
CHICAGO HEIGHTS, IL

PROPOSED EXCAVATION AREAS

DRAWN BY: MHS/TCP	SCALE:	PROJ. NO. 4962.01
CHECKED BY: RAM	AS NOTED	FILE NO. 49620182
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

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Appendix A
Risk Calculations

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
SL105-2	2.47E-06	1.51E-07	4.30E-08	3.39E-08	8.12E-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														0.00E+00	0.00E+00
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: 6/8/200112:48 PM

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 80E-07	9 42E-07
SL130-2	4 43E-10	1 64E-10	4 69E-11	1 30E-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 61E-08	6 01E-10	6 07E-10	3 91E-10	4 25E-09	5 14E-08	0 00E+00	1 66E-07
SL132-2	3 69E-10	1 37E-10	3 91E-11	1 04E-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 52E-11	2 82E-11	2 11E-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	[illegible]E-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 36E-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 40E-08
SL149-2	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	1 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 39E-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 06E-10	4 28E-10	4 06E-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 78E-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 33E-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 14E-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-06	2 68E-06
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-08	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 38E-10	1 33E-10	2 29E-10	1 37E-10	3 82E-08	2 52E-09	9 88E-11	3 03E-08	1 38E-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 00E-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-09	4 30E-10	3 28E-09	1 59E-10	1 40E-08	4 30E-10	8 69E-08	2 58E-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
SL169-2	2 66E-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 66E-06	1 44E-08	4 11E-09	3 65E-09	6 42E-09	5 24E-08	4 11E-09	8 34E-06	3 80E-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	0 00E+00
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
SL172-2	3 69E-06	2 87E-08	8 21E-09	5 21E-09	1 26E-08	8 86E-08	8 21E-09	2 71E-05	8 29E-08	1 95E-08	8 60E-07	3 95E-07	5 02E-07	0 00E+00	3 28E-05
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 74E-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 38E-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 56E-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)

Riverdale Chemical Company
Prepared By Brendan McLernan
Checked By Rae Murdock

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) 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 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	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/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 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)	Derm (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 No sample collected		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/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 SL92-7

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), 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-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/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 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), 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	2.1E+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/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

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

$$CRD = IDD * SFO$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION 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 (SFO)	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)	Derm (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	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-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	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)	1.1E-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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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) 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	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		1.6E-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) 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	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/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

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

$$CRD = IDD * SFO$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

RME ADULT CONSTRUCTION WORKER CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION 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	.3I	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	.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) 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	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	7.6E+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-06	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/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 SL103-4

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		4.6E-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/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 SL104-2

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+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	4.8E+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	NI	1	0.10		3.9E-08		3.5E-12				5.5E-08			
Endrin	4.3E+00	NI	NI	NI	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 SL105-2

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	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), 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		1.7E+01	1.7E+01	1.7E+01	1	0.10											#DIV/0!
Alpha-BHC		6.3E+00	6.3E+00	6.3E+00	1	0.10											#DIV/0!
Beta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											#DIV/0!
4,4-DDD		2.4E-01	2.4E-01	NI	1	0.10											#DIV/0!
4,4-DDE		3.4E-01	3.4E-01	NI	1	0.10											#DIV/0!
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											#DIV/0!
Delta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											#DIV/0!
Dieldrin		1.6E+01	1.6E+01	1.6E+01	1	0.10											#DIV/0!
Chlordane		3.5E-01	3.5E-01	3.5E-01	1	0.10											#DIV/0!
Endosulfan I		NI	NI	NI	1	0.10											#DIV/0!
Endosulfan II		NI	NI	NI	1	0.10											#DIV/0!
Endosulfan sulfate		NI	NI	NI	1	0.10											#DIV/0!
Endrin		NI	NI	NI	1	0.10											#DIV/0!
Endrin aldehyde		NI	NI	NI	1	0.10											#DIV/0!
Endrin ketone		NI	NI	NI	1	0.10											#DIV/0!
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											#DIV/0!
Heptachlor		4.5E+00	4.5E+00	4.6E+00	1	0.10											#DIV/0!
Heptachlor epoxide		9.1E+00	9.1E+00	9.1E+00	1	0.10											#DIV/0!
Methoxychlor		NI	NI	NI	1	0.10											#DIV/0!
Toxaphene		1.1E+00	1.1E+00	1.1E+00	1	0.10											#DIV/0!
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											#DIV/0!
Total Cancer Risk																	#DIV/0!

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 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-06	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^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 SL106-4

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 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/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 SL107-2

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	4.3E+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	4.5E+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/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 SL107-4

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	1.4E+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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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/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 SL108-2

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	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	NI	1	0.10		1.4E-08		1.2E-12				1.9E-08			
Endosulfan sulfate	1.1E+00	NI	NI	NI	1	0.10		9.9E-09		9.1E-13				1.4E-08			
Endrin	3.8E+00	NI	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-06	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/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 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	NI	1	0.10		8.7E-09		8.0E-13				1.2E-08			
Endrin	2.8E+00	NI	NI	NI	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	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	3.3E+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	5.8E-02	NI	NI	NI	1	0.10		5.2E-10		4.8E-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

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

$$CRD = IDD * SF_o$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

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) 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	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	8.2E+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	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	1.8E-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) 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	2.0E+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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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)			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	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	4.5E+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/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 SL112-2

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 (IDO), 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
Contamenant 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) 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	3.8E-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	NI	1	0.10		2.8E-11		2.6E-15				4.0E-11			
Endosulfan II	1.6E-02	NI	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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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/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 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	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													
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), 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	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/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 SL113-6

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	1.1E-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	1.8E-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/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 SL114-2

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	6.9E+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) 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 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	[illegible]	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	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 No sample collected		1 5E+05	1 5E+05	1 5E+05	1	0 10											
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)			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-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	4.5E+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/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 SL117-6

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), 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	5.7E-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)	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	2.0E-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	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	0.24
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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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/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

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

$$CRD = IDD * SFD$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

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) 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	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	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	0.14
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		1.5E+05	1.5E+05	1.5E+05	1	0.10											
No sample collected																	
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)			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-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/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 SL121-1

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 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
Adherance 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 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	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	7.6E-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) 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	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 (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: 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	[illegible]E+00	1	0.10		1.0E-09	1.1E-09	9.5E-14	1.[illegible]E-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									8.8E-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), 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	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/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 SL126-4

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	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	NI	1	0.10		3.8E-11		3.5E-15				5.3E-11			
Endosulfan sulfate	4 2E-03	NI	NI	NI	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/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

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

$$CRD = IDD * SFD$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

Al Schmidt - REVISED AGENDA for Wood River Steering Committee

From: <Tim_Black@urscorp.com>
To: <benninjp@bp.com>, <brossmjj@bp.com>, <triad1@ezl.com>, <jevyakgs@bp.com>, <kathy58@ezl.com>, <rybarcrd@bp.com>, <al.schmidt@rmtinc.com>, <randy.senn@bascor.com>, <wiggerjw@bp.com>
Date: 6/7/2001 6:51 PM
Subject: REVISED AGENDA for Wood River Steering Committee

And additional papers for your reading pleasure:

Revised Agenda
Draft Agenda for Meeting with Joyce Munie
May 15, 2001 Steering Committee meeting notes
May 16, 2001 IEPA meeting notes (does not include Greg's post-meeting with Jim Moore)

(See attached file: Joyce Munie.doc)(See attached file: May 15, 2001 Notes)
(See attached file: may162001.doc)(See attached file: June112001.doc)

AGENDA
Wood River RCRA Permit Renewal/Strategy
June ?
Springfield, IL

1. **Safety Minute**

2. **Background**
   - **Closed facility**
   - **Permits expire November 2003**
   - **Riverfront Property – Delay of Closure/Post Closure**
   - **Main Plant Property – Post-Closure**

3. **Drivers**
   - **Land Reuse**
   - **Corrective Action**

4. **Benefits of Developing Regulated Unit Sites**
   - **Riverfront –**
     ESP located outside 100-yr floodplain
     No wetland issues
     Permanent structures
     POTW surge capacity can be transferred to WSP
   - **Main Plant –**
     South Flare Pit/North Cell Spray Pond 1
     Strategic rail and siding area

5. **Closure Performance Standard Strategy**
   - **Risk-based closure (TACO)**
   - **Low permeable soil cover presumptive remedy**
   - **Groundwater migration hydraulic control**

6. **Streamling Permit**
   - **Flexibility of Corrective Action (Performance Based Standards)**
     Hydraulic control modifications
     Monitor performance

7. **Agency Suggestions**

Tom – Water rules for storage of domestic sewage inside 100-yr floodplain
Tom – Wetland issues for using ESP area
Triad – Is property developable (use clays from WSP?)
Jim – Contact Joyce on closure performance standard/clean closure options

5/16/01 IEPA Monthly Meeting

Category: Wood River

5/16/01 IEPA Monthly Meeting

Jim Moore, Kalpesh Patel, Ryan Bennett, Greg Jevyak, John Bennington, Jim Brossman, Tom Lenahan, Keith Wilcoxson, Min-Dong Chang, Tim Black

Safety - Hotel safety: fires

Name change: can still use old names.

IEPA wants info on pipelines. No information to give. Asphalt area- does it have any risks? pipelines above ground and heat traced...asphalt doesn't flow.

IEPA wants GIS. Maybe a web site like CRA has for Joliet.

As agenda item for monthly meetings...discuss GIS updates.

NW Corner report in peer review. Should be out soon. Changes in report due to including groundwater pathway.

Engineered Barrier report approved and out.

Can soils stay on site? If it meets Tier 3? jim can't address...wants to document lifecycle of excaated soil need to make proposal to Jim.

Letter of comfort not issued until report out. Be more like NFA. Take about 2months because will have to review for Tier 3. Jim to look at and make it a little closer. make it focused on direct exposure. Must make a formal request for comfort letter.

bp to present at national brownsfield convention in Sept.

Hotel property-if shown under RCRA permit...then use standard procedure to get NFR. May have to modify permit to get land out of permit. Then also get it our of corrective action...no further corrective action responsibilities. If not, then need to go through SRP.

Revised schedules provided to IEPA. Send copies of revised schedules to IEPA. Need to update IEPA formally (written).

AGENDA (Revised 6/7/01)
Wood River Remediation Steering Committee
June 11, 2001 @ 10 am
Wood River, IL

1. Safety Minute

2. Review 2001 Plan
   a. Revised Schedules

3. Finalizing 2002 Plan

4. CDF CMP

5. Strategy
   a. Arrange Meeting with Joyce Munie regarding RAPs
   b. Reuse potential of ESP vs. WSP
   c. Closure of Regulated Units
   d. GIS
   e. Pipelines
   f. Meeting with CRA

6. IEPA Annual Inspection Follow-up Action

7. Land Reuse
   a. Comfort Letter
   b. Hotel Property
   c. Benbow Field

8. ISO 14001 Certification

9. Committee Reports
   a. ROC
   b. Safety

10. Other?

11. Next meetings
    July 18
    August 28

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) 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-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	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	I	1	0.10		1 8E-11		1.7E-15				2 6E-11			
Endrin ketone	2.1E-03	NI	NI	I	1	0.10		1.8E-11		1.7E-15				2.6E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	[illegible]	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	4.6E+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	0.81
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/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, FIG (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

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

$$CRD = IDD * SFD$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

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)			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	5.1E-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) 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	2.0E-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) 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-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	0.96
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)			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-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	I	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	4.5E+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	1.6E-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)	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	9.12
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)	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	2.5E-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), 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 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	N	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.0E-03	1.3E+00	1.3E+00	N	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^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 SL136-2

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	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^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 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		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) 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		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	4.5E+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	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/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 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		1.6E-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/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: 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)	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	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	8.0E-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	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	55.27
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/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 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), 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^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 SL144-2

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	9.04
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/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 SL145-2

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 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^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 SL147-2

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	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	I	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 [illegible]+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) 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	1.4E-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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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/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 SL150-1

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	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/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 SL151-2

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	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) 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	3.7E-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	26.28
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/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 SL153-2

Chemical Name	Concentration in soil (CS), mg/kg	Cancer Potency Factors, 1/(mg/kg-d) Oral Slope Factor (SFO)	Dermal Slope Factor (SFO)	Inhalation Slope Factor (SFI)	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 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	4.6E+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	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	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)			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	2.3E-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	4.5E+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									8.8E-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) 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-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/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 SL158-2

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	3.6E-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	81.26
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	4.6E+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	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/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 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	0.66
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	1.8E-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^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 SL160-2

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	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	4.6E+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	0.00
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	4.6E+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) 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	1.8E+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		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	4.6E+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	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/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 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	[illegible]	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.[illegible]+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^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 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	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	4.3E-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	1.8E-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	0.06
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

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

$$CRD = IDD * SFD$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

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

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+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/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 SL166-2

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	2.9E+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/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 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	8.3E-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	1.6E-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) 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	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-06	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-06	1.9E-06	9.5E-13	1.7E-12			1.5E-06	2.6E-06	4.5E-06	0.08
4,4-DDD	2.3E+00	2.4E-01	2.4E-01	NI	1	0.10		2.0E-06	4.9E-09	1.9E-12				2.9E-06	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-06	6.9E-09	1.9E-12				2.9E-06	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-06	6.9E-09	1.9E-12	6.3E-13			2.9E-06	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-06	1.9E-06	9.5E-13	1.7E-12			1.5E-06	2.6E-06	4.5E-06	0.08
Dieldrin	2.3E+00	1.6E+01	1.6E+01	1.6E+01	1	0.10		2.0E-06	3.2E-07	1.9E-12	3.0E-11			2.9E-06	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-06	7.2E-09	1.9E-12	6.6E-13			2.9E-06	1.0E-08	1.7E-08	0.03
Endosulfan I	1.2E+00	NI	NI	NI	1	0.10		1.0E-06		9.5E-13				1.5E-06			
Endosulfan II	2.3E+00	NI	NI	NI	1	0.10		2.0E-06		1.9E-12				2.9E-06			
Endosulfan sulfate	2.3E+00	NI	NI	NI	1	0.10		2.0E-06		1.9E-12				2.9E-06			
Endrin	2.3E+00	NI	NI	NI	1	0.10		2.0E-06		1.9E-12				2.9E-06			
Endrin aldehyde	2.3E+00	NI	NI	NI	1	0.10		2.0E-06		1.9E-12				2.9E-06			
Endrin ketone	2.3E+00	NI	NI	NI	1	0.10		2.0E-06		1.9E-12				2.9E-06			
Gamma-BHC (Lindane)	1.2E+00	1.3E+00	1.3E+00	NI	1	0.10		1.0E-06	1.3E-08	9.5E-13				1.5E-06	1.9E-08	3.2E-08	0.05
Heptachlor	1.2E+00	4.5E+00	4.5E+00	4.6E+00	1	0.10		1.0E-06	4.7E-08	9.5E-13	4.4E-12			1.5E-06	6.6E-06	1.1E-07	0.19
Heptachlor epoxide	1.2E+00	9.1E+00	9.1E+00	9.1E+00	1	0.10		1.0E-06	9.4E-08	9.5E-13	8.6E-12			1.5E-06	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 No sample collected		1.5E+05	1.5E+05	1.5E+05	1	0.10											
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/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)			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	7.2E-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	N	1	0.10		1.9E-11		1.7E-15				2.7E-11			
Endrin ketone	2.1E-03	NI	NI	N	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/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 SL170-2

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	7.2E+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	N	1	0.10		5.3E-09		4.9E-13				7.5E-09			
Gamma-BHC (Lindane)	1.1E-01	1.3E+00	1.3E+00	N	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/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 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											#DIV/0!
Alpha-BHC		6.3E+00	6.3E+00	6.3E+00	1	0.10											#DIV/0!
Beta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											#DIV/0!
4,4-DDD		2.4E-01	2.4E-01	NI	1	0.10											#DIV/0!
4,4-DDE		3.4E-01	3.4E-01	NI	1	0.10											#DIV/0!
4,4-DDT		3.4E-01	3.4E-01	3.4E-01	1	0.10											#DIV/0!
Delta-BHC		1.8E+00	1.8E+00	1.8E+00	1	0.10											#DIV/0!
Dieldrin		1.6E+01	1.6E+01	1.6E+01	1	0.10											#DIV/0!
Chlordane		3.5E-01	3.5E-01	3.5E-01	1	0.10											#DIV/0!
Endosulfan I		NI	NI	NI	1	0.10											#DIV/0!
Endosulfan II		NI	NI	NI	1	0.10											#DIV/0!
Endosulfan sulfate		NI	NI	NI	1	0.10											#DIV/0!
Endrin		NI	NI	NI	1	0.10											#DIV/0!
Endrin aldehyde		NI	NI	NI	1	0.10											#DIV/0!
Endrin ketone		NI	NI	NI	1	0.10											#DIV/0!
Gamma-BHC (Lindane)		1.3E+00	1.3E+00	NI	1	0.10											#DIV/0!
Heptachlor		4.5E+00	4.5E+00	4.6E+00	1	0.10											#DIV/0!
Heptachlor epoxide		9.1E+00	9.1E+00	9.1E+00	1	0.10											#DIV/0!
Methoxychlor		NI	NI	NI	1	0.10											#DIV/0!
Toxaphene		1.1E+00	1.1E+00	1.1E+00	1	0.10											#DIV/0!
DIOXIN																	
2,3,7,8-TCDD		1.5E+05	1.5E+05	1.5E+05	1	0.10											#DIV/0!
No sample collected																	
Total Cancer Risk																	#DIV/0!

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 SL171-2

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	4.1E+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			4.6E-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/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: 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 SL173-2

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	1.1E-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/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 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	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-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		8.9E-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)			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-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	N	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Endrin ketone	1.1E-02	NI	NI	N	1	0.10		9.5E-11		8.7E-15				1.3E-10			
Gamma-BHC (Lindane)	5.5E-03	1.3E+00	1.3E+00	N	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	6.9E-09	1.8E-13	6.3E-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	N	1	0.10		1.8E-11		1.6E-15				2.5E-11			
Gamma-BHC (Lindane)	1.1E-03	1.3E+00	1.3E+00	N	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 (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-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

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

$$CRD = IDD * SFD$$

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

$$CRI = IDI * SFI$$

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

$$CRIV = IDIV * SFI$$

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

$$CRIG = IDIG * SFO$$

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	8.96E-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	7.92E-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	1.43E-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	2.51E-03	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	2.54E-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
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	4.46E-04	1.49E-06	2.12E-06	2.85E-06	5.70E-05	5.70E-05	3.48E-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	7.60E-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	2.96E-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	1.76E-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	3.64E-03	1.79E-03	3.58E-02	3.94E-03	1.90E-05	2.99E-05	3.67E-05	8.14E-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	1.60E-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	8.14E+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	3.53E-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	2.78E-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+01	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	2.55E-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
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	3.20E-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
SL172-2	5.43E-01	3.91E-02	2.54E+00	3.55E-02	5.70E-05	2.31E-04	1.11E-04	2.50E-03	2.23E-03	1.52E-02	3.79E-03	2.87E-02	2.51E-01	6.84E-04	3.46E+00
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	2.96E-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-05	2.12E-05	2.12E-05	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	4.40E-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 (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	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/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 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			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	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/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 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 (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	5.9E-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

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

$$HQD = IDD / RFDD$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

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

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+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, 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 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^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 SL96-6

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	2.8E+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-05	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
Adherance 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/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 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	76.39
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.[illegible]E-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		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 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	"	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	"	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		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	"	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: 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	2.5E+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^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 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)	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-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), 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	1.9E+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/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

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

$$HQD = IDD / RFDO$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION 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	NI	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	NI	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/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: 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.[illegible]E-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	[illegible]	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	[illegible]	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	[illegible]	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	[illegible]	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	I	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		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	I	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^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 SL110-4

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^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: 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 (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	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

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

$$HQD = IDD / RFDD$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

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

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^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 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			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	6.3E-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/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

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

$$HQD = IDD / RFDO$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

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

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	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/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 SL113-6

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	1.1E-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		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		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		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 (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	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		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		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^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 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^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 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/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 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

$$IDD = \frac{CS * MCF * [illegible] * AF * ABS * EF * EDD}{BW * AT * TCF}$$

$$HQD = IDD / RFDD$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

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			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	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		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		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	N	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		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
Adherance 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 (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-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			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	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^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 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	8.0E-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		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		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	//	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^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 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

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

$$HQD = IDD / RFDD$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION 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), 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	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/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 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^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 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), 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	1.0E-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/cm²)	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 (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 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		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		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 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		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 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: 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	16.85
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/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: 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 (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	1.06
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	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	1.06
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									1.2E-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^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 SL144-2

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	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		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		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^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 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			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-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/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 SL151-2

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-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/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: 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: 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	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/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 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	N	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		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		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	I	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	I	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	I	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-06	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/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 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^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 SL157-2

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	1.3E-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: 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	3.6E-03	3.0E-05	3.0E-05	NI	1	0.10		2.4E-09	8.1E-06	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-06	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/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: SL159-1

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	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/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 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		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		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/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 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		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		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		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		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^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 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), 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	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/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 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), 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	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/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 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		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		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^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 SL169-2

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-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		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		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^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

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

$$HQD = IDD / RFDO$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

RME ADULT CONSTRUCTION WORKER NON-CANCER UNIT RISK FROM EXPOSURE TO COPCs IN SUBSURFACE SOIL
SAMPLING LOCATION: SL172-2

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+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 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^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 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-08	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 (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	1.2E-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		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	..	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		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/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

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

$$HQD = IDD / RFDD$$

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

$$HQIS = IDIS / RFDI$$

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

$$HQIV = IDIV / RFDI$$

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

$$HQIG = IDIG / RFDO$$

Appendix B
TEQ Calculations

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			**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			**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			**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			**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			**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	**5.50E+02**	5.50E+00			**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	**7.30E+03**	7.30E+00			**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			**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			**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			**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			**4.00E+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			**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			**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			**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			**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			**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			**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**	**0.00E+00**	**TEQ**	**7.13E+03**	**TEQ**	**5.71E+00**	**TEQ**	**5.71E+00**
	mg/kg		1.74E-05		3.3E-01		0.0E+00		7.1E-03		5.7E-06		5.7E-06

DRAFT

Created by: Brendan McLennan
Checked by: Rae Mindock
6/8/2001

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	**2.50F+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		7.0E-06		2.75E-04		5.6E-06		6.0E-06		8.2E-04		7.3E-02

Created by: Brendan McLennan
Checked by: Rae Mindock
6/8/2001

Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration Calculations Using International Toxic Equivilant Factors

ANALYTE		SL170-4 ng/kg
	I-TEFs	
2378-TCDD	1	
12378-PeCDD	0.5	
123478-HxCDD	0.1	
123678-HxCDD	0.1	
123789-HxCDD	0.1	
1234678-HpCDD	0.01	
OCDD	0.001	
2378-TCDF	0.1	
12378-PeCDF	0.05	
23478-PeCDF	0.5	
123478-HxCDF	0.1	
123678-HxCDF	0.1	
123789-HxCDF	0.1	
234678-HxCDF	0.1	
1234678-HpCDF	0.01	
1234789-HpCDF	0.01	
OCDF	0.001	
	ng/kg	TEQ 0.00E+00
	mg/kg	0.0E+00

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