June 1, 2017

Marie Rudiman EnviroRisk Solutions, LLC 121 Kirkland Dr. Stow, MA 01775 (978) 793-2798 mguiles@gmail.com

Attn: Mr. Jay Billings Northeast Geoscience, Inc. 97 Walnut Street Clinton, MA 01510 *Electronic submittal* 

#### Re: Review of Residual Herbicides and Pesticides in Soil Evergreen Golf Course Newburyport, MA

Dear Mr. Billings:

This letter presents a review of residual herbicides, pesticides, and fungicides detected in soil collected from the Evergreen Golf Course in Newburyport, Massachusetts to Northeast Geoscience, Inc. As indicated below, the detected constituents in soil included herbicides, pesticides/insecticides, and fungicides that are at concentrations consistent with concentrations typically observed with proper application of herbicides, pesticides, and fungicides for lawn maintenance. The detected concentrations of constituents in soil are well below reportable concentrations in soil and were determined to cause No Significant Risk (NSR) to human health to a hypothetical on-Site residential receptor, which is considered the most highly exposed potential receptor. Calculated risks to the residential receptor are protective of other lesser exposed receptors such as employees, visitors to the golf course, trespassers, and construction/utility workers that may potentially be exposed to golf course soil. Therefore, a conditions of NSR to human health exists for these lesser exposed receptors as well. The potential health risks associated with exposure to golf course soil containing these low concentrations of herbicides, pesticides/insecticides, and fungicides was found to be negligible.

#### Summary of Soil

Soil analytical data representing residual concentrations of detected constituents is presented on Table 1. Table 1 also indicates whether the detected constituent is an herbicide, pesticide/insecticide, fungicide or a breakdown product thereof. The detected concentrations of constituents are consistent with the concentrations of herbicide, pesticide/insecticide, and fungicide that would typically be found in soil with proper current and historic application of these products for lawn maintenance.

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The detected concentrations of constituents were well below available MassDEP Reportable Concentrations (RCs) for soil. The sum of all detected concentrations of constituents from all soil collected from the golf course in total was 1.2 mg/kg, which is a very low concentration of total herbicide/pesticide/fungicide in a lawn. However, since RCs were not available all detected constituents, the herbicides/pesticides/fungicides were further evaluated in a site-specific Risk Characterization.

In a site-specific risk characterization, detected concentrations of constituents are evaluated by determining the potential for a selected receptor to be exposed to constituents in soil and estimating the potential health risks for that receptor using the following basic equation:

#### Risk = Detected Concentration x Exposure x Toxicity

#### Exposure Point Concentration

Maximum detected concentrations of each constituent were used to represent the exposure point concentrations (EPCs) for exposure to constituents in soil. As described further below, the maximum detected concentrations of pentachloroaniline and pentachlorothioanisole were summed to represent the EPC for pentachloronitrobenzene which was used as a surrogate compound for pentachloroaniline and pentachlorothioanisole. This was done because there are no toxicity values available for pentachloroaniline or pentachlorothioanisole. The use of pentachloronitrobenzene as a surrogate compound is applicable because all three constituents are similar in structure and pentachloroaniline and pentachlorothioanisole are breakdown products of pentachloronitrobenzene.

#### Exposure Assessment Summary

To conservatively estimate potential health risks from soil exposure, the most highly exposed receptor was selected. For this evaluation, a resident was assumed to reside on the golf course and be exposed to soil via ingestion and dermal contact.

On-Site residential exposure to soil via dermal contact and incidental ingestion was calculated assuming that residents would encounter soil 5 days per week over a period of 30 weeks per year for 30 years. The exposure assumptions for a resident are equivalent to the MassDEP default values published in MassDEP Short Form worksheets (MassDEP, 2012 with March 2015 updates). The ingestion rate is assumed to be 100 mg/day soil for young children and 50 mg/day soil for older children and adults. Surface area was based on exposure to face, forearms, lower legs, and feet. These exposure assumptions are presented in Table RS-3, RS-4, and RS-5 for potential lifetime, chronic, and subchronic exposure periods, respectively, in Attachment A. These conservative assumptions likely over estimate any actual exposures to soil at the golf course.

#### Dose-Response Assessment/Toxicity Values

The purpose of the Dose-Response Assessment was to identify the relationship between the magnitude of constituents to which receptors may be exposed (dose) and the likelihood of an adverse health effect (response). Both noncarcinogenic (i.e., threshold) and carcinogenic (i.e., non-threshold) health effects were considered in the Dose-Response Assessment.

Table RS-6 in Attachment A provides a summary of toxicity values used in this evaluation. Toxicity values were available from USEPA for most of the detected constituents. There was no toxicity available for pentachloroaniline or pentachlorothioanisole. Since these constituents are breakdown products for pentachloronitrobenzene, the toxicity data that is available for this compound was used to potential health risks associated with pentachloroaniline estimate and pentachlorothioanisole. The maximum detected concentrations of pentachloroaniline and pentachlorothioanisole were summed to represent the EPC for pentachloronitrobenzene as a surrogate compound.

Toxicity values for metalaxyl, triadimefon, and chloropyrifos are Regional Screening Levels (RSLs). These values were derived by regional EPA or state environmental offices and were used if a federal toxicity values were not yet promulgated for that compound. While there are not USEPA or RSL toxicity values available for prodiamine, the available toxicity studies for this constituent were reviewed. It was determined that a conservative value that could be used as the basis for a Reference Dose was a Lowest Observable Adverse Effect Level (LOAEL) from a rat study where rats were exposed to prodiamine orally. Conservative uncertainty factors totaling 1000 were applied to this LOAEL to calculate a toxicity value of  $3.7 \times 10^{-2}$  mg/kg-day for prodiamine. Through use of available toxicity data, all detected herbicide/pesticide/fungicide were evaluated in this risk characterization.

#### Risk Calculations

Hypothetical on-Site residents living on-Site are the most highly exposed receptor and were assumed to be exposed to soil from the Site using the maximum detected concentrations as EPCs. The MADEP Shortform (2012 with updates March 2015) for residential exposure to soil was used to evaluate residential exposures to soil via dermal contact and incidential ingestion. The Shortform included standard exposure assumptions promulgated by MADEP. Refer to Attachment A for the risk calculations for the resident receptors. Actual potential exposures to actual receptors (employees of the golf course, visitors to the golf course, trespassers, and construction/utility workers) are expected to be less than the residential exposures assumed.

#### Calculated Human Health Risks

Potential residential human health risks from exposure to soil were calculated. As shown in the Table below, estimated health risks did not exceed MADEP's target HIs of 1 or ELCR of  $1 \times 10^{-5}$  based on residential exposures to soil. In fact, when the estimated health risks are at least an order of magnitude less than MassDEP screening limits, as is the case

here, the potential health risks are consider negligible. Based on this risk characterization, a condition of No Significant Risk of harm to human health exists for potential exposures to soil that may occur on the golf course.

Residential Exposure	Excess Lifetime	Subchronic Hazard	Subchronic Hazard
to Soil	Cancer Risk	Index (HI)	Index (HI)
	(ELCR)		
Maximum Soil Conc.	<b>4E-8</b>	0.001	0.003
MassDEP Screening	1E-5	1	1
Limits			
Exceed Risk Limit?	No	No	No

#### Estimated Risks for Residential Exposure to Soil

If there are any questions or concerns regarding the results of this Review, please call me at 978-793-2798 or email at <u>mguiles@gmail.com</u>. I appreciate the opportunity to work with you on this project.

Sincerely,

#### Marie Rudiman

Marie Rudin

EnviroRisk Solutions, LLC President/Senior Risk Assessor/Toxicologist

Attached: Table 1 Evergreen Golf Course Soil Sample Detections Attachment A: Risk Tables (includes Tables RS-1 through RS-6)

References:

Fluoride Action Network Pesticide Project (FANPP), Adverse Effects Prodiamine. <u>http://www.fluoridealert.org/wp-content/pesticides/epage.prodiamine.htm</u>. [Accessed 4-26-16]

Kegley, S.E., Hill, B.R., Orme S., Choi A.H., *PAN Pesticide Database*, Pesticide Action Network, North America (Oakland, CA, 2014), http://www.pesticideinfo.org/Detail\_Chemical.jsp?Rec\_Id=PC37523

TruGreen, LP, (2007). Pesticide Fact Sheet, Prodiamine. <u>http://www.hanoverschools.org/facilities/pdf/factsheet/Prodiamine.pdf</u>.

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USEPA, (2017). EPA Dashboard, https://comptox.epa.gov/dashboard, May.

#### Table 1 Evergreen Golf Course Soil Sample Detections Newburyport, MA (all concentrations in mg/kg)

Soil Sample ID	Conc. (mg/kg)	Location	RL (mg/kg)	RC S-1 Standard	CAS Number	Use
S-1 (1 compound detected)						
Prodiamine	0.03	Tee	0.03	NCS	29091-21-2	Pre-emergent pesticide for crabgrass control
S-2						
No Compounds Detected	ND	Fairway	NA	NA	NA	NA
C 2 (15 compounds detected)						
S-3 (15 compounds detected)	0.02	Groop	0.01	6	72 55 0	Proakdown product of DDT
DDT-p p'	0.03	Green	0.01	6	50-20-2	insecticide
Inrodione	0.01	Green	0.03	NCS	3673/-19-7	Fungicide
Pentachloroaniline	0.12	Green	0.03	NCS	527-20-8	Pesticide
Pentachlorothioanisole	0.21	Green	0.01	NCS	1825-10-0	Preakdown product of Pentachloronitrobenzene - a fungicide
Pentachlorobenzene	0.04	Green	0.01	50	608-03-5	By product of manufacturing Pentachloronitrobenzene
Carbondazim	0.00	Green	0.01		10605-21-7	Europicide used on golf groops
Chlorantranilinrolo	0.01	Green	0.01	NCS		
Motalaxy	0.02	Green	0.01	NCS	57827_10_1	Fungicide
Myclobutapil	0.04	Green	0.01	NCS	88671-80-0	Fungicide
Propisopazolo	0.03	Green	0.01		60207.00.1	Fungicide
Tebucepazele	0.04	Green	0.01		80442 41 0	Fungicide
Triadimofon	0.09	Green	0.01	NCS	42121 42 2	Fungicide
Triadimenol	0.01	Green	0.01			Fungicide
Chloropyrifes	0.09	Green	0.01		20219-05-5	
Chioropymos	0.05	Green	0.02	INC.5	2921-00-2	Insecticide
S-4 (1 Compound Detected)						
Bensulide	0.02	Sediment	0.01	NCS	7/1-58-2	Herbicide for crabgrass control
Densande	0.02	Jeument	0.01	Nes	741-50-2	
S-5 (2 Compounds Detected)						
Iprodione	0.02	Sediment	0.03	NCS	36734-19-7	Fungicide
Carbendazim	0.01	Sediment	0.01	NCS	10605-21-7	Fungicide used on golf greens
5.6						
No Compounds Detected	ND	Tee	NA	NA	NA	ΝΔ
No compounds Detected		100		14/ (		
S-7 (9 Compounds Detected)						
Iprodione	0.01	Green	0.03	NCS	36734-19-7	Fungicide
Pentachloraniline	0.07	Green	0.01	NCS	527-20-8	Pesticide
Pentachlorothioanizole	0.01	Green	0.01	NCS	1825-19-0	Breakdown product of Pentachloronitrobenzene - a fungicide
Pentachlorobenzene	0.07	Green	0.01	NCS	608-93-5	By product of manufacturing Pentachlornitrobenzene
Chlorantraniliprole	0.01	Green	0.01	NCS	500008-45-7	Insecticide
Imidacloprid	0.01	Green	0.01	NCS	138261-41-3	Insecticide
Propiconazole	0.02	Green	0.01	NCS	60207-90-1	Fungicide
Tebuconazole	0.03	Green	0.01	NCS	80443-41-0	Fungicide
Triadimenol	0.03	Green	0.01	NCS	55219-65-3	Fungicide
	-					
SG-8						
No compounds detected	ND	Fairway	NA	NA	NA	NA

#### Purchased since 9/3/2014

NCS - No concentration Set NA - Not Applicable

ND - None Detected

#### Attachment A

#### Risk Calculation Spreadsheets, Exposure and Risk Estimates Associated with Exposure, On-Site Resident

#### Resident - Soil: Table RS-1 Exposure Point Concentration (EPC) Based on Resident Ages 1-31 (Cancer)

Do not insert or delete any rows

Click on empty cell below and select OHM using arrow.

Oil or	EPC	Exposure	Toxicity		Exposure	Toxicity		Derm & Ing
Hazardous Material	(mg/kg)	Ingestion		<b>ELCR</b> ingestion	Dermal		<b>ELCR</b> <sub>dermal</sub>	<b>ELCR</b> <sub>total</sub>
Prodiamine	0.03	1.1E-08			3.5E-09			
DDE-p,p'	0.03	1.1E-08	3.4E-01	3.8E-09	3.5E-09	3.4E-01	1.2E-09	5.0E-09
DDT-p,p'	0.01	3.7E-09	3.4E-01	1.3E-09	1.2E-09	3.4E-01	4.0E-10	1.7E-09
Iprodione	0.12	4.5E-08	4.4E-02	2.0E-09	1.4E-08	4.4E-02	6.1E-10	2.6E-09
Pentachlorobenzene	0.07	2.6E-08			8.1E-09			
Carbendazim	0.01	3.7E-09	2.4E-03	8.9E-12	1.2E-09	2.4E-03	2.8E-12	1.2E-11
Chlorantraniliprole	0.02	7.5E-09			2.3E-09			
Metalaxyl	0.04	1.5E-08			4.7E-09			
Myclobutanil	0.05	1.9E-08			5.8E-09			
Propiconazole	0.04	1.5E-08			4.7E-09			
Tebuconazole	0.09	3.4E-08			1.0E-08			
Triadimefon	0.01	3.7E-09			1.2E-09			
Triadimenol	0.09	3.4E-08			1.0E-08			
Chloropyrifos	0.03	1.1E-08			3.5E-09			
Bensulide	0.02	7.5E-09			2.3E-09			
Imidacloprid	0.01	3.7E-09			1.2E-09			
Pentachloronitrobenzene	0.25	9.4E-08	2.6E-01	2.4E-08	2.9E-08	2.6E-01	7.6E-09	3.2E-08

#### ELCR (all chemicals) = 4.1E-08

## Resident - Soil: Table RS-2

Exposure Point Concentration (EPC) Based on Resident Ages 1-8 (Chronic Noncancer), and 1-2 (Subchronic Noncancer)

Do not insert or delete any rows

Click on empty cell below and select OHM using arrow.

EPC		Chronic					Derm & Ing	g Subchronic						Derm & Ing
(mg/kg)	Exposure <sub>ing</sub>	Toxicity		Exposure <sub>dc</sub>	Toxicity	HQ <sub>derm</sub>	<b>HQ</b> <sub>total</sub>	Exposure <sub>ing</sub>	Toxicity	HQ <sub>ing</sub>	Exposure <sub>dc</sub>	Toxicity	HQ <sub>derm</sub>	<b>HQ</b> <sub>total</sub>
0.03	7.3E-08	3.7E-02	2.0E-06	1.9E-08	3.7E-02	5.0E-07	2.5E-06	2.0E-07	3.7E-02	5.4E-06	3.5E-08	3.7E-02	9.5E-07	6.4E-06
0.03	7.3E-08	5.0E-04	1.5E-04	1.9E-08	5.0E-04	3.7E-05	1.8E-04	2.0E-07	5.0E-04	4.0E-04	3.5E-08	5.0E-04	7.0E-05	4.7E-04
0.01	2.4E-08	5.0E-04	4.8E-05	6.2E-09	5.0E-04	1.2E-05	6.1E-05	6.7E-08	5.0E-04	1.3E-04	1.2E-08	5.0E-04	2.3E-05	1.6E-04
0.12	2.9E-07	2.0E-02	1.5E-05	7.4E-08	2.0E-02	3.7E-06	1.8E-05	8.0E-07	2.0E-02	4.0E-05	1.4E-07	2.0E-02	7.0E-06	4.7E-05
0.07	1.7E-07	8.0E-04	2.1E-04	4.3E-08	8.0E-04	5.4E-05	2.7E-04	4.7E-07	8.0E-04	5.8E-04	8.2E-08	8.0E-04	1.0E-04	6.9E-04
0.01	2.4E-08	2.5E-02	9.7E-07	6.2E-09	2.5E-02	2.5E-07	1.2E-06	6.7E-08	2.5E-02	2.7E-06	1.2E-08	2.5E-02	4.7E-07	3.1E-06
0.02	4.8E-08	1.6E+00	3.1E-08	1.2E-08	1.6E+00	7.8E-09	3.9E-08	1.3E-07	1.6E+00	8.4E-08	2.3E-08	1.6E+00	1.5E-08	9.9E-08
0.04	9.7E-08	6.0E-02	1.6E-06	2.5E-08	6.0E-02	4.1E-07	2.0E-06	2.7E-07	6.0E-02	4.4E-06	4.7E-08	6.0E-02	7.8E-07	5.2E-06
0.05	1.2E-07	2.5E-02	4.8E-06	3.1E-08	2.5E-02	1.2E-06	6.1E-06	3.3E-07	2.5E-02	1.3E-05	5.9E-08	2.5E-02	2.3E-06	1.6E-05
0.04	9.7E-08	1.3E-02	7.5E-06	2.5E-08	1.3E-02	1.9E-06	9.4E-06	2.7E-07	1.3E-02	2.1E-05	4.7E-08	1.3E-02	3.6E-06	2.4E-05
0.09	2.2E-07	2.9E-02	7.5E-06	5.6E-08	2.9E-02	1.9E-06	9.4E-06	6.0E-07	2.9E-02	2.1E-05	1.1E-07	2.9E-02	3.6E-06	2.4E-05
0.01	2.4E-08	3.0E-02	8.1E-07	6.2E-09	3.0E-02	2.1E-07	1.0E-06	6.7E-08	3.0E-02	2.2E-06	1.2E-08	3.0E-02	3.9E-07	2.6E-06
0.09	2.2E-07	3.4E-03	6.4E-05	5.6E-08	3.4E-03	1.6E-05	8.1E-05	6.0E-07	3.4E-03	1.8E-04	1.1E-07	3.4E-03	3.1E-05	2.1E-04
0.03	7.3E-08	1.0E-03	7.3E-05	1.9E-08	1.0E-03	1.9E-05	9.1E-05	2.0E-07	1.0E-03	2.0E-04	3.5E-08	1.0E-03	3.5E-05	2.4E-04
0.02	4.8E-08	5.0E-03	9.7E-06	1.2E-08	5.0E-03	2.5E-06	1.2E-05	1.3E-07	5.0E-03	2.7E-05	2.3E-08	5.0E-03	4.7E-06	3.1E-05
0.01	2.4E-08	5.7E-02	4.3E-07	6.2E-09	5.7E-02	1.1E-07	5.3E-07	6.7E-08	5.7E-02	1.2E-06	1.2E-08	5.7E-02	2.1E-07	1.4E-06
0.25	6.1E-07	3.0E-03	2.0E-04	1.5E-07	3.0E-03	5.2E-05	2.5E-04	1.7E-06	3.0E-03	5.6E-04	2.9E-07	3.0E-03	9.8E-05	6.5E-04
	EPC (mg/kg) 0.03 0.03 0.01 0.12 0.07 0.01 0.02 0.04 0.05 0.04 0.09 0.01 0.09 0.01 0.09 0.03 0.02 0.01 0.25	EPC (mg/kg)         Exposure <sub>ing</sub> 0.03         7.3E-08           0.03         7.3E-08           0.01         2.4E-08           0.12         2.9E-07           0.07         1.7E-07           0.01         2.4E-08           0.02         4.8E-08           0.05         1.2E-07           0.04         9.7E-08           0.09         2.2E-07           0.01         2.4E-08           0.09         2.2E-07           0.01         2.4E-08           0.09         2.2E-07           0.01         2.4E-08           0.02         4.8E-08           0.03         7.3E-08           0.02         4.8E-08           0.02         4.8E-08           0.02         4.8E-08           0.02         4.8E-08           0.01         2.4E-08           0.25         6.1E-07	EPC         Exposureing         Toxicity           0.03         7.3E-08         3.7E-02           0.03         7.3E-08         5.0E-04           0.01         2.4E-08         5.0E-04           0.12         2.9E-07         2.0E-02           0.07         1.7E-07         8.0E-04           0.01         2.4E-08         2.5E-02           0.07         1.7E-07         8.0E-04           0.01         2.4E-08         2.5E-02           0.02         4.8E-08         1.6E+00           0.04         9.7E-08         6.0E-02           0.05         1.2E-07         2.5E-02           0.04         9.7E-08         1.3E-02           0.09         2.2E-07         2.9E-02           0.01         2.4E-08         3.0E-02           0.03         7.3E-08         1.0E-03           0.03         7.3E-08         1.0E-03           0.02         4.8E-08         5.0E-03           0.01         2.4E-08         5.7E-02           0.02         4.8E-08         5.0E-03           0.01         2.4E-08         5.7E-02           0.25         6.1E-07         3.0E-03	EPC (mg/kg)         Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> 0.03         7.3E-08         3.7E-02         2.0E-06           0.03         7.3E-08         5.0E-04         1.5E-04           0.01         2.4E-08         5.0E-04         4.8E-05           0.12         2.9E-07         2.0E-02         1.5E-04           0.01         2.4E-08         2.5E-02         9.7E-07           0.07         1.7E-07         8.0E-04         2.1E-04           0.01         2.4E-08         2.5E-02         9.7E-07           0.02         4.8E-08         1.6E+00         3.1E-08           0.04         9.7E-08         6.0E-02         1.6E-06           0.05         1.2E-07         2.5E-02         4.8E-06           0.04         9.7E-08         1.3E-02         7.5E-06           0.05         1.2E-07         2.9E-02         7.5E-06           0.01         2.4E-08         3.0E-02         8.1E-07           0.09         2.2E-07         3.4E-03         6.4E-05           0.03         7.3E-08         1.0E-03         7.3E-05           0.02         4.8E-08         5.0E-03         9.7E-06           0.01         2.4E-08	EPC (mg/kg)ExposureingToxicityHQingExposuredct0.037.3E-083.7E-022.0E-061.9E-080.037.3E-085.0E-041.5E-041.9E-080.012.4E-085.0E-044.8E-056.2E-090.122.9E-072.0E-021.5E-057.4E-080.071.7E-078.0E-042.1E-044.3E-080.012.4E-082.5E-029.7E-076.2E-090.024.8E-081.6E+003.1E-081.2E-080.049.7E-086.0E-021.6E-062.5E-080.051.2E-072.5E-024.8E-063.1E-080.049.7E-081.3E-027.5E-065.6E-080.092.2E-072.9E-027.5E-065.6E-080.012.4E-083.0E-028.1E-076.2E-090.024.8E-081.3E-027.5E-065.6E-080.012.4E-083.0E-028.1E-076.2E-090.024.8E-081.0E-037.3E-051.9E-080.012.4E-083.0E-028.1E-076.2E-090.024.8E-085.0E-039.7E-061.2E-080.012.4E-085.0E-039.7E-061.2E-080.024.8E-085.0E-039.7E-061.2E-080.024.8E-085.0E-039.7E-061.2E-080.024.8E-085.0E-039.7E-061.2E-090.256.1E-073.0E-032.0E-041.5E-07	EPC         Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04           0.01         2.4E-08         5.0E-04         1.5E-05         6.2E-09         5.0E-04           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04           0.01         2.4E-08         2.5E-02         9.7E-07         6.2E-09         2.5E-02           0.02         4.8E-08         1.6E+00         3.1E-08         1.2E-08         1.6E+00           0.04         9.7E-08         6.0E-02         1.6E-06         2.5E-08         6.0E-02           0.05         1.2E-07         2.5E-02         4.8E-06         3.1E-08         2.5E-02           0.04         9.7E-08         1.3E-02         7.5E-06         2.5E-08         1.3E-02           0.05         1.2E-07         2.9E-02         7.5E-06         5.6E-08         2.9E-02           0.09         <	EPC (mg/kg)ExposureingToxicityHQingExposuredcToxicityHQderm0.037.3E-083.7E-022.0E-061.9E-083.7E-025.0E-070.037.3E-085.0E-041.5E-041.9E-085.0E-043.7E-050.012.4E-085.0E-044.8E-056.2E-095.0E-041.2E-050.122.9E-072.0E-021.5E-057.4E-082.0E-023.7E-060.071.7E-078.0E-042.1E-044.3E-088.0E-045.4E-050.012.4E-082.5E-029.7E-076.2E-092.5E-022.5E-070.024.8E-081.6E+003.1E-081.2E-081.6E+007.8E-090.049.7E-086.0E-021.6E-062.5E-086.0E-024.1E-070.051.2E-072.5E-027.5E-065.6E-082.9E-021.9E-060.049.7E-081.3E-027.5E-065.6E-082.9E-021.9E-060.012.4E-083.0E-028.1E-076.2E-093.0E-022.1E-070.051.2E-072.9E-027.5E-065.6E-083.4E-031.6E-050.049.7E-081.3E-027.5E-065.6E-083.4E-031.6E-050.012.4E-083.0E-028.1E-076.2E-093.0E-022.1E-070.092.2E-073.4E-036.4E-055.6E-083.4E-031.6E-050.037.3E-081.0E-037.3E-051.9E-081.0E-031.9E-050.02 <td>EPC         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>derm</sub>         HQ<sub>total</sub>           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04           0.01         2.4E-08         2.5E-02         9.7E-07         6.2E-09         2.5E-02         2.5E-07         1.2E-06           0.02         4.8E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08           0.04         9.7E-08         6.0E-02         1.5E-08         6.0E-02         1.2E-06         6.1E-06           0.05         1.2E-07         2.9E-02</td> <td>EPC         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>dern</sub>         HQ<sub>total</sub>         Exposure<sub>ing</sub>           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05         6.7E-08           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05         8.0E-07           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07           0.01         2.4E-08         2.5E-02         9.7E-07         6.2E-09         2.5E-02         2.5E-07         1.2E-06         6.7E-08           0.02         4.8E-08         1.6E+00         3.1E-08         1.2E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07           0.04         9.7E-08         6.0E-02         1.</td> <td>EPC (mg/kg)         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>dorn</sub>         Exposure<sub>ing</sub>         Toxicity         IQ           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05         6.7E-08         5.0E-04           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05         8.0E-07         2.0E-02           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07         8.0E-04           0.01         2.4E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07         1.6E+00           0.02         4.8E-08         1.6E+00         3.1E-08         2.5E-02         1.2E-06         6.1E-06</td> <td>EPC         Chronic         Derm &amp; Ing HQ<sub>total</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02         5.4E-06           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04         4.0E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.7E-08         5.0E-04         1.3E-04           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07         8.0E-04         5.8E-02         2.7E-04         4.5E-03         2.5E-02         2.5E-02         2.7E-06         6.7E-08         2.5E-02         2.7E-06         0.0E-04         5.4E-06         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07         1.6E+00         8.4E-08           0.04         9.7E-0</td> <td>EPC         Chronic         Derm &amp; Ing HQ<sub>total</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>derm</sub>         HQ<sub>total</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02         5.4E-06         3.5E-08           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04         4.0E-04         3.5E-08           0.01         2.4E-08         5.0E-04         1.5E-05         7.4E-08         2.0E-02         3.7E-05         6.1E-05         6.7E-08         5.0E-04         1.3E-07         1.4E-07           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.2E-07         1.2E-06         6.7E-08         2.5E-02         2.7E-06         1.2E-08           0.01         2.4E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E+07         6.0E-02         4.4E+08         2.3E+08           0.04         9.7E+08         6.0E-02</td> <td>EPC         Chronic         Derm &amp; Ing         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>derm</sub>         HQ<sub>total</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ<sub>derm</sub>         HQ<sub>total</sub>         Exposure<sub>ing</sub>         Toxicity         HQ<sub>ing</sub>         Exposure<sub>dc</sub>         &lt;</td> <td>EPC (mg/kg)         Chronic         Derm &amp; Ing HQ, votal         Exposure<sub>ing</sub>         Toxicity         Hd<sub>ing</sub>         Exposure<sub>dc</sub>         Toxicity         HQ_darm         HQ_darm         HQ_brain         Exposure<sub>ing</sub>         Toxicity         HQ_darm         HQ_darm         HQ_brain         Exposure<sub>ing</sub>         Toxicity         HQ_darm         HQ_darm           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-02         5.4E-06         3.5E-08         3.7E-02         5.0E-04         4.0E-04         3.5E-08         5.0E-04         7.6E-08         5.0E-04         1.2E-04         3.7E-02         5.0E-04         1.3E-04         1.2E-08         5.0E-04         1.2E-08         5.0E-04         1.3E-04         1.2E-08         5.0E-04         1.2E-08         5.0E-04         1.3E-04         1.2E-08         5.0E-04         2.3E-05         1.8E-05         8.0E-07         2.0E-02         4.0E-04         3.2E-08         8.0E-04         1.0E-04         1.2E-08         2.5E-02         2.7E-04         4.7E-07         8.0E-04         8.2E-08         8.0E-04         1.0E-04         1.2E-08         2.5E-02         2.7E-07         1.2E-06         6.7E-08         2.5E-02         2.7E-04         4.7E-07         8.0E-04         3.2E-08         3.2E-02</td>	EPC         Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>derm</sub> HQ <sub>total</sub> 0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04           0.01         2.4E-08         2.5E-02         9.7E-07         6.2E-09         2.5E-02         2.5E-07         1.2E-06           0.02         4.8E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08           0.04         9.7E-08         6.0E-02         1.5E-08         6.0E-02         1.2E-06         6.1E-06           0.05         1.2E-07         2.9E-02	EPC         Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>dern</sub> HQ <sub>total</sub> Exposure <sub>ing</sub> 0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05         6.7E-08           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05         8.0E-07           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07           0.01         2.4E-08         2.5E-02         9.7E-07         6.2E-09         2.5E-02         2.5E-07         1.2E-06         6.7E-08           0.02         4.8E-08         1.6E+00         3.1E-08         1.2E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07           0.04         9.7E-08         6.0E-02         1.	EPC (mg/kg)         Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>dorn</sub> Exposure <sub>ing</sub> Toxicity         IQ           0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.1E-05         6.7E-08         5.0E-04           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         2.0E-02         3.7E-06         1.8E-05         8.0E-07         2.0E-02           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07         8.0E-04           0.01         2.4E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07         1.6E+00           0.02         4.8E-08         1.6E+00         3.1E-08         2.5E-02         1.2E-06         6.1E-06	EPC         Chronic         Derm & Ing HQ <sub>total</sub> Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> 0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02         5.4E-06           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04         4.0E-04           0.01         2.4E-08         5.0E-04         4.8E-05         6.2E-09         5.0E-04         1.2E-05         6.7E-08         5.0E-04         1.3E-04           0.12         2.9E-07         2.0E-02         1.5E-05         7.4E-08         8.0E-04         5.4E-05         2.7E-04         4.7E-07         8.0E-04         5.8E-02         2.7E-04         4.5E-03         2.5E-02         2.5E-02         2.7E-06         6.7E-08         2.5E-02         2.7E-06         0.0E-04         5.4E-06         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E-07         1.6E+00         8.4E-08           0.04         9.7E-0	EPC         Chronic         Derm & Ing HQ <sub>total</sub> Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>derm</sub> HQ <sub>total</sub> Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> 0.03         7.3E-08         3.7E-02         2.0E-06         1.9E-08         3.7E-02         5.0E-07         2.5E-06         2.0E-07         3.7E-02         5.4E-06         3.5E-08           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-05         1.8E-04         2.0E-07         5.0E-04         4.0E-04         3.5E-08           0.01         2.4E-08         5.0E-04         1.5E-05         7.4E-08         2.0E-02         3.7E-05         6.1E-05         6.7E-08         5.0E-04         1.3E-07         1.4E-07           0.07         1.7E-07         8.0E-04         2.1E-04         4.3E-08         8.0E-04         5.2E-07         1.2E-06         6.7E-08         2.5E-02         2.7E-06         1.2E-08           0.01         2.4E-08         1.6E+00         3.1E-08         1.6E+00         7.8E-09         3.9E-08         1.3E+07         6.0E-02         4.4E+08         2.3E+08           0.04         9.7E+08         6.0E-02	EPC         Chronic         Derm & Ing         Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>derm</sub> HQ <sub>total</sub> Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ <sub>derm</sub> HQ <sub>total</sub> Exposure <sub>ing</sub> Toxicity         HQ <sub>ing</sub> Exposure <sub>dc</sub> <	EPC (mg/kg)         Chronic         Derm & Ing HQ, votal         Exposure <sub>ing</sub> Toxicity         Hd <sub>ing</sub> Exposure <sub>dc</sub> Toxicity         HQ_darm         HQ_darm         HQ_brain         Exposure <sub>ing</sub> Toxicity         HQ_darm         HQ_darm         HQ_brain         Exposure <sub>ing</sub> Toxicity         HQ_darm         HQ_darm           0.03         7.3E-08         5.0E-04         1.5E-04         1.9E-08         5.0E-04         3.7E-02         5.4E-06         3.5E-08         3.7E-02         5.0E-04         4.0E-04         3.5E-08         5.0E-04         7.6E-08         5.0E-04         1.2E-04         3.7E-02         5.0E-04         1.3E-04         1.2E-08         5.0E-04         1.2E-08         5.0E-04         1.3E-04         1.2E-08         5.0E-04         1.2E-08         5.0E-04         1.3E-04         1.2E-08         5.0E-04         2.3E-05         1.8E-05         8.0E-07         2.0E-02         4.0E-04         3.2E-08         8.0E-04         1.0E-04         1.2E-08         2.5E-02         2.7E-04         4.7E-07         8.0E-04         8.2E-08         8.0E-04         1.0E-04         1.2E-08         2.5E-02         2.7E-07         1.2E-06         6.7E-08         2.5E-02         2.7E-04         4.7E-07         8.0E-04         3.2E-08         3.2E-02

Chronic HI (all cher Subchronic HI (all cher

emicals) =	1.0E-03
emicals) =	2.6E-03

Kesident - Soil: Table KS-3 Equations to Calculate Cancer Risk for Resident (Age 1-31 years)							
Equations to Calculate Calleer Max for Resident (Age 1-51 years)							
Cancer Risk from Ingestion							
$ELCR_{ing} = LADD_{ing(1-31)} * CSF$							
$LADD_{ing (1-31)} = LADD_{ing (1-8)} + LADD_{ing (8-15)} + LADD_{ing (15-31)}$							
$[OHM]_{soil} * IR_x * RAF_{c-ing} * EF_{ing} * ED * EP_x * C$							
BW <sub>x</sub> * AP <sub>lifetime</sub>							
Cancer Risk from Dermal Absorption							
ELCR <sub>derm</sub> = LADD <sub>derm</sub> * CSF							
$LADD_{derm (1-31)} = LADD_{derm (1-8)} + LADD_{derm (8-15)} + LADD_{derm (15-31)}$							
$LADD_{derm(age group x)} = \frac{[OHM]_{soil} * SA_x * RAF_{c-derm} * SAF_x * EF_{derm} * ED * EP_x * C}{BW_x * AP_{lifetime}}$							

Parameter	Value	Units
CSF	OHM specific	(mg/kg-day) <sup>-1</sup>
LADD	age/OHM specific	mg/kg-day
[OHM] <sub>soil</sub>	OHM specific	mg/kg
IR <sub>(1-8)</sub>	100	mg/day
IR <sub>(8-15)</sub>	50	mg/day
IR <sub>(15-31)</sub>	50	mg/day
$RAF_{c-ing}$	OHM specific	dimensionless
RAF <sub>c-derm</sub>	OHM specific	dimensionless
EF <sub>ing,derm</sub>	0.412	event/day
ED	1	day/event
EP <sub>(1-8)</sub>	7	years
EP <sub>(8-15)</sub>	7	years
EP <sub>(15-31)</sub>	16	years
С	0.000001	kg/mg
BW <sub>(1-8)</sub>	17.0	kg
BW <sub>(8-15)</sub>	39.9	kg
BW <sub>(15-31)</sub>	58.7	kg
AP <sub>(lifetime)</sub>	70	years
SA <sub>(1-8)</sub>	2431	cm²/day
SA <sub>(8-15)</sub>	4427	cm <sup>2</sup> /day
SA(15-31)	5653	cm <sup>2</sup> /day
SAF <sub>(1-8)</sub>	0.35	mg/cm <sup>2</sup>
SAF <sub>(8-15)</sub>	0.14	mg/cm <sup>2</sup>
SAF <sub>(15-31)</sub>	0.13	mg/cm <sup>2</sup>

### Resident - Soil: Table RS-4 Equations to Calculate Chronic Noncancer Risk for Resident Child (Age 1-8 years)



-		
Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] <sub>soil</sub>	OHM specific	mg/kg
IR	100	mg/day
$RAF_{nc-ing}$	OHM specific	dimensionless
RAF <sub>nc-derm</sub>	OHM specific	dimensionless
EF <sub>ing,derm</sub>	0.412	event/day
ED	1	day/event
EP	7	years
C BW	0.000001	kg/mg
AP	7	year
SA	2431	cm <sup>2</sup> / day
SAF	0.35	mg/cm <sup>2</sup>

# Resident - Soil: Table RS-5

Equations to Calculate Subchronic Noncancer Risk for Resident Child (Age 1-2 years)



Parameter	Value	Units
RfD	OHM specific	mg/kg-day
ADD	OHM specific	mg/kg-day
[OHM] <sub>soil</sub>	OHM specific	mg/kg
IR	100	mg/day
$RAF_{nc-ing}$	OHM specific	dimensionless
$RAF_{nc\text{-derm}}$	OHM specific	dimensionless
EF <sub>ing,derm</sub>	0.714	event/day
ED	1	day/event
EP C BW AP	0.577 0.000001 10.7 0.577	years kg/mg kg year
SA SAF	1670 0.35	cm <sup>2</sup> / day mg/cm <sup>2</sup>

## Resident - Soil: Table RS-6 **Chemical-Specific Data**

Oil or Hazardous Material	CSF (mg/kg-day) <sup>-1</sup>	Source	RAF <sub>c-ing</sub>	RAF <sub>c-derm</sub>	Chronic RfD mg/kg-day	Source	Subchronic RfD mg/kg-day	Source	Chronic RAF <sub>nc-ing</sub>	Chronic RAF <sub>nc-derm</sub>	Subchronic RAF <sub>nc-ing</sub>	Subchronic RAF <sub>nc-derm</sub>
Prodiamine			1	0.03	3.7E-02	derived	3.7E-02	derived	1	0.03	1	0.03
DDE-p,p'	3.4E-01	EPA	1	0.03	5.0E-04	EPA	5.0E-04	EPA	1	0.03	1	0.03
DDT-p,p'	3.4E-01	EPA	1	0.03	5.0E-04	EPA	5.0E-04	EPA	1	0.03	1	0.03
Iprodione	4.4E-02	EPA	1	0.03	2.0E-02	EPA	2.0E-02	EPA	1	0.03	1	0.03
Pentachlorobenzene			1	0.03	8.0E-04	EPA	8.0E-04	EPA	1	0.03	1	0.03
Carbendazim	2.4E-03	EPA	1	0.03	2.5E-02	EPA	2.5E-02	EPA	1	0.03	1	0.03
Chlorantraniliprole			1	0.03	1.6E+00	EPA	1.6E+00	EPA	1	0.03	1	0.03
Metalaxyl			1	0.03	6.0E-02	RSL	6.0E-02	RSL	1	0.03	1	0.03
Myclobutanil			1	0.03	2.5E-02	EPA	2.5E-02	EPA	1	0.03	1	0.03
Propiconazole			1	0.03	1.3E-02	EPA	1.3E-02	EPA	1	0.03	1	0.03
Tebuconazole			1	0.03	2.9E-02	EPA	2.9E-02	EPA	1	0.03	1	0.03
Triadimefon			1	0.03	3.0E-02	RSL	3.0E-02	RSL	1	0.03	1	0.03
Triadimenol			1	0.03	3.4E-03	EPA	3.4E-03	EPA	1	0.03	1	0.03
Chloropyrifos			1	0.03	1.0E-03	RSL	1.0E-03	RSL	1	0.03	1	0.03
Bensulide			1	0.03	5.0E-03	EPA	5.0E-03	EPA	1	0.03	1	0.03
Imidacloprid			1	0.03	5.7E-02	EPA	5.7E-02	EPA	1	0.03	1	0.03
Pentachloronitrobenzene	2.6E-01	EPA	1	0.03	3.0E-03	EPA	3.0E-03	EPA	1	0.03	1	0.03

Source of Toxicology info: EPA Dashboard <u>https://comptox.epa.gov/dashboard, May 2017</u>