Submission Cover Sheet

Fingerboards Mineral Sands Project Inquiry and Advisory Committee - EES

639

Request to be heard?: Yes

Full Name: Andrew G Helps

Organisation: Personal Submission in my role as a Toxic metal expert for the UNEP

Affected property:

Attachment 1: 8338.pdf

Attachment 2: 8288Rev_15.pdf

Attachment 3: Envirolab_22941-

Comments: See attached submission I have other documents to load down but your system will not allow me to load them Please advise how I do this. You will need to give me an extension of time to due due to your very poorly designed system Andrew Helps [redacted]

UN environment Global Mercury Partnership
Waste Management Partnership Area

Date: 27/10/2020
File: 8338

The Manager,
Impact Assessment Unit, Planning
Department of Environment, Land Water and Planning,
P.O Box 500,
EAST MELBOURNE VIC 8002

SUBMISSION TO THE EES PANEL
FINGERBOARDS MINERAL SAND PROJECT

Reference: 1. Andrew Helps Letter serial# 8193 to Margo Kozicki dated 16/11/2017 re the Fingerboards Mineral sands project. No response received - copy attached.

Reference: 2 Rare Earth Element Industry History reference document Serial 8334 Revision 2 Dated 24/10/2020.

Reference: 2. Andrew Helps KALBAR REE XL spreadsheet serial # 8279 Rev C dated 11/08/2019.

Reference: 3. Andrew Helps KALBAR REE XL spreadsheet serial # 8288 Rev 14 dated 2/2/2020.

Reference 4. Andrew Helps KALBAR REE XL spreadsheet serial # 8330 Rev 29 dated 20/10/20020.

Reference 5. Envirolab analysis reference 22941 dated 13/10/2020.

Reference 6. USEPA Regional Screening Levels Summary Table November 2019.

Reference 7. Document 8279 Rev C Analysis of a 1000 kg grab sample of Kalbar ore

For the last 3 years I have been providing to the Lindenow (Vic) community advice and support on toxic metals that are contained in the KALBAR Resources ore body within the proposed Rare Earth Element (REE) Lindenow mine site.

I have conducted 2 sets of sampling in the Lindenow area over the last two years:

1. 28th of January 2018 I conducted a series of 24 Dam and Tank water tests in the vicinity of the proposed KALBAR mine site.

The purpose of this testing was to set a pre-mine baseline for the local residents rainwater water tanks so that if a potential mine was established any later water tank pollution could be linked back to the mine operations.

The samples were conveyed under a chain of custody to the ENVIROLAB facility then located in the City of Knox.

2. The results from the Laboratory analysis indicated that only 1 dam was outside the ADWGL limits. The rainwater water tanks were in a pristine condition as would be expected in a non urban rural area.

3. On the 13th of October this year I carried out a further sampling campaign on the site of the proposed KALBAR Mine. At the time I was in the Lindenow area I noticed a large geotechnical drilling rig working in an area that the local farmer informed me was within the KALBAR licence area. A copy of the test results are contained in Reference 5 above.

4. The MOC's (Metals of Concern) in this analysis (See file 8330 Revision 29) are those that are in the groundwater system. Due to a lack of comprehensive water toxicity data in Australia, the data

[redacted]

has to be compared against USEPA Regional Screening Levels (RSL's) (Reference 6).

5. In a comparison of the two samples, it is clear that there are serious issues with various metals in the two water samples.

6. To make a toxicity assessment of these samples it is necessary to use the USEPA Hazard index model. The formula for this model is as follows;

$$\text{Hazard Index} = \frac{\text{Qty of Chemical or metal}}{\text{TDD}}$$

TDD is the Daily dose that can be safely ingested by a fit healthy 70 kg male.
For inhalation it is assumed that a fit healthy average 70kg male inhales 50.4 m^3 of air per day.

The TDD data for various metals and pollutants comes from the US ATSDR substance priority list. More data on this system and worked examples can be seen in the spreadsheet attached to this document (File# 8330 Revision 29).

7. It is important to make the point that the Global Gold Standard for toxicity data is the data provided by the US ATSDR (Agency for Toxic Substances and Disease Control.

I am at a loss to understand why the state based EPA's and the Australian Commonwealth Government continue to use standards that do not reflect the USEPA and ATSDR toxicity data.

This failure to adopt Worlds best practice in Australia is the subject of much scorn by many of the environmental regulators in Asia.

8. The water testing from the 13th October campaign is quiet alarming, the test data is compared to the US EPA due to a lack of Australian Standards in respect to many metals in water.

The relevant data is attached as file 8330Rev 29.PDF

Arsenic	Sample L25	57.7 times in excess of USEPA tap water limit.
	Sample L28	76.9 times in excess of USEPA tap water limit.
Barium	Sample L25	71.8 times in excess of USEPA tap water limit.
	Sample L28	291.2 times in excess of USEPA tap water limit.
Cobalt	Sample L28	10 times in excess of USEPA tap water limit.
Iron	Sample L25	717.4 times in excess of USEPA tap water limit.
	Sample L28	2657 times in excess of USEPA tap water limit.
Lanthanum	Sample L25	33,582 times in excess of USEPA tap water limit.
	Sample L28	160,448 times in excess of USEPA tap water limit.
Lithium Oxide	Sample L25	7.8 times in excess of USEPA tap water limit.
	Sample L28	39.1 times in excess of USEPA tap water limit.
Vanadium	Sample L25	1.5 times in excess of USEPA tap water limit.

9. In my 50+ years of working in the Environment / Disaster management business, I have never seen a water sample taken from a farm dam that is 160,448 times the ATSDR/USEPA Drinking water standard for a metal. This is a serious issue for all the people that live in the Lindenow Area.

Lanthanum has an ATSDR/USEPA residential air limit of 0.00018 ug/m3. It is not a listed carcinogen (It does not have a USEPA PDRV) but is a suspected carcinogenic trigger (ATSDR).

My experience with metal as a pollutant is that it manifests itself in Vernal water bodies as exist in the Lindenow area. The water, usually pooled rain water, takes up the Lanthanum that is deposited in dust and native animals and farm animals drink this water. As the vernal water deposits dry out the Lanthanum mixes with the dust and becomes and an air toxicant.

[redacted]

10. Other metals.

The grab sample analysis contained in Reference # 7 is an interesting document but it does not have a chain of custody attached. For management within my own document system I have given this sheet the sequence number 8279 Rev C.

I understand that the core of this document came from a KALBAR report but I have added the Toxicity status data that KALBAR neglected to provide.

Of interest in this report is the figures for:

Lanthanum (as $La2_03$)	8.72% of the "Grab" sample.
Cerium (as $Ce2_03$)	19.36% of the "Grab" sample.
Yttrium (as $Y2_03$)	8.40% of the "Grab" sample.
Neodymium (as $Nd2_03$)	7.73% of the "Grab" sample.
Total	44.21% of the Total Grab sample.

What do we know about these metals:

Lanthanum (as La2o3)	Discussed on previous page.
Cerium (as Ce2o3)	Non carcinogenic mutagen Air limit 0.94 ug/m^3
Yttrium (as Y203)	Air limit 0.0000 TDD 0.000118 (no safe limit)
Neodymium (as Nd203)	Mutagen -acute hazard to aquatic life with long lasting effects.

11. Conclusion.

The Kalbar management have failed to provide the high level of visibility to the toxic metals in the KALBAR ore body and have failed to provide the detailed plan as to how the risk to the Lindenow Farmers, the Farmers crops and the downstream impacts of the down stream RAMSAR Wetland will be handled.

I have spent 40 years of my life traveling all over the world to manage the aftereffects of major nuclear incidents or building systems to manager nuclear accidents. I led the team for President Reagan that went into Kiev USSR following the Chernobyl Disaster an INES Level 7 Accident.

This project is being promoted by a company that does not have a track record of handling toxic metals and radionuclides. This factor is demonstrated that KALBAR have not provided a list of the Lindenow Mines Radionuclides and their carcinogenicity slope factors.

This is a project destroying failure and demonstrates a serious and possibly fatal failure of the KALBAR Management team.

Andrew Helps
UNEP Global Mercury Partnership
Waste Management Partnership - Designated Expert

[redacted]

UN environment **Global Mercury Partnership**
Waste Management Partnership Area

Date: 16/11/2017
File: 8193

Ms Margo Kozicki,
Impact Assessment Unit, Planning
Department of Environment, Land Water and Planning,
P.O Box 500,
EAST MELBOURNE VIC 8002

FINGERBOARDS MINERAL SAND PROJECT
PRESS RELEASE DATED 14/11/2017

Dear Ms Kozicki,

I have had a number of calls from residents in the Lindenow area asking about the veracity or otherwise of the claim by KALBAR Resources in the above referenced press release.

On page 6 of the press release, KALBAR attempt to claim that their works is subject to NEPM HIL's for residential soils. To bolster their claim they have include a box diagram that clearly state that HIL Level "A" applies to their on site heavy metals.

This claim by KALBAR would only be valid if Kalbar were proposing to build a residential building or buildings on the site. Clearly this is not correct. This claim is at best deceptive and misleading.

As you would no doubt be aware, VIC EPA SEPP 1191 has a statutory expiry date of the 31st of December 2017. SEPP 240 expired on 21 December 2011. I hope that you are aware that page 10 of SEPP 1191 states that "indicators not included in the NPI handbook the latest USEPA AP42 (now called Regional Screening Levels (RSL's) should be used".

KALBAR published some details of heavy metals in their Analysts presentation of May 2017, and I would have expected that, for the sake of consistency, (in professional circles called document control) Kalbar would have presented data on the same spectrum of metals that was on page 22 of their Analysts Presentation dated May 2017.

Instead, the Residents are presented with a different schedule of metals that also indicates a number of previously hidden carcinogens - Arsenic, Cadmium, Lead, Cobalt and Nickel. It is interesting to note that Vanadium (a carcinogen) that featured at a staggering 0.3% in the May report is not now reported. Vanadium is a toxic metal of concern in the International community as it has an industrial air maximum level of 0.0015 ug/m^3 compared to Arsenic which is at 0.0029 ug/m^3 .

I am looking forward to further revelations of other toxic metals and carcinogens in the Kalbar ore body.
I respectfully suggest that you appoint somebody to your handpicked EES panel that has a global perspective of heavy metal toxicity.

I would also suggest that you use your DELWP credit card to buy a copy of the key reference work "The Toxicology of Metals" by Norberg et al. Once you have perused this work you will be in a position to better understand the massive human health and environmental risk that the Kalbar Resource project represents to the people of Gippsland and the Coastal Waters.

Yours sincerely

Andrew Helps
UNEP Nominated expert for COP.1/CRP.26

[redacted]

KALBAR RESOURCES PROPOSED RARE EARTH ELEMENT MINE
LINDENOW VICTORIA
RARE EARTH ELEMENT INDUSTRY HISTORY

1. Reference Documents:

1.1 USEPA Regional Screening Level (RSL) composite Table November 2018.

1.2 The Climate Near the Ground Rudolf Geiger 1965

1.3 Handbook of the Toxicology of Metals Volumes 1 and 2 Fourth Edition. Gunnar F Nordberg et al ISBN 978-0-444-594532-2

1.4 Radioactivity in Selected Mineral Extraction Industries A Literature Review. USEPA Office of Radiation Programs document ORP/LVF-79-1November 1978

1.5 Evaluation of Guidelines for Exposure to Technologically Enhanced Naturally Occurring Radioactive Materials. (TENORM Handbook EPA 402-R-05-007)

1.6 Long Term Water Resource Assessment for Southern Victoria. No ISBN Mitchell River Basin pages 50-59

1.7 Wetlands in a Dry Land W.D Williams Environment Australia. ISBN 0 642 21412X

1.8 Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing 2005 ISBN 0-9752133-9-3 Schedule 1 ARPANSA Dose limits.

1.9 Inquiry into Greenfields Mineral Exploration and Project Development in Victoria May 2012 ISBN 978-0-9808214-1-3

1.10 Marine Coastal and Estuarine Investigation Final Report August 2000 ISBN 0646 399713

1.12 Environmental Contaminants in Biota Interpreting Tissue Concentrations. ISBN 978-4200-8405-4

1.13 Inquiry into Greenfields Mineral Exploration and Project Development in Victoria ISBN 978-0-980-214-1-3.

1.14 RAMSAR Convention on Wetlands Global Wetland Outlook - State of the Worlds Wetlands 2018.

BACKGROUND DATA

1. Rare Earth Element (REE) mines are not a common type of mine and American data indicates that globally they represent less than .002 of the global mine cadre.

2. REE mine ore bodies usually have a range of metals in the orebody and unlike normal mines many of these metals are both toxic and carcinogenic to some degree either in situ or when the metals are mined from the ore resource. For humans and indeed all mammals the two ingestion pathways are via inhalation or the consumption of polluted food and water.

3. Demand for REE elements has increased significantly over the last 20 years with the advent of high technology devices such as mobile phones and computers.

4. The Lindenow ore body was first identified in the gold rush period of the 1880's in the Mitchell River Valley and at that time the sole focus was on ore bodies containing Gold.

5. During the Second World War (WW2) the Lindenow deposits were again examined with a view to mining the orebody for its Aluminium, Chromium, Iron, Manganese and Vanadium.

6. Due to the fact that the metallurgical processes were not available at that time to easily fractionise

this complex type of ore and the fact that many of the metals in the ore body had yet to have identified uses, the deposits were not exploited to any large extent.

7. However about 30 tons of Lindenow ore was sent to the foundry at the Commonwealth Aircraft factory Fisherman's Bend for definitive speciation.

8. The speciation work in the foundry at Fishermans Bend identified some of the metals in the ore but at the time, apart from curiosity value there was no commercial driver for development of the ore body.

9. In the early to mid part of the 1980's, the computer industry started a significant growth path. As the design of computer chips became more complex the demand for rare earth metals started to grow from a very low base.

10. At the forefront of this growth were three American computer companies, IBM, Digital Equipment Company (DEC) and Hewlett Packard.

11. Much of the development of computer chips was driven by the American Space Industry who were also a rapidly growing consumer of what are now called rare earth metals.

12. As Industry and the Military started to demand faster computer performance and larger electronic data storage the limitation of standard copper and valve technology limited the speed at which computers could operate.

13. The development of digitized computer control devices in the late 1970's and early 1980's enabled the development of nuclear power stations and other products such as Digital Radio's and TV's, desktop computers and electronically controlled engines in motor cars.

14. The growing reliance on computer control was not without its risks. The major nuclear accident at Kiev in Russia in the early 1980's was the result of the Russians developing their own computers because export of American computers were controlled under the COCOM agreement.

15. All of this rapid development of technology spurred the demand for rare earth elements to replace copper, gold and silver in terminal connections in computers, radio's and TV's .

16. The communications industry had dramatic growth with the development of hand held two way radio's, digital radio, digital data transmission systems and ultimately the phase out of Teleprinters in the early 1980's.

17. The development of GPS technology was a further driver of the expansion of the market for REE's (Rare Earth Elements) which allowed the development of faster smarter electronic products.

18. By the early part of this century, the satellite technology had reached the point where GPS (Global Positioning Systems) became a commercial over the counter commodity.

19. All this electronic development spurred the need for a significant increase in the Global supply of rare earth elements (REE's)

20. Because of the value of REE's, the recycling of redundant electronic components has become a viable but highly polluting industry in a number of third world countries.

21. There is an ongoing global concern, based on the pollution impacts of recycling electronic components which may often only amount to 5% of the weight of an item like a LED TV.

22. There is still no widespread technology that allows commercially profitable recycling of the plastic components except for the manufacture of low value items such as forklift pallets and bubble wrap.

23. At this time the major supplier of REE elements has been China which produces about 85% of the 17 chemically similar elements that are critical to the production of smart phones camera lenses and magnet production.

23. The KALBAR ore body is in some respects similar to the ore body at Baotou in China that has been

subject to much Western World press comment recently.

24. I visited this site in 2002 with a Japanese investment delegation, representatives from the World Bank (WB), the IFC and MIGA and provided technical advice to the delegation on the radionuclides in the ore body and the toxicology of the various metals that were at that stage just starting to be mined.

25. At this time there was some caution within the World Bank Board about what was internally known as "Robinson Crusoe" type investments within China. Some early multilateral investments in China had been subject to the development of a "difficult" repayment history.

26. There was a further concern because Russia had just identified a similar resource on the Kamchatka Peninsular in the far East of the USSR and was seeking soft loans to buy Japanese earth moving machinery and the various components to build a processing plant.

27. As the demand for these Rare Earth Elements (REE's) increased, ore deposits were identified in a number of regions across the World.

28. The lead time from resource discovery to financial closure, plant construction and production dropped as more of the specialised mine components became "off the shelf" items.

29. The REE industry is now seen as an uncommon but mature industry that has significant operational environmental risks.

UNEP Global Mercury Partnership

Partnership Areas: Mercury in Gold Mining, Mercury Supply and Storage, Mercury Air Transport and Fate, Mercury in Products.

DATA FROM ENVIROLAB ANALYSIS 217289-B
TABLE #1

DEFAULT HAZARD INDEX IS ZERO

HI = QTY Chemical / TDD + QTY Chemical / TDD + QTY Chemical / TDD

QTY Chemical in mg/kg
TDD in mg/day

Author: Andrew Helps Mobile 0448 500 222

File 8288Rev 14.xlsx 4.55PM 2/2/2020

25/02/2020 Rev 15

Conversion Factors

To Convert concentrations in air(at 25^{0}C) from PPM to mg/m^3 =
(ppm) x (molecular weight of the compound) / (24.45) e.g for Antimony 1 ppm = 4.97 mg/m^3.)

KALBAR Resources Lindenow (Vic) Project

Note*
A Hazard Index in excess of 10 requires investigation and or remediation
PDRV - Prioritised Dose Response Value

Rare Earth/Toxic Element/Compound Calculation Template

Revision 12

Rare Earths in Italics

	CHEMICAL ELEMENTS/COMPOUNDS: mg/kg - ug/kg	Specific Gravity	California Rated as Carcinogen	ATSDR Rank	HBTOM* Ref Pages	Ignition Temperature (Dust ^{0}C)	ATSDR MRL's Chronic mg/kg/day	USEPA Residential Soil mg/kg	Australia Residential Soil mg/kg (HIL A)	ATSDR & USEPA Resident Air Carcinogenic Target Risk ug/m^3	ATSDR & USEPA Resident Tapwater mg/L	Australia Resident Tapwater ug/L	Vic EPA SEPP 240 Air ug/m^3	PEM M+E Vic EPA SEPP AQM Pub 1191 ug/m^3	ATSDR SPL THEORETICAL Daily Dose TDD (mg/day) (Fit 70kg male)	ATSDR SPL THEORETICAL Daily Dose TDD (ug/day) (Fit 70kg male)	USEPA PDRV* Non Cancer	CHRONIC INHALATION Data Source	USEPA PDRV* Cancer	USEPA PDRV* Cancer	KALBAR DATA Leach FT Sludge mg/kg	Leach CT Soil mg/kg	Leach HM Soil mg/kg	Hazard Index Leach FT Sludge (TDD)	Leach CT Soil	Leach HM Soil
1	Aluminium (Al)	2.70 g/cm^3	Carcinogen	183	549-560	650	1	7700		0.52	2000				10.323	10323	Neurological	ATSDR	micrograms	4500	260	260	435.9	25.2	25.2
2	Antimony (Sb)	6.69 g/cm^3	Carcinogen	232	565-572	420	0.0003	3.1		0.021	0.78	3	17		0.103992	103.992	0.2ug/m^3	IRIS IARC 2B	0.2ug/m^3	0.2	<0.5	<0.5	0.50			
3	Arsenic	5.73 g/cm^3	Carcinogen	1	582-610	815	0.0003	0.68	100	0.00065	0.052	10	71.278	0.003	0.071278	71.278	0.015ug/m^3	Cal IARC 1	0.015ug/m^3	0.0043ug/m^3	35	4.40	11.00	491.00	61.7	154.3
4	Arsine (gaseous AsH3)	2.769 g/cm^3	Carcinogen	1	615	285		0.027		0.005	0.007						0.05 ug/m^3	IARC 1	0.0043ug/m^3	0.0043						
5	Barium	3.51 g/cm^3		134	625-633	725		1500		0.00108	0.51499		17		0.61652	616.52					28.00	5.80	32	45.4	9.4	51.9
6	Beryllium	1.85 g/cm^3	Carcinogen	43	636-651	1278	0.002	2.64	60	0.00000	2.50	60.0	0.007		0.0078	7.8	0.01 ug/m^3	IRIS IARC 1	0.0024ug/m^3	0.0024	<0.5	<0.5	<1			
7	Bismuth (Bi)	9.72 g/cm^3			655-663	271.3															<1	<1	<1			
8	Cadmium (Cd)	8.65 g/cm^3	Carcinogen	7	668-708	1040	0.0001	7.1	20	0.0016	0.92	2	0.033		0.045127	45.127	0.01 ug/m3	ATSDR	0.0018ug/m^3	0.0018	<0.1	<01.	<0.1			
9	Calcium(Ca)	1.55 g/cm^3				842				5.892442	103.777				195.6125	195612.5					380	44	170	1.94	0.22	0.87
10	*Ceric Oxide (Cerium)Ce0 $_2$*	6.71 g/cm^3	Suspected	570	101-102	3500	1 mSv/yr			0.094																
11	Chromium compounds (Cr)	7.19 g/cm^3	Carcinogen	66	717-739	580	0.0009			0.00001			17		0.00263	2.63					81	10	58	30798	3802	22053
14	Cobalt (Co)	8.85 g/cm^3	Carcinogen	52	743-759	760	1 mSv/yr	2.3	100	0.000031	0.6				0.67523	675.23	0.1 ug/m^3	ATSDR			1.7	<0.5	<1			
15	Copper (Cu)	8.94 g/m^3		125	765-782	900	0.01	310	6000		80	2000	33		0.47242	472.42					17.00	1.80	12	36	4	25
16	*Dysprosium Dy20 $_3$*	8.53 g/m^3	Suspected			2567																				
17	*Erbium Er20 $_3$*	9.04 g/m^3	Suspected			1529																				
18	*Europium Eu0 $_3$*	5.25 g/cm^3	Suspected	575		1800																				
19	*Gadollinium Gd2p0 $_3$*	7.87 g/cm^3	Suspected			3545																				
20	*Gallium (III)*	5.92 g/cm^3			787-795	302				0.000007					0.00011						*6 60*	*1 10*	*23*	60000.00	10000.00	209090.91
21	*Germanium*				800-813																					
22	*Holmium Ho20 $_3$*	8.80 g/m^3	Suspected			1474																				
23	Iron	7.87 g/cm^3			95-97	420		32919		0.01626	11.29				18.118						12000.00	1300.00	5000			
24	*Lanthanum La $_2$ 0 $_3$*	6.17 g/m^3	Suspected	711	903-908	920				0.00018	0.000268				0.002682	2.682					*49 00*	*11 00*	*300*	18270	4101	111857
25	Lead (Pb)	11.34 g/cm^3	Carcinogen	2	129-131	710		400	300		15	10	3		0.330938	330.938	0.15 ug/m^3	OAQPS			10	1.9	18	30	6	54
26	*Lithium Oxide Li $_2$ 0*	0.53 g/cm^3	Suspected	344	969-974	2600		104.51			0.3835				0.404424			ATSDR			*2 00*	*1 00*	*1 00*	5	2	2
27	*Lutetium Lu20 $_3$*	9.84 g/cm^3	Suspected			1936																				
28	Magnesium	3.58 g/cm^3				520		6317.87		0.0907	33.3369				35.96134	35961.34										
29	Manganese	7.47 g/cm^3		140	975-1005	1246	0.3 ug/m3	180	3800	0.05	43	500			1.61855	1618.55	0.03 ug/m^3	ATSDR			23	6	44	14	4	27
30	Mercury	13.55 g/cm^3	Suspected	3	1014-1064	to gas @10^{0}C	0.0002 mg/m3	0.94	40		0.063	1	3.3		0.051981	51.981	0.3ug/m^3	IRIS			0.02	0.01	<0.01	0.4	0.19	
31	Methyl Mercury	215.63g/mol	Suspected	120	448-450	within organics	0.0003	0.78			0.2						0.1 ug/m^3	IRIS	0.1 ug/m^3	0.1						
32	Molybdenum	10.22 g/cm^3		326	1077-1107	720		39			10	50			0.2412	241.2	0.2ug/m^3	IARC 2B			1.2	0.50	1	5	2.1	5.0
33	Nickel	8.90 g/cm^3	Carcinogen	57	1091-1107	950+	0.00009 mg/m3	84	400		20	20	0.33		0.38969	389.69	0.09 ug/m^3	ATSDR/CAL	0.00024 ug/m^3	0.00024	4	0.7	3.1	10.3	1.8	8
34	*Neodymium Nd $_2$ O $_3$*	7.00 g/cm^3	Suspected			1021																				
35	*Palladium*	12.99 g/cm^3	Suspected	173	1113-1121	2963				0.012000					0.00018	0.18000										
36	*Platinum*				1125-1138																					
37	*Praseodymium Pro $_6$*	6.78 g/cm^3	Suspected			3512																				
38	*Rhodium*				1143-1171																					
40	*Rubidium*	1.63 g/cm^3	Suspected	711						0.00001					0.000091	0.000000091										
41	*Samarium SmO $_3$*	7.54 g/cm^3	Suspected																							
42	*Scandium Sc2O $_3$*	2.99 g/cm^3	Suspected	584																						
43	Selenium	4.50 g/cm^3	Suspected	146	1176-1203	950+	0.005 mh/kg/day	5.36	200	0.00002	0.03657	10			0.03778	37.78	20 ug/m^3	CAL			0.3	<0.1	0.4	7.94		10.59
44	Silica PM$_{2.5}$ Faction)	2.33 g/cm^3	Carcinogen		102	780		430000			0.31			3	Annual av											
45	Sulphur (%)	2.067 g/cm^3				392				0.00122					0.01829											
46	Strontium SrO (Stable)	2.64 g/cm^3	Carcinogen		455	768.85	2 mg/kg/day														8	1	4			
47	*Tellurium*	6.24 g/cm^3	Carcinogen		1218-1226	449.51				0.00003					0.00039											
48	*Terbium Tb40 $_7$*	8.27 g/cm^3	Suspected			1356																				
49	*Thallium*	11.86 g/cm^3	Suspected	279	1229-1238	303		6.0646		0.00007	0.01355				0.01579						<0.5	<0.5	<0.5			
50	*Thorium 227*	11.73 g/cm^3	Carcinogen	227		270												IARC I	0.000185 pCi/m^3		9.8	1.0	120			
51	*Thulium Tm2O $_3$*	9.33 g/cm^3	Suspected			1950																				
52	Titanium	4.54 g/cm^3	Carcinogen	310	1287-1294	460	0.0001 mg/m3	14000			0.021				2.271688	2271.688	0.01 ug/m^3	ATSDR	Respiratory		230	100	350	101.25	44.02	154.07
54	Tin	7.29 g/cm^3		307	1242-1276	630	0.3 mg/kg/day	4700			1200	1200			0.09981	99.81					1.7	<0.5	1.7	17.03		17.03
55	Tungsten	19.25 g/cm^3			1297-1305	950															<1	<1	<1			
56	Uranium 234	19.05 g/cm^3	Carcinogen	97	1308-1338	20	0.00004 mg/m3														3	0.4	9			
57	Vanadium (86%))	6.10 g/cm^3	Carcinogen	200	1348-1364	500	0.0001 mg/m3	39			8.6				0.123043	123.043		CAL		0.00034	130	17	83	1056.54	138.16	674.56
58	*Ytterbium Yb20 $_3$*	6.95 g/cm^3	Suspected	581																						
59	*Yttrium Y2O $_3$*	4.47 g/cm^3	Suspected	711				0.104881		0.0000006					0.000118	0.118										
60	Zinc	7.14 g/cm^3		75	1369-1382	600	0.3 mg/kg/day	2300	7400		600		33		1.96084	1960.84					16	2.3	11	8.16	1.17	5.61
61	Zirconium	6.51 g/cm^3	Carcinogen	701		20		0.63			0.16	0.000022			0.00032	0.32					14	2.0	2.0	43750.0	6250.00	6250.00
62	Hydrogen Cyanide	0.69g/cm^3	Reproductive	35				0.27	250		0.15	80	170	9*	1.3058	1305.8										
	PM10													50ug/m^3	24 hour av											
	PM2.5		Carcinogen											25ug/m^3	24 hour av	8ug/m^3	Annual Average									
	Radionuclides (Uranium)	18.7 g/cm^3	Carcinogen	102										>00001ug/m^3					0.000185 pCi/m^3					**Totals**		
														(As low as reasonably achievable ???)		(ALARA)			**Total REE Package**	**Mg/kg**	89.40	17.10	450.00	155085	24453	350467
																				Mg/ton	89400	17100	450000			
																				Gm/ton	**89.40**	**17.10**	**450.00**			
																			REE Package Price ($US Kg)	**$23.50**					
																			$US Gm	$0.0235	$2.10	$0.40	$10.58		

Note 1 **USEPA Residential level Average fit healthy 70 kg male inhales 50.4 m3 a day**

HBTOM - Handbook of the toxicology of Metals - Nordberg et al Fourth Edition
ATSDR Minimum Risk Levels (MRLs December 2019

UNEP Global Mercury Partnership

Partnership Areas: Mercury in Gold Mining, Mercury Supply and Storage, Mercury Air Transport and Fate, Mercury in Products.

DATA From Envirolab Analysis #22941 dated 16/10/2020

Author: Andrew Helps Mobile 0448 500 222

HI = +QTY Chemical / TDD

Conversion Factors

To Convert concentrations in air(at 25^{0}C) from PPM to mg/m^3 = **18/10/2020**

(ppm) x (molecular weight of the compound) / (24.45) e.g for Antimony 1 ppm = 4.97 mg/m^3.)

KALBAR Resources Lindenow (Vic) Project

Note*

A Hazard Index in excess of 10 requires investigation and or remediation

Rare Earth/Toxic Element/Compound Calculation Template — Lindenow Testing on 13/10/2020

Revision 29

20th October 2020

Rare Earths in Italics

PDRV - Prioritised Dose Response Value

	CHEMICAL ELEMENTS/COMPOUNDS: mg/kg - ug/kg	Specific Gravity	Metal Group	Formula Weight (Molecular Weight)	California Rated as Carcinogen	ATSDR Rank	HBTOM* Ref Pages	Ignition Temperature (Dust ^{0}C)	Solubility in 100 parts Cold Water Formular Dependent D= Dissolves	ATSDR MRL's Chronic mg/kg/day	Australia Residential Soil mg/kg (HIL A)	ATSDR & USEPA Resident Air Carcinogenic Target Risk ug/m^3	ATSDR & USEPA Resident Tapwater mg/L	Australia Resident Tapwater ug/L	ATSDR SPL THEORETICAL Daily Dose TDD (mg/day) (Fit 70kg male)	USEPA PDRV* Non Cancer	CHRONIC INHALATION Data Source	USEPA PDRV* Cancer	USEPA PDRV* Cancer micrograms	13/10/2020 Water L-25 ug/L	13/10/2020 Water L-28 ug/L	13/10/2020 Sand L26 ug/L	13/10/2020 Sand L27 ug/L	13/10/2020 Sand L29 ug/L	13/10/2020 Sand L30 ug/L
1	Aluminium (Al)	2.70 g/cm^3	Group 13	26.97	Carcinogen	183	549-560	650	i	1		0.52	2000		10.323	Neurological	ATSDR			12000	43000	13000	4700	28000	14000
2	Antimony (Sb)	6.69 g/cm^3	Group 15	121.76	Carcinogen	232	565-572	420	i	0.0003		0.021	0.78	3	0.103992	0.2ug/m^3	IRIS IARC 2B	0.2ug/m^3	0.2	<1	<1	<7	<7	<7	<7
3	Arsenic (see note 1)	5.73 g/cm^3	Group 15	299.64	Carcinogen	1	582-610	815	i	0.0003	100	0.00065	0.052	10	0.071278	0.015ug/m^3	Cal IARC 1	0.015ug/m^3	0.0043ug/m^3	3	4.00	5.00	<4	8.00	4.00
4	Boron	2.47 g/cm^3	Group 13									2.1	400							30	60.00	<3	<3	15.00	<3
5	Arsine (gaseous AsH3)	2.769 g/cm^3	Group 15	77.93	Carcinogen	1	615	285	20cc			0.005	0.007			0.05 ug/m^3	IARC 1	0.0043ug/m^3	0.0043			?	?	?	?
6	Barium	3.51 g/cm^3	Group 2	137.36		134	625-633	725	D	0.2		0.00108	0.51499		0.61652					37.00	150.00	18	15.0	58.0	22.0
7	Beryllium (glucinum)	1.85 g/cm^3	Group 4	9.02	Carcinogen	43	636-651	1278	i	0.002	60	0.00000	2.50	60.0	0.0078	0.01 ug/m^3	IRIS IARC 1	0.0024ug/m^3	0.0024	<0.5	3.00	<1	<1	<1	<1
8	Bismuth (Bi)	9.72 g/cm^3	Group 4	209.00			655-663	271.3	i											<1	<1	<1	<1	<1	<1
9	Cadmium (Cd)	8.65 g/cm^3	Group 12	112.41	Carcinogen	7	668-708	1040	i	0.0005	20	0.00001	0.92	2	0.045127	0.01 ug/m3	ATSDR	0.0018ug/m^3	0.0018	<0.2	<0.2	<0.4	<0.4	<0.8	<0.4
11	Ceric Oxide (Cerium)CeO_2	6.71 g/cm^3	Group 3	172.13	Suspected	570	101-102	3500	i	1 mSv/yr		0.094								14.00	66.00				
14	Chromium compounds (Cr)	7.19 g/cm^3	Group 6	52.01	Carcinogen	66	717-739	580	i	0.0009		0.00001			0.00263					11	48				
15	Cobalt (Co)	8.85 g/cm^3	Group 9	58.94	Carcinogen	52	743-759	760	i	1 mSv/yr	100	0.000031	0.6		0.67523	0.1 ug/m^3	ATSDR			1.0	6.00	2.00	1.00	8.00	3
	Caesium																			<1	2.00	1.00	1.00	1.00	1.00
16	Copper (Cu)	8.94 g/m^3	Group 11	63.57		125	765-782	900	i	0.01	6000		80	2000	0.47242					<2	5.00	<1	<1	570	<1
17	*Dysprosium Dy20 $_3$*	8.53 g/m^3	Group 3	162.5	Suspected			2567	i																
18	*Erbium Er20 $_3$*	9.04 g/m^3	Group 12	167.26	Suspected			1529	i																
19	*Europium Eu0 $_3$*	5.25 g/cm^3	Group 3	151.96	Suspected	575		1800	i																
20	*Gadollinium Gd2p0 $_3$*	7.87 g/cm^3	Group 3	157.25	Suspected			3545	i																
21	*Gallium*	5.91 g/cm^3	Group 13	69.72	Carcinogen		787-797	29.78				0.00001			0.00011							4.00	2	13	6.00
22	*Germanium*	5.32 g/cm^3	Group 14	72.63			800-813		i																
23	*Holmium Ho20 $_3$*	8.80 g/m^3	Group 12	164.93	Suspected			1474	i																
24	Iron	7.87 g/cm^3	Group 8	55.85			878-902	420	i			0.01626	11.29		18.07					8100.00	30000.00	30000	12000	37000	26000
25	*Lanthanum -138*	6.17 g/m^3	Group 3	138.92	Suspected	711	903-908	920	i			0.00018	0.000268		0.002682					9.00	43.00	16	9	27	15
26	Lead - not 210 (Pb)	11.34 g/cm^3	Group 14	430.42	Carcinogen	2	129-131	710	i		300		15	10	0.330938	0.15 ug/m^3	OAQPS			6	30.0	10	4	29	11
27	*Lithium Oxide Li $_2$ O*	0.53 g/cm^3	Group 1	29.88	Suspected	335	969-974	2600	to LiOH	0.404424			0.3835		0.404424		ATSDR			3.00	15.00	4	1	11	5
28	*Lutetium -176*	9.84 g/cm^3	Group 3	174.99	Suspected			1936	i																
29	Magnesium	3.58 g/cm^3	Group 2	24.32				520	i			0.0907	33.3369		35.96134										
30	Manganese	7.47 g/cm^3	Group 6	54.93		140	975-1005	1246	D	0.3 ug/m3	3800	0.05	43	500	1.61855	0.03 ug/m^3	ATSDR			120	93	33	10	190	31
31	Mercury	13.55 g/cm^3	Group 12	200.61	Suspected	3	1014-1064	to gas @10^{0}C	i	0.0002 mg/m3	40		0.063	1	0.051981	0.3ug/m^3	IRIS			<0.05	<0.05	<0.1	<0.1	<0.1	<0.1
32	Methyl Mercury	215.63g/mol	Group 12	417.22	Suspected	120	448-450	within organics	i	0.0003			0.2			0.1 ug/m^3	IRIS	0.1 ug/m^3	0.1						
33	Molybdenum	10.22 g/cm^3	Group 6	95.95		326	1077-1107	720	i	0.00004 mg/m^3			10	50	0.2412	0.2ug/m^3	IARC 2B			<1	<1	<1	<1	<1	<1
34	Nickel	8.90 g/cm^3	Group 10	58.69	Carcinogen	57	1091-1107	950+	i	0.00009 mg/m^3	400		20	20	0.38969	0.09 ug/m^3	ATSDR/CAL	0.00024 ug/m^3	0.00024	4	12.0	4.0	1	15	4
35	*Neodymium 144*	7.00 g/cm^3	Group 3	144.27	Suspected			1021	D											2.70	2.40				
36	*Palladium*	12.99 g/cm^3	Group 10	106.7	Suspected	173	1113-1121	2963	i			0.012000			0.00018										
37	*Platinum*	21.45 g/cm^3	Group 10	195.23			1125-1138		i																
38	*Praseodymium Pro $_6$*	6.78 g/cm^3	Group 3	140.92	Suspected			3512	D																
40	*Radium 222 , 226 or 228*	5.5 g/cm^3	Group 2	226.05	Carcinogen			1500	i			5pCi total combined per litre of water													
41	*Radium Bromide*	5.79 g/cm^3	Group 2	385.88																					
42	*Rhodium*	8.85 g/cm^3	Group 9	102.91			1143-1171		i																
43	*Rubidium*	1.63 g/cm^3	Group1	85.48	Suspected	711			D			0.00001			0.000091					8.00	31.00				
44	*Samarium 147 (Chloride)*	7.54 g/cm^3	Group 3	150.43	Suspected				NK	:PA Doc EPA/690/R-09/050F															
45	*Scandium Sc2O $_3$*	2.99 g/cm^3	Group 3	45.1	Suspected	584			NK											<1	8.00				
46	Selenium	4.50 g/cm^3	Group 16	631.68	Suspected	146	1176-1203	950+	i	0.005 mh/kg/day	200	0.00002	0.03657	10	0.03778	20 ug/m^3	CAL			<1	5.00	<2	<2	<2	<2
47	Silica $PM_{2.5}$ Faction)	2.33 g/cm^3	Group 14	60.06	Carcinogen		102	780	i				0.31		Annual av										
48	Sulphur (%)	2.067 g/cm^3	Group 16	32.06				392	i			0.00122			0.01829										
49	Strontium SrO (Stable)	2.64 g/cm^3	Group 2	87.63	Carcinogen		455	768.85	D	2 mg/kg/day										28	69	5	2	31	4
50	*Tellurium*	6.24 g/cm^3	Group 16	127.61	Carcinogen		1218-1226	449.51	i			0.00003			0.00039					<0.5	<0.5	<1	<1	<1	<1
51	*Terbium Tb40 $_7$*	8.27 g/cm^3	Group 3	159.2	Suspected			1356	NK																
52	*Thallium*	11.86 g/cm^3	Group 13	204.39	Suspected	279	1229-1238	303	i			0.00007	0.01355		0.01579					<1	<1	<2	<2	<2	<2
54	*Thorium 229*	11.73 g/cm^3	Group 3	232.12	Carcinogen	227		270	i								IARC I	0.000185 pCi/m^3		1.0	5.0	6	3	5	6
55	*Thulium Tm2O $_3$*	9.33 g/cm^3	Group 12	169.4	Suspected			1950	i																
56	Titanium	4.54 g/cm^3	Group 4	47.9	Carcinogen	310	1287-1294	460	i	0.0001 mg/m3			0.021		2.271688	0.01 ug/m^3	ATSDR	Respiratory		110	76				
57	Tin	7.29 g/cm^3	Group 14	118.7		307	1242-1276	630	i	0.3 mg/kg/day			1200	1200	0.09981					2.0	<1				
58	Tungsten	19.25 g/cm^3	Group 6	183.92			1297-1305	950	i											<1	<1				
59	Uranium 234	19.05 g/cm^3	Group 7	238.07	Carcinogen	97	1308-1338	20	i	0.00004 mg/m3										0.6	3.5	<1	<1	2	1
60	Vanadium (86%)	6.10 g/cm^3	Group 5	50.95	Carcinogen	200	1348-1364	500	i	0.0001 mg/m3			8.6		0.123043		CAL		0.00034	13	53	50	28	62	54
61	*Ytterbium Yb2O $_3$*	6.95 g/cm^3	Group 3	173.04	Suspected	581			NK																
62	*Yttrium Y2O $_3$*	4.47 g/cm^3	Group 3	88.92	Suspected	711			D			0.0000006			0.000118					6.70	33.00	7.60	4.8	15	7.8
63	Zinc	7.14 g/cm^3	Group 12	65.38		75	1369-1382	600	i	0.3 mg/kg/day	7400		600		1.96084					9	25.0	4	1	280	3
64	Zirconium	6.51 g/cm^3	Group 4	91.22	Carcinogen	701		20	i				0.16	0.000022	0.00032										
65	Hydrogen Cyanide	0.69g/cm^3		179.16	Reproductive	35			NK		250		0.15	80	1.3058										
66	PM10								Particle	ICPMS Analysis					24 hour av										
67	PM2.5				Carcinogen				Particle	ICPMS Analysis					24 hour av	Annual Average									
	Radionuclides (Uranium)	18.7 g/cm^3	Group 3	238.03	Carcinogen	102	1307-1345		i									0.000185 pCi/m^3							

Note 1 **USEPA Residential level Average fit healthy 70 kg male inhales 50.4 m3 a day**

HBTOM - Handbook of the toxicology of Metals - Nordberg et al Fourth Edition
ATSDR Minimum Risk Levels (MRLs December 2019

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CERTIFICATE OF ANALYSIS 22941

Client Details

Client	Andrew Helps
Attention	Andrew Helps
Address	VIC

Sample Details

Your Reference	**F01-11 Lindenow**
Number of Samples	2 Water, 3 Sand, 1 Sludge
Date samples received	14/10/2020
Date completed instructions received	14/10/2020

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Please refer to the last page of this report for any comments relating to the results.

Report Details

Date results requested by	16/10/2020
Date of Issue	20/10/2020
Reissue Details	This report supersedes 22941_R00 due to addition of Sulphur on all samples.

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Results Approved By
Chris De Luca, Operations Manager

Authorised By

Pamela Adams, Laboratory Manager

Acid Extractable metals in soil					
Our Reference		22941-2	22941-3	22941-5	22941-6
Your Reference	UNITS	L-26	L-27	L-29	L-30
Date Sampled		13/10/2020	13/10/2020	13/10/2020	13/10/2020
Type of sample		Sand	Sand	Sludge	Sand
Date digested	-	14/10/2020	14/10/2020	14/10/2020	14/10/2020
Date analysed	-	15/10/2020	15/10/2020	15/10/2020	15/10/2020
Silver	mg/kg	<1	<1	<1	<1
Aluminium	mg/kg	13,000	4,700	28,000	14,000
Antimony	mg/kg	<7	<7	<7	<7
Arsenic	mg/kg	5	<4	8	4
Boron	mg/kg	<3	<3	15	<3
Barium	mg/kg	18	15	58	22
Beryllium	mg/kg	<1	<1	<1	<1
Bismuth	mg/kg	<1	<1	<1	<1
Cadmium	mg/kg	<0.4	<0.4	<0.8	<0.4
Cobalt	mg/kg	2	1	8	3
Chromium	mg/kg	19	8	34	20
Copper	mg/kg	<1	<1	570	<1
Caesium*	mg/kg	<1	<1	<1	<1
Gallium	mg/kg	4	2	13	6
Gold*	mg/kg	<1	<1	<1	<1
Iron	mg/kg	30,000	12,000	37,000	26,000
Lanthanum*	mg/kg	16	9	27	15
Lead	mg/kg	10	4	29	11
Lithium	mg/kg	4	1	11	5
Manganese	mg/kg	33	10	190	31
Mercury	mg/kg	<0.1	<0.1	<0.1	<0.1
Molybdenum	mg/kg	<1	<1	<1	<1
Nickel	mg/kg	4	1	15	4
Selenium	mg/kg	<2	<2	<2	<2
Strontium	mg/kg	5	2	31	4
Sulphur	mg/kg	150	31	5,700	160
Tellurium	mg/kg	<1	<1	<1	<1
Thallium	mg/kg	<2	<2	<2	<2
Tin	mg/kg	<1	<1	2	<1
Titanium	mg/kg	7	9	61	6
Thorium	mg/kg	6	3	5	6
Uranium	mg/kg	<1	<1	2	1
Vanadium	mg/kg	50	28	62	54
Yttrium*	mg/kg	7.6	4.8	15	7.8

Acid Extractable metals in soil					
Our Reference		22941-2	22941-3	22941-5	22941-6
Your Reference	UNITS	L-26	L-27	L-29	L-30
Date Sampled		13/10/2020	13/10/2020	13/10/2020	13/10/2020
Type of sample		Sand	Sand	Sludge	Sand
Zinc	mg/kg	4	1	280	3

Moisture					
Our Reference		22941-2	22941-3	22941-5	22941-6
Your Reference	UNITS	L-26	L-27	L-29	L-30
Date Sampled		13/10/2020	13/10/2020	13/10/2020	13/10/2020
Type of sample		Sand	Sand	Sludge	Sand
Date prepared	-	14/10/2020	14/10/2020	14/10/2020	14/10/2020
Date analysed	-	15/10/2020	15/10/2020	15/10/2020	15/10/2020
Moisture	%	2.9	14	88	7.3

All metals in water - total			
Our Reference		22941-1	22941-4
Your Reference	UNITS	L-25	L-28
Date Sampled		13/10/2020	13/10/2020
Type of sample		Water	Water
Date prepared	-	14/10/2020	14/10/2020
Date analysed	-	14/10/2020	14/10/2020
Silver-Total	µg/L	<1	<1
Aluminium-Total	µg/L	12,000	43,000
Arsenic-Total	µg/L	3	4
Boron-Total	µg/L	30	60
Barium-Total	µg/L	37	150
Beryllium-Total	µg/L	<0.5	3
Bismuth-Total	µg/L	<1	<1
Cadmium-Total	µg/L	<0.2	<0.2
Cerium-Total*	µg/L	14	66
Cobalt-Total	µg/L	1	6
Chromium-Total	µg/L	11	48
Copper-Total	µg/L	<2	5
Caesium-Total*	µg/L	<1	2
Gallium-Total	µg/L	3	15
Mercury-Total	µg/L	<0.05	<0.05
Iron-Total	µg/L	8,100	30,000
Lanthanum-Total	µg/L	9	43
Lithium-Total	µg/L	3	15
Manganese-Total	µg/L	120	93
Molybdenum-Total	µg/L	<1	<1
Niobium-Total*	µg/L	2.7	2.4
Nickel-Total	µg/L	4	12
Lead-Total	µg/L	6	30
Rubidium-Total*	µg/L	8	31
Rhenium-Total*	µg/L	<1	<1
Antimony-Total	µg/L	<1	<1
Scandium-Total*	µg/L	<1	8
Selenium-Total	µg/L	<1	2
Tin-Total	µg/L	2	<1
Strontium-Total	µg/L	28	69
Tantalum-Total*	µg/L	<1	<1
Tellurium-Total*	µg/L	<0.5	<0.5
Thorium-Total	µg/L	1	5.0
Thallium-Total	µg/L	<1	<1

All metals in water - total			
Our Reference		22941-1	22941-4
Your Reference	UNITS	L-25	L-28
Date Sampled		13/10/2020	13/10/2020
Type of sample		Water	Water
Titanium-Total	µg/L	110	76
Uranium-Total	µg/L	0.6	3.5
Vanadium-Total	µg/L	13	53
Tungsten-Total	µg/L	<1	<1
Yttrium-Total*	µg/L	6.7	33
Zinc-Total	µg/L	9	25

Metals in Waters - Total			
Our Reference		22941-1	22941-4
Your Reference	UNITS	L-25	L-28
Date Sampled		13/10/2020	13/10/2020
Type of sample		Water	Water
Date prepared	-	20/10/2020	20/10/2020
Date analysed	-	20/10/2020	20/10/2020
Sulfur -Total	mg/L	2.0	3.6

Method ID	Methodology Summary
Inorg-008	Moisture content determined by heating at 105 deg C for a minimum of 12 hours.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date digested	-			14/10/2020	3	14/10/2020	14/10/2020		14/10/2020	[NT]
Date analysed	-			15/10/2020	3	15/10/2020	15/10/2020		15/10/2020	[NT]
Silver	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	98	[NT]
Aluminium	mg/kg	10	Metals-020 ICP-AES	<10	3	4700	3600	27	98	[NT]
Antimony	mg/kg	7	Metals-020 ICP-AES	<7	3	<7	<7	0	102	[NT]
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	3	<4	<4	0	108	[NT]
Boron	mg/kg	3	Metals-020 ICP-AES	<3	3	<3	<3	0	89	[NT]
Barium	mg/kg	1	Metals-020 ICP-AES	<1	3	15	11	31	104	[NT]
Beryllium	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	109	[NT]
Bismuth	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	91	[NT]
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	3	<0.4	<0.4	0	104	[NT]
Cobalt	mg/kg	1	Metals-020 ICP-AES	<1	3	1	1	0	103	[NT]
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	3	8	7	13	103	[NT]
Copper	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	101	[NT]
Caesium*	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	100	[NT]
Gallium	mg/kg	1	Metals-020 ICP-AES	<1	3	2	2	0	115	[NT]
Gold*	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	99	[NT]
Iron	mg/kg	10	Metals-020 ICP-AES	<10	3	12000	13000	8	99	[NT]
Lanthanum*	mg/kg	1	Metals-020 ICP-AES	<1	3	9	8	12	111	[NT]
Lead	mg/kg	1	Metals-020 ICP-AES	<1	3	4	4	0	98	[NT]
Lithium	mg/kg	1	Metals-020 ICP-AES	<1	3	1	1	0	90	[NT]

QUALITY CONTROL: Acid Extractable metals in soil						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Manganese	mg/kg	1	Metals-020 ICP-AES	<1	3	10	12	18	105	[NT]
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	3	<0.1	<0.1	0	110	[NT]
Molybdenum	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	100	[NT]
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	3	1	1	0	99	[NT]
Selenium	mg/kg	2	Metals-020 ICP-AES	<2	3	<2	<2	0	100	[NT]
Strontium	mg/kg	1	Metals-020 ICP-AES	<1	3	2	2	0	107	[NT]
Sulphur	mg/kg	10	Metals-020 ICP-AES	<10	3	31	33	6	105	[NT]
Tellurium	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	98	[NT]
Thallium	mg/kg	2	Metals-020 ICP-AES	<2	3	<2	<2	0	97	[NT]
Tin	mg/kg	1	Metals-020 ICP-AES	<1	3	<1	<1	0	99	[NT]
Titanium	mg/kg	1	Metals-020 ICP-AES	<1	3	9	9	0	108	[NT]
Thorium	mg/kg	2	Metals-022 ICP-MS	<2	3	3	2	40	106	[NT]
Uranium	mg/kg	1	Metals-022 ICP-MS	<1	3	<1	<1	0	107	[NT]
Vanadium	mg/kg	1	Metals-020 ICP-AES	<1	3	28	31	10	102	[NT]
Yttrium*	mg/kg	1	Metals-020 ICP-AES	<1	3	4.8	4.5	6	98	[NT]
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	3	1	<1	0	102	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			16/10/2020	[NT]	[NT]	[NT]	[NT]	16/10/2020	[NT]
Date analysed	-			16/10/2020	[NT]	[NT]	[NT]	[NT]	16/10/2020	[NT]
Silver-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Aluminium-Total	µg/L	10	Metals-022 ICP-MS	<10	[NT]	[NT]	[NT]	[NT]	106	[NT]
Arsenic-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Boron-Total	µg/L	20	Metals-022 ICP-MS	<20	[NT]	[NT]	[NT]	[NT]	107	[NT]
Barium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Beryllium-Total	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	[NT]	[NT]	103	[NT]
Bismuth-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	119	[NT]
Cadmium-Total	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Cerium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Cobalt-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Chromium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Copper-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Caesium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Gallium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Mercury-Total	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	[NT]	[NT]	85	[NT]
Iron-Total	µg/L	10	Metals-022 ICP-MS	<10	[NT]	[NT]	[NT]	[NT]	103	[NT]
Lanthanum-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]
Lithium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Manganese-Total	µg/L	5	Metals-022 ICP-MS	<5	[NT]	[NT]	[NT]	[NT]	105	[NT]

QUALITY CONTROL: All metals in water - total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Molybdenum-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Niobium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	111	[NT]
Nickel-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Lead-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Rubidium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	105	[NT]
Rhenium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Antimony-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	110	[NT]
Scandium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	108	[NT]
Selenium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Tin-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]
Strontium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Tantalum-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Tellurium-Total*	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	[NT]	[NT]	102	[NT]
Thorium-Total	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	[NT]	[NT]	95	[NT]
Thallium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	104	[NT]
Titanium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	103	[NT]
Uranium-Total	µg/L	0.5	Metals-022 ICP-MS	<0.5	[NT]	[NT]	[NT]	[NT]	101	[NT]
Vanadium-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	102	[NT]
Tungsten-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	107	[NT]
Yttrium-Total*	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	101	[NT]

QUALITY CONTROL: All metals in water - total					Duplicate				Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Zinc-Total	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	[NT]	[NT]	106	[NT]

QUALITY CONTROL: Metals in Waters - Total						Duplicate			Spike Recovery %	
Test Description	Units	PQL	Method	Blank	#	Base	Dup.	RPD	LCS-1	[NT]
Date prepared	-			20/10/2020	[NT]	[NT]	[NT]	[NT]	20/10/2020	[NT]
Date analysed	-			20/10/2020	[NT]	[NT]	[NT]	[NT]	20/10/2020	[NT]
Sulfur -Total	mg/L	0.5	Metals-020 ICP-AES	<0.5	[NT]	[NT]	[NT]	[NT]	110	[NT]

Result Definitions

NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control Definitions

Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from “2018 TLVs and BEIs”, as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

Report Comments

METALS: The PQL has been raised for Cadmium & Copper due to the sample matrix requiring dilution.

PQL has been raised for Cadmium due to the high moisture content in the sample, resulting in a high dilution factor.

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				1.2E-03	O					1	0.1		Acephate	30560-19-1	7.600	n	98.00	n					2.4E+00	n		5.3E-04	n	
		2.2E-06	I			9.0E-03	I	V		1		1.1E+05	Acetaldehyde	75-07-0	8.200	n	34.00	n	9.4E-01	n	3.9E+00	n	1.9E+00	n		3.8E-04	n	
				2.0E-02	I					1	0.1		Acetochlor	34256-82-1	130.000	n	1600.00	n					3.5E+01	n		2.8E-02	n	
				9.0E-01	I	3.1E+01	A	V		1		1.1E+05	Acetone	67-64-1	6100.000	n	67000.00	n	3.2E+03	n	1.4E+04	n	1.4E+03	n		2.9E-01	n	
						2.0E-03	X			1	0.1		Acetone Cyanohydrin	75-86-5	280000.000	nm	1200000.00	nm	2.1E-01	n	8.8E-01	n						
						6.0E-02	I	V		1		1.3E+05	Acetonitrile	75-05-8	81.000	n	340.00	n	6.3E+00	n	2.6E+01	n	1.3E+01	n		2.6E-03	n	
				1.0E-01	I			V		1		2.5E+03	Acetophenone	98-86-2	780.000	n	12000.00	ns					1.9E+02	n		5.8E-02	n	
3.8E+00	C	1.3E-03	C							1	0.1		Acetylaminofluorene, 2-	53-96-3	0.140	c	0.60	c	2.2E-03	c	9.4E-03	c	1.6E-02	c		7.5E-05	c	
				5.0E-04	I	2.0E-05	I	V		1		2.3E+04	Acrolein	107-02-8	0.014	n	0.06	n	2.1E-03	n	8.8E-03	n	4.2E-03	n		8.4E-07	n	
5.0E-01	I	1.0E-04	I	2.0E-03	I	6.0E-03	I		M	1	0.1		Acrylamide	79-06-1	0.240	c*	4.60	c*	1.0E-02	c*	1.2E-01	c*	5.0E-02	c*		1.1E-05	c*	
				5.0E-01	I	1.0E-03	I	V		1		1.1E+05	Acrylic Acid	79-10-7	9.900	n	42.00	n	1.0E-01	n	4.4E-01	n	2.1E-01	n		4.2E-05	n	
5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I	V		1		1.1E+04	Acrylonitrile	107-13-1	0.250	c**	1.10	c**	4.1E-02	c**	1.8E-01	c**	5.2E-02	c**		1.1E-05	c**	
						6.0E-03	P			1	0.1		Adiponitrile	111-69-3	850000.000	nm	3600000.00	nm	6.3E-01	n	2.6E+00	n						
5.6E-02	C			1.0E-02	I					1	0.1		Alachlor	15972-60-8	9.700	c**	41.00	c*					1.1E+00	c*	2.0E+00	8.7E-04	c*	1.6E-03
				1.0E-03	I					1	0.1		Aldicarb	116-06-3	6.300	n	82.00	n					2.0E+00	n	3.0E+00	4.9E-04	n	7.5E-04
				1.0E-03	I					1	0.1		Aldicarb Sulfone	1646-88-4	6.300	n	82.00	n					2.0E+00	n	2.0E+00	4.4E-04	n	4.4E-04
										1	0.1		Aldicarb sulfoxide	1646-87-3											4.0E+00			8.8E-04
1.7E+01	I	4.9E-03	I	3.0E-05	I			V		1			Aldrin	309-00-2	0.039	c**	0.18	c*	5.7E-04	c	2.5E-03	c	9.2E-04	c*		1.5E-04	c*	
				5.0E-03	I	1.0E-04	X	V		1		1.1E+05	Allyl Alcohol	107-18-6	0.350	n	1.50	n	1.0E-02	n	4.4E-02	n	2.1E-02	n		4.2E-06	n	
2.1E-02	C	6.0E-06	C			1.0E-03	I	V		1		1.4E+03	Allyl Chloride	107-05-1	0.170	n	0.69	n	1.0E-01	n	4.4E-01	n	2.1E-01	n		6.7E-05	n	
				1.0E+00	P	5.0E-03	P			1			Aluminum	7429-90-5	7700.000	n	110000.00	nm	5.2E-01	n	2.2E+00	n	2.0E+03	n		3.0E+03	n	
				4.0E-04	I					1			Aluminum Phosphide	20859-73-8	3.100	n	47.00	n					8.0E-01	n				
				9.0E-03	I					1	0.1		Ametryn	834-12-8	57.000	n	740.00	n					1.5E+01	n		1.6E-02	n	
2.1E+01	C	6.0E-03	C							1	0.1		Aminobiphe		0.026	c	0.11	c	4.7E-04	c	2.0E-03	c	3.0E-03	c		1.5E-05	c	
				8.0E-02	P					1	0.1		Aminophen		510.000	n	6600.00	n					1.6E+02	n		6.1E-02	n	
				4.0E-03	X					1	0.1		Aminophen		25.000	n	330.00	n					7.9E+00	n		3.0E-03	n	
				2.0E-02	P					1	0.1		Aminophen		130.000	n	1600.00	n					4.0E+01	n		1.5E-02	n	
				2.5E-03	I					1	0.1		Amitraz		16.000	n	210.00	n					8.2E-01	n		4.2E-01	n	
						5.0E-01	I	V		1			Ammonia						5.2E+01	n	2.2E+02	n						
				2.0E-01	I					1			Ammonium		1600.000	n	23000.00	n					4.0E+02	n				
						3.0E-03	X	V		1		1.4E+04	Amyl Alcoh		8.200	n	34.00	n	3.1E-01	n	1.3E+00	n	6.3E-01	n		1.3E-04	n	
5.7E-03	I	1.6E-06	C	7.0E-03	P	1.0E-03	I			1	0.1		Aniline		44.000	n	400.00	c**	1.0E-01	n	4.4E-01	n	1.3E+01	c**		4.6E-03	c**	
4.0E-02	P			2.0E-03	X					1	0.1		Anthraquino		13.000	n	57.00	c**					1.4E+00	c**		1.4E-02	c**	
				4.0E-04	I					0.15			Antimony (m		3.100	n	47.00	n					7.8E-01	n	6.0E+00	3.5E-02	n	2.7E-01
				5.0E-04	H					0.15			Antimony P		3.900	n	58.00	n					9.7E-01	n				
				4.0E-04	H					0.15			Antimony T		3.100	n	47.00	n					7.8E-01	n				
						2.0E-04	I			0.15			Antimony T		28000.000	n	120000.00	nm	2.1E-02	n	8.8E-02	n						
1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C			1	0.03		Arsenic, Inc		0.680	c**R	3.00	c*R	6.5E-04	c**	2.9E-03	c**	5.2E-02	c*	1.0E+01	1.5E-03	c*	2.9E-01
				3.5E-06	C	5.0E-05	I			1			Arsine		0.027	n	0.41	n	5.2E-03	n	2.2E-02	n	7.0E-03	n				
										1			Asbestos (units in fibers)												7.0E+06(G)			
				3.6E-02	O					1	0.1		Asulam		230.000	n	3000.00	n					7.2E+01	n		1.8E-02	n	
2.3E-01	C			3.5E-02	I					1	0.1		Atrazine		2.400	c*	10.00	c					3.0E-01	c	3.0E+00	2.0E-04	c	1.9E-03
8.8E-01	C	2.5E-04	C							1	0.1		Auramine		0.620	c	2.60	c	1.1E-02	c	4.9E-02	c	7.8E-02	c		7.1E-04	c	
				4.0E-04	I					1	0.1		Avermectin B1		2.500	n	33.00	n					8.0E-01	n		1.4E+00	n	
				3.0E-03	A	1.0E-02	A			1	0.1		Azinphos-methyl		19.000	n	250.00	n	1.0E+00	n	4.4E+00	n	5.6E+00	n		1.7E-03	n	
1.1E-01	I	3.1E-05	I					V		1			Azobenzene		5.600	c	26.00	c	9.1E-02	c	4.0E-01	c	1.2E-01	c		9.3E-04	c	
				1.0E+00	P	7.0E-06	P			1	0.1		Azodicarbonamide		860.000	n	4000.00	n	7.3E-04	n	3.1E-03	n	2.0E+03	n		6.8E-01	n	
				2.0E-01	I	5.0E-04	H			0.07			Barium		1500.000	n	22000.00	n	5.2E-02	n	2.2E-01	n	3.8E+02	n	2.0E+03	1.6E+01	n	8.2E+01
				5.0E-03	O			V		1			Benfluralin		39.000	n	580.00	n					2.8E+00	n		9.4E-02	n	
				5.0E-02	I					1	0.1		Benomyl		320.000	n	4100.00	n					9.7E+01	n		8.5E-02	n	
				2.0E-01	I					1	0.1		Bensulfuron-methyl		1300.000	n	16000.00	n					3.9E+02	n		1.0E-01	n	
				3.0E-02	I					1	0.1		Bentazon		190.000	n	2500.00	n					5.7E+01	n		1.2E-02	n	
4.0E-03	P			1.0E-01	I			V		1			Benzaldehyde		170.000	c**	820.00	c*					1.9E+01	c*		4.1E-03	c*	
5.5E-02	I	7.8E-06	I	4.0E-03	I	3.0E-02	I	V		1		1.8E+03	Benzene		1.200	c**	5.10	c**	3.6E-01	c**	1.6E+00	c**	4.6E-01	c**	5.0E+00	2.3E-04	c**	2.6E-03
1.0E-01	X			3.0E-04	X					1	0.1		Benzenediamine-2-methyl sulfate, 1,4-		1.900	n	23.00	c**					6.0E-01	n		1.7E-04	n	
				1.0E-03	P			V		1		1.3E+03	Benzenethiol		7.800	n	120.00	n					1.7E+00	n		1.1E-03	n	
2.3E+02	I	6.7E-02	I	3.0E-03	I				M	1	0.1		Benzidine		0.001	c	0.01	c	1.5E-05	c	1.8E-04	c	1.1E-04	c		2.8E-07	c	
				4.0E+00	I					1	0.1		Benzoic Acid		25000.000	n	330000.00	nm					7.5E+03	n		1.5E+00	n	
1.3E+01	I							V		1		3.2E+02	Benzotrichloride		0.053	c	0.25	c					3.0E-03	c		6.6E-06	c	
				1.0E-01	P					1	0.1		Benzyl Alcohol		630.000	n	8200.00	n					2.0E+02	n		4.8E-02	n	
1.7E-01	I	4.9E-05	C	2.0E-03	P	1.0E-03	P	V		1		1.5E+03	Benzyl Chloride		1.100	c**	4.80	c**	5.7E-02	c**	2.5E-01	c**	8.9E-02	c**		9.8E-05	c**	
		2.4E-03	I	2.0E-03	I	2.0E-05	I			0.007			Beryllium and compounds	7440-41-7	16.000	n	230.00	n	1.2E-03	c**	5.1E-03	c**	2.5E+00	n	4.0E+00	1.9E+00	n	3.2E+00
				9.0E-03	P					1	0.1		Bifenox	42576-02-3	57.000	n	740.00	n					1.0E+01	n		7.6E-02	n	
				1.5E-02	I					1	0.1		Biphenthrin	82657-04-3	95.000	n	1200.00	n					3.0E+01	n		1.4E+02	n	
8.0E-03	I			5.0E-01	I	4.0E-04	X	V		1			Biphenyl, 1,1'-	92-52-4	4.700	n	20.00	n	4.2E-02	n	1.8E-01	n	8.3E-02	n		8.7E-04	n	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD$_o$ (mg/kg-day)	key	RfC$_i$ (mg/m^3)	key	vol	mutagen	GIABS	ABS$_d$	C$_{sat}$ (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				4.0E-02	I			V		1		1.0E+03	Bis(2-chloro-1-methylethyl) ether	108-60-1	310.000	n	4700.00	ns					7.1E+01	n		2.6E-02	n	
				3.0E-03	P					1	0.1		Bis(2-chloroethoxy)methane	111-91-1	19.000	n	250.00	n					5.9E+00	n		1.3E-03	n	
1.1E+00	I	3.3E-04	I					V		1		5.1E+03	Bis(2-chloroethyl)ether	111-44-4	0.230	c	1.00	c	8.5E-03	c	3.7E-02	c	1.4E-02	c		3.6E-06	c	
2.2E+02	I	6.2E-02	I					V		1		4.2E+03	Bis(chloromethyl)ether	542-88-1	0.000	c	0.00	c	4.5E-05	c	2.0E-04	c	7.2E-05	c		1.7E-08	c	
				5.0E-02	I					1	0.1		Bisphenol A	80-05-7	320.000	n	4100.00	n					7.7E+01	n		5.8E+00	n	
				2.0E-01	I	2.0E-02	H			1			Boron And Borates Only	7440-42-8	1600.000	n	23000.00	n	2.1E+00	n	8.8E+00	n	4.0E+02	n		1.3E+00	n	
				2.0E+00	P	2.0E-02	P	V		1			Boron Trichloride	10294-34-5	16000.000	n	230000.00	nm	2.1E+00	n	8.8E+00	n	4.2E+00	n				
				4.0E-02	C	1.3E-02	C	V		1			Boron Trifluoride	7637-07-2	310.000	n	4700.00	n	1.4E+00	n	5.7E+00	n	2.6E+00	n				
7.0E-01	I			4.0E-03	I					1			Bromate	15541-45-4	0.990	c*	4.70	c					1.1E-01	c*	1.0E+01	8.5E-04	c*	7.7E-02
2.0E+00	X	6.0E-04	X					V		1		2.4E+03	Bromo-2-chloroethane, 1-	107-04-0	0.026	c	0.11	c	4.7E-03	c	2.0E-02	c	7.4E-03	c		2.1E-06	c	
				3.0E-04	X			V		1		9.0E+02	Bromo-3-fluorobenzene, 1-	1073-06-9	2.300	n	35.00	n					4.9E-01	n		4.7E-04	n	
				3.0E-04	X			V		1		3.2E+02	Bromo-4-fluorobenzene, 1-	460-00-4	2.300	n	35.00	n					4.6E-01	n		4.4E-04	n	
										1	0.1		Bromoacetic acid	79-08-3											6.0E+01(G)			1.2E-02
				8.0E-03	I	6.0E-02	I	V		1		6.8E+02	Bromobenzene	108-86-1	29.000	n	180.00	n	6.3E+00	n	2.6E+01	n	6.2E+00	n		4.2E-03	n	
						4.0E-02	X	V		1		4.0E+03	Bromochloromethane	74-97-5	15.000	n	63.00	n	4.2E+00	n	1.8E+01	n	8.3E+00	n		2.1E-03	n	
6.2E-02	I	3.7E-05	C	2.0E-02	I			V		1		9.3E+02	Bromodichloromethane	75-27-4	0.290	c	1.30	c	7.6E-02	c	3.3E-01	c	1.3E-01	c	8.0E+01(G)	3.6E-05	c	2.2E-02
7.9E-03	I	1.1E-06	I	2.0E-02	I			V		1		9.2E+02	Bromoform	75-25-2	19.000	c**	86.00	c*	2.6E+00	c	1.1E+01	c	3.3E+00	c*	8.0E+01(G)	8.7E-04	c*	2.1E-02
				1.4E-03	I	5.0E-03	I	V		1		3.6E+03	Bromomethane	74-83-9	0.680	n	3.00	n	5.2E-01	n	2.2E+00	n	7.5E-01	n		1.9E-04	n	
				5.0E-03	H			V		1			Bromophos	2104-96-3	39.000	n	580.00	n					3.5E+00	n		1.5E-02	n	
						1.0E-01	A	V		1		9.7E+02	Bromopropane, 1-	106-94-5	22.000	n	94.00	n	1.0E+01	n	4.4E+01	n	2.1E+01	n		6.4E-03	n	
1.0E-01	O			1.5E-02	O					1	0.1		Bromoxynil	1689-84-5	5.300	c*	22.00	c*					6.1E-01	c*		5.2E-04	c*	
1.0E-01	O			1.5E-02	O			V		1			Bromoxynil Octanoate	1689-99-2	6.700	c*	32.00	c*					2.4E-01	c*		2.1E-03	c*	
6.0E-01	C	3.0E-05	I			2.0E-03	I	V		1		6.7E+02	Butadiene, 1,3-	106-99-0	0.076	c**	0.33	c**	9.4E-02	c**	4.1E-01	c**	7.1E-02	c**		3.9E-05	c**	
				3.0E-02	O					1	0.1		Butanoic acid, 4-(2,4-dichlorophenoxy)-	94-82-6	190.000	n	2500.00	n					4.5E+01	n		4.2E-02	n	
				1.0E-01	I			V		1		7.6E+03	Butanol, N-	71-36-3	780.000	n	12000.00	ns					2.0E+02	n		4.1E-02	n	
				2.0E+00	P	3.0E+01	P	V		1		2.1E+04	Butyl alcohol, sec-	78-92-2	13000.000	n	150000.00	nms	3.1E+03	n	1.3E+04	n	2.4E+03	n		5.0E-01	n	
				5.0E-02	I			V		1			Butylate	2008-41-5	390.000	n	5800.00	n					4.6E+01	n		4.5E-02	n	
2.0E-04	C	5.7E-08	C							1	0.1		Butylated hydroxyanisole	25013-16-5	2700.000	c	11000.00	c	4.9E+01	c	2.2E+02	c	1.5E+02	c		2.9E-01	c	
3.6E-03	P			3.0E-01	P					1	0.1		Butylated hydroxytoluene	128-37-0	150.000	c*	640.00	c*					3.4E+00	c*		1.0E-01	c*	
				5.0E-02	P			V		1		1.1E+02	Butylbenzene, n-	104-51-8	390.000	ns	5800.00	ns					1.0E+02	n		3.2E-01	n	
				1.0E-01	X			V		1		1.5E+02	Butylbenzene, sec-	135-98-8	780.000	ns	12000.00	ns					2.0E+02	n		5.9E-01	n	
				1.0E-01	X			V		1		1.8E+02	Butylbenze		780.000	ns	12000.00	ns					6.9E+01	n		1.6E-01	n	
				2.0E-02	A					1	0.1		Cacodylic A		130.000	n	1600.00	n					4.0E+01	n		1.1E-02	n	
		1.8E-03	I	1.0E-03	I	1.0E-05	A			0.025	0.001		Cadmium (I		7.100	n	98.00	n										
		1.8E-03	I	5.0E-04	I	1.0E-05	A			0.05	0.001		Cadmium (V						1.0E-03	n	4.4E-03	n	9.2E-01	n	5.0E+00	6.9E-02	n	3.8E-01
				5.0E-01	I	2.2E-03	C			1	0.1		Caprolactar		3100.000	n	40000.00	n	2.3E-01	n	9.6E-01	n	9.9E+02	n		2.5E-01	n	
1.5E-01	C	4.3E-05	C	2.0E-03	I					1	0.1		Captafol		3.600	c**	15.00	c*	6.5E-02	c	2.9E-01	c	4.0E-01	c**		7.1E-04	c**	
2.3E-03	C	6.6E-07	C	1.3E-01	I					1	0.1		Captan		240.000	c**	1000.00	c*	4.3E+00	c	1.9E+01	c	3.1E+01	c**		2.2E-02	c**	
				1.0E-01	I					1	0.1		Carbaryl		630.000	n	8200.00	n					1.8E+02	n		1.7E-01	n	
				5.0E-03	I					1	0.1		Carbofuran		32.000	n	410.00	n					9.4E+00	n	4.0E+01	3.7E-03	n	1.6E-02
				1.0E-01	I	7.0E-01	I	V		1		7.4E+02	Carbon Dis		77.000	n	350.00	n	7.3E+01	n	3.1E+02	n	8.1E+01	n		2.4E-02	n	
7.0E-02	I	6.0E-06	I	4.0E-03	I	1.0E-01	I	V		1		4.6E+02	Carbon Tet		0.650	c*	2.90	c*	4.7E-01	c*	2.0E+00	c*	4.6E-01	c*	5.0E+00	1.8E-04	c*	1.9E-03
						1.0E-01	P	V		1		5.9E+03	Carbonyl S		6.700	n	28.00	n	1.0E+01	n	4.4E+01	n	2.1E+01	n		5.1E-02	n	
				1.0E-02	I					1	0.1		Carbosulfa	8	63.000	n	820.00	n					5.1E+00	n		1.2E-01	n	
				1.0E-01	I					1	0.1		Carboxin	-68-4	630.000	n	8200.00	n					1.9E+02	n		1.0E-01	n	
						9.0E-04	I			1			Ceric oxide	-38-3	130000.000	nm	540000.00	nm	9.4E-02	n	3.9E-01	n						
				1.0E-01	I			V		1			Chloral Hyd	7-0	780.000	n	12000.00	n					2.0E+02	n		4.0E-02	n	
				1.5E-02	I					1	0.1		Chloramben	30-4	95.000	n	1200.00	n					2.9E+01	n		7.0E-03	n	
													Chloramines, Organic	E701235											4.0E+03(G)			
4.0E-01	H									1	0.1		Chloranil	118-75-2	1.300	c	5.70	c					1.8E-01	c		1.5E-04	c	
3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I	V		1	0.04		Chlordane	12789-03-6	1.700	c**	7.70	c**	2.8E-02	c**	1.2E-01	c**	2.0E-02	c**	2.0E+00	2.7E-03	c**	2.7E-01
1.0E+01	I	4.6E-03	C	3.0E-04	I					1	0.1		Chlordecone (Kepone)	143-50-0	0.054	c*	0.23	c	6.1E-04	c	2.7E-03	c	3.5E-03	c*		1.2E-04	c*	
				7.0E-04	A					1	0.1		Chlorfenvinphos	470-90-6	4.400	n	57.00	n					1.1E+00	n		3.1E-03	n	
				9.0E-02	O					1	0.1		Chlorimuron, Ethyl-	90982-32-4	570.000	n	7400.00	n					1.8E+02	n		6.0E-02	n	
				1.0E-01	I	1.5E-04	A	V		1		2.8E+03	Chlorine	7782-50-5	0.018	n	0.08	n	1.5E-02	n	6.4E-02	n	3.0E-02	n	4.0E+03(G)	1.5E-05	n	2.0E+00
				3.0E-02	I	2.0E-04	I	V		1			Chlorine Dioxide	10049-04-4	230.000	n	3400.00	n	2.1E-02	n	8.8E-02	n	4.2E-02	n	8.0E+02(G)			
				3.0E-02	I					1			Chlorite (Sodium Salt)	7758-19-2	230.000	n	3500.00	n					6.0E+01	n	1.0E+03			
						5.0E+01	I	V		1		1.2E+03	Chloro-1,1-difluoroethane, 1-	75-68-3	5400.000	ns	23000.00	ns	5.2E+03	n	2.2E+04	n	1.0E+04	n		5.2E+00	n	
		3.0E-04	I	2.0E-02	H	2.0E-02	I	V		1		7.9E+02	Chloro-1,3-butadiene, 2-	126-99-8	0.010	c	0.04	c	9.4E-03	c	4.1E-02	c	1.9E-02	c		9.8E-06	c	
4.6E-01	H									1	0.1		Chloro-2-methylaniline HCl, 4-	3165-93-3	1.200	c	5.00	c					1.7E-01	c		1.5E-04	c	
1.0E-01	P	7.7E-05	C	3.0E-03	X					1	0.1		Chloro-2-methylaniline, 4-	95-69-2	5.400	c**	23.00	c*	3.6E-02	c	1.6E-01	c	7.0E-01	c**		4.0E-04	c**	
2.7E-01	X							V		1		1.2E+04	Chloroacetaldehyde, 2-	107-20-0	2.600	c	12.00	c					2.9E-01	c		5.8E-05	c	
										1	0.1		Chloroacetic Acid	79-11-8											6.0E+01(G)			1.2E-02
						3.0E-05	I			1	0.1		Chloroacetophenone, 2-	532-27-4	4300.000	n	18000.00	n	3.1E-03	n	1.3E-02	n						
2.0E-01	P			4.0E-03	I					1	0.1		Chloroaniline, p-	106-47-8	2.700	c**	11.00	c*					3.7E-01	c*		1.6E-04	c*	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				2.0E-02	I	5.0E-02	P	V		1		7.6E+02	Chlorobenzene	108-90-7	28.000	n	130.00	n	5.2E+00	n	2.2E+01	n	7.8E+00	n	1.0E+02	5.3E-03	n	6.8E-02
				1.0E-01	X					1	0.1		Chlorobenzene sulfonic acid, p-	98-66-8	630.000	n	8200.00	n					2.0E+02	n		4.7E-02	n	
1.1E-01	C	3.1E-05	C	2.0E-02	I					1	0.1		Chlorobenzilate	510-15-6	4.900	c*	21.00	c*	9.1E-02	c	4.0E-01	c	3.1E-01	c*		1.0E-03	c*	
				3.0E-02	X					1	0.1		Chlorobenzoic Acid, p-	74-11-3	190.000	n	2500.00	n					5.1E+01	n		1.3E-02	n	
				3.0E-03	P	3.0E-01	P	V		1		2.9E+02	Chlorobenzotrifluoride, 4-	98-56-6	21.000	n	250.00	n	3.1E+01	n	1.3E+02	n	3.5E+00	n		1.2E-02	n	
				4.0E-02	P			V		1		7.3E+02	Chlorobutane, 1-	109-69-3	310.000	n	4700.00	ns					6.4E+01	n		2.6E-02	n	
						5.0E+01	I	V		1		1.7E+03	Chlorodifluoromethane	75-45-6	4900.000	ns	21000.00	ns	5.2E+03	n	2.2E+04	n	1.0E+04	n		4.3E+00	n	
				2.0E-02	P			V		1		1.1E+05	Chloroethanol, 2-	107-07-3	160.000	n	2300.00	n					4.0E+01	n		8.1E-03	n	
3.1E-02	C	2.3E-05	I	1.0E-02	I	9.8E-02	A	V		1		2.5E+03	Chloroform	67-66-3	0.320	c*	1.40	c*	1.2E-01	c*	5.3E-01	c*	2.2E-01	c*	8.0E+01(G)	6.1E-05	c*	2.2E-02
						9.0E-02	I	V		1		1.3E+03	Chloromethane	74-87-3	11.000	n	46.00	n	9.4E+00	n	3.9E+01	n	1.9E+01	n		4.9E-03	n	
2.4E+00	C	6.9E-04	C					V		1		9.3E+03	Chloromethyl Methyl Ether	107-30-2	0.020	c	0.09	c	4.1E-03	c	1.8E-02	c	6.5E-03	c		1.4E-06	c	
3.0E-01	P			3.0E-03	P	1.0E-05	X			1	0.1		Chloronitrobenzene, o-	88-73-3	1.800	c*	7.70	c*	1.0E-03	n	4.4E-03	n	2.4E-01	c*		2.2E-04	c*	
6.0E-02	P			7.0E-04	P	2.0E-03	P			1	0.1		Chloronitrobenzene, p-	100-00-5	4.400	n	38.00	c**	2.1E-01	n	8.8E-01	n	1.2E+00	c**		1.1E-03	c**	
				5.0E-03	I			V		1		2.7E+04	Chlorophenol, 2-	95-57-8	39.000	n	580.00	n					9.1E+00	n		8.9E-03	n	
						4.0E-04	C	V		1		6.2E+02	Chloropicrin	76-06-2	0.200	n	0.82	n	4.2E-02	n	1.8E-01	n	8.3E-02	n		2.5E-05	n	
3.1E-03	C	8.9E-07	C	1.5E-02	I					1	0.1		Chlorothalonil	1897-45-6	95.000	n	740.00	c**	3.2E+00	c	1.4E+01	c	2.2E+01	c**		5.0E-02	c**	
				2.0E-02	I			V		1		9.1E+02	Chlorotoluene, o-	95-49-8	160.000	n	2300.00	ns					2.4E+01	n		2.3E-02	n	
				2.0E-02	X			V		1		2.5E+02	Chlorotoluene, p-	106-43-4	160.000	n	2300.00	ns					2.5E+01	n		2.4E-02	n	
2.4E+02	C	6.9E-02	C							1	0.1		Chlorozotocin	54749-90-5	0.002	c	0.01	c	4.1E-05	c	1.8E-04	c	3.2E-04	c		7.1E-08	c	
				5.0E-02	O					1	0.1		Chlorpropham	101-21-3	320.000	n	4100.00	n					7.1E+01	n		6.4E-02	n	
				1.0E-03	A					1	0.1		Chlorpyrifos	2921-88-2	6.300	n	82.00	n					8.4E-01	n		1.2E-02	n	
				1.0E-02	H					1	0.1		Chlorpyrifos Methyl	5598-13-0	63.000	n	820.00	n					1.2E+01	n		5.4E-02	n	
				5.0E-02	O					1	0.1		Chlorsulfuron	64902-72-3	320.000	n	4100.00	n					9.9E+01	n		8.3E-02	n	
				1.0E-02	I					1	0.1		Chlorthal-dimethyl	1861-32-1	63.000	n	820.00	n					1.2E+01	n		1.5E-02	n	
				8.0E-04	H					1	0.1		Chlorthiophos	60238-56-4	5.100	n	66.00	n					2.8E-01	n		7.3E-03	n	
				1.5E+00	I					0.013			Chromium(III), Insoluble Salts	16065-83-1	12000.000	n	180000.00	nm					2.2E+03	n		4.0E+06	n	
5.0E-01	C	8.4E-02	G	3.0E-03	I	1.0E-04	I		M	0.025			Chromium(VI)	18540-29-9	0.300	c*	6.30	c*	1.2E-05	c	1.5E-04	c	3.5E-02	c		6.7E-04	c	
										0.013			Chromium, Total	7440-47-3											1.0E+02			1.8E+05
				1.3E-02	I					1	0.1		Clofentezine	74115-24-5	82.000	n	1100.00	n					2.3E+01	n		1.4E+00	n	
		9.0E-03	P	3.0E-04	P	6.0E-06	P			1			Cobalt	7440-48-4	2.300	n	35.00	n	3.1E-04	c**	1.4E-03	c**	6.0E-01	n		2.7E-02	n	
		6.2E-04	I					V	M	1			Coke Oven Emissions	8007-45-2					1.6E-03	c	2.0E-02	c						
				4.0E-02	H					1			Copper	7440-50-8	310.000	n	4700.00	n					8.0E+01	n	1.3E+03	2.8E+00	n	4.6E+01
				5.0E-02	I	6.0E-01	C			1	0.1		Cresol, m-	108-39-4	320.000	n	4100.00	n	6.3E+01	n	2.6E+02	n	9.3E+01	n		7.4E-02	n	
				5.0E-02	I	6.0E-01	C			1	0.1		Cresol, o-	95-48-7	320.000	n	4100.00	n	6.3E+01	n	2.6E+02	n	9.3E+01	n		7.5E-02	n	
				1.0E-01	A	6.0E-01	C			1	0.1		Cresol, p-	106-44-5	630.000	n	8200.00	n	6.3E+01	n	2.6E+02	n	1.9E+02	n		1.5E-01	n	
				1.0E-01	A					1	0.1		Cresol, p-chloro-m-	59-50-7	630.000	n	8200.00	n					1.4E+02	n		1.7E-01	n	
				1.0E-01	A	6.0E-01	C			1	0.1		Cresols	1319-77-3	630.000	n	8200.00	n	6.3E+01	n	2.6E+02	n	1.5E+02	n		1.3E-01	n	
1.9E+00	H			1.0E-03	P			V		1		1.7E+04	Crotonaldeh		0.370	c*	1.70	c*					4.0E-02	c*		8.2E-06	c*	
				1.0E-01	I	4.0E-01	I	V		1		2.7E+02	Cumene		190.000	n	990.00	ns	4.2E+01	n	1.8E+02	n	4.5E+01	n		7.4E-02	n	
2.2E-01	C	6.3E-05	C							1	0.1		Cupferron		2.500	c	10.00	c	4.5E-02	c	1.9E-01	c	3.5E-01	c		6.1E-04	c	
8.4E-01	H			2.0E-03	H					1	0.1		Cyanazine		0.650	c*	2.70	c*					8.8E-02	c*		4.1E-05	c*	
													Cyanides															
				1.0E-03	I					1			~Calcium C		7.800	n	120.00	n					2.0E+00	n				
				5.0E-03	I					1			~Copper Cy		39.000	n	580.00	n					1.0E+01	n				
				6.0E-04	I	8.0E-04	G	V		1		9.5E+05	~Cyanide (0		2.300	n	15.00	n	8.3E-02	n	3.5E-01	n	1.5E-01	n	2.0E+02	1.5E-03	n	2.0E+00
				1.0E-03	I			V		1			~Cyanogen		7.800	n	120.00	n					2.0E+00	n				
				9.0E-02	I			V		1			~Cyanogen		700.000	n	11000.00	n					1.8E+02	n				
				5.0E-02	I			V		1			~Cyanogen		390.000	n	5800.00	n					1.0E+02	n				
				6.0E-04	I	8.0E-04	I	V		1		1.0E+07	~Hydrogen		2.300	n	15.00	n	8.3E-02	n	3.5E-01	n	1.5E-01	n		1.5E-03	n	
				2.0E-03	I					1			~Potassium		16.000	n	230.00	n					4.0E+00	n				
				5.0E-03	I					0.04			~Potassium	61-6	39.000	n	580.00	n					8.2E+00	n				
				1.0E-01	I					0.04			~Silver Cya	64-9	780.000	n	12000.00	n					1.8E+02	n				
				1.0E-03	I					1			~Sodium Cy	83-9	7.800	n	120.00	n					2.0E+00	n	2.0E+02			
				2.0E-04	P					1			~Thiocyanates	2/30664	1.600	n	23.00	n					4.0E-01	n				
				2.0E-04	X			V		1			~Thiocyanic Acid	463-56-9	1.600	n	23.00	n					4.0E-01	n				
				5.0E-02	I					1			~Zinc Cyanide	557-21-1	390.000	n	5800.00	n					1.0E+02	n				
						6.0E+00	I	V		1		1.2E+02	Cyclohexane	110-82-7	650.000	ns	2700.00	ns	6.3E+02	n	2.6E+03	n	1.3E+03	n		1.3E+00	n	
2.0E-02	X			2.0E-02	X					1	0.1		Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	27.000	c**	110.00	c*					2.8E+00	c*		1.6E-02	c*	
				5.0E+00	I	7.0E-01	P	V		1		5.1E+03	Cyclohexanone	108-94-1	2800.000	n	13000.00	ns	7.3E+01	n	3.1E+02	n	1.4E+02	n		3.4E-02	n	
				5.0E-03	P	1.0E+00	X	V		1		2.8E+02	Cyclohexene	110-83-8	31.000	n	310.00	ns	1.0E+02	n	4.4E+02	n	7.0E+00	n		4.6E-03	n	
				2.0E-01	I			V		1		2.9E+05	Cyclohexylamine	108-91-8	1600.000	n	23000.00	n					3.8E+02	n		1.0E-01	n	
				2.5E-02	I					1	0.1		Cyfluthrin	68359-37-5	160.000	n	2100.00	n					1.2E+01	n		3.1E+00	n	
				1.0E-03	O					1	0.1		Cyhalothrin	68085-85-8	6.300	n	82.00	n					2.0E+00	n		1.4E+00	n	
				5.0E-01	O					1	0.1		Cyromazine	66215-27-8	3200.000	n	41000.00	n					9.9E+02	n		2.5E-01	n	
2.4E-01	I	6.9E-05	C	3.0E-05	X					1	0.1		DDD, p,p`- (DDD)	72-54-8	0.190	n	2.50	n	4.1E-02	c	1.8E-01	c	6.3E-03	n		1.5E-03	n	

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Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
3.4E-01	I	9.7E-05	C	3.0E-04	X			V		1			DDE, p,p'-	72-55-9	2.000	c**	9.30	c**	2.9E-02	c	1.3E-01	c	4.6E-02	c*		1.1E-02	c*	
3.4E-01	I	9.7E-05	I	5.0E-04	I					1	0.03		DDT	50-29-3	1.900	c**	8.50	c**	2.9E-02	c	1.3E-01	c	2.3E-01	c**		7.7E-02	c**	
				3.0E-02	I					1	0.1		Dalapon	75-99-0	190.000	n	2500.00	n					6.0E+01	n	2.0E+02	1.2E-02	n	4.1E-02
1.8E-02	C	5.1E-06	C	1.5E-01	I					1	0.1		Daminozide	1596-84-5	30.000	c*	130.00	c*	5.5E-01	c	2.4E+00	c	4.3E+00	c*		9.5E-04	c*	
7.0E-04	I			7.0E-03	I					1	0.1		Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1163-19-5	44.000	n	570.00	n					1.4E+01	n		7.8E+00	n	
				4.0E-05	I					1	0.1		Demeton	8065-48-3	0.250	n	3.30	n					4.2E-02	n				
1.2E-03	I			6.0E-01	I					1	0.1		Di(2-ethylhexyl)adipate	103-23-1	450.000	c**	1900.00	c*					6.5E+01	c*	4.0E+02	4.7E+00	c*	2.9E+01
6.1E-02	H									1	0.1		Diallate	2303-16-4	8.900	c	38.00	c					5.4E-01	c		8.0E-04	c	
				7.0E-04	A					1	0.1		Diazinon	333-41-5	4.400	n	57.00	n					1.0E+00	n		6.5E-03	n	
				1.0E-02	X			V		1			Dibenzothiophene	132-65-0	78.000	n	1200.00	n					6.5E+00	n		1.2E-01	n	
8.0E-01	P	6.0E-03	P	2.0E-04	P	2.0E-04	I	V	M	1		9.8E+02	Dibromo-3-chloropropane, 1,2-	96-12-8	0.005	c*	0.06	c*	1.7E-04	c	2.0E-03	c*	3.3E-04	c	2.0E-01	1.4E-07	c	8.6E-05
										1	0.1		Dibromoacetic acid	631-64-1											6.0E+01(G)			1.2E-02
				4.0E-04	X			V		1		1.6E+02	Dibromobenzene, 1,3-	108-36-1	3.100	n	47.00	n					5.3E-01	n		5.1E-04	n	
				1.0E-02	I			V		1			Dibromobenzene, 1,4-	106-37-6	78.000	n	1200.00	n					1.3E+01	n		1.2E-02	n	
8.4E-02	I			2.0E-02	I			V		1		8.0E+02	Dibromochloromethane	124-48-1	8.300	c*	39.00	c*					8.7E-01	c*	8.0E+01(G)	2.3E-04	c*	2.1E-02
2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		1		1.3E+03	Dibromoethane, 1,2-	106-93-4	0.036	c	0.16	c	4.7E-03	c	2.0E-02	c	7.5E-03	c	5.0E-02	2.1E-06	c	1.4E-05
						4.0E-03	X	V		1		2.8E+03	Dibromomethane (Methylene Bromide)	74-95-3	2.400	n	9.90	n	4.2E-01	n	1.8E+00	n	8.3E-01	n		2.1E-04	n	
				3.0E-04	P					1	0.1		Dibutyltin Compounds	E1790660	1.900	n	25.00	n					6.0E-01	n				
				3.0E-02	I					1	0.1		Dicamba	1918-00-9	190.000	n	2500.00	n					5.7E+01	n		1.5E-02	n	
													Dichloramine	3400-09-7											4.0E+03(G)			
		4.2E-03	P					V		1		5.5E+02	Dichloro-2-butene, 1,4-	764-41-0	0.002	c	0.01	c	6.7E-04	c	2.9E-03	c	1.3E-03	c		6.6E-07	c	
		4.2E-03	P					V		1		5.2E+02	Dichloro-2-butene, cis-1,4-	1476-11-5	0.007	c	0.03	c	6.7E-04	c	2.9E-03	c	1.3E-03	c		6.2E-07	c	
		4.2E-03	P					V		1		7.6E+02	Dichloro-2-butene, trans-1,4-	110-57-6	0.007	c	0.03	c	6.7E-04	c	2.9E-03	c	1.3E-03	c		6.2E-07	c	
5.0E-02	I			4.0E-03	I					1	0.1		Dichloroacetic Acid	79-43-6	11.000	c**	46.00	c**					1.5E+00	c**	6.0E+01(G)	3.1E-04	c**	1.2E-02
				9.0E-02	I	2.0E-01	H	V		1		3.8E+02	Dichlorobenzene, 1,2-	95-50-1	180.000	n	930.00	ns	2.1E+01	n	8.8E+01	n	3.0E+01	n	6.0E+02	3.0E-02	n	5.8E-01
5.4E-03	C	1.1E-05	C	7.0E-02	A	8.0E-01	I	V		1			Dichlorobenzene, 1,4-	106-46-7	2.600	c	11.00	c	2.6E-01	c	1.1E+00	c	4.8E-01	c	7.5E+01	4.6E-04	c	7.2E-02
4.5E-01	I	3.4E-04	C							1	0.1		Dichlorobenzidine, 3,3'-	91-94-1	1.200	c	5.10	c	8.3E-03	c	3.6E-02	c	1.3E-01	c		8.2E-04	c	
				9.0E-03	X					1	0.1		Dichlorobenzophenone, 4,4'-	90-98-2	57.000	n	740.00	n					7.8E+00	n		4.7E-02	n	
				2.0E-01	I	1.0E-01	X	V		1		8.5E+02	Dichlorodifluoromethane	75-71-8	8.700	n	37.00	n	1.0E+01	n	4.4E+01	n	2.0E+01	n		3.0E-02	n	
5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1		1.7E+03	Dichloroethane, 1,1-	75-34-3	3.600	c	16.00	c	1.8E+00	c	7.7E+00	c	2.8E+00	c		7.8E-04	c	
9.1E-02	I	2.6E-05	I	6.0E-03	X	7.0E-03	P	V		1		3.0E+03	Dichloroethane, 1,2-	107-06-2	0.460	c**	2.00	c**	1.1E-01	c**	4.7E-01	c**	1.7E-01	c**	5.0E+00	4.8E-05	c**	1.4E-03
				5.0E-02	I	2.0E-01	I	V		1		1.2E+03	Dichloroethylene, 1,1-	75-35-4	23.000	n	100.00	n	2.1E+01	n	8.8E+01	n	2.8E+01	n	7.0E+00	1.0E-02	n	2.5E-03
				2.0E-03	I			V		1		2.4E+03	Dichloroethylene, 1,2-cis-	156-59-2	16.000	n	230.00	n					3.6E+00	n	7.0E+01	1.1E-03	n	2.1E-02
				2.0E-02	I			V		1		1.9E+03	Dichloroethylene, 1,2-trans-	156-60-5	160.000	n	2300.00	ns					3.6E+01	n	1.0E+02	1.1E-02	n	3.1E-02
				3.0E-03	I					1	0.1		Dichlorophenol, 2,4-	120-83-2	19.000	n	250.00	n					4.6E+00	n		2.3E-03	n	
				1.0E-02	I					1	0.05		Dichlorophenoxy Acetic Acid, 2,4-	94-75-7	70.000	n	960.00	n					1.7E+01	n	7.0E+01	4.5E-03	n	1.8E-02
3.7E-02	P	3.7E-06	P	4.0E-02	P	4.0E-03	I	V		1		1.4E+03	Dichloropropane, 1,2-	78-87-5	1.600	n	6.60	n	4.2E-01	n	1.8E+00	n	8.2E-01	n	5.0E+00	2.7E-04	n	1.7E-03
				2.0E-02	P			V		1		1.5E+03	Dichloropropane, 1,3-	142-28-9	160.000	n	2300.00	ns					3.7E+01	n		1.3E-02	n	
				3.0E-03	I					1	0.1		Dichloropropanol, 2,3-	616-23-9	19.000	n	250.00	n					5.9E+00	n		1.3E-03	n	
1.0E-01	I	4.0E-06	I	3.0E-02	I	2.0E-02	I	V		1		1.6E+03	Dichloropropene, 1,3-	542-75-6	1.800	c**	8.20	c**	7.0E-01	c**	3.1E+00	c**	4.7E-01	c**		1.7E-04	c**	
2.9E-01	I	8.3E-05	C	5.0E-04	I	5.0E-04	I			1	0.1		Dichlorvos	62-73-7	1.900	c**	7.90	c**	3.4E-02	c**	1.5E-01	c**	2.6E-01	c**		8.1E-05	c**	
				3.0E-05	O					1	0.1		Dicrotophos	141-66-2	0.190	n	2.50	n					6.0E-02	n		1.4E-05	n	
				8.0E-02	P	3.0E-04	X	V		1		2.6E+02	Dicyclopentadiene	77-73-6	0.130	n	0.54	n	3.1E-02	n	1.3E-01	n	6.3E-02	n		2.2E-04	n	
1.6E+01	I	4.6E-03	I	5.0E-05	I					1	0.1		Dieldrin		0.034	c**	0.14	c*	6.1E-04	c	2.7E-03	c	1.8E-03	c*		7.1E-05	c*	
		3.0E-04	C			5.0E-03	I			1	0.1		Diesel Engi	5					9.4E-03	c*	4.1E-02	c*						
				2.0E-03	P	2.0E-04	P			1	0.1		Diethanolar		13.000	n	160.00	n	2.1E-02	n	8.8E-02	n	4.0E+00	n		8.1E-04	n	
				3.0E-02	P	1.0E-04	P			1	0.1		Diethylene		190.000	n	2400.00	n	1.0E-02	n	4.4E-02	n	6.0E+01	n		1.3E-02	n	
				6.0E-02	P	3.0E-04	P			1	0.1		Diethylene		380.000	n	4800.00	n	3.1E-02	n	1.3E-01	n	1.2E+02	n		2.4E-02	n	
				1.0E-03	P			V		1		1.1E+05	Diethylform		7.800	n	120.00	n					2.0E+00	n		4.1E-04	n	
3.5E+02	C	1.0E-01	C							1	0.1		Diethylstilbe		0.002	c	0.01	c	2.8E-05	c	1.2E-04	c	5.1E-05	c		2.8E-05	c	
				8.3E-02	O					1	0.1		Difenzoqua	6	520.000	n	6800.00	n					1.7E+02	n		2.6E+01	n	
				2.0E-02	I					1	0.1		Diflubenzur	5	130.000	n	1600.00	n					2.9E+01	n		3.3E-02	n	
						4.0E+01	I	V		1		1.4E+03	Difluoroetha		4800.000	ns	20000.00	ns	4.2E+03	n	1.8E+04	n	8.3E+03	n		2.8E+00	n	
						3.0E+01	X	V		1		6.9E+02	Difluoropro		2400.000	ns	10000.00	ns	3.1E+03	n	1.3E+04	n	6.3E+03	n		1.4E+01	n	
4.4E-02	C	1.3E-05	C					V		1			Dihydrosafr		9.900	c	45.00	c	2.2E-01	c	9.4E-01	c	3.0E-01	c		1.9E-04	c	
						7.0E-01	P	V		1		2.3E+03	Diisopropyl		220.000	n	940.00	n	7.3E+01	n	3.1E+02	n	1.5E+02	n		3.7E-02	n	
				8.0E-02	I			V		1		5.3E+02	Diisopropyl	-75-6	630.000	ns	9300.00	ns					1.6E+02	n		4.5E-02	n	
				2.2E-02	O					1	0.1		Dimethipin	0-64-7	140.000	n	1800.00	n					4.4E+01	n		9.6E-03	n	
				2.2E-03	O					1	0.1		Dimethoate	1-5	14.000	n	180.00	n					4.4E+00	n		9.9E-04	n	
1.6E+00	P									1	0.1		Dimethoxyb	90-4	0.340	c	1.40	c					4.7E-02	c		5.8E-05	c	
1.7E-03	P			6.0E-02	P					1	0.1		Dimethyl methylphosphonate	756-79-6	320.000	c**	1400.00	c**					4.6E+01	c**		9.6E-03	c**	
4.6E+00	C	1.3E-03	C							1	0.1		Dimethylamino azobenzene [p-]	60-11-7	0.120	c	0.50	c	2.2E-03	c	9.4E-03	c	5.0E-03	c		2.1E-05	c	
5.8E-01	H									1	0.1		Dimethylaniline HCl, 2,4-	21436-96-4	0.940	c	4.00	c					1.3E-01	c		1.2E-04	c	
2.0E-01	P			2.0E-03	X					1	0.1		Dimethylaniline, 2,4-	95-68-1	2.700	c**	11.00	c*					3.7E-01	c*		2.1E-04	c*	
2.7E-02	P			2.0E-03	I			V		1		8.3E+02	Dimethylaniline, N,N-	121-69-7	16.000	n	120.00	c**					2.5E+00	c**		9.0E-04	c**	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
1.1E+01	P									1	0.1		Dimethylbenzidine, 3,3'-	119-93-7	0.049	c	0.21	c					6.5E-03	c		4.3E-05	c	
				1.0E-01	P	3.0E-02	I	V		1		1.1E+05	Dimethylformamide	68-12-2	260.000	n	1500.00	n	3.1E+00	n	1.3E+01	n	6.1E+00	n		1.2E-03	n	
				1.0E-04	X	2.0E-06	X	V		1		1.7E+05	Dimethylhydrazine, 1,1-	57-14-7	0.006	n	0.02	n	2.1E-04	n	8.8E-04	n	4.2E-04	n		9.3E-08	n	
5.5E+02	C	1.6E-01	C					V		1		1.9E+05	Dimethylhydrazine, 1,2-	540-73-8	0.001	c	0.00	c	1.8E-05	c	7.7E-05	c	2.8E-05	c		6.5E-09	c	
				2.0E-02	I					1	0.1		Dimethylphenol, 2,4-	105-67-9	130.000	n	1600.00	n					3.6E+01	n		4.2E-02	n	
				6.0E-04	I					1	0.1		Dimethylphenol, 2,6-	576-26-1	3.800	n	49.00	n					1.1E+00	n		1.3E-03	n	
				1.0E-03	I					1	0.1		Dimethylphenol, 3,4-	95-65-8	6.300	n	82.00	n					1.8E+00	n		2.1E-03	n	
4.5E-02	C	1.3E-05	C					V		1		4.7E+02	Dimethylvinylchloride	513-37-1	1.100	c	4.80	c	2.2E-01	c	9.4E-01	c	3.3E-01	c		1.1E-04	c	
				8.0E-05	X					1	0.1		Dinitro-o-cresol, 4,6-	534-52-1	0.510	n	6.60	n					1.5E-01	n		2.6E-04	n	
				2.0E-03	I					1	0.1		Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5	13.000	n	160.00	n					2.3E+00	n		7.7E-02	n	
				1.0E-04	P					1	0.1		Dinitrobenzene, 1,2-	528-29-0	0.630	n	8.20	n					1.9E-01	n		1.8E-04	n	
				1.0E-04	I					1	0.1		Dinitrobenzene, 1,3-	99-65-0	0.630	n	8.20	n					2.0E-01	n		1.8E-04	n	
				1.0E-04	P					1	0.1		Dinitrobenzene, 1,4-	100-25-4	0.630	n	8.20	n					2.0E-01	n		1.8E-04	n	
				2.0E-03	I					1	0.1		Dinitrophenol, 2,4-	51-28-5	13.000	n	160.00	n					3.9E+00	n		4.4E-03	n	
6.8E-01	I									1	0.1		Dinitrotoluene Mixture, 2,4/2,6-	E1615210	0.800	c	3.40	c					1.1E-01	c		1.5E-04	c	
3.1E-01	C	8.9E-05	C	2.0E-03	I					1	0.102		Dinitrotoluene, 2,4-	121-14-2	1.700	c**	7.40	c*	3.2E-02	c	1.4E-01	c	2.4E-01	c*		3.2E-04	c*	
1.5E+00	P			3.0E-04	X					1	0.099		Dinitrotoluene, 2,6-	606-20-2	0.360	c**	1.50	c*					4.9E-02	c*		6.7E-05	c*	
				2.0E-03	G					1	0.006		Dinitrotoluene, 2-Amino-4,6-	35572-78-2	15.000	n	230.00	n					3.9E+00	n		3.0E-03	n	
				2.0E-03	G					1	0.009		Dinitrotoluene, 4-Amino-2,6-	19406-51-0	15.000	n	230.00	n					3.9E+00	n		3.0E-03	n	
4.5E-01	X			9.0E-04	X					1	0.1		Dinitrotoluene, Technical grade	25321-14-6	1.200	c**	5.10	c*					1.0E-01	c*		1.4E-04	c*	
				1.0E-03	I					1	0.1		Dinoseb	88-85-7	6.300	n	82.00	n					1.5E+00	n	7.0E+00	1.3E-02	n	6.2E-02
1.0E-01	I	5.0E-06	I	3.0E-02	I	3.0E-02	I	V		1		1.2E+05	Dioxane, 1,4-	123-91-1	5.300	c*	24.00	c*	5.6E-01	c**	2.5E+00	c**	4.6E-01	c*		9.4E-05	c*	
													Dioxins															
6.2E+03	I	1.3E+00	I							1	0.03		~Hexachlorodibenzo-p-dioxin, Mixture	34465-46-8	0.000	c	0.00	c	2.2E-06	c	9.4E-06	c	1.3E-05	c		1.7E-05	c	
1.3E+05	C	3.8E+01	C	7.0E-10	I	4.0E-08	C	V		1	0.03		~TCDD, 2,3,7,8-	1746-01-6	0.000	c**	0.00	c**	7.4E-08	c*	3.2E-07	c*	1.2E-07	c*	3.0E-05	5.9E-08	c*	1.5E-05
				3.0E-02	I					1	0.1		Diphenamid	957-51-7	190.000	n	2500.00	n					5.3E+01	n		5.2E-01	n	
						4.0E-04	X	V		1			Diphenyl Ether	101-84-8	3.400	n	14.00	n	4.2E-02	n	1.8E-01	n	8.3E-02	n		3.4E-04	n	
				8.0E-04	X					1	0.1		Diphenyl Sulfone	127-63-9	5.100	n	66.00	n					1.5E+00	n		3.6E-03	n	
				1.0E-01	O					1	0.1		Diphenylamine	122-39-4	630.000	n	8200.00	n					1.3E+02	n		2.3E-01	n	
8.0E-01	I	2.2E-04	I							1	0.1		Diphenylhydrazine, 1,2-	122-66-7	0.680	c	2.90	c	1.3E-02	c	5.6E-02	c	7.8E-02	c		2.5E-04	c	
				2.2E-03	I					1	0.1		Diquat	85-00-7	14.000	n	180.00	n					4.4E+00	n	2.0E+01	8.3E-02	n	3.7E-01
7.1E+00	C	1.4E-01	C							1	0.1		Direct Black 38	1937-37-7	0.076	c	0.32	c	2.0E-05	c	8.8E-05	c	1.1E-02	c		5.3E+00	c	
7.4E+00	C	1.4E-01	C							1	0.1		Direct Blue 6	2602-46-2	0.073	c	0.31	c	2.0E-05	c	8.8E-05	c	1.1E-02	c		1.7E+01	c	
6.7E+00	C	1.4E-01	C							1	0.1		Direct Brown 95	16071-86-6	0.081	c	0.34	c	2.0E-05	c	8.8E-05	c	1.2E-02	c		1.6E-01	c	
				4.0E-05	I					1	0.1		Disulfoton	298-04-4	0.250	n	3.30	n					5.0E-02	n		9.4E-05	n	
				1.0E-02	I			V		1			Dithiane, 1,4-	505-29-3	78.000	n	1200.00	n					2.0E+01	n		9.7E-03	n	
				2.0E-03	I					1	0.1		Diuron	330-54-1	13.000	n	160.00	n					3.6E+00	n		1.5E-03	n	
				2.0E-02	O					1	0.1		Dodine	2439-10-3	130.000	n	1600.00	n					4.0E+01	n		2.1E-01	n	
				5.0E-02	O			V		1			EPTC	759-94-4	390.000	n	5800.00	n					7.5E+01	n		4.0E-02	n	
				6.0E-03	I			V		1			Endosulfan	115-29-7	47.000	n	700.00	n					1.0E+01	n		1.4E-01	n	
				6.0E-03	P					1	0.1		Endosulfan Sulfate	1031-07-8	38.000	n	490.00	n					1.1E+01	n		2.1E-01	n	
				2.0E-02	I					1	0.1		Endothall	145-73-3	130.000	n	1600.00	n					3.8E+01	n	1.0E+02	9.1E-03	n	2.4E-02
				3.0E-04	I					1	0.1		Endrin	72-20-8	1.900	n	25.00	n					2.3E-01	n	2.0E+00	9.2E-03	n	8.1E-02
9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V		1		1.1E+04	Epichlorohydrin	106-89-8	1.900	n	8.20	n	1.0E-01	n	4.4E-01	n	2.0E-01	n		4.5E-05	n	
						2.0E-02	I	V		1		1.5E+04	Epoxybutane, 1,2-	106-88-7	16.000	n	67.00	n	2.1E+00	n	8.8E+00	n	4.2E+00	n		9.2E-04	n	
				4.0E-02	P					1	0.1		Ethanol, 2-(2-methoxyethoxy)-	111-77-3	250.000	n	3300.00	n					8.0E+01	n		1.6E-02	n	
				5.0E-03	I					1	0.1		Ethephon	16672-87-0	32.000	n	410.00	n					1.0E+01	n		2.1E-03	n	
				5.0E-04	I					1	0.1		Ethion	563-12-2	3.200	n	41.00	n					4.3E-01	n		8.5E-04	n	
				1.0E-01	P	6.0E-02	P	V		1		2.4E+04	Ethoxyethanol Acetate, 2-	111-15-9	260.000	n	1400.00	n	6.3E+00	n	2.6E+01	n	1.2E+01	n		2.5E-03	n	
				9.0E-02	P	2.0E-01	I	V		1		1.1E+05	Ethoxyetha		520.000	n	4700.00	n	2.1E+01	n	8.8E+01	n	3.4E+01	n		6.8E-03	n	
				9.0E-01	I	7.0E-02	P	V		1		1.1E+04	Ethyl Aceta		62.000	n	260.00	n	7.3E+00	n	3.1E+01	n	1.4E+01	n		3.1E-03	n	
				5.0E-03	P	8.0E-03	P	V		1		2.5E+03	Ethyl Acryla		4.700	n	21.00	n	8.3E-01	n	3.5E+00	n	1.4E+00	n		3.2E-04	n	
						1.0E+01	I	V		1		2.1E+03	Ethyl Chlori		1400.000	n	5700.00	ns	1.0E+03	n	4.4E+03	n	2.1E+03	n		5.9E-01	n	
				2.0E-01	I			V		1		1.0E+04	Ethyl Ether		1600.000	n	23000.00	ns					3.9E+02	n		8.8E-02	n	
						3.0E-01	P	V		1		1.1E+03	Ethyl Metha		180.000	n	760.00	n	3.1E+01	n	1.3E+02	n	6.3E+01	n		1.5E-02	n	
				1.0E-05	I					1	0.1		Ethyl-p-nitro		0.063	n	0.82	n					8.9E-03	n		2.8E-04	n	
1.1E-02	C	2.5E-06	C	1.0E-01	I	1.0E+00	I	V		1		4.8E+02	Ethylbenze		5.800	c*	25.00	c*	1.1E+00	c*	4.9E+00	c*	1.5E+00	c*	7.0E+02	1.7E-03	c*	7.8E-01
				7.0E-02	P					1	0.1		Ethylene C		440.000	n	5700.00	n					1.4E+02	n		2.8E-02	n	
				9.0E-02	P			V		1		1.9E+05	Ethylene Di		700.000	n	11000.00	n					1.8E+02	n		4.1E-02	n	
				2.0E+00	I	4.0E-01	C			1	0.1		Ethylene Gl		13000.000	n	160000.00	nm	4.2E+01	n	1.8E+02	n	4.0E+03	n		8.1E-01	n	
				1.0E-01	I	1.6E+00	I			1	0.1		Ethylene Gl		630.000	n	8200.00	n	1.7E+02	n	7.0E+02	n	2.0E+02	n		4.1E-02	n	
3.1E-01	C	3.0E-03	I			3.0E-02	C	V	M	1		1.2E+05	Ethylene O		0.002	c	0.03	c	3.4E-04	c	4.1E-03	c	6.7E-04	c		1.4E-07	c	
4.5E-02	C	1.3E-05	C	8.0E-05	I					1	0.1		Ethylene Th	6-7	0.510	n	6.60	n	2.2E-01	c	9.4E-01	c	1.6E-01	n		3.6E-05	n	
6.5E+01	C	1.9E-02	C					V		1		1.5E+05	Ethyleneimi	66-4	0.003	c	0.01	c	1.5E-04	c	6.5E-04	c	2.4E-04	c		5.2E-08	c	
				3.0E+00	I					1	0.1		Ethylphthal	2-0	19000.000	n	250000.00	nm					5.8E+03	n		1.3E+01	n	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				2.5E-04	I					1	0.1		Fenamiphos	[redacted]4-92-6	1.600	n	21.00	n					4.4E-01	n		4.3E-04	n	
				2.5E-02	I					1	0.1		Fenpropathrin	39515-41-8	160.000	n	2100.00	n					6.4E+00	n		2.9E-01	n	
				2.5E-02	I					1	0.1		Fenvalerate	51630-58-1	160.000	n	2100.00	n					5.0E+01	n		3.2E+01	n	
				1.3E-02	I					1	0.1		Fluometuron	2164-17-2	82.000	n	1100.00	n					2.4E+01	n		1.9E-02	n	
				4.0E-02	C	1.3E-02	C			1			Fluoride	16984-48-8	310.000	n	4700.00	n	1.4E+00	n	5.7E+00	n	8.0E+01	n	4.0E+03	1.2E+01	n	6.0E+02
				6.0E-02	I	1.3E-02	C			1			Fluorine (Soluble Fluoride)	7782-41-4	470.000	n	7000.00	n	1.4E+00	n	5.7E+00	n	1.2E+02	n	4.0E+03	1.8E+01	n	6.0E+02
				8.0E-02	I					1	0.1		Fluridone	59756-60-4	510.000	n	6600.00	n					1.4E+02	n		1.6E+01	n	
				4.0E-02	O					1	0.1		Flurprimidol	56425-91-3	250.000	n	3300.00	n					6.9E+01	n		3.1E-01	n	
				2.0E-03	O					1	0.1		Flusilazole	85509-19-9	13.000	n	160.00	n					3.1E+00	n		5.1E-01	n	
				5.0E-01	O					1	0.1		Flutolanil	66332-96-5	3200.000	n	41000.00	n					7.9E+02	n		4.2E+00	n	
				1.0E-02	I					1	0.1		Fluvalinate	69409-94-5	63.000	n	820.00	n					2.0E+01	n		2.9E+01	n	
				9.0E-02	O					1	0.1		Folpet	133-07-3	570.000	n	7400.00	n					1.6E+02	n		3.9E-02	n	
				2.5E-03	O					1	0.1		Fomesafen	72178-02-0	16.000	n	210.00	n					4.8E+00	n		1.6E-02	n	
				2.0E-03	I					1	0.1		Fonofos	944-22-9	13.000	n	160.00	n					2.4E+00	n		4.7E-03	n	
2.1E-02	C	1.3E-05	I	2.0E-01	I	9.8E-03	A	V		1		4.2E+04	Formaldehyde	50-00-0	11.000	c**	50.00	c**	2.2E-01	c**	9.4E-01	c**	3.9E-01	c**		7.8E-05	c**	
				9.0E-01	P	3.0E-04	X	V		1		1.1E+05	Formic Acid	64-18-6	2.900	n	12.00	n	3.1E-02	n	1.3E-01	n	6.3E-02	n		1.3E-05	n	
				2.5E+00	O					1	0.1		Fosetyl-AL	39148-24-8	16000.000	n	210000.00	nm					5.0E+03	n		6.6E+01	n	
													Furans															
				1.0E-03	X			V		1	0.03		~Dibenzofuran	132-64-9	7.300	n	100.00	n					7.9E-01	n		1.5E-02	n	
				1.0E-03	I			V		1	0.03	6.2E+03	~Furan	110-00-9	7.300	n	100.00	n					1.9E+00	n		7.3E-04	n	
				9.0E-01	I	2.0E+00	I	V		1	0.03	1.7E+05	~Tetrahydrofuran	109-99-9	1800.000	n	9400.00	n	2.1E+02	n	8.8E+02	n	3.4E+02	n		7.5E-02	n	
3.8E+00	H									1	0.1		Furazolidone	67-45-8	0.140	c	0.60	c					2.0E-02	c		3.9E-05	c	
				3.0E-03	I	5.0E-02	H	V		1		1.0E+04	Furfural	98-01-1	21.000	n	260.00	n	5.2E+00	n	2.2E+01	n	3.8E+00	n		8.1E-04	n	
1.5E+00	C	4.3E-04	C							1	0.1		Furium	531-82-8	0.360	c	1.50	c	6.5E-03	c	2.9E-02	c	5.1E-02	c		6.8E-05	c	
3.0E-02	I	8.6E-06	C							1	0.1		Furmecyclox	60568-05-0	18.000	c	77.00	c	3.3E-01	c	1.4E+00	c	1.1E+00	c		1.2E-03	c	
				6.0E-03	O					1	0.1		Glufosinate, Ammonium	77182-82-2	38.000	n	490.00	n					1.2E+01	n		2.6E-03	n	
				1.0E-01	A	8.0E-05	C			1	0.1		Glutaraldehyde	111-30-8	600.000	n	7000.00	n	8.3E-03	n	3.5E-02	n	2.0E+02	n		4.0E-02	n	
				4.0E-04	I	1.0E-03	H	V		1		1.1E+05	Glycidyl	765-34-4	2.300	n	21.00	n	1.0E-01	n	4.4E-01	n	1.7E-01	n		3.3E-05	n	
				1.0E-01	I					1	0.1		Glyphosate	1071-83-6	630.000	n	8200.00	n					2.0E+02	n	7.0E+02	8.8E-01	n	3.1E+00
				1.0E-02	X			V		1			Guanidine	113-00-8	78.000	n	1200.00	n					2.0E+01	n		4.5E-03	n	
				2.0E-02	P					1	0.1		Guanidine Chloride	50-01-1	130.000	n	1600.00	n					4.0E+01	n				
				3.0E-02	X					1	0.1		Guanidine Nitrate	506-93-4	190.000	n	2500.00	n					6.0E+01	n		1.5E-02	n	
				5.0E-05	I					1	0.1		Haloxyfop, Methyl	69806-40-2	0.320	n	4.10	n					7.6E-02	n		8.4E-04	n	
4.5E+00	I	1.3E-03	I	5.0E-04	I			V		1			Heptachlor	76-44-8	0.130	c*	0.63	c*	2.2E-03	c	9.4E-03	c	1.4E-03	c*	4.0E-01	1.2E-04	c*	3.3E-02
9.1E+00	I	2.6E-03	I	1.3E-05	I			V		1			Heptachlor Epoxide	1024-57-3	0.070	c**	0.33	c**	1.1E-03	c	4.7E-03	c	1.4E-03	c**	2.0E-01	2.8E-05	c**	4.1E-03
						3.0E-03	X	V		1		2.1E+02	Heptanal, n-	111-71-7	2.400	n	10.00	n	3.1E-01	n	1.3E+00	n	6.3E-01	n		1.4E-04	n	
				3.0E-04	X	4.0E-01	P	V		1		5.8E+01	Heptane, N-	142-82-5	2.200	n	29.00	n	4.2E+01	n	1.8E+02	n	6.0E-01	n		4.8E-03	n	
				2.0E-03	I			V		1			Hexabromobenzene	87-82-1	16.000	n	230.00	n					4.0E+00	n		2.3E-02	n	
				2.0E-04	I					1	0.1		Hexabromodiphenyl ether, 2,2',4,4',5,5'- (BDE-153)	68631-49-2	1.300	n	16.00	n					4.0E-01	n				
1.6E+00	I	4.6E-04	I	8.0E-04	I			V		1			Hexachlorobenzene	118-74-1	0.210	c*	0.96	c*	6.1E-03	c	2.7E-02	c	9.8E-03	c	1.0E+00	1.2E-04	c	1.3E-02
7.8E-02	I	2.2E-05	I	1.0E-03	P			V		1		1.7E+01	Hexachlorobutadiene	87-68-3	1.200	c**	5.30	c*	1.3E-01	c	5.6E-01	c	1.4E-01	c**		2.7E-04	c**	
6.3E+00	I	1.8E-03	I	8.0E-03	A					1	0.1		Hexachlorocyclohexane, Alpha-	319-84-6	0.086	c	0.36	c	1.6E-03	c	6.8E-03	c	7.2E-03	c		4.2E-05	c	
1.8E+00	I	5.3E-04	I							1	0.1		Hexachlorocyclohexane, Beta-	319-85-7	0.300	c	1.30	c	5.3E-03	c	2.3E-02	c	2.5E-02	c		1.5E-04	c	
1.1E+00	C	3.1E-04	C	3.0E-04	I					1	0.04		Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	0.570	c**	2.50	c*	9.1E-03	c	4.0E-02	c	4.2E-02	c**	2.0E-01	2.4E-04	c**	1.2E-03
1.8E+00	I	5.1E-04	I							1	0.1		Hexachlorocyclohexane, Technical	608-73-1	0.300	c	1.30	c	5.5E-03	c	2.4E-02	c	2.5E-02	c		1.5E-04	c	
				6.0E-03	I	2.0E-04	I	V		1		1.6E+01	Hexachlorocyclopentadiene	77-47-4	0.180	n	0.75	n	2.1E-02	n	8.8E-02	n	4.1E-02	n	5.0E+01	1.3E-04	n	1.6E-01
4.0E-02	I	1.1E-05	C	7.0E-04	I	3.0E-02	I	V		1			Hexachloroethane	67-72-1	1.800	c**	8.00	c**	2.6E-01	c*	1.1E+00	c*	3.3E-01	c**		2.0E-04	c**	
				3.0E-04	I					1	0.1		Hexachlorophene	70-30-4	1.900	n	25.00	n					6.0E-01	n		8.0E-01	n	
8.0E-02	I			4.0E-03	I					1	0.015		Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	8.300	c**	38.00	c*					9.7E-01	c**		3.7E-04	c**	
						1.0E-05	I	V		1		3.4E+03	Hexamethylene Diisocyanate, 1,6-	822-06-0	0.310	n	1.30	n	1.0E-03	n	4.4E-03	n	2.1E-03	n		2.1E-05	n	
				4.0E-04	P					1	0.1		Hexamethylphosphoramide	680-31-9	2.500	n	33.00	n					8.0E-01	n		1.8E-04	n	
						7.0E-01	I	V		1		1.4E+02	Hexane, N-	110-54-3	61.000	n	250.00	ns	7.3E+01	n	3.1E+02	n	1.5E+02	n		1.0E+00	n	
				2.0E+00	P					1	0.1		Hexanedioic Acid	124-04-9	13000.000	n	160000.00	nm					4.0E+03	n		9.9E-01	n	
9.5E-03	P			7.0E-02	P	4.0E-04	P	V		1		6.5E+02	Hexanol, 1-,2-ethyl- (2-Ethyl-1-hexanol)	104-76-7	2.300	n	9.70	n	4.2E-02	n	1.8E-01	n	8.3E-02	n		3.4E-05	n	
				5.0E-03	I	3.0E-02	I	V		1		3.3E+03	Hexanone, 2-	591-78-6	20.000	n	130.00	n	3.1E+00	n	1.3E+01	n	3.8E+00	n		8.8E-04	n	
				3.3E-02	I					1	0.1		Hexazinone	[redacted]2	210.000	n	2700.00	n					6.4E+01	n		3.0E-02	n	
				2.5E-02	I					1	0.1		Hexythiazo	[redacted]0	160.000	n	2100.00	n					1.1E+01	n		5.0E-02	n	
				1.7E-02	O					1	0.1		Hydramethy	[redacted]4	110.000	n	1400.00	n					3.4E+01	n		1.2E+04	n	
3.0E+00	I	4.9E-03	I			3.0E-05	P	V		1		1.1E+05	Hydrazine		0.032	c**	0.14	c**	5.7E-04	c**	2.5E-03	c**	1.1E-03	c**		2.2E-07	c**	
3.0E+00	I	4.9E-03	I							1			Hydrazine S	[redacted]2	0.230	c	1.10	c	5.7E-04	c	2.5E-03	c	2.6E-02	c				
						2.0E-02	I	V		1			Hydrogen C		2800000.000	nm	12000000.00	nm	2.1E+00	n	8.8E+00	n	4.2E+00	n				
				4.0E-02	C	1.4E-02	C	V		1			Hydrogen F		310.000	n	4700.00	n	1.5E+00	n	6.1E+00	n	2.8E+00	n				
						2.0E-03	I	V		1			Hydrogen S		280000.000	nm	1200000.00	nm	2.1E-01	n	8.8E-01	n	4.2E-01	n				
6.0E-02	P			4.0E-02	P					1	0.1		Hydroquino		9.000	c*	38.00	c*					1.3E+00	c*		8.7E-04	c*	
6.1E-02	O			2.5E-03	O					1	0.1		Imazalil	[redacted]0	8.900	c**	38.00	c**					9.0E-01	c**		1.5E-02	c**	

[redacted] TR=1E-06

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				2.5E-01	I					1	0.1		Imazaquin	[redacted]	1600.000	n	21000.00	n					4.9E+02	n		2.4E+00	n	
				2.5E+00	O					1	0.1		Imazethapy	[redacted]	16000.000	n	210000.00	nm					4.7E+03	n		4.1E+00	n	
				1.0E-02	A					1			Iodine	[redacted]	78.000	n	1200.00	n					2.0E+01	n		1.2E+00	n	
				4.0E-02	I					1	0.1		Iprodione	[redacted]	250.000	n	3300.00	n					7.4E+01	n		2.2E-02	n	
				7.0E-01	P					1			Iron	[redacted]	5500.000	n	82000.00	n					1.4E+03	n		3.5E+01	n	
				3.0E-01	I			V		1		1.0E+04	Isobutyl Alc	[redacted]	2300.000	n	35000.00	ns					5.9E+02	n		1.2E-01	n	
9.5E-04	I			2.0E-01	I	2.0E+00	C			1	0.1		Isophorone	78-59-1	570.000	c**	2400.00	c**	2.1E+02	n	8.8E+02	n	7.8E+01	c**		2.6E-02	c**	
				1.5E-02	I			V		1			Isopropalin	33820-53-0	120.000	n	1800.00	n					4.0E+00	n		9.2E-02	n	
				2.0E+00	P	2.0E-01	P	V		1		1.1E+05	Isopropanol	67-63-0	560.000	n	2400.00	n	2.1E+01	n	8.8E+01	n	4.1E+01	n		8.4E-03	n	
				1.0E-01	I					1	0.1		Isopropyl Methyl Phosphonic Acid	1832-54-8	630.000	n	8200.00	n					2.0E+02	n		4.3E-02	n	
				5.0E-02	I					1	0.1		Isoxaben	82558-50-7	320.000	n	4100.00	n					7.3E+01	n		2.0E-01	n	
						3.0E-01	A	V		1			JP-7	E1737665	43000000.000	nm	180000000.00	nm	3.1E+01	n	1.3E+02	n	6.3E+01	n				
				8.0E-03	O					1	0.1		Lactofen	77501-63-4	51.000	n	660.00	n					1.0E+01	n		4.6E-01	n	
				2.0E-04	X					1	0.1		Lactonitrile	78-97-7	1.300	n	16.00	n					4.0E-01	n		8.1E-05	n	
				5.0E-05	P					1			Lanthanum	7439-91-0	0.390	n	5.80	n					1.0E-01	n				
				2.1E-05	P					1	0.1		Lanthanum Acetate Hydrate	100587-90-4	0.130	n	1.70	n					4.2E-02	n				
				1.9E-05	P					1			Lanthanum Chloride Heptahydrate	10025-84-0	0.150	n	2.20	n					3.7E-02	n				
				2.8E-05	P					1			Lanthanum Chloride, Anhydrous	10099-58-8	0.220	n	3.30	n					5.7E-02	n				
				1.6E-05	P					1			Lanthanum Nitrate Hexahydrate	10277-43-7	0.130	n	1.90	n					3.2E-02	n				
													Lead Compounds															
8.5E-03	C	1.2E-05	C							1			~Lead Phosphate	7446-27-7	82.000	c	380.00	c	2.3E-01	c	1.0E+00	c	9.1E+00	c				
8.5E-03	C	1.2E-05	C							1	0.1		~Lead acetate	301-04-2	64.000	c	270.00	c	2.3E-01	c	1.0E+00	c	9.2E+00	c		1.8E-03	c	
										1			~Lead and Compounds	7439-92-1	400.000	G	800.00	G	1.5E-01	G			1.5E+01	G	1.5E+01			1.4E+01
8.5E-03	C	1.2E-05	C							1	0.1		~Lead subacetate	1335-32-6	64.000	c	270.00	c	2.3E-01	c	1.0E+00	c	9.2E+00	c		2.0E-03	c	
				1.0E-07	I			V		1		2.4E+00	~Tetraethyl Lead	78-00-2	0.001	n	0.01	n					1.3E-04	n		4.7E-07	n	
				5.0E-06	P			V		1		3.8E+02	Lewisite	541-25-3	0.039	n	0.58	n					9.0E-03	n		3.8E-06	n	
				7.7E-03	O					1	0.1		Linuron	330-55-2	49.000	n	630.00	n					1.3E+01	n		1.1E-02	n	
				2.0E-03	P					1			Lithium	7439-93-2	16.000	n	230.00	n					4.0E+00	n		1.2E+00	n	
				5.0E-04	I					1	0.1		MCPA	94-74-6	3.200	n	41.00	n					7.5E-01	n		2.0E-04	n	
				4.4E-03	O					1	0.1		MCPB	94-81-5	28.000	n	360.00	n					6.5E+00	n		2.6E-03	n	
				1.0E-03	I					1	0.1		MCPP	93-65-2	6.300	n	82.00	n					1.6E+00	n		4.7E-04	n	
				2.0E-02	I					1	0.1		Malathion	121-75-5	130.000	n	1600.00	n					3.9E+01	n		1.0E-02	n	
				1.0E-01	I	7.0E-04	C			1	0.1		Maleic Anhydride	108-31-6	630.000	n	8000.00	n	7.3E-02	n	3.1E-01	n	1.9E+02	n		3.8E-02	n	
				5.0E-01	I					1	0.1		Maleic Hydrazide	123-33-1	3200.000	n	41000.00	n					1.0E+03	n		2.1E-01	n	
				1.0E-04	P					1	0.1		Malononitrile	109-77-3	0.630	n	8.20	n					2.0E-01	n		4.1E-05	n	
				3.0E-02	H					1	0.1		Mancozeb	8018-01-7	190.000	n	2500.00	n					5.4E+01	n		7.6E-02	n	
				5.0E-03	I					1	0.1		Maneb	12427-38-2	32.000	n	410.00	n					9.8E+00	n		1.4E-02	n	
				1.4E-01	I	5.0E-05	I			1			Manganese (Diet)	7439-96-5														
				2.4E-02	G	5.0E-05	I			0.04			Manganese (Non-diet)	7439-96-5	180.000	n	2600.00	n	5.2E-03	n	2.2E-02	n	4.3E+01	n		2.8E+00	n	
				9.0E-05	H					1	0.1		Mephosfolan	950-10-7	0.570	n	7.40	n					1.8E-01	n		2.6E-04	n	
				3.0E-02	I					1	0.1		Mepiquat Chloride	24307-26-4	190.000	n	2500.00	n					6.0E+01	n		2.0E-02	n	
1.1E-02	P			4.0E-03	P					1	0.1		Mercaptobenzothiazole, 2-	149-30-4	25.000	n	210.00	c**					6.3E+00	c**		1.8E-02	c**	
													Mercury Compounds															
				3.0E-04	I	3.0E-04	G			0.07			~Mercuric Chloride (and other Mercury salts)	7487-94-7	2.300	n	35.00	n	3.1E-02	n	1.3E-01	n	5.7E-01	n	2.0E+00			
						3.0E-04	I	V		1		3.1E+00	~Mercury (elemental)	7439-97-6	1.100	n	4.60	ns	3.1E-02	n	1.3E-01	n	6.3E-02	n	2.0E+00	3.3E-03	n	1.0E-01
				1.0E-04	I					1			~Methyl Mercury	22967-92-6	0.780	n	12.00	n					2.0E-01	n		1.4E+00	n	
				8.0E-05	I					1	0.1		~Phenylmercuric Acetate	62-38-4	0.510	n	6.60	n					1.6E-01	n		5.0E-05	n	
				3.0E-05	I			V		1			Merphos	150-50-5	0.230	n	3.50	n					6.0E-02	n		5.9E-03	n	
				1.0E-04	O					1	0.1		Merphos Oxide	78-48-8	0.630	n	8.20	n					2.8E-02	n		1.4E-04	n	
				6.0E-02	I					1	0.1		Metalaxyl	57837-19-1	380.000	n	4900.00	n					1.2E+02	n		3.3E-02	n	
				1.0E-04	I	3.0E-02	P	V		1		4.6E+03	Methacrylonitrile	126-98-7	0.750	n	10.00	n	3.1E+00	n	1.3E+01	n	1.9E-01	n		4.3E-05	n	
				5.0E-05	I					1	0.1		Methamidophos	10265-92-6	0.320	n	4.10	n					1.0E-01	n		2.1E-05	n	
				2.0E+00	I	2.0E+01	I	V		1		1.1E+05	Methanol	67-56-1	12000.000	n	120000.00	nms	2.1E+03	n	8.8E+03	n	2.0E+03	n		4.1E-01	n	
				1.5E-03	O					1	0.1		Methidathion	950-37-8	9.500	n	120.00	n					2.9E+00	n		7.1E-04	n	
				2.5E-02	I					1	0.1		Methomyl	16752-77-5	160.000	n	2100.00	n					5.0E+01	n		1.1E-02	n	
4.9E-02	C	1.4E-05	C							1	0.1		Methoxy-5-nitroaniline, 2-	99-59-2	11.000	c	47.00	c	2.0E-01	c	8.8E-01	c	1.5E+00	c		5.3E-04	c	
				5.0E-03	I					1	0.1		Methoxychlor	72-43-5	32.000	n	410.00	n					3.7E+00	n	4.0E+01	2.0E-01	n	2.2E+00
				8.0E-03	P	1.0E-03	P	V		1		1.2E+05	Methoxyethanol Acetate, 2-	110-49-6	11.000	n	51.00	n	1.0E-01	n	4.4E-01	n	2.1E-01	n		4.2E-05	n	
				5.0E-03	P	2.0E-02	I	V		1		1.1E+05	Methoxyethanol, 2-	109-86-4	33.000	n	350.00	n	2.1E+00	n	8.8E+00	n	2.9E+00	n		5.9E-04	n	
				1.0E+00	X			V		1		2.9E+04	Methyl Acetate	79-20-9	7800.000	n	120000.00	nms					2.0E+03	n		4.1E-01	n	
						2.0E-02	P	V		1		6.8E+03	Methyl Acrylate	96-33-3	15.000	n	61.00	n	2.1E+00	n	8.8E+00	n	4.2E+00	n		8.9E-04	n	
				6.0E-01	I	5.0E+00	I	V		1		2.8E+04	Methyl Ethy	[redacted]	2700.000	n	19000.00	n	5.2E+02	n	2.2E+03	n	5.6E+02	n		1.2E-01	n	
		1.0E-03	X	1.0E-03	P	2.0E-05	X	V		1		1.8E+05	Methyl Hydr	[redacted]	0.100	n	0.44	n	2.1E-03	n	8.8E-03	n	4.2E-03	n		9.4E-07	n	
						3.0E+00	I	V		1		3.4E+03	Methyl Isob	[redacted]	3300.000	n	14000.00	ns	3.1E+02	n	1.3E+03	n	6.3E+02	n		1.4E-01	n	
						1.0E-03	C	V		1		1.0E+04	Methyl Isoc	[redacted]	0.460	n	1.90	n	1.0E-01	n	4.4E-01	n	2.1E-01	n		5.9E-05	n	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	volatile	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				1.4E+00	I	7.0E-01	I	V		1		2.4E+03	Methyl Meth		440.000	n	1900.00	n	7.3E+01	n	3.1E+02	n	1.4E+02	n		3.0E-02	n	
				2.5E-04	I					1	0.1		Methyl Para		1.600	n	21.00	n					4.5E-01	n		7.4E-04	n	
				6.0E-02	X					1	0.1		Methyl Pho		380.000	n	4900.00	n					1.2E+02	n		2.4E-02	n	
				6.0E-03	H	4.0E-02	H	V		1		3.9E+02	Methyl Styr		32.000	n	260.00	n	4.2E+00	n	1.8E+01	n	2.3E+00	n		3.8E-03	n	
9.9E-02	C	2.8E-05	C							1	0.1		Methyl meth		5.500	c	23.00	c	1.0E-01	c	4.4E-01	c	7.9E-01	c		1.6E-04	c	
1.8E-03	C	2.6E-07	C			3.0E+00	I	V		1		8.9E+03	Methyl tert-		47.000	c*	210.00	c*	1.1E+01	c*	4.7E+01	c*	1.4E+01	c*		3.2E-03	c*	
				3.0E-04	X					1	0.1		Methyl-1,4-		1.900	n	25.00	n					6.0E-01	n		3.6E-04	n	
						3.0E+00	X	V		1		2.5E+03	Methyl-2-Pe		5400.000	ns	23000.00	ns	3.1E+02	n	1.3E+03	n	6.3E+02	n		1.4E-01	n	
9.0E-03	P			2.0E-02	X					1	0.1		Methyl-5-Ni		60.000	c**	260.00	c**					8.2E+00	c**		4.6E-03	c**	
8.3E+00	C	2.4E-03	C							1	0.1		Methyl-N-ni		0.065	c	0.28	c	1.2E-03	c	5.1E-03	c	9.4E-03	c		3.2E-06	c	
1.3E-01	C	3.7E-05	C							1	0.1		Methylaniliri		4.200	c	18.00	c	7.6E-02	c	3.3E-01	c	6.0E-01	c		2.6E-04	c	
				1.0E-02	A					1	0.1		Methylarsor		63.000	n	820.00	n					2.0E+01	n		5.8E-03	n	
				2.0E-04	X					1	0.1		Methylbenzene,1-4-diamine monohydrochlonde, 2-	74612-12-7	1.300	n	16.00	n					4.0E-01	n				
1.0E-01	X			3.0E-04	X					1	0.1		Methylbenzene-1,4-diamine sulfate, 2-	615-50-9	1.900	n	23.00	c**					6.0E-01	n				
2.2E+01	C	6.3E-03	C						M	1	0.1		Methylcholanthrene, 3-	56-49-5	0.006	c	0.10	c	1.6E-04	c	1.9E-03	c	1.1E-03	c		2.2E-03	c	
2.0E-03	I	1.0E-08	I	6.0E-03	I	6.0E-01	I	V	M	1		3.3E+03	Methylene Chloride	75-09-2	35.000	n	320.00	n	6.3E+01	n	2.6E+02	n	1.1E+01	n	5.0E+00	2.7E-03	n	1.3E-03
1.0E-01	P	4.3E-04	C	2.0E-03	P				M	1	0.1		Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	1.200	c*	23.00	c**	2.4E-03	c	2.9E-02	c	1.6E-01	c*		1.8E-03	c*	
4.6E-02	I	1.3E-05	C							1	0.1		Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	12.000	c	50.00	c	2.2E-01	c	9.4E-01	c	7.0E-01	c		3.9E-03	c	
1.6E+00	C	4.6E-04	C			2.0E-02	C			1	0.1		Methylenebisbenzenamine, 4,4'-	101-77-9	0.340	c	1.40	c	6.1E-03	c	2.7E-02	c	4.7E-02	c		2.1E-04	c	
						6.0E-04	I			1	0.1		Methylenediphenyl Diisocyanate	101-68-8	85000.000	n	360000.00	nm	6.3E-02	n	2.6E-01	n						
				7.0E-02	H			V		1		5.0E+02	Methylstyrene, Alpha-	98-83-9	550.000	ns	8200.00	ns					7.8E+01	n		1.2E-01	n	
				1.5E-01	I					1	0.1		Metolachlor	51218-45-2	950.000	n	12000.00	n					2.7E+02	n		3.2E-01	n	
				2.5E-02	I					1	0.1		Metribuzin	21087-64-9	160.000	n	2100.00	n					4.9E+01	n		1.5E-02	n	
				2.5E-01	I					1	0.1		Metsulfuron-methyl	74223-64-6	1600.000	n	21000.00	n					4.9E+02	n		1.9E-01	n	
				3.0E+00	P			V		1		3.4E-01	Mineral oils	8012-95-1	23000.000	ns	350000.00	nms					6.0E+03	n		2.4E+02	n	
1.8E+01	C	5.1E-03	C	2.0E-04	I			V		1			Mirex	2385-85-5	0.036	c*	0.17	c	5.5E-04	c	2.4E-03	c	8.8E-04	c		6.3E-04	c	
				2.0E-03	I					1	0.1		Molinate	2212-67-1	13.000	n	160.00	n					3.0E+00	n		1.7E-03	n	
				5.0E-03	I					1			Molybdenum	7439-98-7	39.000	n	580.00	n					1.0E+01	n		2.0E-01	n	
				1.0E-01	I					1			Monochloramine	10599-90-3	780.000	n	12000.00	n					2.0E+02	n	4.0E+03(G)			
				2.0E-03	P					1	0.1		Monomethylaniline	100-61-8	13.000	n	160.00	n					3.8E+00	n		1.4E-03	n	
				2.5E-02	I					1	0.1		Myclobutanil	88671-89-0	160.000	n	2100.00	n					4.5E+01	n		5.6E-01	n	
				3.0E-04	X					1	0.1		N,N'-Diphenyl-1,4-benzenediamine	74-31-7	1.900	n	25.00	n					3.6E-01	n		3.7E-02	n	
				2.0E-03	I			V		1			Naled	300-76-5	16.000	n	230.00	n					4.0E+00	n		1.8E-03	n	
				3.0E-02	X	1.0E-01	P	V		1			Naphtha, High Flash Aromatic (HFAN)	64742-95-6	230.000	n	3500.00	n	1.0E+01	n	4.4E+01	n	1.5E+01	n				
1.8E+00	C	0.0E+00	C							1	0.1		Naphthylamine, 2-	91-59-8	0.300	c	1.30	c					3.9E-02	c		2.0E-04	c	
				1.2E-01	O					1	0.1		Napropamide	15299-99-7	760.000	n	9800.00	n					2.0E+02	n		1.3E+00	n	
		2.6E-04	C	1.1E-02	C	1.4E-05	C			1	0.1		Nickel Acetate	373-02-4	67.000	n	810.00	n	1.5E-03	n	6.1E-03	n	2.2E+01	n		4.5E-03	n	
		2.6E-04	C	1.1E-02	C	1.4E-05	C			1	0.1		Nickel Carbonate	3333-67-3	67.000	n	810.00	n	1.5E-03	n	6.1E-03	n	2.2E+01	n				
		2.6E-04	C	1.1E-02	C	1.4E-05	C	V		1			Nickel Carbonyl	13463-39-3	82.000	n	1100.00	n	1.5E-03	n	6.1E-03	n	2.9E-03	n				
		2.6E-04	C	1.1E-02	C	1.4E-05	C			0.04			Nickel Hydroxide	12054-48-7	82.000	n	1100.00	n	1.5E-03	n	6.1E-03	n	2.0E+01	n				
		2.6E-04	C	1.1E-02	C	2.0E-05	C			0.04			Nickel Oxide	1313-99-1	84.000	n	1200.00	n	2.1E-03	n	8.8E-03	n	2.0E+01	n				
		2.4E-04	I	1.1E-02	C	1.4E-05	C			0.04			Nickel Refinery Dust	E715532	82.000	n	1100.00	n	1.5E-03	n	6.1E-03	n	2.2E+01	n		3.2E+00	n	
		2.6E-04	C	2.0E-02	I	9.0E-05	A			0.04			Nickel Soluble Salts	7440-02-0	150.000	n	2200.00	n	9.4E-03	n	3.9E-02	n	3.9E+01	n		2.6E+00	n	
1.7E+00	C	4.8E-04	I	1.1E-02	C	1.4E-05	C			0.04			Nickel Subsulfide	12035-72-2	0.410	c	1.90	c	1.5E-03	n	6.1E-03	n	4.5E-02	c				
		2.6E-04	C	1.1E-02	C	1.4E-05	C			1	0.1		Nickelocene	1271-28-9	67.000	n	810.00	n	1.5E-03	n	6.1E-03	n	2.2E+01	n				
				1.6E+00	I					1			Nitrate (measured as nitrogen)	14797-55-8	13000.000	n	190000.00	nm					3.2E+03	n	1.0E+04			
										1			Nitrate + Nitrite (measured as nitrogen)	E701177											1.0E+04			
				1.0E-01	I					1			Nitrite (measured as nitrogen)	14797-65-0	780.000	n	12000.00	n					2.0E+02	n	1.0E+03			
				1.0E-02	X	5.0E-05	X			1	0.1		Nitroaniline, 2-	88-74-4	63.000	n	800.00	n	5.2E-03	n	2.2E-02	n	1.9E+01	n		8.0E-03	n	
2.0E-02	P			4.0E-03	P	6.0E-03	P			1	0.1		Nitroaniline, 4-	100-01-6	25.000	n	110.00	c**	6.3E-01	n	2.6E+00	n	3.8E+00	c**		1.6E-03	c**	
		4.0E-05	I	2.0E-03	I	9.0E-03	I	V		1		3.1E+03	Nitrobenzene	98-95-3	5.100	c**	22.00	c**	7.0E-02	c*	3.1E-01	c*	1.4E-01	c**		9.2E-05	c**	
				3.0E+03	P					1	0.1		Nitrocellulose	9004-70-0	19000000.000	nm	250000000.00	nm					6.0E+06	n		1.3E+03	n	
				7.0E-02	H					1	0.1		Nitrofurantoin	67-20-9	440.000	n	5700.00	n					1.4E+02	n		6.1E-02	n	
1.3E+00	C	3.7E-04	C							1	0.1		Nitrofurazone	59-87-0	0.420	c	1.80	c	7.6E-03	c	3.3E-02	c	6.0E-02	c		5.4E-05	c	
1.7E-02	P			1.0E-04	P					1	0.1		Nitroglycerin	55-63-0	0.630	n	8.20	n					2.0E-01	n		8.5E-05	n	
				1.0E-01	I					1	0.1		Nitroguanidine	556-88-7	630.000	n	8200.00	n					2.0E+02	n		4.8E-02	n	
		8.8E-06	P			5.0E-03	P	V		1		1.8E+04	Nitromethane	75-52-5	5.400	c**	24.00	c**	3.2E-01	c**	1.4E+00	c**	6.4E-01	c**		1.4E-04	c**	
		5.8E-04	X			2.0E-02	I	V		1		4.9E+03	Nitropropane, 2-	79-46-9	0.064	c	0.28	c	4.8E-03	c	2.1E-02	c	9.7E-03	c		2.5E-06	c	
2.7E+01	C	7.7E-03	C						M	1	0.1		Nitroso-N-ethylurea, N-	759-73-9	0.005	c	0.09	c	1.3E-04	c	1.6E-03	c	9.2E-04	c		2.2E-07	c	
1.2E+02	C	3.4E-02	C						M	1	0.1		Nitroso-N-methylurea, N-	684-93-5	0.001	c	0.02	c	3.0E-05	c	3.6E-04	c	2.1E-04	c		4.6E-08	c	
5.4E+00	I	1.6E-03	I					V		1			Nitroso-di-N-butylamine, N-	924-16-3	0.099	c	0.46	c	1.8E-03	c	7.7E-03	c	2.7E-03	c		5.5E-06	c	
7.0E+00	I	2.0E-03	C							1	0.1		Nitroso-di-N-propylamine, N-	621-64-7	0.078	c	0.33	c	1.4E-03	c	6.1E-03	c	1.1E-02	c		8.1E-06	c	
2.8E+00	I	8.0E-04	C							1	0.1		Nitrosodiethanolamine, N-	1116-54-7	0.190	c	0.82	c	3.5E-03	c	1.5E-02	c	2.8E-02	c		5.6E-06	c	
1.5E+02	I	4.3E-02	I						M	1	0.1		Nitrosodiethylamine, N-	55-18-5	0.001	c	0.02	c	2.4E-05	c	2.9E-04	c	1.7E-04	c		6.1E-08	c	
5.1E+01	I	1.4E-02	I	8.0E-06	P	4.0E-05	X	V	M	1		2.4E+05	Nitrosodimethylamine, N-	62-75-9	0.002	c*	0.03	c*	7.2E-05	c*	8.8E-04	c*	1.1E-04	c*		2.7E-08	c*	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
4.9E-03	I	2.6E-06	C							1	0.1		Nitrosodiphenylamine, N-	86-30-6	110.000	c	470.00	c	1.1E+00	c	4.7E+00	c	1.2E+01	c		6.7E-02	c	
2.2E+01	I	6.3E-03	C					V		1		1.1E+05	Nitrosomethylethylamine, N-	10595-95-6	0.020	c	0.09	c	4.5E-04	c	1.9E-03	c	7.1E-04	c		2.0E-07	c	
6.7E+00	C	1.9E-03	C							1	0.1		Nitrosomorph[illegible]	[illegible]	0.081	c	0.34	c	1.5E-03	c	6.5E-03	c	1.2E-02	c		2.8E-06	c	
9.4E+00	C	2.7E-03	C							1	0.1		Nitrosopipe[illegible]		0.058	c	0.24	c	1.0E-03	c	4.5E-03	c	8.2E-03	c		4.4E-06	c	
2.1E+00	I	6.1E-04	I							1	0.1		Nitrosopyrr[illegible]		0.260	c	1.10	c	4.6E-03	c	2.0E-02	c	3.7E-02	c		1.4E-05	c	
				1.0E-04	X					1	0.1		Nitrotoluene		0.630	n	8.20	n					1.7E-01	n		1.6E-04	n	
2.2E-01	P			9.0E-04	P			V		1		1.5E+03	Nitrotoluene		3.200	c**	15.00	c**					3.1E-01	c**		3.0E-04	c**	
1.6E-02	P			4.0E-03	P					1	0.1		Nitrotoluene		25.000	n	140.00	c**					4.3E+00	c**		4.0E-03	c**	
				3.0E-04	X	2.0E-02	P	V		1		6.9E+00	Nonane, n-		1.100	n	7.20	ns	2.1E+00	n	8.8E+00	n	5.3E-01	n		7.5E-03	n	
				1.5E-02	O					1	0.1		Norflurazon	[illegible]2	95.000	n	1200.00	n					2.9E+01	n		1.9E-01	n	
				3.0E-03	I					1	0.1		Octabromo[illegible]	[illegible]0	19.000	n	250.00	n					6.0E+00	n		1.2E+00	n	
				5.0E-02	I					1	0.006		Octahydro-		390.000	n	5700.00	n					1.0E+02	n		1.3E-01	n	
				2.0E-03	H					1	0.1		Octamethyl		13.000	n	160.00	n					4.0E+00	n		9.6E-04	n	
7.8E-03	O			1.4E-01	O					1	0.1		Oryzalin	[illegible]3	70.000	c*	290.00	c*					7.9E+00	c*		1.5E-02	c*	
				5.0E-03	I					1	0.1		Oxadiazon	[illegible]9	32.000	n	410.00	n					4.7E+00	n		4.8E-02	n	
				2.5E-02	I					1	0.1		Oxamyl	[illegible]5-22-0	160.000	n	2100.00	n					5.0E+01	n	2.0E+02	1.1E-02	n	4.4E-02
7.3E-02	O			3.0E-02	O					1	0.1		Oxyfluorfen	[illegible]4-03-3	7.400	c*	31.00	c*					5.4E-01	c*		4.3E-02	c*	
				1.3E-02	I					1	0.1		Paclobutraz[illegible]	[illegible]8-62-0	82.000	n	1100.00	n					2.3E+01	n		4.6E-02	n	
				4.5E-03	I					1	0.1		Paraquat D[illegible]	[illegible]42-5	28.000	n	370.00	n					9.0E+00	n		1.2E-01	n	
				6.0E-03	H					1	0.1		Parathion	56-38-2	38.000	n	490.00	n					8.6E+00	n		4.3E-02	n	
				5.0E-02	H			V		1			Pebulate	1114-71-2	390.000	n	5800.00	n					5.6E+01	n		4.5E-02	n	
				3.0E-01	O					1	0.1		Pendimethalin	40487-42-1	1900.000	n	25000.00	n					1.4E+02	n		1.6E+00	n	
				2.0E-03	I			V		1		3.1E-01	Pentabromodiphenyl Ether	32534-81-9	16.000	ns	230.00	ns					4.0E+00	n		1.7E-01	n	
				1.0E-04	I					1	0.1		Pentabromodiphenyl ether, 2,2',4,4',5- (BDE-99)	60348-60-9	0.630	n	8.20	n					2.0E-01	n		8.7E-03	n	
				8.0E-04	I			V		1			Pentachlorobenzene	608-93-5	6.300	n	93.00	n					3.2E-01	n		2.4E-03	n	
9.0E-02	P							V		1		4.6E+02	Pentachloroethane	76-01-7	7.700	c	36.00	c					6.5E-01	c		3.1E-04	c	
2.6E-01	H			3.0E-03	I			V		1			Pentachloronitrobenzene	82-68-8	2.700	c**	13.00	c*					1.2E-01	c*		1.5E-03	c*	
4.0E-01	I	5.1E-06	C	5.0E-03	I					1	0.25		Pentachlorophenol	87-86-5	1.000	c*	4.00	c*	5.5E-01	c	2.4E+00	c	4.1E-02	c*	1.0E+00	5.7E-05	c*	1.4E-03
4.0E-03	X			2.0E-03	P					1	0.1		Pentaerythritol tetranitrate (PETN)	78-11-5	13.000	n	160.00	n					3.9E+00	n		5.8E-03	n	
						1.0E+00	P	V		1		3.9E+02	Pentane, n-	109-66-0	81.000	n	340.00	n	1.0E+02	n	4.4E+02	n	2.1E+02	n		1.0E+00	n	
													Perchlorates																
				7.0E-04	I					1			~Ammonium Perchlorate	7790-98-9	5.500	n	82.00	n					1.4E+00	n				
				7.0E-04	I					1			~Lithium Perchlorate	7791-03-9	5.500	n	82.00	n					1.4E+00	n				
				7.0E-04	I					1			~Perchlorate and Perchlorate Salts	14797-73-0	5.500	n	82.00	n					1.4E+00	n	1.5E+01(G)			
				7.0E-04	I					1			~Potassium Perchlorate	7778-74-7	5.500	n	82.00	n					1.4E+00	n				
				7.0E-04	I					1			~Sodium Perchlorate	7601-89-0	5.500	n	82.00	n					1.4E+00	n				
				2.0E-02	P					1	0.1		Perfluorobutane sulfonic acid (PFBS)	375-73-5	130.000	n	1600.00	n					4.0E+01	n		1.3E-02	n	
				2.0E-02	P					1	0.1		Perfluorobutanesulfonate	45187-15-3	130.000	n	1600.00	n					4.0E+01	n		1.3E-02	n	
				5.0E-02	I					1	0.1		Permethrin	52645-53-1	320.000	n	4100.00	n					1.0E+02	n		2.4E+01	n	
2.2E-03	C	6.3E-07	C							1	0.1		Phenacetin	62-44-2	250.000	c	1000.00	c	4.5E+00	c	1.9E+01	c	3.4E+01	c		9.7E-03	c	
				2.4E-01	O					1	0.1		Phenmedipham	13684-63-4	1500.000	n	20000.00	n					3.8E+02	n		2.1E+00	n	
				3.0E-01	I	2.0E-01	C			1	0.1		Phenol	108-95-2	1900.000	n	25000.00	n	2.1E+01	n	8.8E+01	n	5.8E+02	n		3.3E-01	n	
				4.0E-03	I					1	0.1		Phenol, 2-(1-methylethoxy)-, methylcarbamate	114-26-1	25.000	n	330.00	n					7.8E+00	n		2.5E-03	n	
				5.0E-04	X					1	0.1		Phenothiazine	92-84-2	3.200	n	41.00	n					4.3E-01	n		1.4E-03	n	
				2.0E-04	X			V		1		1.3E+02	Phenyl Isothiocyanate	103-72-0	1.600	n	23.00	n					2.6E-01	n		1.7E-04	n	
				6.0E-03	I					1	0.1		Phenylenediamine, m-	108-45-2	38.000	n	490.00	n					1.2E+01	n		3.2E-03	n	
1.2E-01	P			4.0E-03	P					1	0.1		Phenylenediamine, o-	95-54-5	4.500	c**	19.00	c*					6.5E-01	c*		1.7E-04	c*	
				1.0E-03	X					1	0.1		Phenylenediamine, p-	106-50-3	6.300	n	82.00	n					2.0E+00	n		5.4E-04	n	
1.9E-03	H									1	0.1		Phenylphenol, 2-	90-43-7	280.000	c	1200.00	c					3.0E+01	c		4.1E-01	c	
				2.0E-04	H					1	0.1		Phorate	298-02-2	1.300	n	16.00	n					3.0E-01	n		3.4E-04	n	
						3.0E-04	I	V		1		1.6E+03	Phosgene	75-44-5	0.031	n	0.13	n	3.1E-02	n	1.3E-01	n	6.3E-02	n		1.6E-05	n	
				2.0E-02	I					1	0.1		Phosmet	732-11-6	130.000	n	1600.00	n					3.7E+01	n		8.2E-03	n	
													Phosphates, Inorganic																
				4.9E+01	P					1			~Aluminum metaphosphate	13776-88-0	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Ammonium polyphosphate	68333-79-9	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Calcium pyrophosphate	7790-76-3	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Diammonium phosphate	7783-28-0	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Dicalcium phosphate	7757-93-9	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Dimagnesium phosphate	7782-75-4	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Dipotassium phosphate	7758-11-4	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Disodium phosphate	7558-79-4	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Monoaluminum phosphate	13530-50-2	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Monoammonium phosphate	7722-76-1	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Monocalcium phosphate	7758-23-8	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Monomagnesium phosphate	7757-86-0	380000.000	nm	5700000.00	nm					9.7E+04	n				

TR=1E-06

THQ=0.1

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				4.9E+01	P					1			~Monopotassium phosphate	7778-77-0	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Monosodium phosphate	7558-80-7	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Polyphosphoric acid	8017-16-1	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Potassium tripolyphosphate	13845-36-8	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium acid pyrophosphate	7758-16-9	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium aluminum phosphate (acidic)	7785-88-8	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium aluminum phosphate (anhydrous)	10279-59-1	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium aluminum phosphate (tetrahydrate)	10305-76-7	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium he	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium p	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium tri	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Sodium tri	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Tetrapota	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Tetrasodiu	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Trialuminu	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Tricalcium	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Trimagnes	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Tripotassi	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				4.9E+01	P					1			~Trisodium	[illegible]	380000.000	nm	5700000.00	nm					9.7E+04	n				
				3.0E-04	I	3.0E-04	I	V		1			Phosphine	[illegible]	2.300	n	35.00	n	3.1E-02	n	1.3E-01	n	5.7E-02	n				
				4.9E+01	P	1.0E-02	I			1			Phosphoric	[illegible]	300000.000	nm	2900000.00	nm	1.0E+00	n	4.4E+00	n	9.7E+04	n				
				2.0E-05	I			V		1			Phosphorus	[illegible]-14-0	0.160	n	2.30	n					4.0E-02	n		1.5E-04	n	
													Phthalates																
1.4E-02	I	2.4E-06	C	2.0E-02	I					1	0.1		~Bis(2-ethy	[illegible]1-7	39.000	c**	160.00	c*	1.2E+00	c	5.1E+00	c	5.6E+00	c**	6.0E+00	1.3E+00	c**	1.4E+00
1.9E-03	P			2.0E-01	I					1	0.1		~Butyl Ben	[illegible]8-7	290.000	c**	1200.00	c*					1.6E+01	c*		2.4E-01	c*	
				1.0E+00	I					1	0.1		~Butylphthalyl Butylglycolate	85-70-1	6300.000	n	82000.00	n					1.3E+03	n		3.1E+01	n	
				1.0E-01	I					1	0.1		~Dibutyl Phthalate	84-74-2	630.000	n	8200.00	n					9.0E+01	n		2.3E-01	n	
				8.0E-01	I					1	0.1		~Diethyl Phthalate	84-66-2	5100.000	n	66000.00	n					1.5E+03	n		6.1E-01	n	
				1.0E-01	I			V		1			~Dimethylterephthalate	120-61-6	780.000	n	12000.00	n					1.9E+02	n		4.9E-02	n	
				1.0E-02	P					1	0.1		~Octyl Phthalate, di-N-	117-84-0	63.000	n	820.00	n					2.0E+01	n		5.7E+00	n	
				1.0E+00	H					1	0.1		~Phthalic Acid, P-	100-21-0	6300.000	n	82000.00	n					1.9E+03	n		6.8E-01	n	
				2.0E+00	I	2.0E-02	C			1	0.1		~Phthalic Anhydride	85-44-9	13000.000	n	160000.00	nm	2.1E+00	n	8.8E+00	n	3.9E+03	n		8.5E-01	n	
				7.0E-02	I					1	0.1		Picloram	1918-02-1	440.000	n	5700.00	n					1.4E+02	n	5.0E+02	3.8E-02	n	1.4E-01
				1.0E-04	X					1	0.1		Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3	0.630	n	8.20	n					2.0E-01	n		1.3E-04	n	
				9.0E-04	X					1	0.1		Picric Acid (2,4,6-Trinitrophenol)	88-89-1	5.700	n	74.00	n					1.8E+00	n		8.4E-03	n	
				7.0E-05	O					1	0.1		Pirimiphos, Methyl	29232-93-7	0.440	n	5.70	n					8.5E-02	n		8.1E-05	n	
3.0E+01	C	8.6E-03	C	7.0E-06	H					1	0.1		Polybrominated Biphenyls	59536-65-1	0.018	c**	0.08	c**	3.3E-04	c	1.4E-03	c	2.6E-03	c**				
													Polychlorinated Biphenyls (PCBs)															
7.0E-02	G	2.0E-05	G	7.0E-05	I			V		1	0.14		~Aroclor 1016	12674-11-2	0.410	n	5.10	n	1.4E-01	c	6.1E-01	c	1.4E-01	n		1.3E-02	n	
2.0E+00	G	5.7E-04	G					V		1	0.14		~Aroclor 1221	11104-28-2	0.200	c	0.83	c	4.9E-03	c	2.1E-02	c	4.7E-03	c		8.0E-05	c	
2.0E+00	G	5.7E-04	G					V		1	0.14		~Aroclor 1232	11141-16-5	0.170	c	0.72	c	4.9E-03	c	2.1E-02	c	4.7E-03	c		8.0E-05	c	
2.0E+00	G	5.7E-04	G					V		1	0.14		~Aroclor 1242	53469-21-9	0.230	c	0.95	c	4.9E-03	c	2.1E-02	c	7.8E-03	c		1.2E-03	c	
2.0E+00	G	5.7E-04	G					V		1	0.14		~Aroclor 1248	12672-29-6	0.230	c	0.94	c	4.9E-03	c	2.1E-02	c	7.8E-03	c		1.2E-03	c	
2.0E+00	G	5.7E-04	G	2.0E-05	I			V		1	0.14		~Aroclor 1254	11097-69-1	0.120	n	0.97	c**	4.9E-03	c	2.1E-02	c	7.8E-03	c**		2.0E-03	c**	
2.0E+00	G	5.7E-04	G					V		1	0.14		~Aroclor 1260	11096-82-5	0.240	c	0.99	c	4.9E-03	c	2.1E-02	c	7.8E-03	c		5.5E-03	c	
				6.0E-04	X			V		1	0.14		~Aroclor 5460	11126-42-4	3.500	n	44.00	n					1.2E+00	n		2.0E-01	n	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	0.130	c**	0.52	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		2.8E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 167)	52663-72-6	0.120	c**	0.51	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.7E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Hexachlorobiphenyl, 2,3,3',4,4',5'- (PCB 157)	69782-90-7	0.120	c**	0.50	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.7E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Hexachlorobiphenyl, 2,3,3',4,4',5- (PCB 156)	38380-08-4	0.120	c**	0.50	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.7E-03	c*	
3.9E+03	W	1.1E+00	W	2.3E-08	W	1.3E-06	W	V		1	0.14		~Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	0.000	c**	0.00	c**	2.5E-06	c*	1.1E-05	c*	4.0E-06	c*		1.7E-06	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Pentachlorobiphenyl, 2',3,4,4',5- (PCB 123)	65510-44-3	0.120	c**	0.49	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.0E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Pentachlorobiphenyl, 2,3',4,4',5- (PCB 118)	31508-00-6	0.120	c**	0.49	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.0E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Pentachlorobiphenyl, 2,3,3',4,4'- (PCB 105)	32598-14-4	0.120	c**	0.49	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.0E-03	c*	
3.9E+00	W	1.1E-03	W	2.3E-05	W	1.3E-03	W	V		1	0.14		~Pentachlorobiphenyl, 2,3,4,4',5- (PCB 114)	74472-37-0	0.120	c**	0.50	c**	2.5E-03	c*	1.1E-02	c*	4.0E-03	c*		1.0E-03	c*	
1.3E+04	W	3.8E+00	W	7.0E-09	W	4.0E-07	W	V		1	0.14		~Pentachlorobiphenyl, 3,3',4,4',5- (PCB 126)	57465-28-8	0.000	c**	0.00	c**	7.4E-07	c*	3.2E-06	c*	1.2E-06	c*		3.0E-07	c*	
2.0E+00	I	5.7E-04	I					V		1	0.14		~Polychlorinated Biphenyls (high risk)	1336-36-3	0.230	c	0.94	c	4.9E-03	c	2.1E-02	c			5.0E-01			
4.0E-01	I	1.0E-04	I					V		1	0.14		~Polychlorinated Biphenyls (low risk)	1336-36-3					2.8E-02	c	1.2E-01	c	4.4E-02	c	5.0E-01	6.8E-03	c	7.8E-02
7.0E-02	I	2.0E-05	I					V		1	0.14		~Polychlorinated Biphenyls (lowest risk)	1336-36-3					1.4E-01	c	6.1E-01	c			5.0E-01			
1.3E+01	W	3.8E-03	W	7.0E-06	W	4.0E-04	W			1	0.14		~Tetrachlorobiphenyl, 3,3',4,4'- (PCB 77)	32598-13-3	0.038	c**	0.16	c**	7.4E-04	c*	3.2E-03	c*	6.0E-03	c**		9.4E-04	c**	
3.9E+01	W	1.1E-02	W	2.3E-06	W	1.3E-04	W	V		1	0.14		~Tetrachlorobiphenyl, 3,4,4',5- (PCB 81)	70362-50-4	0.012	c**	0.05	c**	2.5E-04	c*	1.1E-03	c*	4.0E-04	c*		6.2E-05	c*	
						6.0E-04	I			1	0.1		Polymeric Methylene Diphenyl Diisocyanate (PMDI)	9016-87-9	85000.000	n	360000.00	nm	6.3E-02	n	2.6E-01	n						
													Polynuclear Aromatic Hydrocarbons (PAHs)															
				6.0E-02	I			V		1	0.13		~Acenaphthene	83-32-9	360.000	n	4500.00	n					5.3E+01	n		5.5E-01	n	
				3.0E-01	I			V		1	0.13		~Anthracene	120-12-7	1800.000	n	23000.00	n					1.8E+02	n		5.8E+00	n	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels										Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD$_o$ (mg/kg-day)	key	RfC$_i$ (mg/m^3)	key	vol	mutagen	GIABS	ABS$_d$	C$_{sat}$ (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
1.0E-01	E	6.0E-05	E					V	M	1	0.13		~Benz[a]anthracene	56-55-3	1.100	c	21.00	c	1.7E-02	c	2.0E-01	c	3.0E-02	c		1.1E-02	c	
1.2E+00	C	1.1E-04	C							1	0.13		~Benzo(j)fluoranthene	205-82-3	0.420	c	1.80	c	2.6E-02	c	1.1E-01	c	6.5E-02	c		7.8E-02	c	
1.0E+00	I	6.0E-04	I	3.0E-04	I	2.0E-06	I		M	1	0.13		~Benzo[a]pyrene	50-32-8	0.110	c*	2.10	c*	2.1E-04	n	8.8E-04	n	2.5E-02	c*	2.0E-01	2.9E-02	c*	2.4E-01
1.0E-01	E	6.0E-05	E						M	1	0.13		~Benzo[b]fluoranthene	205-99-2	1.100	c	21.00	c	1.7E-02	c	2.0E-01	c	2.5E-01	c		3.0E-01	c	
1.0E-02	E	6.0E-06	E						M	1	0.13		~Benzo[k]fluoranthene	207-08-9	11.000	c	210.00	c	1.7E-01	c	2.0E+00	c	2.5E+00	c		2.9E+00	c	
				8.0E-02	I			V		1	0.13		~Chloronaphthalene, Beta-	91-58-7	480.000	n	6000.00	n					7.5E+01	n		3.9E-01	n	
1.0E-03	E	6.0E-07	E						M	1	0.13		~Chrysene	218-01-9	110.000	c	2100.00	c	1.7E+00	c	2.0E+01	c	2.5E+01	c		9.0E+00	c	
1.0E+00	E	6.0E-04	E						M	1	0.13		~Dibenz[a,h]anthracene	53-70-3	0.110	c	2.10	c	1.7E-03	c	2.0E-02	c	2.5E-02	c		9.6E-02	c	
1.2E+01	C	1.1E-03	C							1	0.13		~Dibenzo(a,e)pyrene	192-65-4	0.042	c	0.18	c	2.6E-03	c	1.1E-02	c	6.5E-03	c		8.4E-02	c	
2.5E+02	C	7.1E-02	C						M	1	0.13		~Dimethylbenz(a)anthracene, 7,12-	57-97-6	0.000	c	0.01	c	1.4E-05	c	1.7E-04	c	1.0E-04	c		9.9E-05	c	
				4.0E-02	I					1	0.13		~Fluoranthene	206-44-0	240.000	n	3000.00	n					8.0E+01	n		8.9E+00	n	
				4.0E-02	I			V		1	0.13		~Fluorene	86-73-7	240.000	n	3000.00	n					2.9E+01	n		5.4E-01	n	
1.0E-01	E	6.0E-05	E						M	1	0.13		~Indeno[1,2,3-cd]pyrene	193-39-5	1.100	c	21.00	c	1.7E-02	c	2.0E-01	c	2.5E-01	c		9.8E-01	c	
2.9E-02	P			7.0E-02	A			V		1	0.13	3.9E+02	~Methylnaphthalene, 1-	90-12-0	18.000	c*	73.00	c*					1.1E+00	c*		6.0E-03	c*	
				4.0E-03	I			V		1	0.13		~Methylnaphthalene, 2-	91-57-6	24.000	n	300.00	n					3.6E+00	n		1.9E-02	n	
		3.4E-05	C	2.0E-02	I	3.0E-03	I	V		1	0.13		~Naphthale		3.800	c**	17.00	c**	8.3E-02	c**	3.6E-01	c**	1.7E-01	c**		5.4E-04	c**	
1.2E+00	C	1.1E-04	C							1	0.13		~Nitropyren	4	0.420	c	1.80	c	2.6E-02	c	1.1E-01	c	1.9E-02	c		3.3E-03	c	
				3.0E-02	I			V		1	0.13		~Pyrene		180.000	n	2300.00	n					1.2E+01	n		1.3E+00	n	
				2.0E-02	P					1	0.1		Potassium	3	130.000	n	1600.00	n					4.0E+01	n				
1.5E-01	I			9.0E-03	I					1	0.1		Prochloraz	5	3.600	c*	15.00	c*					3.8E-01	c*		1.9E-03	c*	
				6.0E-03	H			V		1			Profluralin	0	47.000	n	700.00	n					2.6E+00	n		1.6E-01	n	
				1.5E-02	I					1	0.1		Prometon		95.000	n	1200.00	n					2.5E+01	n		1.2E-02	n	
				4.0E-02	O					1	0.1		Prometryn		250.000	n	3300.00	n					6.0E+01	n		9.0E-02	n	
				7.5E-02	I					1	0.1		Pronamide	5	470.000	n	6200.00	n					1.2E+02	n		1.2E-01	n	
				1.3E-02	I					1	0.1		Propachlor		82.000	n	1100.00	n					2.5E+01	n		1.5E-02	n	
				5.0E-03	I					1	0.1		Propanil		32.000	n	410.00	n					8.2E+00	n		4.5E-03	n	
1.9E-01	O			4.0E-02	O					1	0.1		Propargite		2.800	c*	12.00	c					1.6E-01	c		1.1E-02	c	
				2.0E-03	I			V		1		1.1E+05	Propargyl A	9-7	16.000	n	230.00	n					4.0E+00	n		8.1E-04	n	
				2.0E-02	I					1	0.1		Propazine	0-2	130.000	n	1600.00	n					3.4E+01	n		3.0E-02	n	
				2.0E-02	I					1	0.1		Propham	2-9	130.000	n	1600.00	n					3.5E+01	n		2.2E-02	n	
				1.0E-01	O					1	0.1		Propiconaz	7-90-1	630.000	n	8200.00	n					1.6E+02	n		5.3E-01	n	
						8.0E-03	I	V		1		3.3E+04	Propionaldehyde	123-38-6	7.500	n	31.00	n	8.3E-01	n	3.5E+00	n	1.7E+00	n		3.4E-04	n	
				1.0E-01	X	1.0E+00	X	V		1		2.6E+02	Propyl benzene	103-65-1	380.000	ns	2400.00	ns	1.0E+02	n	4.4E+02	n	6.6E+01	n		1.2E-01	n	
						3.0E+00	C	V		1		3.5E+02	Propylene	115-07-1	220.000	n	930.00	ns	3.1E+02	n	1.3E+03	n	6.3E+02	n		6.0E-01	n	
				2.0E+01	P					1	0.1		Propylene Glycol	57-55-6	130000.000	nm	1600000.00	nm					4.0E+04	n		8.1E+00	n	
						2.7E-04	A			1	0.1		Propylene Glycol Dinitrate	6423-43-4	39000.000	n	160000.00	nm	2.8E-02	n	1.2E-01	n						
				7.0E-01	H	2.0E+00	I	V		1		1.1E+05	Propylene Glycol Monomethyl Ether	107-98-2	4100.000	n	37000.00	n	2.1E+02	n	8.8E+02	n	3.2E+02	n		6.5E-02	n	
2.4E-01	I	3.7E-06	I			3.0E-02	I	V		1		7.8E+04	Propylene Oxide	75-56-9	2.100	c*	9.70	c*	7.6E-01	c**	3.3E+00	c**	2.7E-01	c*		5.6E-05	c*	
				1.0E-03	I			V		1		5.3E+05	Pyridine	110-86-1	7.800	n	120.00	n					2.0E+00	n		6.8E-04	n	
				5.0E-04	I					1	0.1		Quinalphos	13593-03-8	3.200	n	41.00	n					5.1E-01	n		4.3E-03	n	
3.0E+00	I									1	0.1		Quinoline	91-22-5	0.180	c	0.77	c					2.4E-02	c		7.8E-05	c	
				9.0E-03	I					1	0.1		Quizalofop-ethyl	76578-14-8	57.000	n	740.00	n					1.2E+01	n		1.9E-01	n	
						3.0E+04	A			1			Refractory Ceramic Fibers (units in fibers)	E715557					3.1E+03	G	1.3E+04	G						
				3.0E-02	I					1	0.1		Resmethrin	10453-86-8	190.000	n	2500.00	n					6.7E+00	n		4.2E+00	n	
				5.0E-02	H			V		1			Ronnel	299-84-3	390.000	n	5800.00	n					4.1E+01	n		3.7E-01	n	
				4.0E-03	I					1	0.1		Rotenone	83-79-4	25.000	n	330.00	n					6.1E+00	n		3.2E+00	n	
2.2E-01	C	6.3E-05	C						M	1	0.1		Safrole	94-59-7	0.550	c	10.00	c	1.6E-02	c	1.9E-01	c	9.6E-02	c		5.9E-05	c	
				5.0E-03	I					1			Selenious Acid	7783-00-8	39.000	n	580.00	n					1.0E+01	n				
				5.0E-03	I	2.0E-02	C			1			Selenium	7782-49-2	39.000	n	580.00	n	2.1E+00	n	8.8E+00	n	1.0E+01	n	5.0E+01	5.2E-02	n	2.6E-01
				5.0E-03	C	2.0E-02	C			1			Selenium Sulfide	7446-34-6	39.000	n	580.00	n	2.1E+00	n	8.8E+00	n	1.0E+01	n				
				1.4E-01	O					1	0.1		Sethoxydim	74051-80-2	880.000	n	11000.00	n					1.6E+02	n		1.4E+00	n	
						3.0E-03	C			1			Silica (crystalline, respirable)	7631-86-9	430000.000	nm	1800000.00	nm	3.1E-01	n	1.3E+00	n						
				5.0E-03	I					0.04			Silver	7440-22-4	39.000	n	580.00	n					9.4E+00	n		8.0E-02	n	
1.2E-01	H			5.0E-03	I					1	0.1		Simazine	122-34-9	4.500	c**	19.00	c*					6.1E-01	c*	4.0E+00	3.0E-04	c*	2.0E-03
				1.3E-02	I					1	0.1		Sodium Acifluorfen	62476-59-9	82.000	n	1100.00	n					2.6E+01	n		2.1E-01	n	
				4.0E-03	I					1			Sodium Azide	26628-22-8	31.000	n	470.00	n					8.0E+00	n				
2.7E-01	H			3.0E-02	I					1	0.1		Sodium Diethyldithiocarbamate	148-18-5	2.000	c*	8.50	c					2.9E-01	c		1.8E-04	c	
				5.0E-02	A	1.3E-02	C			1			Sodium Fluoride	7681-49-4	390.000	n	5800.00	n	1.4E+00	n	5.7E+00	n	1.0E+02	n	4.0E+03	1.5E+01	n	6.0E+02
				2.0E-05	I					1	0.1		Sodium Fluoroacetate	62-74-8	0.130	n	1.60	n					4.0E-02	n		8.1E-06	n	
				1.0E-03	H					1			Sodium Metavanadate	13718-26-8	7.800	n	120.00	n					2.0E+00	n				
				8.0E-04	P					1			Sodium Tungstate	13472-45-2	6.300	n	93.00	n					1.6E+00	n				
				8.0E-04	P					1			Sodium Tungstate Dihydrate	10213-10-2	6.300	n	93.00	n					1.6E+00	n				
2.4E-02	H			3.0E-02	I					1	0.1		Stirofos (Tetrachlorovinphos)	961-11-5	23.000	c**	96.00	c*					2.8E+00	c*		8.2E-03	c*	
				6.0E-01	I					1			Strontium, Stable	7440-24-6	4700.000	n	70000.00	n					1.2E+03	n		4.2E+01	n	
				3.0E-04	I					1	0.1		Strychnine	57-24-9	1.900	n	25.00	n					5.9E-01	n		6.5E-03	n	

Key: I = IRIS; P = PPRTV; O = OPP; A = ATSDR; C = Cal EPA; X = PPRTV Screening Level; H = HEAST; W = TEF applied; E = RPF applied; G = user's guide Section 5; M = mutagen; V = volatile; R = RBA applied ; c = cancer; n = noncancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; SSL values are based on DAF=1; m = ceiling limit exceeded; s = Csat exceeded.

Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
				2.0E-01	I	1.0E+00	I	V		1		8.7E+02	Styrene	100-42-5	600.000	n	3500.00	ns	1.0E+02	n	4.4E+02	n	1.2E+02	n	1.0E+02	1.3E-01	n	1.1E-01
				3.0E-03	P					1	0.1		Styrene-Acrylonitrile (SAN) Trimer (THNA isomer)	57964-39-3	19.000	n	250.00	n					4.8E+00	n				
				3.0E-03	P					1	0.1		Styrene-Acrylonitrile (SAN) Trimer (THNP isomer)	57964-40-6	19.000	n	250.00	n					4.8E+00	n				
				1.0E-03	P	2.0E-03	X			1	0.1		Sulfolane	126-33-0	6.300	n	82.00	n	2.1E-01	n	8.8E-01	n	2.0E+00	n		4.4E-04	n	
				8.0E-04	P					1	0.1		Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9	5.100	n	66.00	n					1.1E+00	n		6.5E-03	n	
						1.0E-03	C	V		1			Sulfur Trioxide	7446-11-9	140000.000	nm	600000.00	nm	1.0E-01	n	4.4E-01	n	2.1E-01	n				
						1.0E-03	C			1			Sulfuric Acid	7664-93-9	140000.000	nm	600000.00	nm	1.0E-01	n	4.4E-01	n						
2.5E-02	I	7.1E-06	I	5.0E-02	H					1	0.1		Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	22.000	c*	92.00	c*	4.0E-01	c	1.7E+00	c	1.3E+00	c*		1.5E-02	c*	
				3.0E-02	H					1	0.1		TCMTB	21564-17-0	190.000	n	2500.00	n					4.8E+01	n		3.3E-01	n	
				7.0E-02	I					1	0.1		Tebuthiuron	34014-18-1	440.000	n	5700.00	n					1.4E+02	n		3.9E-02	n	
				2.0E-02	H					1	0.1		Temephos	3383-96-8	130.000	n	1600.00	n					4.0E+01	n		7.6E+00	n	
				1.3E-02	I					1	0.1		Terbacil	5902-51-2	82.000	n	1100.00	n					2.5E+01	n		7.5E-03	n	
				2.5E-05	H			V		1		3.1E+01	Terbufos	13071-79-9	0.200	n	2.90	n					2.4E-02	n		5.2E-05	n	
				1.0E-03	I					1	0.1		Terbutryn	886-50-0	6.300	n	82.00	n					1.3E+00	n		1.9E-03	n	
5.0E-03	C	1.3E-06	C					V		1			Tert-Butyl Acetate	540-88-5	8.100	c	36.00	c	2.2E+00	c	9.4E+00	c	3.3E+00	c		7.6E-04	c	
				1.0E-04	I					1	0.1		Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1	0.630	n	8.20	n					2.0E-01	n		5.3E-03	n	
				3.0E-04	I			V		1			Tetrachlorobenzene, 1,2,4,5-	95-94-3	2.300	n	35.00	n					1.7E-01	n		7.9E-04	n	
2.6E-02	I	7.4E-06	I	3.0E-02	I			V		1		6.8E+02	Tetrachloroethane, 1,1,1,2-	630-20-6	2.000	c	8.80	c	3.8E-01	c	1.7E+00	c	5.7E-01	c*		2.2E-04	c*	
2.0E-01	I	5.8E-05	C	2.0E-02	I			V		1		1.9E+03	Tetrachloroethane, 1,1,2,2-	79-34-5	0.600	c	2.70	c	4.8E-02	c	2.1E-01	c	7.6E-02	c		3.0E-05	c	
2.1E-03	I	2.6E-07	I	6.0E-03	I	4.0E-02	I	V		1		1.7E+02	Tetrachloroethylene	127-18-4	8.100	n	39.00	n	4.2E+00	n	1.8E+01	n	4.1E+00	n	5.0E+00	1.8E-03	n	2.3E-03
				3.0E-02	I					1	0.1		Tetrachlorophenol, 2,3,4,6-	58-90-2	190.000	n	2500.00	n					2.4E+01	n		1.8E-02	n	
1.6E+01	X			6.0E-05	X			V		1			Tetrachloro		0.043	c*	0.20	c*					1.7E-03	c*		5.7E-06	c*	
				5.0E-04	I					1	0.1		Tetraethyl l		3.200	n	41.00	n					7.1E-01	n		5.2E-04	n	
						8.0E+01	I	V		1		2.1E+03	Tetrafluoro		10000.000	ns	43000.00	ns	8.3E+03	n	3.5E+04	n	1.7E+04	n		9.3E+00	n	
				2.0E-03	P					1	0.00065		Tetryl (Trini		16.000	n	230.00	n					3.9E+00	n		3.7E-02	n	
				2.0E-05	G					1			Thallic Oxid		0.160	n	2.30	n					4.0E-02	n				
				1.0E-05	X					1			Thallium (I)		0.078	n	1.20	n					2.0E-02	n				
				1.0E-05	X					1			Thallium (S		0.078	n	1.20	n					2.0E-02	n	2.0E+00	1.4E-03	n	1.4E-01
				1.0E-05	X			V		1			Thallium Ac		0.078	n	1.20	n					2.0E-02	n		4.1E-06	n	
				2.0E-05	X			V		1			Thallium C		0.160	n	2.30	n					4.0E-02	n		8.3E-06	n	
				1.0E-05	X					1			Thallium Cl		0.078	n	1.20	n					2.0E-02	n				
				1.0E-05	G					1			Thallium Se		0.078	n	1.20	n					2.0E-02	n				
				2.0E-05	X					1			Thallium Su		0.160	n	2.30	n					4.0E-02	n				
				4.3E-02	O					1	0.1		Thifensulfu	7-27-3	270.000	n	3500.00	n					8.6E+01	n		2.6E-02	n	
				1.0E-02	I					1	0.1		Thiobencar	9-77-6	63.000	n	820.00	n					1.6E+01	n		5.5E-02	n	
				7.0E-02	X					1	0.0075		Thiodiglyco	48-8	540.000	n	7900.00	n					1.4E+02	n		2.8E-02	n	
				3.0E-04	H					1	0.1		Thiofanox	6-18-4	1.900	n	25.00	n					5.3E-01	n		1.8E-04	n	
1.2E-02	O			2.7E-02	O					1	0.1		Thiophanate, Methyl	23564-05-8	47.000	c**	200.00	c*					6.7E+00	c**		5.7E-03	c**	
				1.5E-02	O					1	0.1		Thiram	137-26-8	95.000	n	1200.00	n					2.9E+01	n		4.2E-02	n	
				6.0E-01	H					1			Tin	7440-31-5	4700.000	n	70000.00	n					1.2E+03	n		3.0E+02	n	
						1.0E-04	A	V		1			Titanium Tetrachloride	7550-45-0	14000.000	n	60000.00	n	1.0E-02	n	4.4E-02	n	2.1E-02	n				
				8.0E-02	I	5.0E+00	I	V		1		8.2E+02	Toluene	108-88-3	490.000	n	4700.00	ns	5.2E+02	n	2.2E+03	n	1.1E+02	n	1.0E+03	7.6E-02	n	6.9E-01
3.9E-02	C	1.1E-05	C			8.0E-06	C	V		1			Toluene-2,4-diisocyanate	584-84-9	0.640	n	2.70	n	8.3E-04	n	3.5E-03	n	1.7E-03	n		2.5E-05	n	
1.8E-01	X			2.0E-04	X					1	0.1		Toluene-2,5-diamine	95-70-5	1.300	n	13.00	c**					4.0E-01	n		1.2E-04	n	
3.9E-02	C	1.1E-05	C			8.0E-06	C	V		1		1.7E+03	Toluene-2,6-diisocyanate	91-08-7	0.530	n	2.20	n	8.3E-04	n	3.5E-03	n	1.7E-03	n		2.6E-05	n	
				5.0E-03	P					1	0.1		Toluic Acid, p-	99-94-5	32.000	n	410.00	n					9.0E+00	n		2.3E-03	n	
1.6E-02	P	5.1E-05	C							1	0.1		Toluidine, o- (Methylaniline, 2-)	95-53-4	34.000	c	140.00	c	5.5E-02	c	2.4E-01	c	4.7E+00	c		2.0E-03	c	
3.0E-02	P			4.0E-03	X					1	0.1		Toluidine, p-	106-49-0	18.000	c**	77.00	c**					2.5E+00	c**		1.1E-03	c**	
				3.0E+00	P			V		1		3.4E-01	Total Petroleum Hydrocarbons (Aliphatic High)	E1790670	23000.000	ns	350000.00	nms					6.0E+03	n		2.4E+02	n	
						6.0E-01	P	V		1		1.4E+02	Total Petroleum Hydrocarbons (Aliphatic Low)	E1790666	52.000	n	220.00	ns	6.3E+01	n	2.6E+02	n	1.3E+02	n		8.8E-01	n	
				1.0E-02	X	1.0E-01	P	V		1		6.9E+00	Total Petroleum Hydrocarbons (Aliphatic Medium)	E1790668	9.600	ns	44.00	ns	1.0E+01	n	4.4E+01	n	1.0E+01	n		1.5E-01	n	
				4.0E-02	P					1	0.13		Total Petroleum Hydrocarbons (Aromatic High)	E1790676	240.000	n	3000.00	n					8.0E+01	n		8.9E+00	n	
				4.0E-03	P	3.0E-02	P	V		1		1.8E+03	Total Petroleum Hydrocarbons (Aromatic Low)	E1790672	8.200	n	42.00	n	3.1E+00	n	1.3E+01	n	3.3E+00	n		1.7E-03	n	
				4.0E-03	P	3.0E-03	P	V		1	0.13		Total Petroleum Hydrocarbons (Aromatic Medium)	E1790674	9.700	n	56.00	n	3.1E-01	n	1.3E+00	n	5.5E-01	n		2.3E-03	n	
1.1E+00	I	3.2E-04	I	9.0E-05	P					1	0.1		Toxaphene	8001-35-2	0.490	c**	2.10	c**	8.8E-03	c	3.8E-02	c	7.1E-02	c**	3.0E+00	1.1E-02	c**	4.6E-01
				3.0E-05	X					1	0.1		Toxaphene, Weathered	E1841606	0.190	n	2.50	n					6.0E-02	n		9.3E-03	n	
				7.5E-03	I					1	0.1		Tralomethrin	66841-25-6	47.000	n	620.00	n					1.5E+01	n		5.8E+00	n	
				3.0E-04	A			V		1			Tri-n-butyltin	688-73-3	2.300	n	35.00	n					3.7E-01	n		8.2E-03	n	
				8.0E+01	X					1	0.1		Triacetin	102-76-1	510000.000	nm	6600000.00	nm					1.6E+05	n		4.5E+01	n	
				3.4E-02	O					1	0.1		Triadimefon	43121-43-3	210.000	n	2800.00	n					6.3E+01	n		5.0E-02	n	
7.2E-02	O			2.5E-02	O			V		1			Triallate	2303-17-5	9.700	c*	46.00	c*					4.7E-01	c*		1.0E-03	c*	
				1.0E-02	I					1	0.1		Triasulfuron	82097-50-5	63.000	n	820.00	n					2.0E+01	n		2.1E-02	n	
				8.0E-03	I					1	0.1		Tribenuron-methyl	101200-48-0	51.000	n	660.00	n					1.6E+01	n		6.1E-03	n	
				5.0E-03	I			V		1			Tribromobenzene, 1,2,4-	615-54-3	39.000	n	580.00	n					4.5E+00	n		6.4E-03	n	
				9.0E-03	X					1	0.1		Tribromophenol, 2,4,6-	118-79-6	57.000	n	740.00	n					1.2E+01	n		2.2E-02	n	

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Toxicity and Chemical-specific Information												Contaminant		Screening Levels												Protection of Ground Water		
SFO (mg/kg-day)$^{-1}$	key	IUR (ug/m^3)$^{-1}$	key	RfD_o (mg/kg-day)	key	RfC_i (mg/m^3)	key	vol	mutagen	GIABS	ABS_d	C_{sat} (mg/kg)	Analyte	CAS No.	Resident Soil (mg/kg)	key	Industrial Soil (mg/kg)	key	Resident Air (ug/m^3)	key	Industrial Air (ug/m^3)	key	Tapwater (ug/L)	key	MCL (ug/L)	Risk-based SSL (mg/kg)	key	MCL-based SSL (mg/kg)
9.0E-03	P			1.0E-02	P					1	0.1		Tributyl Phosphate	126-73-8	60.000	c**	260.00	c**					5.2E+00	c**		2.5E-02	c**	
				3.0E-04	P					1	0.1		Tributyltin Compounds	E1790678	1.900	n	25.00	n					6.0E-01	n				
				3.0E-04	I					1	0.1		Tributyltin Oxide	56-35-9	1.900	n	25.00	n					5.7E-01	n		2.9E+01	n	
													Trichloramine	10025-85-1											4.0E+03(G)			
				3.0E+01	I	5.0E+00	P	V		1		9.1E+02	Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1	670.000	n	2800.00	ns	5.2E+02	n	2.2E+03	n	1.0E+03	n		2.6E+00	n	
7.0E-02	I			2.0E-02	I					1	0.1		Trichloroacetic Acid	76-03-9	7.800	c*	33.00	c*					1.1E+00	c*	6.0E+01(G)	2.2E-04	c*	1.2E-02
2.9E-02	H									1	0.1		Trichloroaniline HCl, 2,4,6-	33663-50-2	19.000	c	79.00	c					2.7E+00	c		7.4E-03	c	
7.0E-03	X			3.0E-05	X					1	0.1		Trichloroaniline, 2,4,6-	634-93-5	0.190	n	2.50	n					4.0E-02	n		3.6E-04	n	
				8.0E-04	X			V		1			Trichlorobenzene, 1,2,3-	87-61-6	6.300	n	93.00	n					7.0E-01	n		2.1E-03	n	
2.9E-02	P			1.0E-02	I	2.0E-03	P	V		1		4.0E+02	Trichlorobenzene, 1,2,4-	120-82-1	5.800	n	26.00	n	2.1E-01	n	8.8E-01	n	4.0E-01	n	7.0E+01	1.2E-03	n	2.0E-01
				2.0E+00	I	5.0E+00	I	V		1		6.4E+02	Trichloroethane, 1,1,1-	71-55-6	810.000	ns	3600.00	ns	5.2E+02	n	2.2E+03	n	8.0E+02	n	2.0E+02	2.8E-01	n	7.0E-02
5.7E-02	I	1.6E-05	I	4.0E-03	I	2.0E-04	X	V		1		2.2E+03	Trichloroethane, 1,1,2-	79-00-5	0.150	n	0.63	n	2.1E-02	n	8.8E-02	n	4.1E-02	n	5.0E+00	1.3E-05	n	1.6E-03
4.6E-02	I	4.1E-06	I	5.0E-04	I	2.0E-03	I	V	M	1		6.9E+02	Trichloroethylene	79-01-6	0.410	n	1.90	n	2.1E-01	n	8.8E-01	n	2.8E-01	n	5.0E+00	1.0E-04	n	1.8E-03
				3.0E-01	I			V		1		1.2E+03	Trichlorofluoromethane	75-69-4	2300.000	ns	35000.00	ns					5.2E+02	n		3.3E-01	n	
				1.0E-01	I					1	0.1		Trichlorophenol, 2,4,5-	95-95-4	630.000	n	8200.00	n					1.2E+02	n		4.0E-01	n	
1.1E-02	I	3.1E-06	I	1.0E-03	P					1	0.1		Trichlorophenol, 2,4,6-	88-06-2	6.300	n	82.00	n	9.1E-01	c	4.0E+00	c	1.2E+00	n		1.2E-03	n	
				1.0E-02	I					1	0.1		Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5	63.000	n	820.00	n					1.6E+01	n		6.8E-03	n	
				8.0E-03	I					1	0.1		Trichlorophenoxypropionic acid, -2,4,5	93-72-1	51.000	n	660.00	n					1.1E+01	n	5.0E+01	6.1E-03	n	2.8E-02
				5.0E-03	I			V		1		1.3E+03	Trichloropropane, 1,1,2-	598-77-6	39.000	n	580.00	n					8.8E+00	n		3.5E-03	n	
3.0E+01	I			4.0E-03	I	3.0E-04	I	V	M	1		1.4E+03	Trichloropropane, 1,2,3-	96-18-4	0.005	c*	0.11	c*	3.1E-02	n	1.3E-01	n	7.5E-04	c*		3.2E-07	c*	
				3.0E-03	X	3.0E-04	P	V		1		3.1E+02	Trichloropr		0.073	n	0.31	n	3.1E-02	n	1.3E-01	n	6.2E-02	n		3.1E-05	n	
				2.0E-02	A					1	0.1		Tricresyl Ph		130.000	n	1600.00	n					1.6E+01	n		1.5E+00	n	
				3.0E-03	I					1	0.1		Tridiphane		19.000	n	250.00	n					1.8E+00	n		1.3E-02	n	
						7.0E-03	I	V		1		2.8E+04	Triethylami		12.000	n	48.00	n	7.3E-01	n	3.1E+00	n	1.5E+00	n		4.4E-04	n	
				2.0E+00	P					1	0.1		Triethylene		13000.000	n	160000.00	nm					4.0E+03	n		8.8E-01	n	
						2.0E+01	P	V		1		4.8E+03	Trifluoroeth		1500.000	n	6200.00	ns	2.1E+03	n	8.8E+03	n	4.2E+03	n		1.3E+01	n	
7.7E-03	I			7.5E-03	I			V		1			Trifluralin		59.000	n	420.00	c**					2.6E+00	c**		8.4E-02	c**	
2.0E-02	P			1.0E-02	P					1	0.1		Trimethyl P		27.000	c**	110.00	c**					3.9E+00	c**		8.6E-04	c**	
				1.0E-02	I	6.0E-02	I	V		1		2.9E+02	Trimethylbe		34.000	n	200.00	n	6.3E+00	n	2.6E+01	n	5.5E+00	n		8.1E-03	n	
				1.0E-02	I	6.0E-02	I	V		1		2.2E+02	Trimethylbe		30.000	n	180.00	n	6.3E+00	n	2.6E+01	n	5.6E+00	n		8.1E-03	n	
				1.0E-02	I	6.0E-02	I	V		1		1.8E+02	Trimethylbe		27.000	n	150.00	n	6.3E+00	n	2.6E+01	n	6.0E+00	n		8.7E-03	n	
				1.0E-02	X			V		1		3.0E+01	Trimethylpe		78.000	ns	1200.00	ns					3.8E+00	n		1.3E-02	n	
				3.0E-02	I					1	0.019		Trinitroben		220.000	n	3200.00	n					5.9E+01	n		2.1E-01	n	
3.0E-02	I			5.0E-04	I					1	0.032		Trinitrotolue		3.600	n	51.00	n					9.8E-01	n		5.7E-03	n	
				2.0E-02	P					1	0.1		Triphenylph		130.000	n	1600.00	n					3.6E+01	n		1.5E-01	n	
				2.0E-02	A					1	0.1		Tris(1,3-Dic		130.000	n	1600.00	n					3.6E+01	n		8.0E-01	n	
				1.0E-02	X					1	0.1		Tris(1-chloro-2-propyl)phosphate		63.000	n	820.00	n					1.9E+01	n		6.5E-02	n	
2.3E+00	C	6.6E-04	C					V		1		4.7E+02	Tris(2,3-dibromopropyl)phosphate	126-72-7	0.280	c	1.30	c	4.3E-03	c	1.9E-02	c	6.8E-03	c		1.3E-04	c	
2.0E-02	P			7.0E-03	P					1	0.1		Tris(2-chloroethyl)phosphate	115-96-8	27.000	c**	110.00	c**					3.8E+00	c**		3.8E-03	c**	
3.2E-03	P			1.0E-01	P					1	0.1		Tris(2-ethylhexyl)phosphate	78-42-2	170.000	c**	720.00	c*					2.4E+01	c**		1.2E+02	c**	
				8.0E-04	P					1			Tungsten	7440-33-7	6.300	n	93.00	n					1.6E+00	n		2.4E-01	n	
				2.0E-04	A	4.0E-05	A			1			Uranium	7440-61-1	1.600	n	23.00	n	4.2E-03	n	1.8E-02	n	4.0E-01	n	3.0E+01	1.8E-01	n	1.4E+01
1.0E+00	C	2.9E-04	C						M	1	0.1		Urethane	51-79-6	0.120	c	2.30	c	3.5E-03	c	4.2E-02	c	2.5E-02	c		5.6E-06	c	
		8.3E-03	P	9.0E-03	I	7.0E-06	P			0.026			Vanadium Pentoxide	1314-62-1	66.000	n	840.00	n	3.4E-04	c**	1.5E-03	c**	1.5E+01	n				
				5.0E-03	G	1.0E-04	A			0.026			Vanadium and Compounds	7440-62-2	39.000	n	580.00	n	1.0E-02	n	4.4E-02	n	8.6E+00	n		8.6E+00	n	
				1.0E-03	I			V		1			Vernolate	1929-77-7	7.800	n	120.00	n					1.1E+00	n		8.9E-04	n	
				1.2E-03	O					1	0.1		Vinclozolin	50471-44-8	7.600	n	98.00	n					2.1E+00	n		1.6E-03	n	
				1.0E+00	H	2.0E-01	I	V		1		2.8E+03	Vinyl Acetate	108-05-4	91.000	n	380.00	n	2.1E+01	n	8.8E+01	n	4.1E+01	n		8.7E-03	n	
		3.2E-05	H			3.0E-03	I	V		1		2.5E+03	Vinyl Bromide	593-60-2	0.120	c**	0.52	c**	8.8E-02	c**	3.8E-01	c**	1.8E-01	c**		5.1E-05	c**	
7.2E-01	I	4.4E-06	I	3.0E-03	I	1.0E-01	I	V	M	1		3.9E+03	Vinyl Chloride	75-01-4	0.059	c	1.70	c*	1.7E-01	c*	2.8E+00	c*	1.9E-02	c	2.0E+00	6.5E-06	c	6.9E-04
				3.0E-04	I					1	0.1		Warfarin	81-81-2	1.900	n	25.00	n					5.6E-01	n		5.9E-04	n	
				2.0E-01	G	1.0E-01	G	V		1		3.9E+02	Xylene, m-	108-38-3	55.000	n	240.00	n	1.0E+01	n	4.4E+01	n	1.9E+01	n		1.9E-02	n	
				2.0E-01	G	1.0E-01	G	V		1		4.3E+02	Xylene, o-	95-47-6	65.000	n	280.00	n	1.0E+01	n	4.4E+01	n	1.9E+01	n		1.9E-02	n	
				2.0E-01	G	1.0E-01	G	V		1		3.9E+02	Xylene, p-	106-42-3	56.000	n	240.00	n	1.0E+01	n	4.4E+01	n	1.9E+01	n		1.9E-02	n	
				2.0E-01	I	1.0E-01	I	V		1		2.6E+02	Xylenes	1330-20-7	58.000	n	250.00	n	1.0E+01	n	4.4E+01	n	1.9E+01	n	1.0E+04	1.9E-02	n	9.9E+00
				3.0E-04	I					1			Zinc Phosphide	1314-84-7	2.300	n	35.00	n					6.0E-01	n				
				3.0E-01	I					1			Zinc and Compounds	7440-66-6	2300.000	n	35000.00	n					6.0E+02	n		3.7E+01	n	
				5.0E-02	I					1	0.1		Zineb	12122-67-7	320.000	n	4100.00	n					9.9E+01	n		2.9E-01	n	
				8.0E-05	X					1			Zirconium	7440-67-7	0.630	n	9.30	n					1.6E-01	n		4.8E-01	n	

8279 Rev C		A Presumed Grab Sample of 1000kg				Dec 17	Is this processed or a Grab Sample?		
					ATSDR	% at Fingerboards		Air	TDD
			TOTAL REOs		**TDD**		Toxicity Status	Mgm3	Mg/day
Heavy	Non-magnetic	Less abundant	Europium	Eu_2O_3		0.08	Rapidly Oxidises in air		
Heavy	Non-magnetic	Less abundant	Ytterbium	Yb_2O_3		1.00	Safe and stable		
Heavy	Magnetic	Less abundant	Terbium	Tb_4O_7		0.21	Reacts with water to create Hydrogen Flamable Moderately toxic		
Light	Non-magnetic	Abundant	Lanthanum	La_2O_3		8.72	Used to treat high blood pressure by Chewing it		
Heavy	Magnetic	Less abundant	Dysprosium	Dy_2O_3		1.60	Low toxicity		
Light	Magnetic	Abundant	Praseodymium	Pr_6O_{11}		2.18	Moderately Toxic - bioaccumulates in the liver - eye irritant		
Heavy	Non-magnetic	Less abundant	Gadolinium	Gd_2O_3		1.35	Used as Xray contrast is viewed as mildly toxic		
Light	Magnetic	Abundant	Neodymium	Nd_2O_3		7.73	Can Cause lung Embolisms and damages the liver		
Light	Non-magnetic	Abundant	Cerium	Ce_2O_3		19.36	Moderately toxic - lung Irritant and eye irritant	0.094000	ug/m3
Light	Non-magnetic	Abundant	Samarium	Sm_2O_3		1.50	Not known to be toxic		
Heavy	Non-magnetic	Less abundant	Holmium	Ho_2O_3		0.36	Emits toxic fumes under fire conditions		
Heavy	Non-magnetic	Less abundant	Erbium	Er_2O_3		1.16	Highly toxic fire and explosion hazard		
Heavy	Non-magnetic	Less abundant	Thulium	Tm_2O_3		0.18	Not known to be toxic		
Heavy	Non-magnetic	Less abundant	Lutium	Lu_2O_3		0.20	Corrodes in damp air		
Heavy	Non-magnetic	Less abundant	Yttrium	Y_2O_3		8.40	Reacts with water to produc Hydrogen gas - fire risk	0.0000065	0.00012
Heavy	Non-magnetic	Less abundant	Scandium	Sc_2O_3		?	Bioaccumulative		
			Promethium - radioactive			54.03			
			Other REO		Air				
			Titanium		0.0000809	mg/day			
			Lithium		0.40442 mg/day	54.03			
			Palladium		0.0000120				

Date: 6/18/2018 *Revisions since 5/9/2014 are shown in red.*

Table 1. Prioritized Chronic Dose-Response Values.
CAS NO. = Chemical Abstracts Services number for the compound.
HAP NO. = Position of the compound on the HAP list in the Clean Air Act (112[b][2]). "999" denotes substances under consideration for listing.
Sources: IRIS = Integrated Risk Information System; ATSDR = US Agency for Toxic Substances and Disease Registry; CAL = California EPA; P-CAL = Proposed CAL; HEAST = EPA Health Effects Assessment Summary Tables; EPA-OAQPS = EPA Office of Air Quality Planning and Standards; EPA-ORD = EPA Office of Research and Development (preferred consensus values not yet on IRIS, or superseding values on IRIS)

IARC WOE = weight of evidence for carcinogenicity in humans (1 = carcinogenic; 2A = probably carcinogenic; 2B = possibly carcinogenic; 3 = not classifiable; 4 = probably not carcinogenic).

EPA WOE (2005 Guidelines) = weight of evidence for carcinogenicity under 2005 EPA cancer guidelines (CH = carcinogenic to humans; LH = likely to be carcinogenic; SE = suggestive evidence of carcinogenic potential; InI = inadequate information to assess carcinogenic potential; NH = not likely to be carcinogenic).
EPA MOA (2005 Guidelines) = mode of action for carcinogenicity. M = mutagenic and early life data lacking; m-rpf = relative potency factors were used to derive unit risk values based on the cancer risk of benzo[a]pyrene as the index chemical. In both cases, age-dependent adjustment factors should be applied when assessing risk for ages younger than 16 years per 2005 Supplemental Guidance; see Table1 notes.

EPA WOE (1986 Guidelines) = weight of evidence for carcinogenicity under the 1986 EPA cancer guidelines (A = human carcinogen; B1 = probable carcinogen, limited human evidence; B2 = probable carcinogen, sufficient evidence in animals; C = possible human carcinogen; D = not classifiable; E = evidence of noncarcinogenicity).

Table 1. Prioritized Chronic Dose-Response Values for Screening Risk Assessments

				CHRONIC INHALATION						CHRONIC ORAL					
				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
Acetaldehyde	75-07-0	1	*1*	0.009	IRIS	B2	0.0000022		IRIS						
Acetamide	60-35-5	2	2B				0.00002		CAL						
Acetonitrile	75-05-8	3		0.06	IRIS	InI									
Acetophenone	98-86-2	4				D									
Acrolein	107-02-8	6	3	*0.00035*	*CAL*	InI									
Acrylamide	79-06-1	7	2A	0.006	IRIS	LH	0.0001	M	IRIS						
Acrylic acid	79-10-7	8	3	0.001	IRIS										
Acrylonitrile	107-13-1	9	2B	0.002	IRIS	B1	0.000068		IRIS						
Allyl chloride	107-05-1	10	3	0.001	IRIS	C	0.000006		CAL						
Aniline	62-53-3	12	3	0.001	IRIS	B2	0.0000016		CAL						
Antimony trioxide	1309-64-4	173	2B	0.0002	IRIS										
Arsenic compounds	7440-38-2	174	1	0.000015	CAL	A	0.0043		IRIS						
Arsine	7784-42-1	174		0.00005	IRIS										
Benzene	71-43-2	15	1	0.03	IRIS	CH	0.0000078		IRIS						
Benzidine	92-87-5	16	1	0.01	P-CAL	A	0.067	M	IRIS						
Benzotrichloride	98-07-7	17	*2A*			B2									
Benzyl chloride	100-44-7	18	*2A*			B2	0.000049		CAL						
Beryllium compounds	7440-41-7	175	1	0.00002	IRIS	LH	0.0024		IRIS						
Biphenyl	92-52-4	19				*SE*									
Bis(2-ethylhexyl)phthalate	117-81-7	20	2B	0.01	P-CAL	B2	0.0000024		CAL						
Bis(chloromethyl)ether	542-88-1	21	1			A	0.062		IRIS						
Bromoform	75-25-2	22	3			B2	0.0000011		IRIS						
1,3-Butadiene	106-99-0	23	1	0.002	IRIS	CH	0.00003		IRIS						
Cadmium compounds	7440-43-9	176	1	0.00001	ATSDR	B1	0.0018		IRIS	0.0005	IRIS	B1			
Captan	133-06-2	26	3			B2									
Carbaryl	63-25-2	27	*3*												
Carbon disulfide	75-15-0	28		0.7	IRIS										
Carbon tetrachloride	56-23-5	29	2B	0.1	IRIS	LH	0.000006		IRIS						
Chlordane	57-74-9	33	2B	0.0007	IRIS	LH	0.0001		IRIS	0.0005	IRIS	LH	0.35		IRIS
Chlorine	7782-50-5	34		0.00015	ATSDR										

Table 1. Prioritized Chronic Dose-Response Values for Screening Risk Assessments				CHRONIC INHALATION						CHRONIC ORAL					
				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
2-Chloroacetophenone	532-27-4	36		0.00003	IRIS										
Chlorobenzene	108-90-7	37		1	CAL	D									
Chlorobenzilate	510-15-6	38	3			B2	0.000078		HEAST						
Chloroform	67-66-3	39	2B	0.098	ATSDR	LH									
Chloroprene	126-99-8	41	2B	0.02	IRIS	LH	0.0003	M	IRIS						
Chromium (III) compounds	16065-83-1	177	3			InI									
Chromium (VI) compounds	18540-29-9	177	1	0.0001	IRIS	CH	0.012		IRIS						
Chromium (VI) trioxide, chromic acid mist	11115-74-5	177	1	0.000008	IRIS										
Cobalt compounds	7440-48-4	178	2B	0.0001	ATSDR										
Coke Oven Emissions	8007-45-2	179	*1*			A	0.00062	M	IRIS						
m-Cresol	108-39-4	44				C									
o-Cresol	95-48-7	43				C									
p-Cresol	106-44-5	45				C									
Cresols (mixed)	1319-77-3	42		0.6	CAL	C									
Cumene	98-82-8	46	2B	0.4	IRIS	InI									
Cyanazine	21725-46-2	180				C									
Cyanide compounds	57-12-5	180				D									
Acetone cyanohydrin	75-86-5	180		0.01	HEAST										
Cyanogen	460-19-5	180		0.0008	IRIS	*InI*									
Hydrogen cyanide	74-90-8	180		0.0008	IRIS	*InI*									
Potassium cyanide	151-50-8	180		0.0008	IRIS	*InI*									
Potassium silver cyanide	506-61-6	180		0.0008	IRIS	*InI*									
Sodium cyanide	143-33-9	180		0.0008	IRIS	*InI*									
2,4-D, salts and esters	94-75-7	47	*2B*												
DDE	72-55-9	48				B2						B2	0.34		IRIS
1,2-Dibromo-3-chloropropane	96-12-8	51	2B	0.0002	IRIS	B2	0.002		CAL						
Dibutylphthalate	84-74-2	52				D									
p-Dichlorobenzene	106-46-7	53	2B	0.8	IRIS	C	0.000011		CAL						
3,3'-Dichlorobenzidine	91-94-1	54	2B			B2	0.00034		CAL						
Dichloroethyl ether	111-44-4	55	3			B2	0.00033		IRIS						
1,3-Dichloropropene	542-75-6	56	2B	0.02	IRIS	LH	0.000004		IRIS						
Dichlorvos	62-73-7	57	2B	0.0005	IRIS	B2									
Diesel engine emissions	DIESEL EMIS.	999	*1*	0.005	IRIS	LH									
Diethanolamine	111-42-2	58	*2B*	0.003	CAL										
3,3'-Dimethoxybenzidine	119-90-4	61	2B			B2									
p-Dimethylaminoazobenzene	60-11-7	62	2B				0.0013		CAL						
3,3'-Dimethylbenzidine	119-93-7	63	*2B*			B2									
Dimethyl formamide	68-12-2	65	*2A*	0.03	IRIS										
N,N-dimethylaniline	121-69-7	59	3												
1,1-Dimethylhydrazine	57-14-7	66	2B			B2									
2,4-Dinitrotoluene	121-14-2	71	2B	0.007	P-CAL	B2	0.000089		CAL						
2,4/2,6-Dinitrotoluene (mixture)	25321-14-6	71	2B			B2									
1,4-Dioxane	123-91-1	72	2B	0.03	IRIS	LH	0.000005		IRIS						

Table 1. Prioritized Chronic Dose-Response Values for Screening Risk Assessments				CHRONIC INHALATION						CHRONIC ORAL					
				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
1,2-Diphenylhydrazine	122-66-7	73				B2	0.00022		IRIS						
Epichlorohydrin	106-89-8	74	2A	0.001	IRIS	B2	0.0000012		IRIS						
1,2-Epoxybutane	106-88-7	75	*2B*	0.02	IRIS										
Ethyl acrylate	140-88-5	76	2B			B2									
Ethyl benzene	100-41-4	77	2B	1	IRIS	D	0.0000025		CAL						
Ethyl carbamate (urethane)	51-79-6	78	2A				0.00029	M	CAL						
Ethyl chloride	75-00-3	79	3	10	IRIS										
Ethylene dibromide	106-93-4	80	2A	0.009	IRIS	LH	0.0006		IRIS						
Ethylene dichloride	107-06-2	81	2B	2.4	ATSDR	B2	0.000026		IRIS						
Ethylene glycol	107-21-1	82		0.4	CAL										
Ethylene oxide	75-21-8	84	1	0.03	CAL	*CH*	*0.003*	*M*	*IRIS*						
Ethylene thiourea	96-45-7	85	3	0.003	P-CAL		0.000013		CAL						
Ethylidene dichloride (1,1-Dichloroethane)	75-34-3	86		0.5	HEAST	C	0.0000016		CAL						
Formaldehyde	50-00-0	87	1	0.0098	ATSDR	B1	0.000013		IRIS						
Diethylene glycol monobutyl ether	112-34-5	181		0.02	HEAST										
Ethylene glycol ethyl ether	110-80-5	181		0.2	IRIS										
Ethylene glycol ethyl ether acetate	111-15-9	181		0.3	CAL										
Ethylene glycol methyl ether	109-86-4	181		0.02	IRIS										
Ethylene glycol methyl ether acetate	110-49-6	181		0.09	CAL										
Heptachlor	76-44-8	88	2B			B2	0.0013		IRIS	0.0005	IRIS	B2	4.5		IRIS
Hexachlorobenzene	118-74-1	89	2B	0.003	P-CAL	B2	0.00046		IRIS	0.0008	IRIS	B2	1.6		IRIS
Hexachlorobutadiene	87-68-3	90	3	0.09	P-CAL	C	0.000022		IRIS						
Hexachlorocyclopentadiene	77-47-4	91		0.0002	IRIS	NH									
Hexachlorodibenzo-p-dioxin, mixture	19408-74-3	187				B2	1.3		IRIS			B2	6200		IRIS
Hexachloroethane	67-72-1	92	2B	0.03	IRIS	LH									
Hexamethylene-1,6-diisocyanate	822-06-0	93		0.00001	IRIS										
n-Hexane	110-54-3	95		0.7	IRIS	InI									
Hydrazine	302-01-2	96	*2A*	0.0002	CAL	B2	0.0049		IRIS						
Hydrochloric acid	7647-01-0	97	3	0.02	IRIS										
Hydrofluoric acid	7664-39-3	98		0.014	CAL										
Hydrogen sulfide	7783-06-4	999		0.002	IRIS	InI									
Hydroquinone	123-31-9	99	*3*												
Isophorone	78-59-1	100		2	CAL	C									
Lead compounds	7439-92-1	182	2B	0.00015	EPA-OAQPS	B2						B2			
Tetraethyl lead	78-00-2	182	*3*							0.0000001	IRIS				
Lindane (gamma-HCH)	58-89-9	101	*1*	0.0003	P-CAL	B2-C	0.00031		CAL	0.0003	IRIS	B2-C	1.1		CAL
alpha-Hexachlorocyclohexane (a-HCH)	319-84-6	101	*1*	0.02	P-CAL	B2	0.0018		IRIS	0.008	ATSDR	B2	6.3		IRIS
beta-Hexachlorocyclohexane (b-HCH)	319-85-7	101	*1*	0.002	P-CAL	C	0.00053		IRIS			C	1.8		IRIS
technical Hexachlorocyclohexane (HCH)	608-73-1	101	*1*			B2	0.00051		IRIS			B2	1.8		IRIS
Maleic anhydride	108-31-6	102		0.0007	CAL										
Manganese compounds	7439-96-5	183		0.0003	ATSDR	D									
Mercuric chloride	7487-94-7	184				C				0.0003	IRIS	C			
Mercury (elemental)	7439-97-6	184	3	0.0003	IRIS	D						D			

Table 1. Prioritized Chronic Dose-Response Values for Screening Risk Assessments				CHRONIC INHALATION						CHRONIC ORAL					
				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
Methyl mercury	22967-92-6	184	*2B*			C				0.0001	IRIS	C			
Phenylmercuric acetate	62-38-4	184								0.00008	IRIS				
Methanol	67-56-1	103		20	IRIS										
Methoxychlor	72-43-5	104	3			D				0.005	IRIS	D			
Methyl bromide	74-83-9	105	*3*	0.005	IRIS	D									
Methyl chloride	74-87-3	106	3	0.09	IRIS	InI									
Methyl chloroform (1,1,1-Trichloroethane)	71-55-6	107		5	IRIS	InI									
Methyl isobutyl ketone	108-10-1	111	2B	3	IRIS	InI									
Methyl isocyanate	624-83-9	112		0.001	CAL										
Methyl methacrylate	80-62-6	113	*3*	0.7	IRIS	E									
Methyl tert-butyl ether	1634-04-4	114	3	3	IRIS		2.6E-07		CAL						
4,4'-Methylene bis(2-chloroaniline)	101-14-4	115	1			B2	0.00043		CAL						
Methylene chloride	75-09-2	116	*2A*	0.6	IRIS	LH	1E-08	M	IRIS						
Methylene diphenyl diisocyanate	101-68-8	117	*3*	0.0006	IRIS	InI									
4,4'-Methylenedianiline	101-77-9	118	2B	0.02	CAL		0.00046		CAL						
Naphthalene	91-20-3	119	*2B*	0.003	IRIS	C	0.000034		CAL						
Nickel compounds	7440-02-0	186	1	0.00009	ATSDR	A									
Nickel refinery dust	NI_DUST	186				A	0.00024		IRIS						
Nickel subsulfide	12035-72-2	186				A	0.00048		IRIS						
Nitrobenzene	98-95-3	120	2B	0.009	IRIS	LH	0.00004		IRIS						
2-Nitropropane	79-46-9	123	2B	0.02	IRIS	B2	0.0000056		OAQPS						
Nitrosodimethylamine	62-75-9	125	2A			B2	0.014	M	IRIS						
N-Nitrosomorpholine	59-89-2	126	2B				0.0019		CAL						
Parathion	56-38-2	127	*2B*			C									
Polychlorinated biphenyls	1336-36-3	136	*1*			B2	0.0001		IRIS			B2	2		IRIS
Aroclor 1016	12674-11-2	136								0.00007	IRIS				
Aroclor 1254	11097-69-1	136								0.00002	IRIS				
Pentachloronitrobenzene	82-68-8	128	3			C									
Pentachlorophenol	87-86-5	129	*1*	0.1	P-CAL	*LH*	0.0000051		CAL						
Phenol	108-95-2	130	3	0.2	CAL	InI									
Phosgene	75-44-5	132		0.0003	IRIS	InI									
Phosphine	7803-51-2	133		0.0003	IRIS	InI									
Phosphorus	7723-14-0	134				D									
Phthalic anhydride	85-44-9	135		0.02	CAL										
Polybrominated biphenyls	59536-65-1	187	*2A*			B2				0.000007	HEAST	B2	8.9		HEAST
Acenaphthene	83-32-9	187	3			D				0.06	IRIS	D			
Acenaphthylene	208-96-8	187				D						D			
2-Aminoanthraquinone	117-79-3	187	3				0.0000094		CAL				0.033		CAL
Anthracene	120-12-7	187	3			D				0.3	IRIS	D			
Benz(a)anthracene	56-55-3	187	2B			B2	*0.00006*	*m-rpf*	*EPA-ORD*			B2	*0.1*	*m-rpf*	*EPA-ORD*
Benzo(b)fluoranthene	205-99-2	187	2B			B2	*0.00006*	*m-rpf*	*EPA-ORD*			B2	*0.1*	*m-rpf*	*EPA-ORD*
Benzo[j]fluoranthene	205-82-3	187	2B				*0.00006*	*m-rpf*	CAL				*0.1*	*m-rpf*	CAL
Benzo(k)fluoranthene	207-08-9	187	2B			B2	*0.000006*	*m-rpf*	*EPA-ORD*			B2	*0.01*	*m-rpf*	*EPA-ORD*

Table 1. Prioritized Chronic Dose-Response Values for Screening Risk Assessments				CHRONIC INHALATION						CHRONIC ORAL					
				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
Benzo(g,h,i)perylene	191-24-2	187	3			D						D			
Benzo(a)pyrene	50-32-8	187	1	*0.000002*	*IRIS*	*CH*	*0.0006*	M	*IRIS*	*0.0003*	*IRIS*	*CH*	*1*	M	IRIS
Benzo(e)pyrene	192-97-2	187	3												
Carbazole	86-74-8	187	2B			B2						B2	0.02		HEAST
beta-Chloronaphthalene	91-58-7	187								0.08	IRIS				
Chrysene	218-01-9	187	2B			B2	*0.0000006*	*m-rpf*	*EPA-ORD*			B2	*0.001*	*m-rpf*	*EPA-ORD*
Dibenz[a,h]acridine	226-36-8	187	2B				*0.00006*	*m-rpf*	CAL				*0.1*	*m-rpf*	CAL
Dibenz[a,j]acridine	224-42-0	187	2A				*0.00006*	*m-rpf*	CAL				*0.1*	*m-rpf*	CAL
Dibenz(a,h)anthracene	53-70-3	187	2A			B2	*0.0006*	M	*EPA-ORD*			B2	*1*	M	*EPA-ORD*
7H-Dibenzo[c,g]carbazole	194-59-2	187	2B				*0.0006*	*m-rpf*	CAL				*1*	*m-rpf*	CAL
Dibenzo[a,e]pyrene	192-65-4	187	3				*0.0006*	*m-rpf*	CAL				*1*	*m-rpf*	CAL
Dibenzo[a,h]pyrene	189-64-0	187	2B				*0.006*	*m-rpf*	CAL				*10*	*m-rpf*	CAL
Dibenzo[a,i]pyrene	189-55-9	187	2B				*0.006*	*m-rpf*	CAL				*10*	*m-rpf*	CAL
Dibenzo[a,l]pyrene	191-30-0	187	2A				*0.006*	*m-rpf*	CAL				*10*	*m-rpf*	CAL
7,12-Dimethylbenz(a)anthracene	57-97-6	187					0.071	M	CAL				250	M	CAL
1,6-Dinitropyrene	42397-64-8	187	2B				*0.006*	*m-rpf*	CAL				*10*	*m-rpf*	CAL
1,8-Dinitropyrene	42397-65-9	187	2B				*0.0006*	*m-rpf*	CAL				*1*	*m-rpf*	CAL
Fluoranthene	206-44-0	187	3			D				0.04	IRIS	D			
Fluorene	86-73-7	187	3			D				0.04	IRIS	D			
Indeno(1,2,3-cd)pyrene	193-39-5	187	2B			B2	*0.00006*	*m-rpf*	*EPA-ORD*			B2	*0.1*	*m-rpf*	*EPA-ORD*
3-Methylcholanthrene	56-49-5	187					0.0063	M	CAL				22	M	CAL
5-Methylchrysene	3697-24-3	187	2B				*0.0006*	*m-rpf*	CAL				*1*	*m-rpf*	CAL
1-Methylnaphthalene	90-12-0	187								0.07	ATSDR				
2-Methylnaphthalene	91-57-6	187				InI				0.04	ATSDR	InI			
5-Nitroacenaphthene	602-87-9	187	2B				0.000037		CAL				0.13		CAL
6-Nitrochrysene	7496-02-8	187	*2A*				*0.006*	*m-rpf*	CAL				*10*	*m-rpf*	CAL
2-Nitrofluorene	607-57-8	187	2B				*0.000006*	*m-rpf*	CAL				*0.01*	*m-rpf*	CAL
1-Nitropyrene	5522-43-0	187	*2A*				*0.00006*	*m-rpf*	CAL				*0.1*	*m-rpf*	CAL
4-Nitropyrene	57835-92-4	187	2B				*0.00006*	*m-rpf*	CAL				*0.1*	*m-rpf*	CAL
Octabromodiphenyl ether	32536-52-0	187				D				0.003	IRIS	D			
Phenanthrene	85-01-8	187	3			D						D			
Pyrene	129-00-0	187	3			D				0.03	IRIS	D			
1,3-Propane sultone	1120-71-4	137	*2A*				0.00069		CAL						
Propionaldehyde	123-38-6	139		0.008	IRIS	InI									
Propoxur	114-26-1	140				B2									
Propylene dichloride	78-87-5	141	*1*	0.004	IRIS	B2									
Propylene oxide	75-56-9	142	2B	0.03	IRIS	B2	0.0000037		IRIS						
Quinoline	91-22-5	144				LH									
Selenium compounds	7782-49-2	189	3	0.02	CAL	D									
Hydrogen selenide	7783-07-5	189		0.00008	P-CAL										
Selenious acid	7783-00-8	189				D									
Selenium dioxide	7446-08-4	189		0.02	CAL										
Selenium disulfide	7488-56-4	189		0.02	CAL										

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				NONCANCER		CANCER				NONCANCER		CANCER			
CHEMICAL NAME	CAS NO.	HAP NO.	IARC WOE	mg/m3	SOURCE	EPA WOE	1/(µg/m3)	EPA MOA	SOURCE	mg/kg-d	SOURCE	EPA WOE	1/(mg/kg-d)	EPA MOA	SOURCE
Selenium sulfide	7446-34-6	189		0.02	CAL	B2									
Styrene	100-42-5	146	2B	1	IRIS										
Styrene oxide	96-09-3	147	2A	0.006	P-CAL										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6	148	1	4E-08	CAL	B2	33		EPA-ORD	7E-10	IRIS	B2	150000		EPA-ORD
1,1,2,2-Tetrachloroethane	79-34-5	149	*2B*			LH									
Tetrachloroethene	127-18-4	150	2A	0.04	IRIS	LH	2.6E-07		IRIS						
Titanium tetrachloride	7550-45-0	151		0.0001	ATSDR										
Toluene	108-88-3	152	3	5	IRIS	InI									
2,4-Toluene diamine	95-80-7	153	2B			B2	0.0011		CAL						
2,4/2,6-Toluene diisocyanate mixture (TDI)	26471-62-5	154	2B	0.00007	IRIS		0.000011		CAL						
o-Toluidine	95-53-4	155	1			B2	0.000051		CAL						
Toxaphene	8001-35-2	156	2B			B2	0.00032		IRIS			B2	1.1		IRIS
1,2,4-Trichlorobenzene	120-82-1	157		0.2	HEAST	D									
1,1,2-Trichloroethane	79-00-5	158	3	0.4	P-CAL	C	0.000016		IRIS						
Trichloroethylene	79-01-6	159	*1*	0.002	IRIS	CH	0.0000041	M	IRIS						
2,4,6-Trichlorophenol	88-06-2	161	*2B*			B2	0.0000031		IRIS						
Triethylamine	121-44-8	162		0.007	IRIS										
Trifluralin	1582-09-8	163	3			C				0.0075	IRIS	C	0.0077		IRIS
Uranium, insoluble salts	URANINSOLS	188		0.0008	ATSDR										
Uranium, soluble salts	URANSOLS	188		0.00004	ATSDR										
Vinyl acetate	108-05-4	165	2B	0.2	IRIS										
Vinyl bromide	593-60-2	166	2A	0.003	IRIS	B2	0.000032		HEAST						
Vinyl chloride	75-01-4	167	1	0.1	IRIS	CH	0.0000088		IRIS						
Vinylidene chloride	75-35-4	168	3	0.2	IRIS	SE									
Xylenes (mixed)	1330-20-7	169	3	0.1	IRIS	InI									

F01-11
MANUAL CORE SAMPLING RECORD
Chain of Custody

Lindenow

Sample #	Date	Primary Location	Sample Type	Secondary Location	GPS South	GPS East	Laboratory	Comments
L 25	13/10/2020	Lindenow	Water	Dam	37°48.431	147°23.822	14/10/220	
L 26	13/10/2020	Lindenow site	Sand	Dam	37°49.091	147°19.788	14/10/2020	
L 27	13/10/2020	Lindenow site	Sand	Dam	37°49.089	147°19.780	14/10/2020	
L 28	13/10/2020	Lindenow site	Soil	Tank Water	37°47.891	147°19.816	14/10/2020	
L 29	13/10/2020	Lindenow site		Bottle Contaminated Not Used				
L 30	13/10/2020	Lindenow site	Sludge	Black Water Tank Sludge	37°47.741	147°19.742	14/10/2020	Water Tank Sludge
L 31	13/10/2020	Lindenow site	Sand	Red Dam	37°47.742	147°19.716	14/10/2020	Dam Wall sand
		Interest in Rare Earth Elements, Arsenic, Vanadium +Hg + Radionuclides						
		Signed: Andrew Helps						
		Please email me an invoice ASAP so that I can pay you. agroeco@bigpond.com						
		My Mobile# is 0448 500 222						

Radionuclide Table: Radionuclide Carcinogenicity - Slope Factors

Data Source US EPA Federal Guidance Report No. 13 Morbidity Risk Coefficients, in Units of Picocuries

Revision #4

File: 8319.xlsx
20/08/2020

HBTOM Handbook of the Toxicology of Metals (Nordberg ET AL) 4th Edition

The curie (Ci) is the customary unit of activity and is equal to 3.7 x 10^{10} nuclear transformations per second.

NOTE:
US EPA Regulates radium in drinking water to no more than 5 pCi of combined radium-226 and radium 228 per litre of water.

Slope Factor Morbidity Risk Coefficient
Lifetime excess Total Cancer Risk

Element	Kalbar Analysis	Element (Atomic Number)	HBTOM * Reference Pagess	Isotope	Radioactive Half Life (Years)	ICRP Lung Type	Gi Absorption Factor (f_1)[g]	Water Ingestion (Risk/pCi)	Food Ingestion (Risk/pCi)	Soil Ingestion (Risk/pCi)	Inhalation Risk (Risk/pCi)	External Exposure (Risk/y per pCi/g)
Aluminium	260-4500 mg/kg	13	549-560	Al-26	716000	M	0.0100	0.001730	2490	0.47000	0.000000000069	0.0000133
				Al-28	2.240							0.0000092
Antimony	<0.5 mg/kg		565-572	Sb 115	31.80	M	0.1000	0.000000000000051	0.0000000000001	0.11600	0.00000000000002	0.0000039
	Carcinogen			Sb 116	15.80	M	0.1000	0.000000000000051	0.0000000000001	0.11600	0.00000000000002	0.0000105
		51		Sb-126	12.40	M	0.10000	0.00000000001	0.00000000002	0.29	0.0000000000115	0.00000649
				Sb 127	3.85	M	0.1000	0.00000000001	0.0000000000147	0.00000000003	0.000000000008	0.00000307
Arsenic	61-491 mg/kg	33	582-610	As-69	15.20	M	0.50	0.000000000000105	0.00000000000015	0.2390	0.00000000000004	0.00000443
	Carcinogen			As-70	52.60	M	0.50	0.000000000000320	0.00000000000045	0.000000000001	0.00000000000014	0.0000196
				As-71	64.80	M	0.50	0.000000000000320	0.000000000003	0.00000000001	0.00000000000152	0.00000237
				As-72	26.00	M	0.50	0.10	0.00000000001	0.00000000003	0.00000000004	0.0000082
				As-73	80.30	M	0.50	0.000000000002	0.000000000002	0.000000000004	0.000000000004	0.000000006
				As-74	17.80	M	0.50	0.000000000007	0.000000000010	0.00000000002	0.00000000001	0.0000034
				As-76	26.30	M	0.50	0.000000000010	0.00000000001	0.00000000003	0.0000000000	0.0000020
				As-77	38.80	M	0.50	0.000000000003	0.000000000004	0.00000000001	0.000000000002	0.000000036
				As-78	90.70	M	0.50	0.0000000000006	0.0000000000009	0.000000000001	0.0000000000003	0.0000061
Thorium	1.0 -120 mg/kg	90		Th-226	30.90	m S	0.001	0.000000000001	0.000000000000923	0.0000000000016	0.00000000016	0.00000002
	Carcinogen			Th-227	18.70	d S	0.0005	0.00000000005	0.00000000005	0.00000000007	0.00000000014	0.0000004
				Th-228	1.91	y S	0.001	0.0000000001	0.0000000001	0.00000000029	0.00000013	0.00000001
				Th-228+D	1.91	y S	0.001	0.0000000003	0.0000000004	0.00000000081	0.00000014	0.00000776
	In Kalbar ore body			Th-229	7340.00	y S	0.001	0.0000000002	0.0000000003	0.00000000050	0.00000018	0.00000023
				Th-229+D	7340.00	y S	0.001	0.0000000005	0.0000000007	0.00000000129	0.00000023	0.00000117
	See pages 38-40 of TENORM Handbook			Th-230	77000.00	y S	0.001	0.0000000001	0.000000000119	0.00000000020	0.00000003	0.00000000
				Th-231	25.50	h S	0.001	0.0000000000	0.000000000003	0.00000000001	0.000000000002	0.00000002
	Decays to Radium 228	Unstable		Th-232	14 Billion Years	y S	7340.00	0.0000000001	0.000000000133	0.00000000023	0.00000004	0.0000000003
				Th-234	24.10	d S	0.001	0.0000000000	0.000000000034	0.00000000007	0.00000000003	0.00000002
Tin	1.7 mg/kg	50	1242-1276	Sn-110	4.00	h M	0.020	0.0000000000019	0.000000000003	0.000000000005	0.00000000000067	0.000001130
				Sn-111	35.30	m M	0.020	0.0000000000019	0.00000000000008	0.000000000000	0.00000000000003	0.000002290
				Sn-113	115.00	d M	0.020	0.0000000000019	0.000000000006	0.000000000012	0.00000000001000	0.000000020
				Sn-117m	13.60	d M	0.020	0.0000000000019	0.00000000001	0.000000000013	0.00000000000884	0.000000469
				Sn-119m	293.00	d M	0.020	0.0000000000019	0.000000000003	0.000000000006	0.00000000000781	0.000000001
				Sn-121	27.10	h M	0.020	0.0000000000019	0.0000000000015	0.000000000004	0.00000000000102	0.000000000
				Sn-121m	55.00	y M	0.020	0.0000000000019	0.0000000000023	0.000000000007	0.00000000001540	0.000000001
				Sn-123	129.00	d M	0.020	0.0000000000019	0.0000000000140	0.000000000040	0.00000000003030	0.000000039
				Sn-123m	40.10	m M	0.020	0.0000000000019	0.0000000000001	0.000000000000	0.00000000000006	0.000000462
				Sn-125	9.64	d M	0.020	0.0000000000019	0.0000000000201	0.000000000058	0.00000000001410	0.000001530
				Sn-126	100000.00	y M	0.020	0.0000000000019	0.0000000000256	0.000000000071	0.00000000009950	0.000000100
				Sn-127	2.10	h M	0.020	0.0000000000019	0.0000000000008	0.000000000002	0.00000000000044	0.000009250
				Sn-128	59.10	m M	0.020	0.0000000000019	0.0000000000004	0.000000000001	0.00000000000023	0.000002620
Titanium	44-154 mg/kg	22		Ti-44	47.30	S	0.01000	0.000000000026	0.00000000004	0.0000000001	0.0000000003	0.0000002
	Carcinogen			Ti-45	3.08	S	0.0100	0.0000000000006	0.0000000000009	0.0000000000018	0.0000000000003	0.00000379
Tungsten	<1 mg/Kg	74		W-176	2.30	h F	0.3000	0.0000000000004	0.000000000001	0.0000000000011	0.0000000000001	0.00000032

			W-177	135.00	m F	0.3000	0.0000000000002	0.000000000000	0.0000000000005	0.0000000000001	0.00000363
			W-178	21.70	d	0.3000	0.0000000000012	0.300000000000	0.0000000000033	0.0000000000004	0.00000002
			W-179	37.50	m F	0.3000	0.0000000000000	0.000000000000	0.0000000000000	0.0000000000000	0.00000006
			W-181	121.00	d F	0.3000	0.0000000000004	0.000000000001	0.0000000000011	0.0000000000001	0.00000005
			W-185	75.10	d F	0.3000	0.0000000000029	0.000000000004	0.0000000000084	0.0000000000009	0.00000000
			W-187	23.90	h F	0.3000	0.0000000000037	0.000000000005	0.0000000000103	0.0000000000011	0.00000204
			W-188	69.40	d F	0.3000	0.0000000000140	0.000000000021	0.0000000000400	0.000000000005	0.00000001
Uranium	3-9 mg/kg	234	U-230	20.80	d M	0.0200	0.0000000002090	0.0000000002980	0.0000000005660	0.0000000455000	0.000000003
	Carcinogen		U-231	4.20	d M	0.0200	0.0000000000018	0.0000000000026	0.0000000000050	0.0000000000018	0.00000016
			U-232	72.00	y M	0.0200	0.0000000002920	0.0000000003850	0.0000000005740	0.0000000195000	0.000000001
			U-233	159000	y M	0.0200	0.0000000000718	0.0000000000969	0.0000000001600	0.0000000116000	0.00000000
			U-234	245000.00	y M	0.0200	0.0000000000707	0.0000000000955	0.0000000001580	0.0000000114000	0.00000000
			U-235	704000000	y M	0.0200	0.0000000000696	0.0000000000944	0.0000000001570	0.0000000101000	0.00000052
			U-235+D	704000000	y M	0.0200	0.0000000000718	0.0000000000976	0.0000000001630	0.0000000101000	0.00000054
			U-236	23400000	Y M	0.0200	0.0000000000670	0.0000000000903	0.0000000001490	0.0000000105000	0.00000000
			U-237	6.75	d M	0.0200	0.0000000000049	0.0000000000071	0.0000000000139	0.0000000000064	0.00000038
			U-238	4470000000	y M	0.0200	0.0000000000640	0.0000000000866	0.0000000001430	0.0000000093200	0.00000000
			U-238+D	4470000000	y M	0.0200	0.0000000000871	0.0000000001210	0.0000000002100	0.0000000093500	0.00000011
			U-239	23.50	m M	0.0200	0.0000000000001	0.0000000000001	0.0000000000002	0.0000000000001	0.00000012
			U-240	14.10	h M	0.0200	0.0000000000070	0.0000000000103	0.0000000000202	0.0000000000030	0.00000000
Vanadium	17-130 mg/kg		V-47	32.60	m M	0.0100	0.0000000000001	0.0000000000002	0.0000000000003	0.0000000000001	0.00000436
	Carcinogen		V48	16.20	d M	0.0100	0.0000000000081	0.0000000000117	0.0000000000213	0.0000000000093	0.00001400
			V49	330.00	d M	0.0100	0.0000000000001	0.0000000000002	0.0000000000004	0.0000000000001	0.00000000
Zirconium	6,250-42,750 mg/kg	40	Zr-97	16.90	m	0.0100	0.0000000000125	0.0000000000183	0.0000000000375	0.000000000005	0.0000008620
	Carcinogen										

70kg Male	Inhalation of	17800 M^3	Per Day	