MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Waste Site Cleanup

NUMERICAL RANKING SYSTEM SCORESHEET
(310 CMR 40.1511)

CLASSIFICATION SUBMITTAL	
Initial Submittal	Re-Classification
G	G

DISPOSAL SITE SCORE					
II	III	IV	V	VI	TOTAL
_____	_____	_____	_____	_____	_____

Disposal Site Tier Classification	I			II
Permit Category (Tier I Only)	A	B	C	

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I. DISPOSAL SITE INFORMATION

DEP Release Tracking Number(s)	
DEP Disposal Site Number(s)	

UTM Coordinates	N:
	E:

Disposal Site Name		
Disposal Site Address		
	City:	Zip:

Is the Disposal Site classified Tier I because it is located within the boundaries of a Zone II or Interim Wellhead Protection Area and groundwater concentrations equal or exceed RCGW-1 at the time of Tier Classification pursuant to 310 CMR 40.0520(2)(a)1.?	Yes G	No G
Is the Disposal Site classified Tier I because an Imminent Hazard is present at the time of Tier Classification pursuant to 310 CMR 40.0520(2)(a)2.?	Yes G	No G

I attest under the pains and penalties of perjury that I have personally completed this Numerical Ranking System Scoresheet, and have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this submittal, and in my professional opinion and judgment based upon: (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge, information and belief, this Scoresheet was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000. I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

Licensed Site Professional Signature	LSP Registration Number	Date
LSP Name (Printed)	Company Name	Telephone Number

Responsible Party, Potentially Responsible Party, or Other Person who will provide certification in accordance with 310 CMR 40.0009.

II. EXPOSURE PATHWAYS

II. EXPOSURE PATHWAYS

Score according to 40.1512 - Exposure Pathway Designation Criteria

MEDIA	*DESIGNATION*			
	NONE *or* NOT APPLICABLE	EVIDENCE OF CONTAMINATION	POTENTIAL EXPOSURE PATHWAY	LIKELY OR CONFIRMED EXPOSURE PATHWAY
A. SOIL (Includes Sediment)	0	15	100	150
B. GROUNDWATER	0	20	100	150
C. SURFACE WATER (Includes Wetlands)	0	20	100	150
D. AIR	0	15	100	200

Note: Score only the highest value for each media, i.e., score None or Not Applicable *or* Evidence of Contamination *or* Potential Exposure Pathway *or* Likely or Confirmed Exposure Pathway.

II. (A - D) *Summary Rationale for Section II A - D Values and Phase I Report References*

II.E. **OHM SOURCES**			
Number of OHM Sources	1 0	2 25	$ 3 50

SECTION II SCORE (A. + B. + C. + D. + E.)					
A. _____	B. _____	C. _____	D. _____	E. _____	TOTAL: (15 - 700) _____

Check here if Section VI has been used to amend the score for this Section of the NRS.	G

III. DISPOSAL SITE CHARACTERISTICS

III.A.	**OHM TOXICITY SCORE** *Highest OHM Toxicity Score* *From Table III.A. or Worksheet III.A.1. on Following Pages.*
OHM Scored: _____ Concentration and Media: _____	Toxicity Score (1 - 80) _____

III.B.	**MULTIPLE OHMs**	
More Than One OHM With an OHM Toxicity Score of $ 30	No 0	Yes 30

III.C.	**OHM MOBILITY and PERSISTENCE** *Score according to 40.1514 - OHM Mobility and Persistence*
OHM Scored: _____	Score (0 - 50) _____

III.D.DISPOSAL SITE HYDROGEOLOGY

Score according to 40.1515 - Soil Permeability

DEPTH TO GROUNDWATER (in feet)	SOIL PERMEABILITY		
	Low	Medium	High
> 25	2	4	8
10.1 - 25	4	8	12
5.1 - 10	8	12	16
0 - 5	12	16	20

SECTION III SCORE (A + B + C + D)				
A. _____	B. _____	C. _____	D. _____	TOTAL: (3 - 180) _____

Check here if Section VI has been used to amend the score for this Section of the NRS.	G

310 CMR 40.1511 - Table III.A. OHM TOXICITY SCORE							
	Concentration (soil/sediment: ug/g: surface/groundwater: ug/l)						
Chemical Name	<=99	100-999	1,000-9,999	10,000-100,000	>100,000 NAPL <0.5"	NAPL 0.5"-12"	NAPL >12"
Aliphatics C5-C8	5	15	25	35	45	55	65
C9-C12	5	15	25	35	45	55	65
C9-C18	5	15	25	35	45	55	65
C19-C36	1	10	20	30	40	50	60
Arsenic	20	30	40	50	60	70	80
Aromatics C9-C10	5	15	25	35	45	55	65
C11-C22	5	15	25	35	45	55	65
Benzene	15	25	35	45	55	65	75
Bis(2-ethylhexyl)phthalate	10	20	30	40	50	60	70
Cadmium	20	30	40	50	60	70	80
Carbon Tetrachloride	20	30	40	50	60	70	80
Chlorobenzene	5	15	25	35	45	55	65
Chromium III	1	10	20	30	40	50	60
Chromium VI	20	30	40	50	60	70	80
Coal Tars	10	20	30	40	50	60	70
Cyanide	5	15	25	35	45	55	65
Dichloroethane, 1,1-	10	20	30	40	50	60	70
Dichloroethane, 1,2-	10	20	30	40	50	60	70
Dichloromethane	5	15	25	35	45	55	65
Ethylbenzene	5	15	25	35	45	55	65
Ethylene Dibromide	20	30	40	50	60	70	80
#2 Fuel Oil (Virgin Product)	5	15	25	35	45	55	65
#6 Fuel Oil (Virgin Product)	5	15	25	35	45	55	65
Gasoline (Virgin Product)	5	15	25	35	45	55	65
Lead	20	30	40	50	60	70	80
Mercury (Elemental)	20	30	40	50	60	70	80
Methylene Chloride	10	20	30	40	50	60	70
Methyl Ethyl Ketone	1	10	20	30	40	50	60
Methyl-tert-Butyl Ether	5	15	25	35	45	55	65
Nickel	10	20	30	40	50	60	70
Phenol	1	10	20	30	40	50	60
Polyaromatic Hydrocarbons (PAHs)	10	20	30	40	50	60	70
Polychlorinated Biphenyls (PCBs)	20	30	40	50	60	70	80
Tetrachloroethylene	10	20	30	40	50	60	70
Toluene	1	10	20	30	40	50	60
Trichloroethane, 1,1,1-	5	15	25	35	45	55	65
Trichloroethylene	15	25	35	45	55	65	75
Vinyl Chloride	15	25	35	45	55	65	75
Xylenes	1	10	20	30	40	50	60
Zinc	1	10	20	30	40	50	60

Use Worksheet III.A.1. to determine the OHM Toxicity Score for OHM not listed in Table III.A.
See 310 CMR 40.1513 for Human Health-Based Toxicity Values for each OHM.

Worksheet III.A.1	**OHM TOXICITY SCORE**						
HUMAN HEALTH-BASED TOXICITY VALUE	*CONCENTRATION* Use Fg/g for Soil and Fg/l for Surface Water and Groundwater						
	# 99	100 - 999	1,000 - 9,999	10,000 - 100,000	> 100,000 NAPL < 0.5"	NAPL 0.5" - 12"	NAPL > 12"
< 5	1	10	20	30	40	50	60
5 - 19	5	15	25	35	45	55	65
20 - 29	10	20	30	40	50	60	70
30 - 39	15	25	35	45	55	65	75
40 - 50	20	30	40	50	60	70	80

III.A.1.	*OHM and Concentrations Used in Section III.A.1.*			
OHM	Human Health-Based Toxicity Value	Concentration (Soil - Fg/g)	Concentration (Water - Fg/l)	**OHM Toxicity Score**

IV. HUMAN POPULATION AND LAND USES

IV.A.	HUMAN POPULATION			
Residential Population Within 2 Mile	None 0	1 - 99 5	100 - 999 10	$ 1,000 15
Institutions Within 500 feet	None 0		One or More 10	
On-Site Workers	None 0	1 - 99 5	100 - 999 10	$ 1,000 15

IV.B.	AQUIFERS	
Sole Source Aquifer Name:_____	No 0	Yes 25
Potentially Productive Aquifer	No 0	Medium or High 15

IV.C.	WATER USE				
Proximity of Disposal Site to Public Drinking Water Supply Source	Not Applicable (NA) 0			Zone A 20	Zone II, IWPA, or SW Intake # 400' 50
Persons Served by Public Drinking Water Supply	NA 0	25 - 999 5	1,000 - 4,999 10	5,000 - 49,999 20	$ 50,000 25
Private Water Supplies Within 500 Feet	None 0		Commercial Industrial 10	Agriculture Residential (Not Ingested) 15	Drinking Food Processing 25
Alternative Public Water Supply Available (Viable Public Water Supply in Disposal Site Community *and* Public Water Connection # 500 Feet from Site)	Yes 0			No 25	

SECTION IV SCORE (A + B + C)			
A. _____	B. _____	C. _____	TOTAL: (0 - 205) _____

Check here if Section VI has been used to amend the score for this Section of the NRS.	G

V. ECOLOGICAL POPULATION

V.A.	**ENVIRONMENTAL RESOURCE AREAS**		
RESOURCE	*LOCATION*		
Area of Critical Environmental Concern	> 500' from Site 0	# 500' from Site 20	On-Site 30
Species of Special Concern, Threatened or Endangered Species Habitat	> 500' from Site 0	On-Site or # 500' from Habitat 30	
Wetlands, Certified Vernal Pool, or Outstanding Resource Water	> 100' from Site 0	# 100' from Site 20	On-Site 30
Fish Habitat	> 500' from Site 0	# 500' from Site 20	On-Site 30
Protected Open Space (Local/State/Federal/Trustee)	> 500' from Site 0	# 500' from Site 20	On-Site 30

SCORE SECTION V.B. *ONLY* IF SECTION V.A. SCORE IS $ 30.

V.B.	**ENVIRONMENTAL TOXICITY SCORE**	
	Highest Environmental Toxicity Score From Table V.B. or Worksheet V.B.1. on Following Pages.	
OHM Scored: _____		Toxicity Score (1 - 35)
Concentration and Media: _____		_____

SECTION V. SCORE (A. + B.)		
A. _____	B. _____	TOTAL: (0 - 185) _____

Check here if Section VI has been used to amend the score for this Section of the NRS.	G

310 CMR 40.1511 - Table V.B. Environmental Toxicity Score

Chemical	CONCENTRATION (soil/sediment: ug/g; surface/groundwater ug/l) <1	1-99	100-999	1,000-9,999	>=10,000
Arsenic (Arsenic III)	1	5	10	15	20
Benzene	1	5	10	15	20
Bis(2-ethylhexyl)phthalate	1	5	10	15	20
Carbon tetrachloride	1	5	10	15	20
Chlorobenzene	5	10	15	20	25
Chromium III	5	10	15	20	25
Chromium VI	5	10	15	20	25
Cyanide	5	10	15	20	25
Dichloroethane, 1,1-	0	1	5	10	15
Dichloroethane, 1,2-	0	1	5	10	15
Dichloroethene, 1,1-	0	1	5	10	15
Ethylbenzene	1	5	10	15	20
Ethylene dibromide	0	1	5	10	15
#2 Fuel Oil (virgin product)	10	15	20	25	30
#6 Fuel Oil (virgin product)	10	15	20	25	30
Gasoline (virgin product)	1	5	10	15	20
Lead	10	15	20	25	30
Mercury, inorganic or total	10	15	20	25	30
Methylene Chloride	0	1	5	10	15
Methyl ethyl ketone	0	1	5	10	15
Methyl-t-butyl ether	0	1	5	10	15
Nickel	1	5	10	15	20
Pentachlorophenol	5	10	15	20	25
Petroleum Hydrocarbons	15	20	25	30	35
Aliphatic Hydrocarbons	15	20	25	30	35
C_5 through C_8 Aliphatic Hydrocarbons	1	5	10	15	20
C_9 through C_{12} Aliphatic Hydrocarbons	0	1	5	10	15
C_9 through C_{18} Aliphatic Hydrocarbons	0	1	5	10	15
C_{19} through C_{36} Aliphatic Hydrocarbons	0	1	5	10	15
Aromatic Hydrocarbons	15	20	25	30	35
C_9 through C_{10} Aromatic Hydrocarbons	1	5	10	15	20
C_{11} through C_{22} Aromatic Hydrocarbons	10	15	20	25	30
Phenol	5	10	15	20	25
Polychlorinated Biphenyls (PCBs)	15	20	25	30	35
Tetrachloroethene	0	1	5	10	15
Toluene	1	5	10	15	20
Trichloroethane, 1,1,1-	0	1	5	10	15
Trichloroethene	1	5	10	15	20
Vinyl chloride	0	1	5	10	15
Xylenes	5	10	15	20	25
Zinc	5	10	15	20	25

Use Worksheet V.B.1. to determine Environmental Toxicity Scores for OHM not listed in Table V.B. See 40.1516 for Environmental Toxicity Values for each OHM.

Worksheet V.B.1	**ENVIRONMENTAL TOXICITY SCORE**				
ENVIRONMENTAL TOXICITY VALUE	*CONCENTRATION* Use Fg/g for Soil and Fg/l for Surface Water or Groundwater				
	< 1	1 - 99	100 - 999	1,000 - 9,900	$ 10,000
10	0	1	5	10	15
20	1	5	10	15	20
30	5	10	15	20	25
40	10	15	20	25	30
50	15	20	25	30	35

V.B.1.OHM and Concentrations Used in Section V.B.1.

OHM	Environmental Toxicity Value	Concentration (Soil - Fg/g)	Concentration (Water - Fg/l)	**Environmental Toxicity Score**

VI. MITIGATING DISPOSAL SITE-SPECIFIC CONDITIONS

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Disposal site-specific conditions that warrant amending the site score. Changes directly related to NRS Sections or Subsection scores may not reduce the score more than the relevant subsection value assigned for the disposal site in that subsection. Section VI must reference specific pages of the Phase I. Section VI may not exceed " 50 Points and may be scored only in 5-point increments. Attach additional pages as necessary.	
Disposal Site Score Amendment (Not to Exceed " 50 Points)	Score _____

40.1512: Exposure Pathway Designation Criteria

(1) Soil.

II.A.SOIL EXPOSURE CRITERIA		
DEFINITION	Soil includes sediments.	
DESIGNATION	*CRITERIA*	POINTS
NONE *or* NOT APPLICABLE	*Either of the Following* < OHM likely attributable to the disposal site has not been identified in, and is not anticipated to be identified in, soil. *or* < OHM has not been identified in soils at concentrations > applicable soil Reportable Concentrations (RCs). This criteria may be met by conducting a response action in accordance with these regulations to reduce soil concentrations.	0
EVIDENCE OF CONTAMINATION (Assumes No Exposure Pathway)	*Any of the Following* < A release of OHM to soil has been identified but no laboratory analysis has been conducted. *or* < Qualitative evidence of a release. $ OHM stained soils *or* $ Distressed vegetation *or* $ OHM-attributable odors *or* *or* < OHM has been identified in soils at concentrations $ applicable RCs.	15
POTENTIAL EXPOSURE PATHWAY	*All of the Following* < OHM has been identified at concentrations $ applicable soil RCs # 6" from the acessible soil surface. OHM located beneath unbroken paved surfaces/concrete slabs may be considered inaccessible. *and* < Efforts to restrict access to the area where a release of OHM has been identified have been unsuccessful, have not been taken, or are infeasible. Fencing may be sufficient to show restriction of access unless there has been evidence of repeated access to areas of OHM-contaminated surficial soils. *and* < The area of OHM contamination is not used for active recreation.	100
LIKELY or CONFIRMED EXPOSURE PATHWAY	*All of the Following* < OHM has been identified at concentrations $ applicable soil RCs # 6" from the accessible soil surface. *and* < Efforts to restrict access to the area where a release of OHM has been identified have been unsuccessful, have not been taken, or are infeasible. *and* < The area of contamination is used for active recreation (e.g., bicycling, dirt-biking, playground, or ballfield) or gardening.	150

(2) Groundwater.

II.B.GROUNDWATER EXPOSURE CRITERIA		
DEFINITION	Score source area and extent of plume(s) as defined by most recent field studies.	
DESIGNATION	*CRITERIA*	POINTS
NONE *or* NOT APPLICABLE	*Either of the Following* < OHM likely attributable to the disposal site has not been identified in, and is not anticipated to be identified in, groundwater. *or* < OHM has not been identified in groundwater at concentrations $ applicable groundwater RCs. This criteria may be met by conducting a response action, in accordance with these regulations, to reduce groundwater concentrations.	0
EVIDENCE OF CONTAMINATION (Assumes No Exposure Pathway)	*Any of the Following* < A release of OHM to groundwater has been identified but no laboratory analysis has been conducted. *or* < A non-aqueous phase liquid (NAPL) has been identified in or on the groundwater. *or* < OHM has been identified in groundwater at concentrations $ applicable groundwater RCs.	20
POTENTIAL EXPOSURE PATHWAY	*Either of the Following* < A private drinking water well is located within 500' of any portion of a disposal site where OHM has been identified in groundwater at concentrations $ 310 CMR 40.0974(2). *or* < The disposal site is located within a Zone II or upgradient of a public well within an Interim Wellhead Protection Area *and* OHM has been identified in groundwater at concentrations $ 310 CMR 40.0974(2).	100
LIKELY or CONFIRMED EXPOSURE PATHWAY	*Either of the Following* < OHM, possibly attributable to the disposal site, has been identified in a public or private drinking water supply well. Drinking water samples shall be taken prior to treatment or blending. *or* < A reasonable likelihood exists that a public or private drinking water supply well has been or is likely to be impacted by OHM from the disposal site.	150

(3) Surface Water.

II.C.SURFACE WATER EXPOSURE CRITERIA		
DEFINITION	As defined by 310 CMR 40.0006, including rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, coastal waters and vernal pools.	
DESIGNATION	*CRITERIA*	POINTS
NONE *or* NOT APPLICABLE	< OHM likely attributable to the disposal site has not been identified in, and is not anticipated to be identified in, surface waters.	0
EVIDENCE OF CONTAMINATION (Assumes No Exposure Pathway)	*Any of the Following* < A release (past or on-going) of OHM to surface water has been identified. *or* < Qualitative evidence of a release. $ OHM-attributable visible sheen or discoloration; *or* $ OHM entering surface water; *or* $ OHM-attributable stained soils in contact with surface water; *or* $ There is a reasonable likelihood that OHM *will* be identified in surface water as a result of OHM migration. *or* < OHM, likely attributable to the disposal site, has been identified in groundwater at concentrations that are likely to result in detectable concentrations in surface water.	20
POTENTIAL EXPOSURE PATHWAY	*Either of the Following* < OHM, likely to be attributable to the disposal site, has been identified in a surface water known to be used for drinking, swimming, boating or fishing. *or* < OHM, likely to be attributable to the disposal site, has been identified at concentrations $ Ambient Water Quality Criteria (AWQC) pursuant to 40.1505(2) and 40.1516(1).	100
LIKELY or CONFIRMED EXPOSURE PATHWAY	*Any of the Following* < There is a reasonable likelihood that a surface public drinking water supply has been or may be impacted by OHM from the disposal site. *or* < OHM, possibly attributable to the disposal site, has been identified at the entry point to a public drinking water supply distribution system. *or* < A fish advisory likely attributable to the disposal site is in effect. *or* < OHM likely attributable to the disposal site present has been identified at concentrations $ Ambient Water Quality Criteria (AWQC) pursuant to 40.1505(2) and 40.1516(1), and the disposal site is located in or contains: an Area of Critical Environmental Concern (ACEC); a mapped habitat of a Species of Special Concern, Endangered or Threatened Species; a Certified Vernal Pool; a Restricted Wetland; an Outstanding Resource Water; a fish habitat; or a Protected Open Space.	150

(4) Air.

II.D.AIR EXPOSURE CRITERIA		
DEFINITION	Air contamination includes both vapors, particularly focusing on indoor air, and particulates. Score only releases regulated under C. 21E; do not score permitted releases associated with on-going commercial or industrial processes.	
DESIGNATION	*CRITERIA*	POINTS
NONE *or* NOT APPLICABLE	< OHM likely attributable to the disposal site has not been identified in, and is not anticipated to be identified in, air.	0
EVIDENCE OF CONTAMINATION (Assumes No Exposure Pathway)	*Any of the following* < A release, or potential release, of OHM to air has been identified. *or* < OHM that may be released to air as particulate material has been identified in the top 6" of the ground surface. Unbroken paved/concrete slab surfaces *may* be interpreted as preventing release of particulates to air. *or* < OHM that may be released to air as a vapor has been identified in an open container or surface impoundment that is part of the disposal site. *or* < An odor that is reasonably attributable to a release of OHM at the disposal site has been identified.	15
POTENTIAL EXPOSURE PATHWAY	*Any of the Following* < OHM releases, likely attributable the disposal site, have been repeatedly identified in ambient air within 100' of a residence, school, hospital, nursing home, or playground when such releases are above ambient background concentrations and are not related to permitted releases. *or* < Total volatile organic compounds have been identified in groundwater at concentrations $ 5 mg/l within 30 feet of a school or occupied residence where the depth to groundwater is # 15 feet. Soil gas surveys or indoor air sampling may be conducted to demonstrate no exposure to OHM. *or* < A reasonable likelihood exists that the indoor air quality of an occupied building *will be* impacted by OHM likely attributable to the disposal site.	100
LIKELY or CONFIRMED EXPOSURE PATHWAY	*Either of the Following* < OHM has been identified in indoor air in an occupied building, above background concentrations, when the OHM is likely attributable to a non-permitted release at the disposal site. *or* < A reasonable likelihood exists that OHM likely attributable to the disposal site *is* affecting air quality in an occupied building.	200

40.1513: Human Health-based Toxicity Values and Scores

(1) The Human Health-Based Toxicity Values found in 310 CMR 40.1513(2) shall be used to score OHM not included in Table III.A. of the Scoresheet. If a site-related OHM is not listed in 310 CMR 40.1513(2) use the Relative Toxicity Value Matrix [310 CMR 40.1513(3)] to derive a OHM-specific Toxicity Value. Correlate the value derived using 310 CMR 40.1513(3) with the OHM concentration to determine the OHM Toxicity Score using Worksheet III.A.1. in the Scoresheet. Record each OHM name, Toxicity Value, concentration and Toxicity Score in Table *III.A.1* of the Scoresheet.

(2) Human Health-Based Toxicity Values.

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Acenaphthene	83329	6.0E-02					8
Acenaphthylene	208968			D		D	25
Acephate	30560191	4.0E-03	8.7E-03	C			30
Acetaldehyde	75070					B2	28
Acetone	67641	1.0E-01		D		D	8
Acetone Cyanohydrin	75865	8.0E-04					40
Acetonitrile	75058	6.0E-03		D		D	25
Acetophenone	98862	1.0E-01		D		D	8
Acetyl Chloride	75365			D		D	25
Acifluorfen, sodium	62476599	1.3E-02					18
Acrolein	107028	2.0E-02		C		C	25
Acrylamide	79061	2.0E-04	4.5E+00	B2	4.5E+00	B2	46
Acrylic acid	79107	5.0E-01					4
Acrylonitrile	107131	1.0E-03	5.4E-01	B1	2.4E-01	B1	34
Alachlor	15972608	1.0E-02	8.0E-02	B2		B2	25
Aldicarb	116063	1.0E-03		D		D	25
Aldicarb sulfone	1646884	1.0E-03					25
Aldrin	309002	3.0E-05	1.7E+01	B2	1.7E+01	B2	50
Alkanes/Alkenes							25
Allyl Alcohol	107186	5.0E-03					25
Allyl Chloride	107051	5.0E-02		C		C	22
Aluminum phosphide	20859738	4.0E-04					40
Ametryn	834128	9.0E-03					18
Aminophenol, m-	591275	7.0E-02					8
Aminopyridine, 4-	504245	2.0E-05		D		D	40
Ammonia	7664417						25
Ammonium Acetate	631618			D		D	25
Ammonium Methacrylate	16325476			D		D	25
Aniline	62533		5.7E-03	B2		B2	22
Anthracene	120127	3.0E-01		D		D	4
Antimony	7440360	4.0E-04					40
Antimony Pentoxide	1314609	5.0E-04					40
Antimony Potassium Tartrate	28300745	9.0E-04					40
Antimony Tetroxide	1332816	4.0E-04					40
Antimony Trioxide	1309644	4.0E-04					40
Apollo	74115245	1.3E-02		C		C	25
Aramite	140578	5.0E-02	2.5E-02	B2	2.5E-02	B2	20
Aroclor 1016	12674112	7.0E-05					40
Aroclor 1254	11097691	2.0E-05					40
Aliphatics C5-C8		6.00E-02					8
C9-C12		1.00E-01					8
C9-C18		1.00E-01					8
C19-C36		2.00E+00					4

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Arsenic	7440382	3.0E-04	1.5E+00	A	5.0E+01	A	46
Aromatics C9-C10		3.0E-02					18
C11-C22		3.0E-02					18
Asbestos	1332214			A		A	34
Assure	76578148	9.0E-03		D		D	18
Atrazine	1912249	3.5E-02	2.2E-01	C		C	28
Azobenzene	103333		1.1E-01	B2	1.1E-01	B2	25
Barium	7440393	7.0E-02					8
Barium Cyanide	542621	1.0E-01					8
Baygon	114261	4.0E-03					25
Bayleton	43121433	3.0E-02					18
Benefin	1861401	3.0E-01					4
Benzaldehyde	100527	1.0E-01					8
Benzene	71432	5.0E-03	5.5E-02	A	2.9E-02	A	32
Benzidine	92875	3.0E-03	2.3E+02	A	2.3E+02	A	46
Benzoic acid	65850	4.0E+00		D		D	4
Benzotrichloride	98077		1.3E+01	B2		B2	44
Benzo(a)anthracene	56553			B2		B2	28
Benzo(b)fluoranthene	205992			B2		B2	28
Benzo[a]pyrene	50328		7.3E+00	B2	6.1E+00	B2	44
Benzo[k]fluoranthene	207089			B2		B2	28
Benzyl Alcohol	100516	3.0E-01					4
Benzyl Chloride	100447		1.7E-01	B2		B2	25
Beryllium	7440417	2.0E-03	4.3E+00	B1	8.4E+00	B1	38
Biphenthrin	82657043	1.5E-02					18
Biphenyl, 1,1-	92524	5.0E-02		D		D	8
Bisphenol A	80057	5.0E-02					8
Bis(2chloro-1methylethyl)ether	108601		7.0E-02	C	3.5E-02	C	25
Bis(2-chloroethyl)ether	111444		1.1E+00	B2	1.1E+00	B2	34
Bis(2-ethylhexyl)phthalate	117817	2.0E-02	1.4E-02	B2		B2	22
Bis(chloromethyl)ether	542881		2.2E+02	A	2.2E+02	A	44
Boron	7440428	9.0E-02					8
Bromodichloromethane	75274	2.0E-02	6.2E-02	B2		B2	25
Bromoform	75252	2.0E-02	7.9E-03	B2	3.9E-03	B2	22
Bromomethane	74839	1.4E-03		D		D	25
Bromophos		5.0E-03					25
Bromoxynil	1689845	2.0E-02					18
Bromoxynil Octanoate	1689992	2.0E-02					18
Butadiene, 1,3-	106990				1.8E+00	B2	34
Butanol, n-	71363	1.0E-01		D		D	8
Butyl Benzyl Phthalate	85687	2.0E-01		C		C	20
Butylate	2008415	5.0E-02					8
Butylphthalyl Butylglycolate	85701	1.0E+00					4
Cacodylic Acid	75605	3.0E-03		D		D	25
Cadmium	7440439	5.0E-04			6.1E+00	B1	50
Calcium Chromate	13765190						25
Calcium Cyanide	592018	4.0E-02					18
Caprolactam	105602	5.0E-01					4
Captafol	2425061	2.0E-03	8.6E-03	C		C	30
Captan	133062	1.3E-01	3.5E-03	B2		B2	20
Carbaryl	63252	1.0E-01					8
Carbazole	86748		2.0E-02	B2		B2	22

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Carbofuran	1563662	5.0E-03					25
Carbon Disulfide	75150	1.0E-01					8
Carbon Tetrachloride	56235	7.0E-04	1.3E-01	B2	5.3E-02	B2	43
Carboxin	5234684	1.0E-01					8
Chloral hydrate	75876	1.0E-01					8
Chloramben	133904	1.5E-02					18
Chloranil	118752		4.0E-01	C		C	28
Chlordane	57749	6.0E-05	3.5E-01	B2	1.3E+00	B2	45
Chlorine	7782505	1.0E-01					8
Chlorine Dioxide	10049044	3.0E-02		D		D	18
Chloroacetic Acid	79118	2.0E-03					25
Chloroacetophenone, 2-	532274						25
Chloroaniline, 4-	106478	4.0E-03					25
Chlorobenzene	108907	2.0E-02		D		D	18
Chlorobenzilate	510156	2.0E-02	2.7E-01	B2	2.7E-01	B2	28
Chlorobenzoic Acid, para-	74113	2.0E-01					4
Chlorobenzotrifluoride, 4-	98566	2.0E-02					18
Chlorobutane, 1-	109693	4.0E-01		D		D	4
Chlorobutane, 2-	78864			D		D	25
Chloroethane	75003						25
Chloroform	67663	1.0E-02	NA-note #19	B2	8.1E-02	B2	44
Chloromethane	74873			D		D	25
Chloromethyl Methyl Ether	107302			A		A	34
Chloronaphthalene, beta	91587	8.0E-02					8
Chloronitrobenzene, o-	88733		2.5E-02	B2		B2	22
Chloronitrobenzene, p-	100005		1.8E-02	B2		B2	22
Chlorophenol, 2-	95578	5.0E-03					25
Chloroprene	126998	2.0E-02					18
Chloropropane, 2-	75296						25
Chlorothalonil	1897456	1.5E-02	1.1E-02	B2		B2	22
Chloro-2-2-methyl-aniline Hy, 4-	3165933		4.6E-01	B2		B2	28
Chloro-2-methyl-aniline, 4-	95692		5.8E-01	B2		B2	28
Chlorpropham	101213	2.0E-01					4
Chlorpyrifos	2921882	3.0E-03					25
Chlorpyrifos-methyl	5598130	1.0E-02					18
Chlorsulfuron	64902723	5.0E-02					8
Chlorthiophos	21923239	8.0E-04					40
Chromic Acid	7738945						25
Chromium III	16065831	1.5E+00					4
Chromium VI	18540299	3.0E-03			4.1E+01	A	46
Chrysene	218019			B2		B2	28
Coal Tars							25
Coke Oven Emissions	8007452				2.2E+00	A	34
Copper	7440508			D		D	25
Creosote	8001589			B1		B1	28
Cresol, meta-	108394	5.0E-02		C		C	22
Cresol, ortho-	95487	5.0E-02		C		C	22
Cresol, para-	106445	5.0E-03		C		C	32
Crotonaldehyde	123739		1.9E+00	C	1.9E+00	C	34
Cumene	98828	1.0E-01		D		D	8
Cyanazine	21725462	2.0E-03	8.4E-01	C			34
Cyanide	57125	2.0E-02		D		D	18
Cyanogen	460195	4.0E-02					18
Cyclohexane	110827						25

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Cyclohexylamine	108918	2.0E-01					4
Cyclonite (RDX)	121824	3.0E-03	1.1E-01	C		C	32
Cyromazine	66215278	7.5E-03					25
D, 2,4-	94757	1.0E-02					18
Dacthal (DCPA)	1861321	1.0E-02					18
Dalapon (sodium salts)	75990	3.0E-02					18
DB, 2,4-	94826	8.0E-03					18
DBCP	96128	2.0E-02	1.4E+00	B2	2.4E-03	B2	34
DDD	72548		2.4E-01	B2		B2	28
DDE	72559		3.4E-01	B2		B2	28
DDT	50293	5.0E-04	3.4E-01	B2	3.4E-01	B2	45
Decabromodiphenyl Ether	1163195	1.0E-02		C		C	25
Demeton	8065483	4.0E-05					40
Diallate	2303164		6.1E-02	B2		B2	25
Diazinon	333415	9.0E-04					40
Dibenzofuran	132649			D		D	25
Dibromobenzene, 1,4-	106376	1.0E-02					18
Dibromochloromethane	124481	2.0E-02	8.4E-02	C		C	25
Dibromoethane, 1,2-	106934	2.0E-05	8.5E+01	B2	7.6E-01	B2	50
Dicamba	1918009	3.0E-02					18
Dichlorobenzene, 1,3-	541731			D		D	25
Dichlorobenzene, ortho-	95501	9.0E-02		D		D	8
Dichlorobenzene, para-	106467		2.4E-02	B2		B2	22
Dichlorobenzidene, 3,3-	91941		4.5E-01	B2		B2	28
Dichlorodifluoromethane	75718	2.0E-01					4
Dichloroethane, 1,1-	75343	1.0E-01		C		C	22
Dichloroethane, 1,2-	107062	2.0E-02	9.1E-02	B2	9.1E-02	B2	25
Dichloroethylene, 1,1-	75354	5.0E-02		C		C	22
Dichloroethylene, cis-1,2-	156592	1.0E-02		D		D	18
Dichloroethylene, trans-1,2-	156605	2.0E-02					18
Dichloroethylene (mixed)	540590	9.0E-03					18
Dichlorophenol, 2,4-	120832	3.0E-03					25
Dichloropropane, 1,2-	78875		6.8E-02	B2		B2	25
Dichloropropanol, 2,3-	616239	3.0E-03					25
Dichloropropene, 1,3-	542756	3.0E-02	1.0E-01	B2	1.3E-01	B2	25
Dichloro-2-butene, 1,4-	764410			B2	9.3E+00	B2	44
Dichlorvos	62737	5.0E-04	2.9E-01	B2		B2	45
Dicofol	115322		4.4E-01	C			28
Dicyclopentadiene	77736	3.0E-02					18
Dieldrin	60571	5.0E-05	1.6E+01	B2	1.6E+01	B2	50
Diethyl Phthalate	84662	8.0E-01		D		D	4
Diethylene Glycol Monobutyl Et	112345						25
Diethylene Glycol Monoethyl Et	111900	2.0E+00					4
Diethylformamide	617845	1.1E-02					18
Diethyl-p-nitrophenylphosphate	311455			D		D	25
Diflubenzuron	35367385	2.0E-02					18
Dimethoate	60515	2.0E-04					40
Dimethoxybenzidine, 3,3-	119904		1.4E-02	B2		B2	22
Dimethyl Sulfate	77781			B2		B2	28
Dimethyl Terephthalate	120616	1.0E-01					8
Dimethylamine	124403						25
Dimethylaniline, 2,4-	95681	2.0E-03	7.5E-01	C		C	34
Dimethylaniline Hydrochlor, 2,4-	21436964		5.8E-01	C		C	28

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Dimethylbenzidine, 3,3-	119937		9.2E+00	B2		B2	44
Dimethylformamide, N,N-	68122	1.0E-01					8
Dimethylhydrazine, 1,1-	57147		2.6E+00	B2	3.5E+00	B2	34
Dimethylhydrazine, 1,2-	540738		3.7E+01	B2	3.7E+01	B2	44
Dimethylphenol, 2,4-	105679	2.0E-02					18
Dimethylphenol, 2,6-	576261	6.0E-04					40
Dimethylphenol, 3,4-	95658	1.0E-03					25
Dimethylphthalate	131113	1.0E+01		D		D	4
DIMP	1445756	8.0E-02		D		D	8
Dinitrobenzene, m-	99650	1.0E-04		D		D	40
Dinitrobenzene, o-	528290	4.0E-04		D		D	40
Dinitrobenzene, p-	100254	4.0E-04					40
Dinitrophenol, 2,4-	51285	2.0E-03					25
Dinitrotoluene, 2,4-	121142	2.0E-03	6.8E-01	B2		B2	34
Dinitrotoluene, 2,6-	606202	1.0E-03	6.8E-01	B2		B2	34
Dinitrotoluene (mixture)			6.8E-01	B2		B2	28
Dinitro-o-cresol, 4,6-	534521						25
Dinoseb	88857	1.0E-03		D		D	25
Dioxane, 1,4-	123911		1.1E-02	B2		B2	22
Diphenamid	957517	3.0E-02					18
Diphenyl	92524						25
Diphenylamine, N,N-	122394	2.5E-02					18
Diphenylhydrazine, 1,2-	122667		8.0E-01	B2	8.0E-01	B2	28
Diquat	85007	2.2E-03					25
Direct Black 38	1937377		8.6E+00	A		A	44
Direct Blue 6	2602462		8.1E+00	A		A	44
Direct Brown 95	16071866		9.3E+00	A		A	44
Direct Sky Blue 6B	2610051			B2		B2	28
Disulfoton	298044	4.0E-05					40
Dithiane, 1,4-	505293	1.0E-02		D		D	18
Di(2-ethylhexyl)adipate	103231	6.0E-01	1.2E-03	C		C	18
Di-n-butyl Phthalate	84742	1.0E-01		D		D	8
Dodine	2439103	4.0E-03					25
Endosulfan	115297	6.0E-03					25
Endothall	145733	2.0E-02					18
Endrin	72208	3.0E-04		D		D	40
Epichlorohydrin	106898	2.0E-03	9.9E-03	B2	4.2E-03	B2	30
Epoxybutane, 1,2-	106887						25
Ethanol	64175						25
Ethion	563122	5.0E-04					40
Ethoxyethanol, 2-	110805	4.0E-01					4
Ethoxyethanol Acetate, 2-	111159	3.0E-01					4
Ethyl Acetate	141786	9.0E-01					4
Ethyl Acrylate	140885		4.8E-02	B2		B2	25
Ethyl Chloride	75003						25
Ethyl Dipropylthiocarbamate,S-	759944	2.5E-02					18
Ethyl Ether	60297	2.0E-01					4
Ethyl Methacrylate	97632	9.0E-02					8
Ethyl p-Nitrophenyl Phenylphos	2104645	1.0E-05					40
Ethylbenzene	100414	1.0E-01		D		D	8
Ethylene Cyanohydrin		3.0E-01					4
Ethylene Dibromide	106934	2.0E-05	8.5E+01	B2	7.6E-01	B2	50
Ethylene Glycol	107211	2.0E+00					4

40.1513(2): Human Health-Based Toxicity Values and Scores							
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Ethylene Glycol Monobutyl Ethe	111762	5.0E-01					4
Ethylene Oxide	75218		1.0E+00	B1	3.5E-01	B1	34
Ethylene Thiourea	96457	8.0E-05	1.1E-01	B2		B2	43
Ethylenediamine	107153	2.0E-02		D		D	18
Express	101200480	8.0E-03					18
Fenamiphos	22224926	2.5E-04					40
Fluoranthene	206440	4.0E-02		D		D	18
Fluorene	86737	4.0E-02		D		D	18
Fluoride	7782414	6.0E-02					8
Fluridone	59756604	8.0E-02					8
Folpet	133073	1.0E-01	3.5E-03	B2		B2	20
Fonofos	944229	2.0E-03					25
Formaldehyde	50000	2.0E-01	3.0E-02	B1	4.5E-02	B1	20
Furan	110009	1.0E-03					25
Furazolidone	67458		3.8E+00	B2		B2	34
Furfural	98011	3.0E-03					25
Furium	531828		5.0E+01	B2		B2	44
Glycidaldehyde	765344	4.0E-04		B2		B2	45
Heptachlor	76448	5.0E-04	4.5E+00	B2	4.5E+00	B2	46
Heptachlor Epoxide	1024573	1.3E-05	9.1E+00	B2	9.1E+00	B2	50
Heptane, n-	142825			D		D	25
Hexabromobenzene	87821	2.0E-03					25
Hexachlorobenzene	118741	8.0E-04	1.6E+00	B2	1.6E+00	B2	46
Hexachlorobutadiene	87683	2.0E-04	7.8E-02	C	7.8E-02	C	43
Hexachlorocyclohexane, alpha-	319846		6.3E+00	B2	6.3E+00	B2	44
Hexachlorocyclohexane, beta-	319857		1.8E+00	C	1.8E+00	C	34
Hexachlorocyclohexane, delta-	319868			D		D	25
Hexachlorocyclohexane, epsilon	6108107			D		D	25
Hexachlorocyclohexane, gamma-	58899	3.0E-04	1.3E+00	B2-C		B2-C	46
Hexachlorocyclopentadiene	77474	6.0E-03		D		E	25
Hexachloroethane	67721	1.0E-03	1.4E-02	C	1.4E-02	C	30
Hexachlorophene	70304	3.0E-04					40
Hexane, n-	110543	6.0E-02					8
Hexanone, 2-	591786						25
Hexazinone	51235042	3.3E-02					18
Hydrazine	302012		3.0E+00	B2	1.7E+01	B2	34
Hydrogen Chloride	7647010						25
Hydrogen Cyanide	74908	2.0E-02					18
Hydrogen Fluoride	7664393						25
Hydrogen Sulfide	7783064	3.0E-03					25
Hydroquinone	123319	4.0E-02					18
Isoamyl Acetate	123922						25
Isobutyl Acetate	110190						25
Isobutyl Alcohol	78831	3.0E-01					4
Isophorone	78591	2.0E-01	9.5E-04	C		C	18
Isopropalin	33820530	1.5E-02					18
Isopropyl Acetate	108214						25
Isopropyl methyl phosphonic ac	1832548	1.0E-01		D		D	8
Isoxaben	82558507	5.0E-02		C		C	22
Lead	7439921	7.5E-04		B2		B2	45
Lead Alkyls		1.0E-07					40
Lead Subacetate	1335326						25

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Linuron	330552	2.0E-03		C		C	32
Londax	83055996	2.0E-01					4
Malathion	121755	2.0E-02					18
Maleic Anhydride	108316	1.0E-01					8
Maleic Hydrazide	123331	5.0E-01					4
Malononitrile	109773	2.0E-05					40
Mancozeb	8018017	3.0E-02					18
Maneb	12427382	5.0E-03					25
Manganese	7439965			D		D	25
MCPA	94746	5.0E-04					40
MCPB	94815	1.0E-02					18
MCPP	93652	1.0E-03					25
Mephosfolan	950107	9.0E-05					40
Mepiquat Chloride	24307264	3.0E-02					18
Mercury, alkyl							25
Mercury (Elemental)	7439976	3.0E-04		D		D	40
Merphos	150505	3.0E-05					40
Merphos Oxide	78488	3.0E-05					40
Methacrylonitrile	126987	1.0E-04					40
Methanol	67561	5.0E-01					4
Methomyl	16752775	2.5E-02					18
Methoxychlor	72435	5.0E-03		D		D	25
Methoxyethanol, 2-	109864	1.0E-03					25
Methoxyethanol Acetate, 2-	110496	2.0E-03					25
Methoxy-5-nitroaniline, 2-	99592		4.6E-02	B2		B2	25
Methyl Acetate	79209	1.0E+00					4
Methyl Acrylate	96333	3.0E-02		D		D	18
Methyl Bromide	74839	1.4E-03		D		D	25
Methyl Chloride	74873		1.3E-02	C	6.3E-03	C	22
Methylene Chloride	75092	6.0E-02	7.5E-03	B2		B2	20
Methyl Ethyl Ketone	78933	6.0E-01		D		D	4
Methyl Isobutyl Ketone	108101	8.0E-02					8
Methyl Isocyanate	624839						25
Methyl Mercury	22967926	1.0E-04		C		C	43
Methyl Methacrylate	80626	1.4E+00					4
Methyl Parathion	298000	2.5E-04					40
Methyl Styrene	25013154	6.0E-03					25
Methyl Styrene, alpha	98839	7.0E-02					8
Methylaniline, 2-	95534		2.4E-01	B2		B2	28
Methylaniline Hydrochloride, 2-	636215		1.8E-01	B2		B2	25
Methylene Bromide	74953	1.0E-02					18
Methylenebisbenzenamine, 4,4-	101779		2.5E-01	NA			28
Methylenebis(N,N'...)anil, 4,4-	101611		4.6E-02	B2		B2	25
Methylhydrazine	60344		1.1E+00	NA			34
Methyl-5-nitroaniline, 2-	99558		3.3E-02	C		C	25
Methyl-tert-Butyl Ether	1634044	1.0E-01					8
Metolachlor	51218452	1.5E-01		C		C	22
Mirex	2385855	2.0E-04	1.8E+00	B2		B2	46
Molinate	2212671	2.0E-03					25
Molybdenum	7439987	5.0E-03					25
Monochloramine	10599903	1.0E-01		D		D	8
Naphthalene	91203	2.0E-02		C		C	25
Napropamide	15299997	1.0E-01					8

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Niagara Blue 4B	2429745			B2		B2	28
Nickel	7440020	2.0E-02			8.4E-01	A	28
Nickel Carbonyl	13463393			B2		B2	28
Nickel Oxide	1313991						25
Nickel Subsulfide	12035722				1.7E+00	A	34
Nickel (dust)	00020				8.4E-01	A	28
Nitrapyrin	1929824	1.5E-03					25
Nitrate	14797558	1.6E+00					4
Nitrite	14797650	1.0E-01					8
Nitrobenzene	98953	5.0E-04		D		D	40
Nitrofurantoin	67209	7.0E-02					8
Nitrofurazone	59870		1.5E+00	B2		B2	34
Nitroguanidine	556887	1.0E-01		D		D	8
Nitropropane, 2-	79469		9.5E+00	B2	9.4E+00	B2	44
Nitrotoluene, m-	99081	1.0E-02					18
Nitrotoluene, o-	88722	1.0E-02					18
Nitrotoluene, p-	99990	1.0E-02					18
Norflurazon	27314132	4.0E-02					18
N-Nitrosodiethanolamine	1116547		2.8E+00	B2		B2	34
N-Nitrosodiethylamine	55185		1.5E+02	B2	1.5E+02	B2	44
N-Nitrosodimethylamine	62759		5.1E+01	B2	5.1E+01	B2	44
N-Nitrosodiphenylamine	86306		4.9E-03	B2		B2	22
N-Nitrosodi-n-butylamine	924163		5.4E+00	B2	5.4E+00	B2	34
N-Nitrosodi-n-propylamine	621647		7.0E+00	B2		B2	44
N-Nitrosomethylethylamine	10595956		2.2E+01	B2		B2	44
N-Nitrosomethylvinylamine	4549400			B2		B2	28
Octabromodiphenyl Ether	32536520	3.0E-03		D		D	25
Octamethylpyrophosphoramide	152169	2.0E-03					25
Oxamyl	23135220	2.5E-02					18
Parathion	56382	6.0E-03		C		C	32
PBBs		7.0E-06	8.9E+00	B2		B2	50
PCBs	1336363	2.0E-05		B2		B2	45
Pebulate	1114712	5.0E-02					8
Pendimethalin	40487421	4.0E-02					18
Pentabromodiphenyl Ether	32534819	2.0E-03		D		D	25
Pentabromo...cy.hexa, 1,2,3,4,5-	87843		2.3E-02	C		C	22
Pentachlorobenzene	608935	8.0E-04		D		D	40
Pentachloronitrobenzene	82688	3.0E-03	2.6E-01	C		C	34
Pentachlorophenol	87865	3.0E-02	1.2E-01	B2		B2	25
Permethrin	52645531	5.0E-02					8
Phenanthrene	85018			D		D	25
Phenol	108952	6.0E-01		D		D	4
Phenylenediamine, m-	108452	6.0E-03					25
Phenylenediamine, o-	95545		4.7E-02	B2		B2	25
Phenylphenol, 2-	90437		1.9E-03	C		C	22
Phosgene	75445						25
Phosmet	732116	2.0E-02					18
Phosphine	7803512	3.0E-04		D		D	40
Phosphoric Acid	7664382						25
Phosphorus, white	7723140	2.0E-05		D		D	40
Phthalic Acid, p-	100210	1.0E+00					4
Phthalic Anhydride	85449	2.0E+00					4
Picloram	1918021	7.0E-02					8

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Polyaromatic Hydrocarbons (PAHs)							25
Profluralin	26399360	6.0E-03					25
Prometon	1610180	1.5E-02					18
Prometryn	7287196	4.0E-03					25
Pronamide	23950585	7.5E-02					8
Propachlor	1918167	1.3E-02					18
Propazine	139402	2.0E-02					18
Propyl Alcohol	71238						25
Propylene Glycol	57556	2.0E+01					4
Propylene Glycol Monoethyl Eth	1569024	7.0E-01					4
Propylene Glycol Monomethyl Et	107982	7.0E-01					4
Propylene Oxide	75569		2.4E-01	B2	1.3E-02	B2	28
Pyrene	129000	3.0E-02		D		D	18
Pyridine	110861	1.0E-03					25
Quinoline	91225		3.0E+00	C		C	34
Quinone	106514						25
Resorcinol	108463						25
Ronnel	299843	5.0E-02					8
Rotenone	83794	4.0E-03					25
Selenious Acid	7783008	5.0E-03		D		D	25
Selenium	7782492	5.0E-03		D		D	25
Selenium Sulfide	7446346			B2		B2	28
Silver	7440224	5.0E-03		D		D	25
Simazine	122349	5.0E-03	1.2E-01	C		C	32
Sodium Cyanide	143339	4.0E-02					18
Sodium Diethyldithiocarbamate	148185	3.0E-02	2.7E-01	C		C	28
Sodium Metavanadate	13718268	1.0E-03					25
Strontium	7440246	6.0E-01					4
Styrene	100425	2.0E-01	3.0E-02	B2	2.0E-03	B2	20
Sulfuric Acid	7664939						25
TCDD, 2,3,7,8-	1746016		1.5E+05	B2	1.5E+05	B2	44
TCMTB	21564170	3.0E-02					18
Tebuthiuron	34014181	7.0E-02					8
Temephos	3383968	2.0E-02					18
Terbacil	5902512	1.3E-02					18
Terbufos	13071799	2.5E-05					40
Terbutryn	886500	1.0E-03					25
Tetrachlorodifluoroethane	76120						25
Tetrachloroethane, 1,1,1,2-	630206	3.0E-02	2.6E-02	C	2.6E-02	C	22
Tetrachloroethane, 1,1,2,2-	79345		2.0E-01	C	2.0E-01	C	28
Tetrachloroethylene	127184	1.0E-02	5.1E-02	B2		B2	25
Tetrachlorophenol, 2,3,4,6-	58902	3.0E-02					18
Tetrachlorotoluene, p,a,a,a-	5216251		2.0E+01	B2		B2	44
Tetrachlorovinphos	961115	3.0E-02	2.4E-02	C		C	22
Tetraethyl Lead	78002	1.0E-07					40
Tetrahydrofuran	109999	1.8E-01					4
Thallic Oxide	1314325	7.0E-05		D		D	40
Thallium	7440280	7.0E-05					40
Thallium Acetate	563688	9.0E-05		D		D	40
Thallium Carbonate	6533739	8.0E-05		D		D	40
Thallium Chloride	7791120	8.0E-05		D		D	40
Thallium Nitrate	10102451	9.0E-05		D		D	40
Thallium Selenite	12039520	9.0E-05		D		D	40

40.1513(2): Human Health-Based Toxicity Values and Scores							
Chemical Name	CAS Number	Chronic Oral RfD mg/kg/day	Oral Carcin Slope Factor 1/(mg/kg/day)	CLS	Inhalation Carcin Slope Factor 1/(mg/kg/day)	CLS	Human Health Toxicity Value
Thallium Sulfate	7446186	8.0E-05		D		D	40
Thiofanox	39196184	3.0E-04					40
Thiram	137268	5.0E-03					25
Tin	7440315	6.0E-01					4
Toluene	108883	2.0E-01		D		D	4
Toluene Diisocyanate	584849						25
Toluenediamine, 2,4-	95807		3.2E+00	B2		B2	34
Toluene-2,5-diamine	95705	6.0E-01					4
Toluene-2,6-diamine	823405	2.0E-01					4
Toluidine, o-	95534		2.4E-01	B2		B2	28
Toluidine, p-	106490		1.9E-01	C		C	25
Toxaphene	8001352		1.1E+00	B2	1.1E+00	B2	34
TP, 2,4,5-	93721	8.0E-03		D		D	18
Triallate	2303175	1.3E-02					18
Tribromobenzene, 1,2,4-	615543	5.0E-03					25
Trichloroaniline, 2,4,6-	634935		3.4E-02	C		C	25
Trichloroaniline Hydroch, 2,4,6-	33663502		2.9E-02	C		C	22
Trichlorobenzene, 1,2,4-	120821	1.0E-02		D		D	18
Trichloroethane, 1,1,1-	71556	9.0E-02		D		D	8
Trichloroethane, 1,1,2-	79005	4.0E-03	5.7E-02	C	5.7E-02	C	32
Trichloroethylene	79016	2.0E-03	1.1E-02	B2	1.7E-02	B2	30
Trichlorofluoromethane	75694	3.0E-01					4
Trichlorophenol, 2,4,5-	95954	1.0E-01					8
Trichlorophenol, 2,4,6-	88062		1.1E-02	B2	1.0E-02	B2	22
Trichloropropane, 1,1,2-	598776	5.0E-03					25
Trichloropropane, 1,2,3-	96184	6.0E-03	7.0E+00	B2		B2	46
Trichloropropene, 1,2,3-	96195	5.0E-03					25
Trichlorotrifluoroethane	76131	3.0E+01					4
Triethylamine	121448						25
Trifluralin	1582098	7.5E-03	7.7E-03	C		C	30
Trimethyl Phosphate	512561		3.7E-02	B2		B2	25
Trinitrobenzene, 1,3,5-	99354	3.0E-02					18
Vanadium	7440622	7.0E-03					25
Vanadium Pentoxide	1314621	9.0E-03					18
Vanadium Sulfate	36907423	2.0E-02					18
Vernam	1929777	1.0E-03					25
Vinyl Acetate	108054	1.0E+00					4
Vinyl Bromide	593602			B2	1.1E-01	B2	25
Vinyl Chloride	75014	3.0E-03	1.4E+00	A	3.0E-01	A	38
Xylenes	1330207	2.0E+00		D		D	4
Zinc	7440666	3.0E-01		D		D	4
Zineb	12122677	5.0E-02					8

(PAGES 1775 THROUGH 1780 ARE RESERVED FOR FUTURE USE.)

(3) Human Health-Based Toxicity Value Matrix

(a) Human Health-Based Toxicity Value Matrix

HUMAN HEALTH-BASED TOXICITY VALUE MATRIX					
CANCER SLOPE VALUE (CSV) in $(mg/kg/day)^{-1}$ or *CARCINOGENIC CLASS*	*REFERENCE DOSE (RfD)* in (mg/kg/day)				
	# 0.0009	0.0009 < x # 0.0075	0.0075 < x # 0.04 (or No RfD)	0.04 < x # 0.15	> 0.15
$ 6	50	46	44	42	40
0.9 # x < 6 (or Class A with no CSV)	46	38	34	32	30
0.2 # x < 0.9 (or Class B1 & B2 with no CSV)	45	34	28	25	22
0.03 # x < 0.2 (or Class C with no CSV)	43	32	25	22	20
< 0.03	41	30	22	20	18
Class D or (No Class and CSV)	40	25	18 **(*)**	8	4
Class E	40	25	17	7	0

(*) DEFAULT	When there is no RfD, no CSV and no Carcinogenic Class, assign a Value of 25.

(b) Defaults.

In the absence of a U.S. EPA derived Reference Dose (RfD) from *IRIS* or *HEAST* but when a Carcinogenic Slope Value (CSV) is available, the scorer shall either (1) assign a Human Health-Based Toxicity Value using the RfD default categories indicated in the matrix, *or* (2) identify and document an allowable daily intake which is developed in a manner consistent with the U.S. EPA methodology, and assign a Toxicity Value accordingly.

In the absence of a U.S. EPA derived CSV or carcinogenic group classification from *IRIS*, *HEAST* or another similar database, but when a RfD is available, the scorer shall assign a Toxicity Value using the Class D default category indicated in the matrix.

In the absence of an RfD, CSV and carcinogenic group classification, the scorer shall (1) assign a default Toxicity Value of 25, or (2) identify and document toxicity information analogous to a RfD or CSV and assign a Toxicity Value accordingly.

For radionuclides, no Human Health-Based Toxicity Value has been established. Radionuclides present in quantities greater than their federal Reportable Quantity (40 CFR Part 302.4, Appendix B) where the quantity is known or in concentrations greater than background where the quantity is not known shall be assigned an *OHM Toxicity Score* equal to 50. This score shall be entered directly in Worksheet III.A.1.

40.1514: Mobility and Persistence Scores

(1) Users shall use the Mobility and Persistence Scores found in the following pages. If a OHM is not found in 310 CMR 40.1514(2)
- Organic Compounds or 310 CMR 40.1514(3) - Metals, develop a Mobility and Persistence Score using 40.1514(4) - OHM Mobility and Persistence Factors.

(2) Mobility and Persistence Values and Scores: Organic OHMs

ORGANIC OHM	MOBILITY AND PERSISTENCE VALUES AND SCORES												
	Solubility (mg/l)		Vapor Pressure (mm Hg)			K_{ow}			Degradation Potential [A]		Specific Gravity (at 20E) [B]		TOTAL SCORE
	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	
Acenaphthene	3.4E+00	2	5	1.55E-03	1(b)	0	1.0E+04	2	5	N-P	8	0	1.069 (95E/95E)	16	10	**20**
Acetone	1.0E+06	*	10	2.70E+02	1(f)	10	5.8E-01	1(f)	10	N-P	15	0	.791	16	0	**30**
Aliphatics C5 B C8	11		5	80		10	<E+04		5	NP		0	<1		0	**20**
C9-C12	0.07		0	0.7		5	>E+04		0	NP		0	<1		0	**5**
C9-C18	0.01		0	0.2		5	>E+04		0	NP		0	<1		0	**5**
C19-C36	N/A		0	N/A		0	N/A		0	P		10	<1		0	**10**
Aromatics C9-C10	51		5	2		10	<E+04		5	NP		0	<1		0	**20**
C11-C22	5.8		5	0.02		5	>E+04		0	NP		0	<1		0	**10**
Benzene	1.8E+03	1(a)	10	9.52E+01	1(a)	10	1.3E+02	1(a)	5	N-P	7	0	.879	16	0	**25**
Benzo(a)pyrene	1.2E-03	2	0	5.60E-09	1(a)	0	1.2E+06	2	0	P	8,10	10	1.35 (25E)	19	10	**20**
Benzo(g,h,i)perylene	7.0E-04	2	0	1.03E-10	1(a)	0	3.2E+06	2	0	P	8,10	10	NA		10	**20**
Benzoic Acid	2.7E+03	2	10	(0)	c	0	7.4E+01	2	5	N-P	8	0	1.316 (28E/4E)	16	10	**25**
Bromodichloromethane	4.4E+03	2	10	1.5E+01		10	7.6E+01	2	5	P	7	10	2.006 (15E/4E)	16	10	**45**
Bromoform (Tribromomethane)	3.0E+03	1(b)	10	5.00E+00	1(b)	10	2.5E+02	1(b)	5	P	7	10	2.903 (15E)	16	10	**45**
Carbon Tetrachloride	7.6E+02	1(a)	5	9.00E+01	1(a)	10	4.4E+02	1(a)	5	P	7	10	1.594	16	10	**40**
Chlorobenzene	4.7E+02	1(a)	5	1.17E+01	1(a)	10	6.9E+02	1(a)	5	N-P	7	0	1.106	16	10	**30**

ORGANIC OHM	MOBILITY AND PERSISTENCE VALUES AND SCORES												
	Solubility (mg/l)		Vapor Pressure (mm Hg)			K_{ow}			Degradation Potential [A]		Specific Gravity (at 20E) [B]		TOTAL SCORE
	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	
Chloroethane	5.7E+03	2	10	(34)		5	3.5E+01	2	5	N-P	12	0	.903	16	0	**20**
Chloroform (Trichloromethane)	8.2E+03	1(a)	10	1.51E+02	1(a)	10	9.3E+01	1(a)	5	P	7	10	1.49 (20E)	17	10	**45**
2-Chlorophenol	2.9E+04	2	10	(0.93)		0	1.5E+01	2	5	N-P	7	0	1.241 (18.2E/15E)	16	10	**25**
p-Dichlorobenzene(1,4)	7.9E+01	2	5	1.18E+00	1(b)	10	4.0E+03	2	5	P	7	10	1.458 (21E)	16	10	**40**
1,1-Dichloroethane	5.5E+03	1(a)	10	1.82E+02	1(a)	10	6.2E+01	1(a)	5	P	7	10	1.176	16	10	**45**
1,2-Dichloroethane	8.5E+03	1(a)	10	6.40E+01	1(a)	10	3.0E+01	1(a)	5	P	7	10	1.253	16	10	**45**
1,1-Dichloroethylene	2.3E+03	1(a)	10	6.00E+02	1(a)	10	6.9E+01	1(a)	5	P	7	10	1.250 (15E)	16	10	**45**
cis-1,2-Dichloroethylene	3.5E+03	1(a)	10	2.09E+02	1(a)	10	5.0E+00	1(a)	10	P	7	10	1.27 (25E)	17	10	**50**
trans-1,2-Dichloroethylene	6.3E+03	1(a)	10	3.24E+02	1(a)	10	3.0E+00	1(a)	10	P	7	10	1.27 (25E)	17	10	**50**
2,4-Dichlorophenoxyacetic Acid (2,4-D)	6.2E+02	2	5	4.00E-01	1(c)	5	6.5E+02	2	5	N-P	8	0	1.255	20	10	**25**

ORGANIC OHM	MOBILITY AND PERSISTENCE VALUES AND SCORES											TOTAL SCORE
	Solubility (mg/l)		Vapor Pressure (mm Hg)		K_{ow}			Degradation Potential [A]		Specific Gravity (at 20E) [B]		
	Value	ref. score	Value	ref. score	Value	ref. score		Value	ref. score	Value	ref. score	
Dimethyl Phthalate	4.3E+03	2 10	(0)	0	1.3E+02	2 5		N-P	11 0	1.189 (25E/25E)	16 10	**25**
2,6-Dinitrotoluene	1.3E+03	2 10	1.80E-02	1(b) 5	1.0E+02	2 5		P	8,11 10	1.283 (111E)	16 10	**40**
1,4-Dioxane	4.3E+05	2 10	3.99E+01	1(d) 10	1.0E+00	2 10		P	14 10	1.034	16 10	**50**
Ethylbenzene	1.5E+02	1(a) 5	7.00E+00	1(a) 10	1.4E+03	1(a) 5		N-P	7 0	.867	16 0	**20**
bis(2-Ethylhexyl)phthalate (DEHP)	2.9E-01	2 0	(0)	0	9.5E+03	2 5		P	8,11 10	.9843	16 0	**15**
Fuel Oil (virgin product)												**20**
Gasoline (virgin product)												**25**
Heptachlor	1.8E-01	2 0	3.00E-04	1(b) 0	2.5E+04	2 0		P	8 10	1.57	1(f) 10	**20**
Hexachlorobenzene	6.0E-03	1(a) 0	1.09E-05	1(a) 0	1.7E+05	1(a) 0		P	7 10	2.044	16 10	**20**
Hexachloroethane	5.0E+01	2 5	4.00E-01	1(b) 5	4.0E+04	2 0		N-P	8 0	2.090	20 10	**20**
2-Hexanone	1.4E+04	2 10	(1.6)	0	2.5E+01	5 5		N-P	11 0	.815 (18E/4E)	16 0	**15**

ORGANIC OHM	MOBILITY AND PERSISTENCE VALUES AND SCORES												
	Solubility (mg/l)		Vapor Pressure (mm Hg)			K_{ow}			Degradation Potential [A]		Specific Gravity (at 20E) [B]		TOTAL SCORE
	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	
Isophorone	1.2E+04	2	10	(0.3)		0	5.0E+01	2	5	N-P	11	0	.921 (25E)	17	0	**15**
Methylene Chloride	2.0E+04	1(b)	10	4.31E+03	1(d)	10	1.9E+01	1(b)	5	N-P	7	0	1.366	18	10	**35**
Methyl Ethyl Ketone	2.7E+05	1(a)	10	7.75E+01	1(b)	10	1.8E+00	1(a)	10	N-P	15	0	.805	16	0	**30**
Methyl Naphthalene	2.5E+01	2	5	(3.2)		0	1.3E+04	2	0	N-P	7	0	1.025 (14E/4E)	16	10	**15**
Methyl Tert-Butyl Ether	4.8E+00	3	5	(196)		10	NA		5	NA		0	.731	16	0	**20**
Naphthalene	3.2E+01	2	5	(20)		5	2.8E+03	2	5	N-P	7	0	1.145	16	10	**25**
Nitrobenzene	1.9E+03	2	10	1.50E-01	1(d)	5	7.1E+01	2	5	N-P	8	0	1.203	16	10	**30**
Pentachlorophenol	1.4E+01	1(b)	5	1.10E-04	1(b)	0	1.0E+05	1(b)	0	P	7	10	1.978 (22E)	16	10	**25**
Phenol	9.3E+04	1(a)	10	3.41E-01	1(a)	5	2.9E+01	1(a)	5	N-P	7	0	1.071 (25E/4E)	16	10	**30**
PCBs	1.2E-02	2	0	7.70E-05	1(b)	0	1.1E+06	2	0	P	8,9	10	1.5 (25E)	18	10	**20**
1,1,2,2-Tetrachloroethane	2.9E+03	2	10	5.00E+00	1(a)	10	2.5E+02	2	5	P	8,11	10	1.600	16	10	**45**
Tetrachloroethylene	1.5E+02	1(a)	5	1.8E+01	1(a)	10	4.0E+02	1(a)	5	P	7	10	1.631 (15E/4E)	16	10	**40**

ORGANIC OHM	MOBILITY AND PERSISTENCE VALUES AND SCORES												TOTAL SCORE
	Solubility (mg/l)		Vapor Pressure (mm Hg)			K_{ow}			Degradation Potential [A]		Specific Gravity (at 20E) [B]		
	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	Value	ref.	score	
Tetrahydrofuran	3.0E-01	4	0	(2)		0	6.6E+00	6	10	N-P	13	0	.888 (21E/4E)	16	0	**10**
Toluene	5.3E+02	1(a)	5	2.81E+01	1(a)	10	5.4E+02	1(a)	5	N-P	7	0	.866	16	0	**20**
1,2,4-Trichlorobenzene	3.0E+01	1(a)	5	2.90E-01	1(b)	5	2.0E+04	2	0	P	8	10	1.446 (26E)	16	10	**30**
1,1,1-Trichloroethane	1.5E+03	1(a)	10	1.23E+02	1(a)	10	3.2E+02	1(b)	5	P	7	10	1.346 (15E/4E)	16	10	**45**
1,1,2-Trichloroethane	4.5E+03	1(a)	10	3.00E+01	1(a)	10	3.0E+02	1(a)	5	P	7	10	1.441 (25.5E/4E)	16	10	**45**
Trichloroethylene (TCE)	1.1E+03	1(a)	10	5.79E+01	1(a)	10	2.4E+02	1(a)	5	P	7	10	1.466 (20E/20E)	16	10	**45**
2,4,6-Trichlorophenol	8.0E+02	2	5	1.20E-02	1(a)	5	7.4E+03	2	5	N-P	8	0	1.490 (75E/4E)	16	10	**25**
Vinyl Chloride	2.7E+0	1(a)	5	2.66E+03	1(a)	10	2.4E+01	1(a)	5	P	7	10	.908 (25E/25E)	16	0	**30**
Xylenes	2.0E+02	1(c)	5	1.00E+01	1(e)	10	8.9E+02	1(c)	5	N-P	7	0	.880	16	0	**20**

NOTES

[A] Degradation Potential: N-P = Non-Persistent; P = Persistent. Score for "N-P" = 0; "P" = 10.

[B] Specific gravity of compound at 20EC referred to water at 4EC (20E/4E) unless otherwise specified.

[C] Numbers in parentheses are Henry's Law Constant in atm m^3 water/m^3 air.

40.1514: continued

REFERENCES

[*] Solubility of 1,000,000 mg/l assigned because of reported "infinite solubility" in the literature.

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[5] Lyman W.J. et al., "Research and Development of Methods for Estimating Physicochemical Properties of Organic Compounds of Environmental Concern," June 1981.

[6] EPA Draft Document, "Hazardous Waste Treatment, Storage and Disposal Facilities (TSDF) Air Emissions Model," April 1989.

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[10] "Characterization and Laboratory Soil Treatability Studies for Creosote and Pentachlorophenol Sludges and Contaminated Soil," EPA: Washington DC, EPA/600/2-88/055, 1988.

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[18] US Public Health Service, Agency for Toxic Substances and Disease Registry, "Draft Toxicological Profile for Selected PCBs," November 1987.

[19] US Public Health Service, Agency for Toxic Substances and Disease Registry, "Draft Toxicological Profile for Benzo(a)pyrene," October 1987.

[20] Merck Index, 9th edition, Merck and Co. Inc., New Jersey, 1976.

40.1514: continued

(3) Metals

METAL	Mobility	Score
Arsenic - H_2AsO_{4-}	Slowly mobile	15
Asbestos - > 2F	Immobile	5
Asbestos - < 2F	Slowly mobile	15
Beryllium - Be^{++}	Moderately mobile	25
Cadmium - Cd^{++}	Slowly mobile	15
Chromium - Cr^{+++} or Cr^{+6}	Slowly mobile	15
Copper - Cu^{++}	Moderately mobile	25
Cyanide - CN^{-}	Relatively mobile	35
Lead - Pb^{++}	Moderately mobile	25
Mercury - Hg^{++}	Slowly mobile	15
Selenium - $HSeO_4^{-}$ & SeO_3^{--}	Relatively mobile	35
Zinc - Zn^{++}	Moderately mobile	25

[1] Fuller, "Movement of Selected Metals, Asbestos, and Cyanide in Soils: Application to Waste Disposal Problems," EPA-600/2-77-020, April 1977.

40.1514: continued

(4) OHM Mobility and Persistence Factors for Other Organic Compounds

OHM MOBILITY AND PERSISTENCE FACTORS Organic Compounds			
FACTOR	*RANGE and VALUE*		
	LOW(Value)	MEDIUM(Value)	HIGH (Value)
Solubility (mg/L)	< 1 **(0)**	1 - 1,000 **(5)**	> 1,000 **(10)**
Vapor Pressure (mm Hg)	< 0.01 **(0)**	0.01 - 1 **(5)**	> 1 **(10)**
K_{ow}	> 10,000 **(0)**	10 - 10,000**(5)**	< 10 **(10)**
Degradation Potential	Non-Persistent (NP)**(0)**		Persistent (P) **(10)**
Specific Gravity (20E C)	< 1 **(0)**		> 1 **(10)**
Radionuclides **Radionuclides present in quantities greater than their federal Reportable Quantity (40 CFR Part 302.4, Appendix B) where the quantity is known or in concentrations greater than background where the quantity is not known shall be assigned a *Mobility and Persistence Score* equal to 40.**			

40.1515: Soil Permeability Criteria

SOIL PERMEABILITY	
VALUES	*CRITERIA*
LOW	Permeability: < 10E-7 cm/s Soil or Bedrock Type: clay; shale; compact till; unfractured metamorphic and igneous rocks.
MEDIUM	Permeability: 10E-7 to < 10E-3 cm/s Soil or Bedrock Type: silt, fine sand and silty sand; loess; silty clays; clay loams, silty loams, sandy loams, and loamy sands; less to moderately permeable limestones, dolomites, and sandstone; moderately permeable to coarse till; moderately fractured igneous and metamorphic rocks. Fill is considered moderately permeable unless disposal site-specific condition indicate otherwise.
HIGH	Permeability: $ 10E-3 cm/s Soil or Bedrock Type: gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite.

40.1516 Environmental Toxicity Values

(1) Environmental Toxicity Values.

40.1516(1) Environmental Toxicity Values				
Chemical	CASRN	Concentration (ug/L)	Endpoint Type	Environmental Toxicity Value
Acenaphthene	00083-32-9	23	CCC(FW)	30
Acenaphthylene	00208-96-8	0.14	Median PAH phototox	40
Acetone	00067-64-1	3400	acute LC50/10	10
Aldrin	00309-00-2	0.07	CMC(SW)/10	40
Anthracene	00120-12-7	0.13	acute LC50/10	40
Antimony	07440-36-0	300	chronic LC50	20
Arsenic (Arsenic III)	07440-38-2	36	CCC(SW)	20
Barium	07440-39-3	41000	acute LC50/10	10
Benzene	00071-43-2	460	acute LC50/10	20
Benzo(a)anthracene	00056-55-3	1	acute LC50/10	40
Benzo(a)pyrene	00050-32-8	0.5	acute LC50/10	40
Benzo(b)fluoranthene	00205-99-2	0.42	acute EC50/10	40
Benzo(ghi)perylene	00191-24-2	0.02	acute LC50/10	50
Benzo(k)fluoranthene	00207-08-9	0.14	acute LC50/10	40
Beryllium	07440-41-7	7.3	chronic LOEC	30
Biphenyl, 1,1-	00092-52-4	320	chronic LOEC	20
Bis(2-chloroethyl)ether	00111-44-4	24000	acute LC50/10	10
Bis(2-chloroisopropyl)ether	39638-32-9	24000	acute LC50/10	10
Bis(2-ethylhexyl)phthalate	00117-81-7	160	chronic LOEC	20
Bromodichloromethane	00075-27-4	20000	acute LOEC/10	10
Bromoform	00075-25-2	2900	acute LC50/10	10
Bromomethane	00074-83-9	30	acute LC50/10	30
Cadmium	07440-43-9	0.091	CCC(FW)	40
Carbon tetrachloride	00056-23-5	200	acute LC50/10	20
Chlordane	00057-74-9	0.00043	CCC(SW)	50
Chloroaniline, 4- (p)	00106-47-8	10	acute EC50/10	30
Chlorobenzene	00108-90-7	38	chronic LOEC	30
Chloroform	00067-66-3	970	chronic LOEC	10
Chlorophenol, 2-	00095-57-8	260	acute LC50/10	20
Chromium (total)		11	CCC (FW) for Cr VI	30
Chromium III	16065-83-1	24	CCC(FW)	30
Chromium VI	18540-29-9	11	CCC(FW)	30
Chrysene	00218-01-9	0.07	acute LC50/10	40
Cyanide	00057-12-5	1	CCC(SW)	30
Dibenzo(a,h)anthracene	00053-70-3	0.04	acute LC50/10	40
Dibromochloromethane	00124-48-1	3400	acute LC50/10	10
Dichlorobenzene, 1,2- (o)	00095-50-1	78	acute IC50/10	20
Dichlorobenzene, 1,3- (m)	00541-73-1	1500	chronic LOEC	10
Dichlorobenzene, 1,4- (p)	00106-46-7	310	chronic LOEC	20
Dichlorobenzidine, 3,3'-	00091-94-1	73	acute LC50/10	20
DDD	00072-54-8	0.18	chronic LC50	40
DDE	00072-55-9	1.7	chronic LC50	40
DDT	00050-29-3	0.001	CCC(SW)	50
Dichloroethane, 1,1-	00075-34-3	990	chronic LOEC	10
Dichloroethane, 1,2-	00107-06-2	990	chronic LOEC	10
Dichloroethene, 1,1-	00075-35-4	1200	acute LC50/10	10
Dichloroethene, cis-1,2-	00156-59-2	14000	acute LC50/10	10
Dichloroethene, trans-1,2-	00156-60-5	22000	acute LC50/10	10
Dichlorophenol, 2,4-	00120-83-2	80	chronic LC50	20
Dichloropropane, 1,2-	00078-87-5	25000	chronic LOEC	10

40.1516: continued

40.1516(1) Environmental Toxicity Values				
Chemical	CASRN	Concentration (ug/L)	Endpoint Type	Environmental Toxicity Value
Dichloropropene, 1,3-	00542-75-6	9	acute EC50/10	30
Dieldrin	00060-57-1	0.0019	CCC(SW)	50
Diethyl phthalate	00084-66-2	340	acute EC50/10	20
Dimethyl phthalate	00131-11-3	23000	chronic LOEC	10
Dimethyl phenol, 2,4-	00105-67-9	3100	chronic LOEC	10
Dinitrophenol, 2,4-	00051-28-5	900	chronic LOEC	10
Dinitrotoluene, 2,4-	00121-14-2	3800	acute EC50/10	10
Dioxane, 1,4-	00123-91-1	990000	acute LC50/10	10
Endosulfan	00115-29-7	0.0087	CCC(SW)	40
Endrin	00072-20-8	0.0023	CCC(SW)	50
Ethylbenzene	00100-41-4	181	acute EC50/10	20
Ethylene dibromide	00106-93-4	9600	chronic LOEC	10
Fluoranthene	00206-44-0	0.9	acute	40
Fluorene	00086-73-7	0.14	Median PAH phototox	40
Heptachlor	00076-44-8	0.0036	CCC(SW)	50
Heptachlor epoxide	01024-57-3	0.0036	CCC(SW)	50
Hexachlorobenzene	00118-74-1	23	chronic LOEC	30
Hexachlorobutadiene	00087-68-3	13	chronic LOEC	30
Hexachlorocyclohexane	00058-89-9	0.016	CMC(SW)/10	40
Hexachloroethane	00067-72-1	210	chronic LOEC	20
HMX	02691-41-0	3900	chronic NOEC	10
Indeno(1,2,3-cd)pyrene	00193-335	0.14	Median PAH phototox	40
Lead	07439-92-1	0.5	CCC(FW)	40
Mercury, inorganic or total	07349-97-6	0.77	CCC(FW)	40
Methoxychlor	00072-43-5	0.05	chronic LOEC	40
Methylene Chloride	00075-09-2	6700	chronic LOEC	10
Methyl ethyl ketone	00078-93-3	200000	acute LC50/10	10
Methyl isobutyl ketone	00108-10-1	156000	chronic NOEC	10
Methyl mercury	22967-92-6	0.77	CCC(FW)	40
Methyl-t-butyl ether	01634-04-4	100000	chronic LOEC	10
Methylnaphthalene, 2-	00090-12-0	70	acute LC50/10	20
Naphthalene	00091-20-3	72	chronic LOEC	20
Nickel	00091-20-3	8.2	CCC(SW)	20
Pentachlorophenol	07440-02-0	7.9	CCC(SW)	30
Petroleum Hydrocarbons				
Aliphatic Hydrocarbons				
C_5 through C_8 Aliphatic Hydrocarbons		250	acute LC50/10	20
C_9 through C_{12} Aliphatic Hydrocarbons		1800	acute LC50/10	10
C_9 through C_{18} Aliphatic Hydrocarbons		1800	acute LC50/10	10
C_{19} through C_{36} Aliphatic Hydrocarbons		2100	acute EC50/10	10
Aromatic Hydrocarbons				
C_9 through C_{10} Aromatic Hydrocarbons		72	chronic LOEC	20
C_{11} through C_{22} Aromatic Hydrocarbons		5	Average PAH phototox	40
Phenanthrene	00085-01-8	38	chronic LOEC	30
Phenol	00108-95-2	62	chronic LOEC	30
Polychlorinated Biphenyls (PCBs)	01336-36-3	0.014	CCC (FW)	50

40.1516(1) Environmental Toxicity Values				
Chemical	CASRN	Concentration (ug/L)	Endpoint Type	Environmental Toxicity Value
Pyrene	00129-00-0	0.089	acute LC50/10	40
RDX	00121-82-4	2400	chronic LOEC	10
Selenium	07782-49-2	5	CCC	30
Silver	07440-22-4	0.03	CMC(FW)/10	40
Styrene	00100-42-5	250	acute LC50/10	20
TCDD,2,3,7,8-	01746-01-6	0.000038	chronicLOEC	50
Tetrachloroethane, 1,1,1,2-	00630-20-6	2000	acute LC50/10	10
Tetrachloroethane, 1,1,2,2-	00079-34-5	4000	chronic LOEC	10
Tetrachloroethene	00127-18-4	1100	chronic LOEC	10
Thallium	07440-28-0	110	chronic	20
Toluene	00108-88-3	140	acute EC50/10	20
Trichlorobenzene, 1,2,4-	00120-82-1	340	chronic LOEC	20
Trichloroethane, 1,1,1-	00071-55-6	900	acute EC10/10	10
Trichloroethane, 1,1,2-	00079-00-5	15000	chronic LOEC	10
Trichloroethene	00079-01-6	190	acute LC50/10	20
Trichlorophenol, 2,4,5-	00095-95-4	130	chronic	20
Trichlorophenol, 2,4,6-	00088-06-2	18	acute LC50/10	30
Vanadium	07440-62-2	160	chronic	20
Vinyl chloride	00075-01-4	41000	acute EC50/10	10
Xylenes	01330-20-7	20	acute EC50/10	30
Zinc	07440-66-6	36	CCC(FW)	30

Notes:

CASRN = Chemical Abstracts Service Registry Number
CCC(FW) = Criterion Continuous Concentration in Freshwater (Chronic Ambient Water Quality Criterion)
CCC(SW) = Criterion Continouus Concentration in Saltwater (Chronic Ambient Water Quality Criterion)
CMC(SW)/10 = Criterion Maximum Chronic Concentration in Saltwater (Acute Ambient Water Quality Criterion)
CMC(FW)/10 = Criterion Maximum Chronic Concentration in Freshwater (Acute Ambient Water Quality Criterion)
Chronic NOEC = No Observed Effects Level for Chronic Exposure
Chronic LOEC = Lowest Observed Effects Level for Chronic Exposure
Acute LOEC/10 = Lowest Observed Effects Level for Acute Exposure divided by 10 to estimate a Chronic LOEC
Chronic LC50 = Lethal Concentration for 50 percent of a population following a chronic exposure
Acute LC50/10 = Lethal Concentration for 50 percent of the population following an acute exposure, divided by 10 to estimate a Chronic LC50
Chronic EC50 = Concentration at which 50% of a population would experience effects following a chronic exposure
Acute EC50/10 = Concentration at which 50% of a population would experience effects following an acute exposure, divided by 10 to estimate a chronic EC50

40.1516: continued

(2) Default Environmental Toxicity Values.

ENVIRONMENTAL TOXICITY DEFAULT VALUES

Default values shall be assigned for all OHMs not listed in 310 CMR 40.1516(1) according to the following criteria.

CHEMICAL CLASS	ENVIRONMENTAL TOXICITY VALUE
Alcohol	20
Aldehydes	30
Alkanes	20
Alkenes	30
Amines	20
Aromatics	30
Esters	40
Ethers	20
Halogenated Hydrocarbons (except Ethers)	30
Ketones	30
Organic Acids	40
Pesticides	40
Metals	20

NOTE: **Use the HIGHEST Default Value applicable to the OHM under consideration.**

Example: A halogenated pesticide would be assigned a default value of 40.
A halogenated alkane would be assigned a default value of 30.

NOTE: **For radionuclides, no Environmental Toxicity Value has been established. Radionuclides present in quantities greater than their federal Reportable Quantity (40 CFR Part 302.4, Appendix B) where the quantity is known or in concentrations greater than background where the quantity is not known shall be assigned an *Environmental Toxicity Score* equal to 30. This score shall be entered directly in Worksheet V.B.1.**

40.1516: continued

(3) Environmental Toxicity Value Matrix.

40.1516(3)**ENVIRONMENTAL TOXICITY VALUE MATRIX**					
AMBIENT WATER QUALITY CRITERIA (AWQC)	*ENVIRONMENTAL TOXICITY VALUE RANGES* In Fg/l				
Fresh Water Chronic	< 0.03	0.03 # X < 2.8	2.8 # X < 70	70 # X < 620	> 620
Marine Chronic	< 0.005	0.005 # X < 0.3	0.3 # X < 8	8 # X < 200	> 200
Fresh Water Acute	< 3	3 # X < 85	85 # X < 1,200	1,200 # X < 8,000	> 8,000
Marine Acute	< 1.1	1.1 # X < 33	33 # X < 490	490 # X < 27,000	> 27,000
ENVIRONMENTAL TOXICITY VALUE	50	40	30	20	10

NON-TEXT PAGE