APPENDIX B. PRIORITY AND NONPRIORITY POLLUTANTS WITH NUMERICAL CRITERIA REQUIRING REASONABLE POTENTIAL SCREENING [REVOKED]

APPENDIX B. PRIORITY AND NONPRIORITY POLLUTANTS WITH NUMERICAL CRITERIA REQUIRING REASONABLE POTENTIAL SCREENING [NEW]

The priority pollutants are listed in Table B-1. Those having state numerical criteria or federal numerical guidelines for the consumption of fish flesh (re: NRWQC), and which require reasonable potential screening if present in an effluent are marked with a diamond ( ). Pollutants with state numerical criteria are indicated according to type of criteria. Pollutants which have NRWQC human health/fish flesh guidelines are screened only if the Fish Consumption beneficial use applies to the discharge and there is no state criterion for the pollutant. Predicted exceedances of NRWQC guidelines will result in effluent and/or background monitoring. OWRB will be notified of pollutants predicted to exceed NRWQC guidelines in order to evaluate the need for a state water quality criterion. Nonpriority pollutants with state and federal criteria are listed in Table B-2. WET testing parameters and their STORET numbers are listed in Table B-3.

Table B-1. Priority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Metals, Cyanide and Total Phenols	Antimony, total	7440360	01097	60		---	---	---	---
	Arsenic, total	7440382	01002	10					---
	Beryllium, total	7440417	01012	5	---	---	---	---	---
	Cadmium, total	7440439	01027	1	---				---
	Chromium, total	7440473	01034	10	---				---
	Copper, total	7440508	01042	10			---		---
	Lead, total	7439921	01051	5	---				---
	Mercury, total	7439976	71900	0.2					---
	Nickel, total	7440020	01067	40				---	---
	Selenium, total	7782492	01147	5			---		---
	Silver, total	7440224	01077	2	---				---
	Thallium, total	7440280	01059	10				---	---
	Zinc, total	7440666	01092	20			---		---
	Cyanide, total	57125	00720	10			---		---
	Phenols, total	108952	46000	10	---	---		---	---
	2,3,7,8-Tetrachlorodibenzo-P Dioxin	1746016	34675	0.00001		---		---	---

[1] From National Recommended Water Quality Criteria, Pub. No. EPA 822-Z-99-001, April 1999
[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5

Table B-1 (cont.) Priority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Volatile Organics	Acrolein	107028	34210	50		---		---	---
	Acrylonitrile	107131	34215	50				---	---
	Benzene	71432	34030	10				---	---
	Bromoform	75252	32104	10		---	---	---	---
	Carbon Tetrachloride	56235	32102	10		---		---	---
	Chlorobenzene	108907	34301	10		---	---	---	---
	Chlorodibromomethane	124481	32105	10		---	---	---	---
	Chloroethane	75003	34311	50	---	---	---	---	---
	2-Chloroethylvinyl ether	110758	34576	10	---	---	---	---	---
	Chloroform	67663	32106	10		---		---	---
	Dichlorobromomethane	75274	32101	10		---		---	---
	1,1-Dichloroethane	75343	34496	10	---	---	---	---	---
	1,2-Dichloroethane	107062	34536	10		---	---	---	---
	1,1-Dichloroethylene	75354	34501	10		---	---	---	---
	1,2-Dichloropropane	78875	34541	10		---	---	---	---
	1,3-Dichloropropylene	542756	34561	10		---	---	---	---
	Ethylbenzene	100414	34371	10		---		---	---
	Methyl bromide [Bromomethane]	74839	34413	50		---	---	---	---
	Methyl chloride [Chloromethane]	74873	34418	50	---	---	---	---	---
	Methylene chloride	75092	34423	20		---	---	---	---
	1,1,2,2-Tetrachloroethane	79345	34516	10		---	---	---	---
	Tetrachloroethylene	127184	34475	10				---	---
	Toluene	108883	34010	10				---	---
	1,2-Trans-dichloroethylene	156605	34546	10		---	---	---	---
	1,1,1-Trichloroethane [1-1-1 TCE]	71556	34506	10	---	---		---	---
	1,1,2-Trichloroethane	79005	34511	10		---	---	---	---
	Trichloroethylene	79016	39180	10		---	---	---	---
	Vinyl chloride	75014	39175	10		---	---	---	---

[1] From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999
[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5

Table B-1 (cont.) Priority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (mg/l)	NRWQC Human Health	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Acid Organics	2-Chlorophenol	95578	34586	10		---	---	---	---
	2,4-Dichlorophenol	120832	34601	10		---	---	---	---
	2,4-Dimethylphenol	105679	34606	10		---	– –	– –	– –
	4,6-Dinitro-o-cresol [2-Methyl-4,6-dinitrophenol]	534521	34657	50		---	---	---	---
	2,4-Dinitrophenol	51285	34616	50		--	---	---	--
	2-Nitrophenol	88755	34591	20	---	---	---	---	---
	4-Nitrophenol	100027	34646	50	---	---	---	---	---
	p-Chloro-m-cresol	59507	34452	10	---	---	---	---	--
	Pentachlorophenol	87865	39032	50				---	---
	Phenol	108952	34694	10		---	---	---	---
	2,4,6-Trichlorophenol	88062	34621	10		---	---	---	---
Base / Neutral	Acenapthene	83329	34205	10		---	---	---	---
	Acenapthylene	208968	34200	10	---	---	---	---	---
	Anthracene	120127	34220	10		---	---	---	---
	Benzidine	92875	39120	50		---	---		---
	Benzo(a)anthracene	56553	34526	10		---	---	---	---
	Benzo(a)pyrene	50328	34247	10		---	---	---	---
	Benzo(b)fluoranthene [3,4-Benzofluoranthene]	205992	34230	10		---	---	---	---
	Benzo(ghi)perylene	191242	34521	20	---	---	---	---	---
	Benzo(k)fluoranthene	207089	34242	10		---	---	---	---
	Bis (2-chloroethoxy) methane	111911	34278	10	---	---	---	---	---
	Bis (2-chloroethyl) ether	111444	34273	10		---	---	---	---
	Bis (2-chloroisopropyl) ether	39638329	34283	10		---	---	---	---
	Bis (2-ethylhexyl) phthalate	117817	39100	10		---		---	---
	4-Bromophenyl phenyl ether	101553	34636	10	---	---	---	---	---
	Butylbenzyl phthalate	85687	34292	10		---			---
	2-Chloronapthalene	91587	34581	10		---	---	---	---
	4-Chlorophenyl phenyl ether	7005723	34631	10	---	---	---	---	---
	Chrysene	218019	34320	10		---	---	---	---
	Dibenzo(a,h)anthracene	53703	34556	20		---	---	---	---
	1,2-Dichlorobenzene	95501	34536	10		---	---	---	---
	1,3-Dichlorobenzene	541731	34566	10		---	---	---	---

[1] From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999
[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5

Table B-1 (cont.) Priority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health[1]	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Base / Neutral Organics	1,4-Dichlorobenzene	106467	34571	10		---	---	---	---
	3,3'-Dichlorobenzidine	91941	34631	50		---	---	---	---
	Diethyl phthalate	84662	34336	10		---		---	---
	Dimethyl phthalate	131113	34341	10		---		---	---
	Di-n-butyl phthalate	84742	39110	10		---		---	---
	2,4-Dinitrotoluene	121142	34611	10		---	---	---	---
	2,6-Dinitrotoluene	606202	34626	10	---	---	---	---	---
	Di-n-octyl phthalate	117840	34596	10	---	---	---	---	---
	1,2-Diphenylhydrazine (as Azobenzene)	122667	34346	20		---	---	---	---
	Fluoranthene	206440	34376	10		---	---	---	---
	Fluorene	86737	34381	10		---	---	---	---
	Hexachlorobenzene	118741	39700	10		---		---	---
	Hexachlorobutadiene	87683	34391	10		---	---	---	---
	Hexachlorocyclopentadie	77474	34386	10		---	---	---	---
	Hexachloroethane	67721	34396	20		---	---	---	---
	Ideno (1,2,3-cd) pyrene	193395	34403	20		---	---	---	---
	Isophorone	78591	34408	10		---	---	---	---
	Napthalene	91203	34696	10	---	---	---	---	---
	Nitrobenzene	98953	34447	10		---	---	---	---
	n-Nitrosodimethylamine	62759	34438	50		---	---	---	---
	n-Nitrosodi-n-propylamine	621647	34428	20		---	---	---	---
	n-Nitrosodiphenylamine	86306	34433	20		---	---	---	---
	Phenanthrene	85018	34461	10	---	---	---	---	---
	Pyrene	129000	34469	10		---	---	---	---
	1,2,4-Trichlorobenzene	120821	34551	10		---	---	---	---
Pesticides	Aldrin	309002	39330	0.05				---	---
	alpha-BHC	319846	39337	0.05		---	---	---	---
	beta-BHC	319857	39338	0.05		---	---	---	---
	gamma-BHC [Lindane]	58899	34266	0.05					---
	delta-BHC	319868	34259	0.05	---	---	---	---	---
	Chlordane	57749	39350	0.2				---	---
	4,4'-DDT	50293	39300	0.1				---	---
	4,4'-DDE	72559	39320	0.1		---	---	---	---

[1] From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999

[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5

Table B-1 (cont.) Priority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Pesticides	4,4'-DDD	72548	39310	0.1		---		---	---
	Dieldrin	60571	39380	0.1				---	---
	Endosulfan I	959988	34361	0.1			---	---	---
	Endosulfan II	33213659	34356	0.1			---	---	---
	Endosulfan sulfate	1031078	34351	0.1		---	---	---	---
	Endrin	72208	39390	0.1					---
	Endrin aldehyde	7421934	34366	0.1		---	---	---	---
	Heptachlor	76448	39410	0.05				---	---
	Heptachlor epoxide	1024573	39420	0.05		---	---	---	---
	Toxaphene	8001352	39400	5			---		---
PCBs	PCB-1242		39496	1	---	---	---	---	---
	PCB-1254		39504	1	---	---	---	---	---
	PCB-1221		39488	1	---	---	---	---	---
	PCB-1232		39492	1	---	---	---	---	---
	PCB-1248		39500	1	---	---	---	---	---
	PCB-1260		39508	1	---	---	---	---	---
	PCB-1016		34671	1	---	---	---	---	---
	PCBs, total		04166	1				---	---

[1] From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999
[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5

Table B-2. Nonpriority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Nonpriority Pollutants	Ammonia	7664417	00610	100	---	[3]	---	---	---
	Asbestos	1332214	948	---		---	---	---	
	Barium	7440393	01007	10		---	---		---
	Bis-chloromethyl ether	542881	34268	10		---	---	---	---
	Chloride	16887006	941	10000	---	---	---	---	
	Chlorine	7782505	50060	100	---	[3]	---	---	---
	2-(2,4,5-Trichlorophenoxy) propionic acid [2,4,5-TP Silvex]	93721	39760	2	---		---		---
	2,4-Dichlorophenoxyacetic acid [2,4-D]	94757	39730	---	---	---	---		---
	Chloropyrifos [Dursban]	2921882	81403	0.04	---		---	---	---
	Demeton	8065483	39560	0.07	---		---	---	---
	Detergents, total		51582	100	---	---	---		---
	Diazinon	333415	10408	---	---		---	---	---
	Fluoride @ 90° F	16984488	951	1000	---	---	---		---
	Guthion [Methyl azinphos]	86500	39580	0.03	---		---	---	---
	Hexachlorocyclohexane-Technical	319868	77835	0.05		---	---	---	---
	Hexahydro-1,3,5-trinitro-1,3,5-triazine [RDX]	121824	81364	140	---		---	---	---
	Iron	7439896	00980	200		---	---	---	---
	Malathion	121755	39530	0.036	---		---	---	---
	Manganese	7439965	01055	50		---	---	---	---
	Methoxychlor	72435	39480	0.1			---		---
	Methylene blue active substances	61734	47021	100	---		---		---
	Mirex	2385855	39755	0.07	---		---	---	---
	Nitrate	14797558	00620	50		---	---		---
	Nitrosamines		---	50		---	---	---	---
	n-Nitrosodibutylamine	924163	78207	50		---	---	---	---

[1]From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999.
[2]OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5.
[3]Ammonia and chlorine criteria apply to implementation of narrative toxicity criterion under OAC 785:45 and 40 CFR Part 122.44(d)(1)(vi).

Table B-2 (cont.) Nonpriority Pollutants with State Water Quality Criteria or National Recommended Water Quality Criteria Requiring Reasonable Potential Screening

	Pollutant	Cas No.	Storet No.	MQL (g/l)	NRWQC Human Health[1]	State Criteria[2]			
						Aquatic Toxicity	Human Health	Raw Water	Agriculture
Nonpriority Pollutants	n-Nitrosodiethylamine	55185	78200	50		---	---	---	---
	n-Nitrosopyrrolidine	930552	78206	50		---	---	---	---
	Nonylphenol	25154523	10395	100	---		---	---	---
	Parathion	56382	39540	0.033	---		---	---	---
	Pentachlorobenzene	608935	77793	50		---	---	---	---
	Perchlorate	7601903	3215	5	---			---	---
	Phthalate esters (except butylbenzyl)		39117	---	---	---	---		---
	Sulfate		00946	10000	---	---	---	---	
	Total Dissolved Solids [TDS]		70300	10000	---	---	---	---	
	1,2,4,5-Tetrachlorobenzene	95943	78028	50		---	---	---	---
	2,4,5-Trichlorophenol	95954	81848	50		---	---	---	---
	2,4,6-Trinitrotoluene		81360	---	---		---	---	---

[1] From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999.
[2] OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5.

Table B-3. WET Testing and WET Limit Parameters

Pollutant			Storet No.	NRWQC Human Health[1]	State Criteria[2]			
					Aquatic Toxicity	Human Health	Raw Water	Agriculture
48-hour Acute LC50, Static Renewal, Freshwater	Daphnia magna	P/F survival	TIM3C	---		---	---	--
		LC50 effluent concentration	TAM3C	---		---	---	--
		% mortality in 100% effluent	TJM3C	---		---	---	--
	Daphnia pulex	P/F survival	TIM3D	---		---	---	--
		LC50 effluent concentration	TAM3D	---		---	---	--
		% mortality in 100% effluent	TJM3D	---		---	---	--
	Pimephales promelas	P/F survival	TIM6C	---		---	---	--
		LC50 effluent concentration	TAM6C	---		---	---	--
		% mortality in 100% effluent	TJM6C	---		---	---	--
	WET Limit	LC50 > 100%	22414	---		---	---	--
7-day Chronic NOEC, Static Renewal, Freshwater	Ceriodaphnia dubia	P/F survival	TLP3B	---		---	---	--
		NOECL (lethality)	TOP3B	---		---	---	--
		% mortality in critical dilution	TJP3B	---		---	---	--
		P/F reproduction	TGP3B	---		---	---	--
		NOECS (reproduction)	TPP3B	---		---	---	--
		% CV	TQP3B	---		---	---	--
	Pimephales promelas	P/F survival	TLP6C	---		---	---	--
		NOECL (lethality)	TOP6C	---		---	---	--
		% mortality in critical dilution	TJP6C	---		---	---	--
		P/F growth	TGP6C	---		---	---	--
		NOECS (growth)	TPP6C	---		---	---	--
		% CV	TQP6C	---		---	---	--
	WET Limit	NOECL ≥ critical dilution	22414	---		---	---	--

1 From National Recommended Water Quality Criteria, Publication No. EPA 822-Z-99-001, April 1999.
2 OWRB-adopted numerical water quality criteria, OAC 785:45, Subchapter 5.

APPENDIX J. BACKGROUND MONITORING [REVOKED]

APPENDIX J. BACKGROUND MONITORING [NEW]

Background monitoring is unnecessary if a BT/C ratio is > 1.0. The maximum BT/C ratio for which background monitoring is required, which decreases as the value of the associated criterion increases, is expressed by Equations J-1, J-2 and J-3.

$(BT/C)_{max} = 1.0$, where the criterion $\leq$ 1.0. g/l [J-1]

$(BT/C)_{max} = \frac{1}{2^{\log(\text{criterion})}}$, where the criterion > 1.0 g/l and $\leq$ 1000 g/l. [J-2]

$(BT/C)_{max} = 0.125$, where the criterion 1000. g/l [J-3]

(i) Acute Toxicity Criteria

$$BT/C_{Acute} = \left(\frac{64.63\ C_A - Q_{e(30)}\ C_{95}}{64.63 - Q_{e(30)}} \right) \frac{}{C_A}$$, where $Q_{e(30)} < 64.63$ mgd. [J-4]

BT/C_{Acute} is not defined for values of $Q_{e(30)} \geq 64.63$ mgd.

(ii) Chronic Toxicty Criteria

For discharges to streams, the following equations are used for the values of Q*<0.3333:

$$BT/C_{Chronic} = \left(\frac{(1+Q^*)\ C_c - 1.94\ Q^* C_{95}}{1 - 0.94\ Q^*} \right) \frac{}{C_c}$$, where $Q^* \leq 0.1823$. [J-5]

$$BT/C_{Chronic} = \left(\frac{(6.17-15.51\ Q^*)\ C_c - C_{95}}{5.17-15.51\ Q^*} \right) \frac{}{C_c}$$, where $0.1823 < Q^*$. [J-6]

$BT/C_{Chronic}$ is not defined for $Q^* \geq 0.3333$ (i.e., for effluent-dominated discharge situations), since C_b drops out as a component of the chronic toxicity reasonable potential equation at that point.

(iii) Human Health/Fish Flesh Criteria

$$BT/C_{FF} = \frac{(1+Q^*)\,C_{FF} - Q^*C_{95}}{C_{FF}}$$

(iv) Raw Water Column Criteria

$$(BT/C)_{Raw} = \frac{(1+Q^*)\,C_{Raw} - Q^*C_{95}}{C_{Raw}}$$

(v) Human Health/Fish Flesh and Water Criteria

$$(BT/C)_{FFW} = \frac{(1+Q^*)\,C_{FFW} - Q^*C_{95}}{C_{FFW}}$$