

TABLE I
SUMMARY OF SURFACE WATER QUALITY DATA
WASHINGTON STATE DOE
TREOIL INDUSTRIES PROPERTY
FERNDALE, WASHINGTON

Location Name Sample Name Sample Date Lab Sample ID	Action Level					SW-11	SW-12
	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	SW-11-20230808	SW-12-20230808
	Method B	Method B	Aquatic Life	Aquatic Life	Human Health	08/08/2023	08/08/2023
	Cancerous	Noncancer	Fresh/Acute	Fresh/Chronic	Fresh Water	580-130492-2	580-130492-1
Volatile Organic Compounds (ug/L)							
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	1 U	1 U
1,1,1-Trichloroethane	NA	93000	NA	NA	47000	1 U	1 U
1,1,2,2-Tetrachloroethane	6.5	10000	NA	NA	0.12	1 U	1 U
1,1,2-Trichloroethane	25	2300	NA	NA	0.44	1 U	1 U
1,1-Dichloroethane	NA	NA	NA	NA	NA	1 U	1 U
1,1-Dichloroethene	NA	23000	NA	NA	1200	1 U	1 U
1,1-Dichloropropene	NA	NA	NA	NA	NA	1 U	1 U
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	2 U	2 U
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	1 U	1 U
1,2,4-Trichlorobenzene	2	230	NA	NA	0.12	1 U	1 U
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	0.68 J	3 U
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	NA	NA	3 U	3 U
1,2-Dibromoethane (Ethylene Dibromide)	NA	NA	NA	NA	NA	1 U	1 U
1,2-Dichlorobenzene	NA	4200	NA	NA	2000	1 U	1 U
1,2-Dichloroethane	59	13000	NA	NA	9.3	1 U	1 U
1,2-Dichloropropane	43	25000	NA	NA	0.71	1 U	1 U
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	1 U	1 U
1,3-Dichlorobenzene	NA	NA	NA	NA	13	1 U	1 U
1,3-Dichloropropane	NA	NA	NA	NA	NA	1 U	1 U
1,4-Dichlorobenzene	22	3300	NA	NA	460	1 U	1 U
2,2-Dichloropropane	NA	NA	NA	NA	NA	1 U	1 U
2-Chlorotoluene	NA	NA	NA	NA	NA	1 U	1 U
2-Phenylbutane (sec-Butylbenzene)	NA	NA	NA	NA	NA	1 U	1 U
4-Chlorotoluene	NA	NA	NA	NA	NA	1 U	1 U
Benzene	23	2000	NA	10	0.44	1 U	1 U
Bromobenzene	NA	NA	NA	NA	NA	1 U	1 U
Bromodichloromethane	28	14000	NA	NA	0.77	1 U	1 U
Bromoform	220	14000	NA	NA	5.8	1 U	1 U
Bromomethane (Methyl Bromide)	NA	970	NA	NA	520	1 U	1 U
Carbon tetrachloride	4.9	550	NA	NA	0.2	1 U	1 U
Chlorobenzene	NA	5000	NA	NA	380	1 U	1 U
Chlorobromomethane	NA	NA	NA	NA	NA	1 U	1 U
Chloroethane	NA	NA	NA	NA	NA	1 U	1 U
Chloroform (Trichloromethane)	56	6900	NA	NA	260	1 U	1 U
Chloromethane (Methyl Chloride)	NA	NA	NA	NA	NA	1 U	1 U
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	1 U	1 U
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	1 U	1 U
Cymene (p-Isopropyltoluene)	NA	NA	NA	NA	NA	0.32 J	1 U
Dibromochloromethane	21	14000	NA	NA	0.65	1 U	1 U
Dibromomethane	NA	NA	NA	NA	NA	1 U	1 U
Dichlorodifluoromethane (CFC-12)	NA	NA	NA	NA	NA	1 U	1 U
Ethylbenzene	NA	6900	NA	12	200	1 U	1 U
Hexachlorobutadiene	30	930	NA	NA	0.69	3 U	3 U
Isopropylbenzene (Cumene)	NA	NA	NA	NA	NA	1 U	1 U
m,p-Xylenes	NA	NA	NA	NA	NA	0.77 J	2 U
Methyl Tert Butyl Ether (MTBE)	NA	NA	NA	NA	NA	1 U	1 U
Methylene chloride (Dichloromethane)	590	17000	NA	NA	16	5 U	5 U
Naphthalene	NA	4900	NA	NA	NA	3 U	3 U
n-Butylbenzene	NA	NA	NA	NA	NA	1 U	1 U
n-Propylbenzene	NA	NA	NA	NA	NA	1 U	1 U
o-Xylene	NA	NA	NA	NA	NA	1 U	1 U
Styrene	NA	NA	NA	NA	NA	1 U	1 U
tert-Butylbenzene	NA	NA	NA	NA	NA	2 U	2 U
Tetrachloroethene	100	500	NA	NA	4.9	1 U	1 U
Toluene	NA	19000	NA	53	180	9.3	1 U
trans-1,2-Dichloroethene	NA	33000	NA	NA	600	1 U	1 U
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	1 U	1 U
Trichloroethene	4.9	120	NA	NA	0.38	1 U	1 U
Trichlorofluoromethane (CFC-11)	NA	NA	NA	NA	NA	1 U	1 U
Vinyl chloride	3.7	6600	NA	NA	0.02	1 U	1 U
Semi-Volatile Organic Compounds (ug/L)							
1,2,4-Trichlorobenzene	2	230	NA	NA	0.12	20 U	0.41 U
1,2-Dichlorobenzene	NA	4200	NA	NA	2000	4 U	0.41 U
1,3-Dichlorobenzene	NA	NA	NA	NA	13	4 U	0.41 U
1,4-Dichlorobenzene	22	3300	NA	NA	460	4 U	0.41 U
1-Methylnaphthalene	NA	NA	NA	NA	NA	50 U	1 U
2,2'-oxybis(1-Chloropropane)	37	42000	NA	NA	NA	2.5 U	0.26 U
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	4 U	4.1 U
2,4,6-Trichlorophenol	3.9	17	NA	NA	0.25	6 U	6.2 U
2,4-Dichlorophenol	NA	190	NA	NA	25	50 U	1 U
2,4-Dimethylphenol	NA	550	NA	NA	85	40 U	4.1 U
2,4-Dinitrophenol	NA	3500	NA	NA	60	250 U	51 U
2,4-Dinitrotoluene	5.5	1400	NA	NA	0.039	10 U	10 U
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	4 U	4.1 U
2-Chloronaphthalene	NA	1000	NA	NA	170	10 U	10 U
2-Chlorophenol	NA	97	NA	NA	15	10 U	1 U
2-Methylnaphthalene	NA	NA	NA	NA	NA	20 U	4.1 U
2-Methylphenol (o-Cresol)	NA	NA	NA	NA	NA	2.5 J	0.62 U
2-Nitroaniline	NA	NA	NA	NA	NA	10 U	10 U
2-Nitrophenol	NA	NA	NA	NA	NA	50 U	1 U
3&4-Methylphenol	NA	NA	NA	NA	NA	8.3 J	6.2 U
3,3'-Dichlorobenzidine	0.046	NA	NA	NA	0.0031	10 U	1 U
3-Nitroaniline	NA	NA	NA	NA	NA	30 U	31 U
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	7.1	100 U	2.1 U
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	30 U	0.62 U
4-Chloro-3-methylphenol	NA	NA	NA	NA	36	6 U	6.2 U
4-Chloroaniline	NA	NA	NA	NA	NA	100 U	2.1 U
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	6 U	6.2 U
4-Nitroaniline	NA	NA	NA	NA	NA	20 U	21 U
4-Nitrophenol	NA	NA	NA	NA	NA	100 U	100 U

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	Cancerous	Noncancer	Fresh/Acute	Fresh/Chronic	Fresh Water	580-130492-2	580-130492-1
Acenaphthene	NA	640	NA	NA	110	4 U	4.1 U
Acenaphthylene	NA	NA	NA	NA	NA	10 U	10 U
Anthracene	NA	26000	NA	NA	3100	50 U	1 U
Benzo(a)anthracene	NA	NA	NA	NA	0.014	2.5 U	0.26 U
Benzo(a)pyrene	0.035	26	NA	NA	0.0014	2.5 U	0.26 U
Benzo(b)fluoranthene	NA	NA	NA	NA	0.014	2.5 U	0.26 U
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	2.5 U	0.26 U
Benzo(k)fluoranthene	NA	NA	NA	NA	0.014	2.5 U	0.26 U
Benzoic acid	NA	NA	NA	NA	NA	500 U	10 U
Benzyl Alcohol	NA	NA	NA	NA	NA	50 U	5.1 U
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	6 U	0.62 U
bis(2-Chloroethyl)ether	0.85	NA	NA	NA	0.02	1 U	0.1 U
bis(2-Ethylhexyl)phthalate	3.6	400	NA	NA	0.23	30 U	3.1 U
Butyl benzylphthalate (BBP)	8.2	1300	NA	NA	0.56	40 U	4.1 U
Carbazole	NA	NA	NA	NA	NA	30 U	0.62 U
Chrysene	NA	NA	NA	NA	1.4	2.5 U	0.26 U
Dibenz(a,h)anthracene	NA	NA	NA	NA	0.0014	2.5 U	0.26 U
Dibenzofuran	NA	NA	NA	NA	NA	4 U	4.1 U
Diethyl phthalate	NA	28000	NA	NA	4200	10 U	10 U
Dimethyl phthalate	NA	NA	NA	NA	92000	6 U	6.2 U
Di-n-butylphthalate (DBP)	NA	2900	NA	NA	450	500 U	10 U
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	10 U	1 U
Fluoranthene	NA	90	NA	NA	16	13 U	0.26 U
Fluorene	NA	3500	NA	NA	420	2.5 U	2.6 U
Hexachlorobenzene	0.00047	0.24	NA	NA	0.000051	30 U	0.62 U
Hexachlorobutadiene	30	930	NA	NA	0.69	50 U	1 U
Hexachlorocyclopentadiene	NA	3600	NA	NA	150	10 U	10 U
Hexachloroethane	1.9	21	NA	NA	0.11	50 U	10 U
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	0.014	4 U	0.41 U
Isophorone	1600	120000	NA	NA	27	4 U	0.41 U
Naphthalene	NA	4900	NA	NA	NA	20 U	4.1 U
Nitrobenzene	NA	1800	NA	NA	55	10 U	1 U
N-Nitrosodi-n-propylamine	0.82	NA	NA	NA	0.0044	4 U	0.41 U
N-Nitrosodiphenylamine	9.7	NA	NA	NA	0.62	50 U	1 U
Pentachlorophenol	1.5	1200	20	13	0.046	250 U	5.1 U
Phenanthrene	NA	NA	NA	NA	NA	50 U	1 U
Phenol	NA	560000	NA	NA	18000	10 U	1 U
Pyrene	NA	2600	NA	NA	310	50 U	1 U
Total Petroleum Hydrocarbons (ug/L)							
Gasoline	NA	NA	NA	1000	NA	110	50 U
Total Petroleum Hydrocarbons (C10-C24)-Diesel #2	NA	NA	NA	*150/3000	NA	14000 J+	1100
Total Petroleum Hydrocarbons (C24-C36) Motor Oil	NA	NA	NA	NA	NA	33000 J+	1700
Inorganic Compounds (ug/L)							
Arsenic, Dissolved	0.098	18	360	190	10	60 U	60 U
Cadmium, Dissolved	NA	41	3.7	1	NA	20 U	20 U
Chromium, Dissolved	NA	NA	NA	NA	NA	25 U	25 U
Copper, Dissolved	NA	2900	17	11	1300	60 U	14 J
Lead, Dissolved	NA	NA	65	2.5	NA	30 U	30 U
Nickel, Dissolved	NA	1100	1400	160	150	2.8 J	3.7 J
Potassium, Dissolved	NA	NA	NA	NA	NA	98000	34000
Sodium, Dissolved	NA	NA	NA	NA	NA	7000	70000
Zinc, Dissolved	NA	17000	110	100	2300	40 U	40 U
Arsenic, Total	0.098	18	360	190	10	60 U	60 U
Cadmium, Total	NA	41	3.7	1	NA	20 U	20 U
Chromium, Total	NA	NA	NA	NA	NA	25 U	25 U
Copper, Total	NA	2900	17	11	1300	60 U	22 J
Lead, Total	NA	NA	65	2.5	NA	30 U	30 U
Mercury, Total	NA	NA	2.1	0.012	NA	0.3 U	0.3 U
Nickel, Total	NA	1100	1400	160	150	2.4 J	3.9 J
Potassium, Total	NA	NA	NA	NA	NA	94000	31000
Sodium, Total	NA	NA	NA	NA	NA	7100	66000
Zinc, Total	NA	17000	110	100	2300	51	40 U
PCBs (ug/L)							
Aroclor-1016 (PCB-1016)	0.003	0.0058	NA	NA	NA	0.9 U	0.99 U
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	0.9 U	0.99 U
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	0.9 U	0.99 U
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	0.9 U	0.99 U
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	0.9 U	0.99 U
Aroclor-1254 (PCB-1254)	0.0001	0.0017	NA	NA	NA	0.9 U	0.99 U
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	0.9 U	0.99 U
Other							
Total Suspended Solids (TSS) (ug/L)	NA	NA	NA	NA	NA	26000	2400

ABBREVIATIONS AND NOTES:

*150 ug/L unweathered, 3000 ug/L weathered.

J: value is an estimate

J+: value is an estimate, biased high

ug/L: micrograms per liter

MTCA: Model Toxics Control Act

NA: No Action level established

U: not detected, value is the laboratory reporting limit

There are no published state (173-201A) or federal (CWA 304) surface water aquatic life protective criteria. In their absence, protective concentrations were derived from studies published by Ecology's Environmental Assessment Program, and published in Implementation Memo #23 (IM 23). Ecology's IM 23 provides gasoline and diesel range organic concentrations that are protective of aquatic receptors in marine and fresh surface waters

Bold values indicate a detected concentration.

Blue shading indicates a detected analyte concentration exceeding Surface Water Aquatic Life Fresh/Acute or Surface Water Aquatic Life Fresh/Chronic action level.