Remediation General Permit
Appendix VI

Test Methods and Minimum Levels[1] for Pollutants Covered by the RGP

Parameter *	CAS Number(s)	Inorganic Test Methods				
		ICP/AES [2] Methods 200.7, 3010A/6010C	ICP/MS [3], 200.8, 3010A/6020A	GFAA [4] Method 200.9, 7010	Other	Notes Digestion method
1. Total Suspended Solids (TSS)					Method 160.2 SM[5] 2540D (5 mg/L)	
2. Total Residual Chlorine (TRC)					Methods 330.1, 330.5, SM[5] 4500-Cl D (200 ug/L) SM[5] 4500-Cl E (10 ug/L)	
4. Cyanide (CN)	57125				Method 335.4 (5 ug/L)	OIA-1677 (5 ug/L)
38. Chloride	16887006				300.0, SM[5] 4110B (0.1 mg/L)	(other anions: bromide, fluoride, nitrite/nitrate, o-phosphate, sulfate)
39. Antimony	7440360	10 ug/L	0.5 ug/L	3 ug/L		200
40. Arsenic	7440382	20 ug/L	1.0 ug/L	3 ug/L		206.5
41. Cadmium	7440439	10 ug/L	0.2 ug/L	0.5 ug/L		200

- Numbering system is provided to allow cross-referencing to Effluent Limits and Monitoring Requirements by Sub-Category provided in Appendix III, as well as Part 3 of the Notice of Intent (Contaminant Information) in Appendix V.
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[1] Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence.
[2] Inductively Coupled Plasmas/Atomic (optical) Emissions Spectrometry
[3] Inductively Coupled Plasmas/Mass Spectrometry
[4] Graphite Furnace Atomic Absorption
[5] Standard Method

Parameter *	CAS Number(s)	Inorganic Test Methods				
		ICP/AES [2] Methods 200.7, 3010A/6010C	ICP/MS [3], 200.8, 3010A/6020A	GFAA [4] Method 200.9, 7010	Other	Notes Digestion method
42. Chromium III	7440473	15 ug/L	1.0 ug/L	1 ug/L		200
43. Chromium VI (hexavalent)	18540299				Method 7196A (10 ug/L), Methods 218.6, 1636 (1 ug/L)	
44. Copper	7440508	15 ug/L	0.5 ug/L	3 ug/L		200
45. Lead	7439921	20 ug/L	0.2 ug/L	3 ug/L		200
46. Mercury	7439976				Method 245.1, 7470A (0.2 ug/L), Methods 245.7, 1631 (0.001 ug/l)	
47. Nickel	7440020	20 ug/L	0.2 ug/L	5 ug/L		200
48. Selenium	7782492	20 ug/L	2 ug/L	5 ug/L		200
49. Silver	7440224	10 ug/L	0.2 ug/L	1 ug/L		200
50. Zinc	7440666	15 ug/L	5 ug/L			200
51. Iron	7439896	20 ug/L	50 ug/L			200

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
3. Total Petroleum Hydrocarbons (TPH)					Method 1664A (5 mg/l)	
5. Benzene (B)	71432	Method 602 (0.5 ug/l)	Methods 624, 1624C (2 ug/L)		MA VPH (5 ug/L)	Methods 5035A/ 8260C (2 ug/L), 524.2 (0.5 ug/L)

[6] Gas Chromatography
[7] Gas Chromatography/Mass Spectrometry
[8] Liquid Chromatography

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
6. Toluene (T)	108883	Method 602 (0.5 ug/l)	Methods 624, 1624C (2 ug/L)		MA VPH (5 ug/L)	Methods 5035A/ 8260C (2 ug/L), 524.2 (0.5 ug/L)
7. Ethylbenzene (E)	100-41-4	Method 602 (0.5 ug/l)	Methods 624, 1624C (2 ug/L)		MA VPH (5 ug/L)	Methods 5035A/ 8260C (2 ug/L), 524.2 (0.5 ug/L)
8. (m,p,o) Xylenes (X)	108-88-3; 106-42-3; 95-47-6; 1330-20-7	Method 602 (0.5 ug/l)	Methods 624, 1624C (4 ug/L)		MA VPH (10 ug/L)	Methods 5035A/ 8260C (4 ug/L), 524.2 (0.5 ug/l)
9. Total Benzene, Toluene, Ethyl Benzene, and Xylenes (BTEX)		Method 602 (0.5 ug/l)	Methods 624, 1624C (2 ug/L)		MA VPH (5 ug/L)	Methods 5035A/ 8260C (2 ug/L), 524.2 (0.5 ug/L)
10. Ethylene Dibromide (EDB) (1,2-Dibromoethane)	106-93-4	Method 8011, 504.1 (0.01 ug/L), Method 618 (1.0 ug/l)	Methods 524.2 (1 ug/L), SIM [9] (0.1 ug/l)			Methods 624, 5035A/8260C (10 ug/L)
11. Methyl-tert-Butyl Ether (MtBE)	1634-04-4	Method 8015D (0.5 ug/L)	Method 524.2 (10 ug/L)		MA VPH (5 ug/L)	Methods 624, 5035A/ 8260C (10 ug/L)
12. tert-Butyl Alcohol (TBA) (Tertiary-Butanol)	75-65-0	Method 8015D (0.5 ug/L)	Method 524.2 (10 ug/L)			Methods 624, 5035A/ 8260C (10 ug/L)
13. tert-Amyl Methyl Ether (TAME)	994-05-08	Method 8015D (0.5 ug/L)	Method 524.2 (10 ug/L)			Methods 624, 5035A/ 8260C (10 ug/L)
14. Naphthalene	91-20-3	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA VPH (5 ug/L), MA EPH (5 ug/l)	8270D (5 ug/L), SIM (0.1 ug/L), 524.2 (0.5 ug/l), 8260C (2 ug/l)
15. Carbon Tetrachloride	56-23-5	Method 601 (0.5 ug/L)	Methods 624, 1624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
16. 1,2 Dichlorobenzene (o-DCB)	95-50-1	Methods 601, 602 (0.5 ug/L)	Methods 624, 625 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)

[9] Selected Ion Monitoring

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
17. 1,3 Dichlorobenzene (m-DCB)	541-73-1	Methods 601, 602 (0.5 ug/L)	Methods 624, 625 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
18. 1,4 Dichlorobenzene (p-DCB)	106-46-7	Methods 601, 602 (0.5 ug/L)	Methods 624, 625 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
19. 1,1 Dichloroethane (DCA)	75-34-3	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
20. 1,2 Dichloroethane (DCA)	107-06-2	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
21. 1,1 Dichloroethene (DCE)	75-35-4	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
22. cis-1,2 Dichloroethene (DCE)	156-59-2	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
23. Methylene Chloride	75-09-2	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
24. Tetrachloroethene (PCE)	127-18-4	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
25. 1,1,1 Trichloro-ethane (TCA)	71-55-6	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
26. 1,1,2 Trichloro-ethane (TCA)	79-00-5	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
27. Trichloroethene (TCE)	79-01-6	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
28. Vinyl Chloride (Chloroethene)	75-01-4	Method 601 (0.5 ug/L)	Method 624 (5 ug/L)			Methods 5035A/ 8260C (5 ug/L), 524.2 (0.5 ug/l)
29. Acetone	67-64-1	Method 524.2 (10 ug/L)	Method 1624 (50 ug/L)			Method 5035A/8260C (50 ug/L)
30. 1,4 Dioxane	123-91-1		Method 522 (0.1 ug/L)			5 ug/L, Method 8260C, 50 ug/L , Method 1624C
31. Total Phenols	108-95-2					5 ug/L, Methods 8260C, 8270D, 2 ug/L, Methods 420.1, 420.2, 50 ug/L, Method 420.4

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
32. Pentachlorophenol (PCP)	87-86-5	Method 604 (10 ug/L)	Methods 625, 1625 (10 ug/L)			Methods 3510C/8270D, 525 (5 ug/L)
33. Total Phthalates						
a. Butylbenzyl Phthalate	85687	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Methods 3510C/8270D (5 ug/L), 525.2 (0.5 ug/l)
b. Di-n-butyl Phthalate	84742	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Method 3510C/8270D (5 ug/L)
c. Diethyl Phthalate	84662	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Methods 3510C/8270D (5 ug/L), 525.2 (0.5 ug/l)
d. Dimethyl Phthalate	131113	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Method 3510C/8270D (5 ug/L)
e. Di-n-octyl Phthalate	117840	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Method 3510C/8270D (5 ug/L), 525.2 (0.5 ug/L)
34. Bis (2-Ethylhexyl) Phthalate [Di-(ethylhexyl) Phthalate]	117-81-7	Method 606 (10 ug/L)	Method 625, 1625C (5 ug/L)			Method 3510C/8270D (5 ug/L), 525.2 (0.5 ug/L)
Polynuclear Aromatic Hydrocarbons (PAHs)		Methods 8310, 8315D, 610 (GC)	Methods 625, 1625	Method 610 (LC)	MA EPH	Methods 3510C/8270D, 525.2 and Selected Ion Monitoring Option (SIM)
a. Benzo(a) Anthracene	56-55-3	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
b. Benzo(a) Pyrene	50-32-8	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
c. Benzo(b)Fluoranthene	205-99-2	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
d. Benzo(k)Fluoranthene	207-08-9	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
e. Chrysene	218-01	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
f. Dibenzo(a,h)anthracene	53-70-3	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
g. Indeno(1,2,3-cd) Pyrene	193-39-5	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (0.5 ug/l)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
h. Acenaphthene	83-32-9	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
i. Acenaphthylene	208-96-8	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
j. Anthracene	120-12-7	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
k. Benzo(ghi) Perylene	191-24-2	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
l. Fluoranthene	206-44-0	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
m. Fluorene	86-73-7	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (0.5 ug/l)	MA EPH (5 ug/l	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
n. Naphthalene	91-20-3	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (2 ug/L)	MA VPH (5 ug/ll), MA EPH (5 ug/l)	8270D (5 ug/L), SIM (0.1 ug/L), 524.2 (0.5 ug/l), 8260C (2 ug/l)

Parameter	CAS Number(s)	Organic Test Methods				
		GC [6]	GC/MS [7]	HPLC [8]	State Methods	Other
o. Phenanthrene	85-01-8	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (5 ug/L)	MA EPH 5 ug/L	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
p. Pyrene	129-00-0	Method 610 (5 ug/L)	Method 625 (5 ug/l)	Method 610 (5 ug/L)	MA EPH (5 ug/L)	8270D (5 ug/L), SIM (0.1 ug/L), 525.2 (0.5 ug/L)
37. Total Polychlorinated Biphenyls (PCBs)	85-68-7; 84-74-2; 117-84-0; 84-66-2; 131-11-3; 117-81-7.	Method 608 (0.5 ug/L)				Method 8082 (0.5 ug/L), Method 1668b (0.00005 ug/L)

Notes:

Method OIA-1677 does not measure iron cyanide complexes

Methods 522, 504.1, 524, and 525.2 are drinking water methods that can be used in special situations.

Methods 3520C (continuous extraction), 3535A (Solid Phase Extraction), and 3510C (separatory funnel extraction) are comparable organic preparation methods.

Method 8270D must be preceded by either Method 3520C or Method 3535 as the sample preparation method. In either case, the quality control requirements of Method 3500B must be taken into account. The sample preparation method must be specified with data analysis records. Method 8270D may be modified to provide lower detection and quantitation limits using Selected Ion Monitoring (SIM). 1. Minimum Level (ML) is the lowest level at which the analytical system gives a recognizable signal and acceptable calibration point for the analyte. The ML represents the lowest concentration at which an analyte can be measured with a known level of confidence. The ML is calculated by multiplying the laboratory-determined method detection limit by 3.18 (see 40 CFR Part 136, Appendix B). Where a minimum level (ML) is listed but a test method is not specified, permittee may use any of the available methods approved for use under 40 CFR 136, including alternatives approved by this permit, that meets that ML. See EPA's "Methods and Guidance for the Analysis of Water" at www.epa.gov/water/owrccatalog.nsf. Where test method is specified but ML not listed for that method, the lowest ML for listed methods must be used before concentration can be considered as "non-detect."

For measuring volatile organic compounds, Method 8260C (or the latest version) may be used as a substitute for CWA Methods 524.2, 602, 624, or 1624. Method 8260C must be preceded by Method 5030 as the preparation method. However, any method changes must be accompanied by documented quality assurance quality control (QA/QC) test results to prove that the analytical process can achieve the lower detection limits of Method 8260C.

For measuring semi-volatile organic compounds, Method 8270D may be used as a substitute for Methods 610, 625, or 1625. Method 8270D must be preceded by Method 3535 or Method 3520C as the sample preparation method. In either case, the quality control requirements of Method 3500B must be taken into account. The sample preparation method must be specified with data analysis records. Method 8270D may be modified to provide lower detection and quantitation limits using Selected Ion Monitoring (SIM). Any method changes must be accompanied by documented quality assurance quality control (QA/QC) test results to prove that the analytical process can achieve the lower detection limits of Method 8270D.