

General Chemistry Parameters	New Method	Previous C&T Method	Holding Time ⁸		Minimum Volume		Water Sampling	
			Water	Soil	Water	Soil	Container	Preservative ⁹
Acidity	SM 2310B	EPA 305.1	14 days	--	100 mL	--	250mL P	None
Alkalinity (as CaCO ₃)	SM 2320B	EPA 310.1	14 days	NS ⁵	100 mL	--	250mL P	None
Ammonia Nitrogen	SM 4500NH3-D	EPA 350.3	28 days	--	100 mL	--	250mL P	H ₂ SO ₄
Asbestos	Various	Various	NS ⁵	NS ⁵	1 L	50 g	1L P	None
Bicarbonate Alkalinity	SM 2320B	EPA 310.1	14 days	--	100 mL	--	250mL P	None
Bioassay, %survival	NPDES	NPDES	36 hr	--	5 gallons	--	5gal cube	None
Bioassay, screen	CCR Title 22	CCR Title 22	36 hr	36 hr	500 mL	200 g	1L G	None
Biochemical Oxygen Demand (BOD)	SM 5210B	EPA 405.1	48 hr	--	600 mL	--	1L P	None
Carbon, Total Organic	SM 5310C	EPA 415.2	28 days	--	40 mL	--	250mL G	H ₂ SO ₄
	Walkley-Black	Walkley-Black	--	NS ⁵	--	25 g	--	--
Carbon, Total Inorganic	SM 5310C	EPA 415.2	28 days	--	40 mL	--	250mL G	H ₂ SO ₄
Carbonate Alkalinity	SM 2320B	EPA 310.1	NS ⁵	--	100 mL	--	250mL P	None
Cation Exchange Capacity	EPA 9081	EPA 9081	--	6 mo	--	10 g	--	--
Chemical Oxygen Demand (COD)	SM 5220D	EPA 410.4	28 days	--	25 mL	--	100mL P	H ₂ SO ₄
COD, Filtered	SM 5220D	EPA 410.4	28 days	--	25 mL	--	100mL P	H ₂ SO ₄
Chloride	EPA 300.0	EPA 300.0	28 days	--	100 mL	--	250mL P	None
Chlorine, Residual	SM 4500CI-G	EPA 330.5	15 min	--	100 mL	--	250mL G	Foil wrapped
Coliform, Fecal			6 hr	--	100 mL	--	sterile 100mL P	Na ₂ S ₂ O ₃
Color	SM 2120B	EPA 110.2	48 hr	--	50 mL	--	250mL G	None
Conductivity	SM 2510B	EPA 120.1	28 days	--	100 mL	--	250mL P	None
Corrosivity to Steel (NACE)	EPA 1110A	EPA 1110A	NS ⁵	NS ⁵	1 L	1000 g	1L G	None
Chromium, Hexavalent	EPA 7196A	EPA 7196A	24 hr ¹⁰	30 days	100 mL	40 g	500mL P	None
	SM 3500Cr-D	SM 3500Cr-D	24 hr ¹⁰	--	100 mL	--	500mL P	None
	EPA 7199	EPA 7199	24 hr ¹⁰	--	50 mL	--	250mL P	None
Cyanide	SM 4500Cn-E	EPA 335.2	14 days	14 days	500 mL	5 g	500mL P	NaOH
	EPA 9010/9014	EPA 9010C/9014	14 days	14 days	500 mL	5 g	500mL P	NaOH
Cyanide, Amenable	SM 4500Cn-E	EPA 335.2	14 days	14 days	500 mL	5 g	500mL P	NaOH
	EPA 9010/9014	EPA 9010C/9014	14 days	14 days	500 mL	5 g	500mL P	NaOH
Cyanide, Reactive	SW846 Ch.7	SW846 Ch.7	NS ⁵	NS ⁵	25 mL	10 g	500mL P	None
Density	ASTM or AOCS	ASTM or AOCS	NS ⁵	--	200 mL	--	250mL P or G	None
Dissolved Oxygen	SM 4500O-G	EPA 360.1	15 min	--	100 mL	--	250mL G	None
Dissolved Sulfide	SM 4500S ² -D	EPA 376.2	7 days	--	50 mL	--	500mL P	NaOH
Ferrous Iron (Fe2+)	SM 3500FeD	SM 3500FeD	in field	--	50 mL	--	100mL P or G	HCL
Ferric Iron (Fe3+)	SM 3500FeD	SM 3500FeD	24 hr	--	See Notes	--	2 x 100mL P	see Notes (6)
Flash Point	EPA 1010A	EPA 1010A	NS ⁵	--	60 mL	NA	250mL P	None
Fluoride	EPA 300.0	EPA 300.0	28 days	28 days	100 mL	10 g	250mL P	None
Free Liquids (Paint Filter Test)	EPA 9095B	EPA 9095B	NS ⁵	NS ⁵	100 mL	50 g	500mL wide G	None
Halogens, Total Organic	EPA 9020	EPA 9020	28 days	28 days	200 mL	10 g	250mL P or G	H ₂ SO ₄
Hardness, as CaCO ₃	EPA 130.2	EPA 130.2	6 mo.	--	100 mL	--	250mL P	HNO ₃

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			Water	Soil	Water	Soil	Container	Preservative ⁹
Hexavalent Chromium	EPA 7196A	EPA 7196A	24 hr ¹⁰	30 days	100 mL	40 g	500mL P	None
	SM 3500Cr-D	SM 3500Cr-D	24 hr ¹⁰	--	100 mL	--	500mL P	None
	EPA 7199	EPA 7199	24 hr ¹⁰	--	50 mL	--	250mL P	None
Ignitability	SW846 Ch.7	SW846 Ch.7	--	NS ⁵	--	10 g	--	None
Iron, Ferrous (Fe2+)	SM 3500FeD	SM 3500FeD	24 hr	--	50 mL	--	100mL P	HCL
Iron, Ferric (Fe3+)	SM 3500FeD	SM 3500FeD	24 hr	--	See Notes	--	2 x 100mL P	see Notes (6)
MBAS (Surfactants)	SM 5540C	EPA 425.1	48 hr	--	250 mL	--	1L P	None
Moisture	CLP-SOW	CLP-SOW	--	NS ⁵	--	25 g	--	None
Nitrate Nitrogen	EPA 300.0	EPA 300.0	48 hr	--	100 mL	--	250mL P	None
Nitrite Nitrogen	EPA 300.0	EPA 300.0	48 hr	--	100 mL	--	250mL P	None
Nitrate/ Nitrite Nitrogen	EPA 353.2	EPA 353.2	28 days	--	100 mL	--	250mL P	H ₂ SO ₄
Nitrogen, Ammonia	SM 4500NH3-D	EPA 350.3	28 days	28 days	100 mL	10 g	250mL P	H ₂ SO ₄
Nitrogen, Total Kjeldahl (TKN)	SM 4500NH3-C	EPA 351.4	28 days	28 days	50 mL	5 g	1L P	H ₂ SO ₄
Oil & Grease, Petroleum (H.E.M.-SG)	EPA 1664A	EPA 1664A	28 days	--	1 L	--	1L G	HCL
Oil & Grease, Total (H.E.M.)			28 days	--	1 L	--	1L G	HCL
Organic Carbon, Total	SM 5310C	EPA 415.2	28 days	--	40 mL	--	250mL G	H ₂ SO ₄
	Walkley-Black CA LUFT ⁷	Walkley-Black CA LUFT ⁷	--	NS ⁵	--	25 g	--	--
Organic Lead	CA LUFT ⁷	CA LUFT ⁷	14 days	14 days	100 mL	50 g	250mL P	None
Ortho-phosphate Phosphorus	SM 4500P-E	EPA 365.2	48 hr ¹¹	--	50 mL	--	100mL P	None
Oxygen Demand, Biochemical	SM 5210B	EPA 405.1	48 hr	--	600 mL	--	1L P	None
Oxygen Demand, Chemical	SM 5220D	EPA 410.4	28 days	--	100 mL	--	250mL P	H ₂ SO ₄
Oxygen, Dissolved	SM 4500O-G	EPA 360.1	15 min	--	100 mL	--	250mL G	None
Paint Filter Test	EPA 9095	EPA 9095	NS ⁵	NS ⁵	100 mL	50 g	500mL wide	None
Perchlorate	EPA 314.0	EPA 314.0	28 days	--	100 mL	--	250mL P	None
PH	SM 4500H+B	EPA 150.1	15 min	--	100 mL	--	250mL P	None
	EPA 9040C/ 9045D	EPA 9040C/ 9045D	24 hr	14 days	100 mL	50 g	250mL P	None
Phenolic Compounds	EPA 420.1	EPA 420.1	28 days	--	500 mL	--	1L G	H ₂ SO ₄
Phosphate, ortho-	SM 4500P-E	EPA 365.2	48 hr	--	50 mL	--	100mL P	None
Phosphate, Total	SM 4500P-E	EPA 365.2	28 days	28 days	50 mL	10 g	250mL P	H ₂ SO ₄
Reactive Cyanide	SW846 Ch.7	SW846 Ch.7	NS ⁵	NS ⁵	25 mL	10 g	500mL P	None
Reactive Sulfide	SW846 Ch.7	SW846 Ch.7	NS ⁵	NS ⁵	25 mL	10 g	500mL P	None
Residual Chlorine	SM 4500Cl-G	EPA 330.5	15 min	--	50 mL	--	100mL G	None
Resistivity	SM 2510B	EPA 120.1	28 days	--	100 mL	--	250mL P	None
Salinity	SM 2520B	SM 2520B	NS ⁵	--	250 mL	--	250mL G	wax seal
Silica	SM 4500SiO ₂ -C	EPA 370.1	28 days	28 days	50 mL	10 g	100mL P	None
Solids, Settleable	SM 2540F	EPA 160.5	48 hr	--	1 L	--	1L G	None
Solids, Total Dissolved	SM 2540C	EPA 160.1	7 days	--	100 mL	--	250mL P	None
Solids, Total Suspended	SM 2540D	EPA 160.2	7 days	--	100 mL	--	250mL P	None
Solids, Total Volatile	SM 2540E	EPA 160.4	7 days	NS ⁵	100 mL	50 g	250mL P	None
Sulfate	EPA 300.0	EPA 300.0	28 days	--	100 mL	--	250mL P	None
Sulfide	SM 4500S ² -D	EPA 376.2	7 days	--	50 mL	--	500mL P	NaOH + ZnAc

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Sulfide, Dissolved	SM 4500S ² -D	EPA 376.2	7 days	--	50 mL	--	500mL P	NaOH
Sulfide, Reactive	SW846 Ch.7	SW846 Ch.7	NS ⁵	NS ⁵	25 mL	10 g	500mL P	None
Sulfite	SM 4500SO ₃ -B	EPA 377.1	15 min	--	100 mL	--	500mL P	None
Surfactants (MBAS)	SM 5540C	EPA 425.1	48 hr	--	250 mL	--	1L P	None
Total Dissolved Solids (TDS)	SM 2540C	EPA 160.1	7 days	--	100 mL	--	250mL P	None
Total Inorganic Carbon	SM 5310C	EPA 415.2	28 days	28 days	40 mL	25 g	125mL G	H ₂ SO ₄
Total Kjeldahl Nitrogen (TKN)	SM 4500NH ₃ -C	EPA 351.4	28 days	28 days	50 mL	5 g	1L P	H ₂ SO ₄
Total Organic Carbon (TOC)	SM 5310C	EPA 415.2	28 days	--	40 mL	--	250mL G	H ₂ SO ₄
	Walkley-Black	Walkley-Black	--	NS ⁵	--	25 g	--	--
Total Organic Halogens (TOX)	EPA 9020B	EPA 9020B	28 days	28 days	200 mL	10 g	250mL P or G	H ₂ SO ₄
Total Suspended Solids (TSS)	SM 2540D	EPA 160.2	7 days	--	100 mL	--	250mL P	None
Total Volatile Solids	SM 2540E	EPA 160.4	7 days	NS ⁵	100 mL	50 g	250mL P	None
Tributyl Tin	GC/FPD	GC/FPD	NS ⁵	NS ⁵	1 L	10 g	1L P or G	None
Turbidity	SM 2130B	EPA 180.1	48 hr	--	100 mL	--	250mL G	None
Viscosity	ASTM methods	ASTM methods	NS ⁵	--	25 mL	--	50mL P	None

General Minerals	New Method (MUR 4/11/07)	Previous C&T Method	Holding Time ⁸		Minimum Volume		Water Sampling	
			Water	Soil	Water	Soil	Container	Preservative ⁹
Alkalinity (as CaCO ₃)	SM 2320B	EPA 310.1	14 days	NS ⁵	100 mL	--	250mL P	None
Chloride, Sulfate	EPA 300.0	EPA 300.0	28 days	--	100 mL	--	250mL P	None
Conductivity	SM 2510B	EPA 120.1	28 days	--	100 mL	--	250mL P	None
PH	SM4500H+B	EPA 150.1	15 min	--	100 mL	--	250mL P	None
Total Dissolved Solids (TDS)	SM 2540C	EPA 160.1	7 days	--	100 mL	--	250mL P	None
	EPA 200.7 or	EPA 200.7 or						
Ca, Fe, Mg, Na, Zn, Hardness	6010B	6010B	6 mo	6 mo	100 mL	--	250mL P	HNO ₃
Optional Analysis (can be added to list):								
Surfactants (MBAS)	SM 5540C	EPA 425.1	48 hr	--	250 mL	--	1L P	None

Ion Chromatography	Method	Holding Time ⁸		Minimum Volume		Water Sampling	
		Water	Soil	Water	Soil	Container	Preservative ⁹
Bromide	EPA 300.0	28 days	NS ⁵	100 mL	1 g	250mL P	None
Chloride	EPA 300.0	28 days	NS ⁵	100 mL	1 g	250mL P	None
Fluoride	EPA 300.0	28 days	NS ⁵	100 mL	1 g	250mL P	None
Nitrate-Nitrogen	EPA 300.0	48 hr	NS ⁵	100 mL	1 g	250mL P	None
Nitrite-Nitrogen	EPA 300.0	48 hr	NS ⁵	100 mL	1 g	250mL P	None
Sulfate	EPA 300.0	28 days	NS ⁵	100 mL	1 g	250mL P	None
Hexavalent Chromium	EPA 7199	24 hr ¹⁰	N/A	50 mL	--	250mL P	None ¹⁰
Perchlorate	EPA 314.0	28 days	N/A	100 mL	--	250mL P	None

NOTES:

5.) NS: No holding time is specified in the regulations for these methods.

6.) Ferric Iron (Fe^{3+}) is the difference between total and ferrous iron.

Requires submission of two polyethylene bottles, one preserved with HCl and one with HNO_3 .

7.) CA LUFT: California Department of Health Services Leaking Underground Fuel Tank Manual, October 1989.

8.) Holding times specified in 40CFR 136.3 Table 2 (Clean Water Act/ NPDES, 2006) and SW-846 Table 2-36 Rev.3

9.) Samples should be kept at $\leq 6^{\circ}\text{C}$ from time of collection until analysis. Preserved containers can be supplied by C&T.

HCL: hydrochloric acid to $\text{pH} < 2$; H_2SO_4 : sulfuric acid to $\text{pH} < 2$; NaOH: sodium hydroxide to $\text{pH} > 12$; ZnAc: Zinc Acetate.

10.) Holding time can be extended to 28 days by preservation with EPA 218.6 buffer to $\text{pH} 9.3 - 9.7$.

11.) Samples for Ortho-phosphate must be filtered within 15 minutes of collection and analyzed within 48 hours.

LEGEND:

mg/L: milligrams per liter (ppm)

$\mu\text{g/L}$: micrograms per liter (ppb)

mg/Kg: milligrams per kilogram (ppm)

$\mu\text{g/Kg}$: micrograms per kilogram (ppb)

VOA: Amber VOA Vial

G: Amber Glass

P: Polyethylene