

# LIBBY ENVIRONMENTAL, INC.

## CONTAINER, PRESERVATION AND HOLDING TIMES GUIDE

Parameter	Method	Soil / Sediment			Water		
		Container	Holding Time	Preservation	Container	Holding Time	Preservation
Acidity	EPA 305.1	---	---	---	250 mL Poly	14 Days	Cool 4°C
Alkalinity	SM 2320B / EPA 310.1	4 oz. Glass Jar	14 Days	Cool 4°C	500 mL Poly	14 Days	Cool 4°C
Ammonia	SM 4500-NH3G / EPA 350.1	4 oz. Glass Jar	14 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Anions - Br, Cl, F, SO <sub>4</sub>	EPA 300.0	4 oz. Glass Jar	28 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C
Anions - NO <sub>2</sub> , NO <sub>3</sub> , PO <sub>4</sub>	EPA 300.0	4 oz. Glass Jar	48 Hours	Cool 4°C	250 mL Poly	48 Hours	Cool 4°C
BOD - Biological Oxygen Demand	EPA 405.1 / SM 5210B	---	---	---	500 mL Poly	48 Hours	Cool 4°C
Bromide	SM 4500-Br-B	4 oz. Glass Jar (x2)	ASAP	Cool 4°C	250 mL Poly	28 Days	Cool 4°C
BTEX (soil) EPA 8021B / EPA 8260C	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	48 Hours	Cool 4°C	---	---	---
BTEX (soil) EPA 8021B / EPA 8260C	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	14 Days	Cool 4°C, MeOH	---	---	---
BTEX (water)	EPA 8021B / EPA 8260C	---	---	---	40 mL Glass VOA Vial (x3)	7 Days	Cool 4°C
BTEX (water)	EPA 8021B / EPA 8260C	---	---	---	40 mL Glass VOA Vial (x3)	14 Days	Cool 4°C, HCl
Calcium Carbonate Sodium	SM 2330-00	---	---	---	500 mL Poly	14 Days	Cool 4°C
cBOD - Carbonaceous Biochemical Oxygen Demand	SM 5210B	---	---	---	500 mL Poly	48 Hours	Cool 4°C
Chloride	EPA 300.0	4 oz. Glass Jar	28 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C
Chlorinated Herbicides	EPA 8151-M	4 oz. Glass Jar (x2)	7 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Chlorinated Pesticides	EPA 608 / EPA 8081	4 oz. Glass Jar (x2)	7 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Chlorinated Phenols	EPA 8270	4 oz. Glass Jar (x2)	7 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Chlorine, residual	EPA 330.5	---	---	---	250 mL Poly	ASAP	Cool 4°C
COD - Chemical Oxygen Demand	SM 5220D	---	---	---	250 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Coliform, Fecal	SM 9222D / SM 9221	---	---	---	Corning 4 oz.	6 Hours	Cool 4°C, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
Coliform, Total	SM 9222B / SM 9221	---	---	---	Corning 4 oz.	6 Hours	Cool 4°C, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>
Color	EPA 110.2	---	---	---	500 mL Poly	48 Hours	Cool 4°C
Cyanide, Total & Amenable (Free)	SM 4500-CN (soil) / EPA 335.3 (water)	4 oz. Glass Jar	14 Days	Cool 4°C	500 mL Poly	14 Days	Cool 4°C, NaOH
Diesel Range Organics (water)	NWTPH-Dx/ Dx Extended	---	---	---	1 Liter Glass Amber	14 Days	Cool 4°C, HCl
Diesel Range Organics (water)	NWTPH-Dx/ Dx Extended	---	---	---	1 Liter Glass Amber	7 Days	Cool 4°C
Diesel Range Organics (soil)	NWTPH-Dx/ Dx Extended	4 oz. Glass Jar	14 Days	Cool 4°C	---	---	---
Dioxins/Fruans	EPA 1613	4 oz. Glass Jar (x2)	N/A	Cool 4°C	1 Liter Glass Amber (x2)	N/A	Cool 4°C
Dissolved Organic Carbon	SM 5310B / EPA 9060A	---	---	---	½ Liter Glass Amber	28 Days	Cool 4°C
Dissolved Oxygen	SM 4500-O	---	---	---	BOD bottle - "500mL Poly"	< 15 Minutes	Cool 4°C
EPH - Extractable Petroleum Hydrocarbons	WA DOE	4 oz. Glass Jar	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Flash Point	ASTM D-93	4 oz. Glass Jar	N/A	Cool 4°C	250 mL Poly	N/A	Cool 4°C
Fluoride	EPA 300.0	---	---	---	250 mL Poly	28 Days	Cool 4°C
Formaldehyde	NCASI CI/WP-98.01	4 oz. Glass Jar (x2)	7 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Freeze Point	ASTM D2386	---	---	---	500 mL Poly	---	Cool 4°C
Gasoline Range Organics (soil) NWTPH-Gx	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	48 Hours	Cool 4°C	---	---	---
Gasoline Range Organics (soil) NWTPH-Gx	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	14 Days	Cool 4°C, MeOH	---	---	---
Gasoline Range Organics (water)	NWTPH-Gx	---	---	---	40 mL Glass VOA Vial (x3)	7 Days	Cool 4°C
Gasoline Range Organics (water)	NWTPH-Gx	---	---	---	40 mL Glass VOA Vial (x3)	14 Days	Cool 4°C, HCl
Hardness	EPA 130.2 / SM 6010 / SM 2340B	---	---	---	250 mL Poly	6 Months	Cool 4°C, HNO <sub>3</sub>
HCID - Hydrocarbon Identification	NWTPH-HCID	4 oz. Glass Jar	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C

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Herbicides	EPA 8151A	4 oz. Glass Jar (x2)	7 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Hexavalent Chromium	SW 3060A	4 oz. Glass Jar	28 Days	Cool 4°C	500 mL Poly	24 Hours	Cool 4°C
Ignitability / Flashpoint	ASTM D93	4 oz. Glass Jar	28 Days	Cool 4°C	½ Liter Glass Amber	28 Days	Cool 4°C
Iron, Ferrous (Fe <sup>+2</sup> )	SM 3500-FE-B-97	---	---	---	½ Liter Glass Amber	ASAP	Cool 4°C, HCl
Langelier Index / Corrosivity (Alk, Ca, pH, TDS)	SM 2330B	4 oz. Glass Jar	ASAP	Cool 4°C	500 mL Poly (x2)	pH ASAP	Cool 4°C
Mercury (Hg)	EPA 7471	4 oz. Glass Jar	28 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C, HNO <sub>3</sub>
Metals, Dissolved (Ar, Cd, Cr, Pb, Zn, Cu)	EPA 7010 Series	4 oz. Glass Jar	6 Months	Cool 4°C	250 mL Poly - Field Filter	6 Months	Cool 4°C
Metals, Dissolved (Except Mercury)	EPA 6020 / 7010 & 200 Series	4 oz. Glass Jar	6 Months	Cool 4°C	250 mL Poly - Field Filter	6 Months	Cool 4°C
Metals, Total (Ar, Cd, Cr, Pb, Zn, Cu)	EPA 7010 Series	4 oz. Glass Jar	6 Months	Cool 4°C	250 mL Poly	6 Months	Cool 4°C, HNO <sub>3</sub>
Metals, Total (Except Mercury)	EPA 6020 / 7010 & 200 Series	4 oz. Glass Jar	6 Months	Cool 4°C	250 mL Poly	6 Months	Cool 4°C, HNO <sub>3</sub>
Nitrogen - Ammonia	SM 4500-NH3G / EPA 350.1	4 oz. Glass Jar	14 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Nitrogen - Kjeldahl (TKN)	SM 4500-N / EPA 351.1	4 oz. Glass Jar	28 Days	Cool 4°C	500 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Nitrogen - Nitrate	SM 4500-NO3 I / EPA 300.0 / EPA 9056A	4 oz. Glass Jar	48 Hours	Cool 4°C	250 mL Poly	48 Hours	Cool 4°C
Nitrogen - Nitrate + Nitrite	SM 4500-NO3 E / EPA 300.0	4 oz. Glass Jar	7 Days	Cool 4°C	500 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Nitrogen - Nitrite	SM 4500-NO3 I / EPA 300.0	4 oz. Glass Jar	48 Hours	Cool 4°C	250 mL Poly	48 Hours	Cool 4°C
Nitrogen, Total (TKN, N+N)	see above	4 oz. Glass Jar	48 Hours	Cool 4°C	250 mL Poly	(♫)	(♫)
Oil & Grease	EPA 1664	---	---	---	1 Liter Glass Amber	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
OP Pesticides (Organophosphorous)	EPA 8270 / SM 8141M	4 oz. Glass Jar (x2)	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
Orthophosphate	EPA 300.0	4 oz. Glass Jar	48 Hours	Cool 4°C	250 mL Poly	48 Hours	Cool 4°C
PAH - Polyaromatic Hydrocarbons (☼)	EPA 8270	4 oz. Glass Jar (x2)	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days/40 Days	Cool 4°C
PCBs - Polychlorinated Biphenyls	EPA 8082	4 oz. Glass Jar (x2)	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
PCP - Pentachlorophenol	EPA 8151A	4 oz. Glass Jar	14 Days	Cool 4°C	1 Liter Glass Amber	14 Days	Cool 4°C
Pesticides	EPA 8081 / 8141A	4 oz. Glass Jar	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C
pH	EPA 9045D (soil) / SM 4500H (water)	4 oz. Glass Jar	ASAP	Cool 4°C	250 mL Poly	ASAP	Cool 4°C
Phenols	EPA 9065 / EPA 420.1	4 oz. Glass Jar	28 Days	Cool 4°C	1 Liter Glass Amber	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Phosphorus, Total	SM 4500-P B/E	4 oz. Glass Jar	28 Days	Cool 4°C	500 mL Poly	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Residual Chlorine	SM 4500-Cl	---	---	---	½ Liter Glass Amber	< 15 Minutes	Cool 4°C
Salinity	EPA 2520B	---	---	---	250 mL Poly	28 Days	Cool 4°C
Solids - Settleable	SM 2540F / EPA 160.5	---	---	---	500 mL Poly (x2)	48 Hours	Cool 4°C
Solids - Total (TS)	SM 2540B / EPA 160.3	4 oz. Glass Jar	7 Days	Cool 4°C	500 mL Poly	7 Days	Cool 4°C
Solids - Total Dissolved (TDS)	SM 2540C	---	---	---	500 mL Poly	7 Days	Cool 4°C
Solids - Total Suspended (TSS)	SM 2540D	---	---	---	500 mL Poly	7 Days	Cool 4°C
Solids - Total Volatile (TVS)	SM 2540E / EPA 160.4	---	---	---	500 mL Poly (x2)	7 Days	Cool 4°C
Solids - Total Volatile Suspended (TVSS)	SM 2540E	---	---	---	500 mL Poly (x2)	7 Days	Cool 4°C
Specific Conductivity	SM 2510-B / EPA 120.1	---	---	---	250 mL Poly	48 Hours	Cool 4°C
Sulfate	EPA 300.0	4 oz. Glass Jar	28 Days	Cool 4°C	250 mL Poly	28 Days	Cool 4°C
Sulfide	SM 4500-S2	---	---	---	1 Liter Glass Amber	7 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
Sulfite	SM 4500-SO <sub>3</sub>	---	---	---	250 mL Poly	ASAP	Cool 4°C
Surfactants	EPA 425.1	---	---	---	500 mL Poly	48 Hours	Cool 4°C
sVOC - Semi-Volatile Organic Compounds	EPA 8270	4 oz. Glass Jar (x2)	14 Days	Cool 4°C	1 Liter Glass Amber	7 Days	Cool 4°C

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TCLP - Metals (RCRA8)	EPA 6020 w/ 1311 Extraction	4 oz. Glass Jar (x2)	(#)	Cool 4°C	250 mL Poly	14 Days/6 Months	Cool 4°C
TCLP - ZHE (Zero Headspace Extraction)	EPA 6020 w/ 1311 Extraction	4 oz. Glass Jar	14 Days	Cool 4°C	---	---	---
TOC - Total Organic Carbons	EPA 9060A / SM 5310C	4 oz. Glass Jar	28 Days	Cool 4°C	½ Liter Glass Amber	28 Days	Cool 4°C, H <sub>2</sub> SO <sub>4</sub>
TOX - Total Organic Halogens		4 oz. Glass Jar	28 Days	Cool 4°C			
Turbidity	EPA 180.1	---	---	---	250 mL Poly	48 Hours	Cool 4°C
VOC - Volatile Organic Compounds	EPA 8260C	---	---	---	40 mL Glass VOA Vial (x3)	7 Days	Cool 4°C
VOC - Volatile Organic Compounds EPA 8260C	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	48 Hours	Cool 4°C	---	---	---
VOC - Volatile Organic Compounds EPA 8260C	w/ 5035 preservation (Approx 5 grams soil)	40 mL Glass VOA Vial (x2)	14 Days	Cool 4°C, MeOH	---	---	---
Volatile Fatty Acids / Organic Anions	FA-SOP	---	---	---	40 mL Glass VOA Vial (x3)	14 Days	Cool 4°C
VPH - Volatile Petroleum Hydrocarbons	WA DOE	40 mL Glass VOA Vial (x2)	14 Days	Cool 4°C, MeOH	40 mL Glass VOA Vial (x3)	14 Days	Cool 4°C, HCl
Parameter	Method	Vapor			Water		
		Container	Holding Time	Preservation	Container	Holding Time	Preservation
BTEX	EPA 8021B / EPA 8260C	Tedlar	72 Hours	Room Temp, Dark	see above		
Gasoline Range Organics	NWTPH-Gx	Tedlar	72 Hours	Room Temp, Dark	see above		
Methane, Ethane, Ethene	EPA Modified 8015	Tedlar	72 Hours	Room Temp, Dark	40 mL Glass VOA Vial (x3)	14 Days	Cool 4°C
VOC - Volatile Organic Compounds	EPA 8260C	Tedlar	72 Hours	Room Temp, Dark	see above		
Fixed Gasses i.e. Propane, Hexane		Tedlar	72 Hours	Room Temp, Dark	see above		

### All Soil Samples Require a 4oz. Jar (unpreserved)

(#) Extract within 128 Days (Hg = 28 Days)

(!) 48 hour notice to prepare solutions

(♫) Total Nitrogen - WATER x1 250ml poly unpreserved (48 hour hold) & x1 250ml poly, H<sub>2</sub>O<sub>4</sub> (28 days hold)

(%) No preservative

(☼) PAH soil - 14 days to be extracted , THEN 40 days hold time

Note: VOC - HCl degrades the Vinyl Chloride

Vapor Samples = 72 HR Hold