

Appendix K SOC/VOC Sampling & Testing Methods & Reporting Limits/Analytical Lab

WATER SAMPLE COLLECTION – Analytical Lab Protocol

PROPER REFRIGERATION IS REQUIRED FOR MOST SAMPLES.

IF SPECIFICATIONS ARE NOT MET, THIS MUST BE NOTED ON THE FINAL REPORT.

BOTTLES

Our bottles are coded for identification purposes. When you receive your sample bottle set make sure that you have all the bottles listed. If you have multiple sets, make sure that you use the proper set for each sample point. Don't forget to solidly freeze the laboratory ice packs in advance. Some bottles contain diluted acid, base, or other preservatives. Do not rinse any of the bottles. Be careful not to spill the preservative or overfill the bottles. If you get acid or base on yourself rinse thoroughly with water. If you spill any acid or break a bottle, use baking soda to neutralize the acid and flush the area with water. 'IB' bottles contain base (NaOH), which can be neutralized with vinegar.

SAMPLE COLLECTION

Fill the bottles to the base of the neck unless special instructions are included. **Refrigerate or ice the samples immediately after collection.** (Please do not use the laboratory ice packs for this purpose. They are for delivery or shipping. See instructions below). If a 'temperature blank' is included with your bottle set, refrigerate or ice and keep it with your samples. For delivery or shipping, place it in the cooler next to the ice packs with the samples. **Samples requiring refrigeration must be cooled to and kept at 4°C (39°F) prior to shipping.** Put ice into ziplock bags to protect the bottle labels and to prevent possible contamination of the samples from melted ice water. Do not allow the samples to freeze. Fill out the chain of custody (COC) form completely. Indicate the testing required clearly. Check sample holding time requirements. Note that the collection date and time for a composite sample are the date and time the composite is completed not the beginning date and time.

HAND DELIVERY TO THE LAB

After the samples have cooled to the proper temperature and just before transport, place the samples into the cooler/shipper with the solidly frozen laboratory ice packs. **Be sure that you have enough ice to maintain the temperature at 4°C (39°F).** Samples hand delivered to the lab on the day of collection that have not yet had time to cool completely are OK as long as they are on ice. **Bring the samples to the counter in the cooler.** Be sure that samples collected on a previous day are not warmed by contact with samples collected on the current day. **Samples hand delivered to the lab after the day of collection must be received at the proper temperature.**

SHIPPING SAMPLES TO THE LAB

After the samples have cooled to the proper temperature and just before shipping, place the samples into the cooler/shipper with the solidly frozen laboratory ice packs. **Be sure that you have enough ice to maintain the temperature at 4°C (39°F).** **Samples shipped to the lab must be received at the proper temperature.** Do not collect and ship on Friday unless special arrangements have been made.

SAMPLE RECEIPT AT THE LAB

The sample temperatures will be checked and recorded on arrival in the lab. If the samples are not received at **6°C or less (do not allow to freeze)**, or do not meet bottle, preservation, or holding time criteria, a resample is recommended. Any exceptions to these specifications must be noted on the final report. **Most samples must be delivered to the lab within 24 hours of collection.** **For Microbiological sample timing please call the lab for arrangements.** Please call if you have questions or if timing is a problem. We are open Monday through Friday 8:00 a.m. to 5:00 p.m.

**PROPER SAMPLE REFRIGERATION IS REQUIRED.
IF YOU HAVE QUESTIONS AS TO PROPER PROCEDURE, PLEASE CHECK WITH US.**

SAMPLE POINT

IOCs, Nitrate, SOCs, VOCs and Radionuclides are normally collected after treatment and before distribution. This is called the entry point to the distribution system. If you collect your sample at the entry point, write 'entry point' in the 'Sample Point' space on the chain of custody (COC) and circle 'Source' in the 'Sample Composition' section. Fill out the chain of custody (COC) form completely. Don't forget to solidly freeze the laboratory ice packs in advance.

SAMPLE COLLECTION

Flush the tap for 5-10 minutes before taking any sample. Reduce the flow to a steady, even stream without any air bubbles before filling the sample bottles. All bottles (except those for VOCs and SOC 504.1, as outlined on page 2) should be filled to the base of the neck without introducing air bubbles during filling. Some bottles contain a preservative, so be careful not to overfill them. **Refrigerate or ice the samples immediately after collection.** (Please do not use the laboratory ice packs for this purpose. They are for delivery or shipping. See instructions below). If a 'temperature blank' is included with your bottle set, refrigerate or ice and keep it with your samples. For delivery or shipping, place it in the cooler next to the ice packs with the samples. **Samples requiring refrigeration must be cooled to and kept at 4°C (39°F) prior to shipping.** Put ice into ziplock bags to protect the bottle labels and to prevent possible contamination of the samples from melted ice water. Do not allow the samples to freeze.

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SAMPLE RECEIPT AT THE LAB

The sample temperatures will be checked and recorded on arrival in the lab. If the samples are not received at **6°C or less (do not allow to freeze)**, or do not meet bottle, preservation, or holding time criteria, a resample is recommended. Any exceptions to these specifications must be noted on the final report. **Samples must be delivered to the lab within 24 hours of collection.** Please call if you have questions or if timing is a problem. We are open Monday through Friday 8:00 a.m. to 5:00 p.m.

VOCs 524.2 and SOCs 504.1 COLLECTION INSTRUCTIONS
THESE SAMPLES MUST BE COLLECTED WITHOUT ANY AIR BUBBLES

VOCs 524.2 Collection

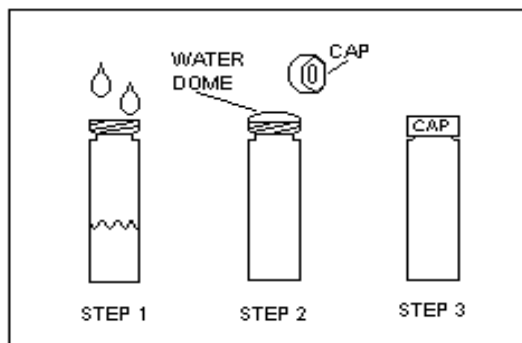
Let water run 5-10 minutes to clear the sample tap and flush the line. Reduce the water flow to a steady, narrow stream without any air bubbles.

If the water system is chlorinated, carefully fill the 250 ml amber bottle marked VOA-DA. Fill it to the brim without introducing air bubbles, cap it and rotate it gently three times, and then use it to fill the four VOA vials (40 ml clear glass). Fill bottles completely without introducing air bubbles until the water rounds above the bottle top and forms a water dome (See diagram below). Do not overflow the bottles because they contain a preservative (A few drops of diluted Hydrochloric acid. Take appropriate precautions). If any bubbles are present allow them to rise to the surface and dissipate. Replace the cap on the bottle tightly, invert the bottle, and tap it on a solid surface to determine if any air bubbles are trapped in it. If air bubbles are present carefully remove the cap, add a few more drops, and reseal. Keep VOA-Trip Blank bottle with the set and do not open it.

If the water system is not chlorinated, fill the four VOA vials (40 ml clear glass) directly from the tap. Fill bottles completely without introducing air bubbles until the water rounds above the bottle top and forms a water dome (See diagram below). Do not overflow the bottles because they contain a preservative (A few drops of diluted Hydrochloric acid. Take appropriate precautions). If any bubbles are present allow them to rise to the surface and dissipate. Replace the cap on the bottle tightly, invert the bottle, and tap it on a solid surface to determine if any air bubbles are trapped in it. If air bubbles are present carefully remove the cap, add a few more drops, and reseal. Keep VOA-Trip Blank bottle with the set and do not open it.

SOCs 504.1 Collection

Fill the three 504.1 bottles directly from the tap. Fill bottles completely without introducing air bubbles until the water rounds above the bottle top and forms a water dome (See diagram below). Do not overflow the bottles because they contain a preservative. If any bubbles are present allow them to rise to the surface and dissipate. Replace the cap on the bottle tightly, invert the bottle, and tap it on a solid surface to determine if any air bubbles are trapped in it. If air bubbles are present carefully remove the cap, add a few more drops, and reseal. Keep 504.1-Trip Blank bottle with the set and do not open it.



Analytical Laboratory & Consultants, Inc.

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541-485-8404 ♦ 1-800-262-5973

Fax: 541-484-5995

Oregon ORELAP Accredited

Laboratory ID# OR100012

Accredited in accordance with NELAC

Accredited analytes marked "¥"

ANALYSIS REPORT

System		Lab Report No.	
PWS ID#		Date Received	
Source ID		Collection Date	
		Collected by	
Attention		Sampled at	
Bill To		Sample	Raw Treated
Address		Sample	Source Distribution
		Sample	Single Combined

**PUBLIC WATER SYSTEMS
INORGANIC CHEMICALS (IOCs)**

Analyte	Method	EPA Code	PWS MCL	Reporting Limit	Results	Units	Analysis Date/Analyst
Antimony ¥	SM 3113 B	1074	0.006	0.0030		mg/L	
Arsenic ¥	SM 3113 B	1005	0.01	0.0040		mg/L	
Barium ¥	SM 3113 B	1010	2	0.100		mg/L	
Beryllium ¥	SM 3113 B	1075	0.004	0.0004		mg/L	
Cadmium ¥	SM 3113 B	1015	0.005	0.0010		mg/L	
Chromium ¥	SM 3113 B	1020	0.1	0.0050		mg/L	
Cyanide ¥	SM 4500-CN F	1024	0.2	0.1		mg/L	
Fluoride ¥	SM 4500-F C	1025	4.0	0.1		mg/L	
Mercury ¥	SM 3112 B	1035	0.002	0.0010		mg/L	
Nickel ¥	SM 3113 B	1036	0.1	0.0050		mg/L	
Nitrate-N ¥	SM 4500-NO3 D	1040	10	1.0		mg/L	
Nitrate+Nitrite-N ¥	Calculation	1038	10	N/A		mg/L	
Nitrite-N ¥	SM 4500-NO3 E	1041	1.0	0.1		mg/L	
Selenium ¥	SM 3113 B	1045	0.05	0.0200		mg/L	
Sodium ¥	SM 3111 B	1052	20 ¹	5.0		mg/L	
Thallium ¥	EPA 200.9	1085	0.002	0.0010		mg/L	

ND means Not Detected at the listed Reporting Limit.

PWS MCL means Public Water System Maximum Contaminant Level

¹ Advisory Only

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Address		Sample	Source Distribution
		Sample	Single Combined

**PUBLIC WATER SYSTEMS
SYNTHETIC ORGANIC CHEMICALS - REGULATED**

Analyte	Method	EPA CODE	PWS MCL	Reporting Limit	Results	Units	Analysis Date/Analyst
2,4-D	EPA 515.3	2105	0.07	0.005		mg/L	
2,4,5-TP (Silvex)	EPA 515.3	2110	0.05	0.005		mg/L	
Bis(2-ethylhexyl)adipate	EPA 525.2	2035	0.4	0.004		mg/L	
Alachlor (Lasso)	EPA 525.2	2051	0.002	0.0002		mg/L	
Atrazine	EPA 525.2	2050	0.003	0.0003		mg/L	
Benzo(a)Pyrene	EPA 525.2	2306	0.0002	0.00004		mg/L	
BHC-gamma (Lindane)	EPA 508	2010	0.0002	0.00002		mg/L	
Carbofuran	EPA 531.1	2046	0.04	0.004		mg/L	
Chlordane	EPA 508	2959	0.002	0.0001		mg/L	
Dalapon	EPA 515.3	2031	0.2	0.005		mg/L	
Dibromochloropropane	EPA 504.1	2931	0.0002	0.00002		mg/L	
Dinoseb	EPA 515.3	2041	0.007	0.0005		mg/L	
Diquat	EPA 549.2	2032	0.02	0.002		mg/L	
Endothall	EPA 548.1	2033	0.1	0.01		mg/L	
Endrin	EPA 508	2005	0.002	0.0002		mg/L	
Ethylene Dibromide (EDB)	EPA 504.1	2946	0.00005	0.00001		mg/L	
Glyphosate	EPA 547	2034	0.7	0.05		mg/L	
Heptachlor Epoxide	EPA 508	2067	0.0002	0.00002		mg/L	
Heptachlor	EPA 508	2065	0.0004	0.00004		mg/L	
Hexachlorobenzene (HCB)	EPA 525.2	2274	0.001	0.0001		mg/L	
Hexachlorocyclopentadiene	EPA 525.2	2042	0.05	0.005		mg/L	
Methoxychlor	EPA 508	2015	0.04	0.00002		mg/L	
Pentachlorophenol	EPA 515.3	2326	0.001	0.00008		mg/L	
Bis(2-ethylhexyl)phthalate	EPA 525.2	2039	0.006	0.0006		mg/L	
Picloram	EPA 515.3	2040	0.5	0.005		mg/L	
Polychlorinated Biphenyls	EPA 508	2383	0.0005	0.0001		mg/L	
Simazine	EPA 525.2	2037	0.004	0.0004		mg/L	
Toxaphene	EPA 508	2020	0.003	0.0003		mg/L	
Vydate	EPA 531.1	2036	0.2	0.002		mg/L	

ND means Not Detected at the listed Reporting Limits. Analysis by Neilson Research Corp, ORELAP ID# OR 100016, Medford, OR

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Address		Sample	Source Distribution
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PUBLIC WATER SYSTEMS SYNTHETIC ORGANIC CHEMICALS - UNREGULATED

Analyte	Method	EPA CODE	Reporting Limit	Results	Units	Analysis Date/Analyst
3-Hydroxycarbofuran	EPA 531.1	2066	0.004		mg/L	
Aldicarb	EPA 531.1	2047	0.002		mg/L	
Aldicarb Sulfoxide	EPA 531.1	2043	0.003		mg/L	
Aldicarb Sulfone	EPA 531.1	2044	0.001		mg/L	
Aldrin	EPA 508	2356	0.00002		mg/L	
Butachlor	EPA 525.2	2076	0.0003		mg/L	
Carbaryl	EPA 531.1	2021	0.004		mg/L	
Dicamba	EPA 515.3	2440	0.005		mg/L	
Dieldrin	EPA 508	2070	0.00002		mg/L	
Methomyl	EPA 531.1	2022	0.004		mg/L	
Metolachlor	EPA 525.2	2045	0.0004		mg/L	
Metribuzin	EPA 525.2	2595	0.0004		mg/L	
Propachlor	EPA 525.2	2077	0.0004		mg/L	

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VOLATILE ORGANIC COMPOUNDS - REGULATED
EPA 524.2

Analyte	EPA CODE	PWS MCL	Reporting Limit	Results	Units	Analysis Date/Analyst
1,1-Dichloroethylene ¥	2977	0.007	0.0005		mg/L	
1,1,1-Trichloroethane ¥	2981	0.2	0.0005		mg/L	
1,1,2-Trichloroethane ¥	2985	0.005	0.0005		mg/L	
1,2-Dichloroethane ¥	2980	0.005	0.0005		mg/L	
1,2-Dichloropropane ¥	2983	0.005	0.0005		mg/L	
1,2,4-Trichlorobenzene ¥	2378	0.07	0.0005		mg/L	
Benzene ¥	2990	0.005	0.0005		mg/L	
Carbon Tetrachloride ¥	2982	0.005	0.0005		mg/L	
cis-1,2-Dichloroethylene ¥	2380	0.07	0.0005		mg/L	
Dichloromethane ¥	2964	0.005	0.0005		mg/L	
Ethylbenzene ¥	2992	0.7	0.0005		mg/L	
Monochlorobenzene ¥	2989	0.1	0.0005		mg/L	
o-Dichlorobenzene ¥	2968	0.6	0.0005		mg/L	
p-Dichlorobenzene ¥	2969	0.075	0.0005		mg/L	
Styrene ¥	2996	0.1	0.0005		mg/L	
Tetrachloroethylene ¥	2987	0.005	0.0005		mg/L	
Toluene ¥	2991	1.0	0.0005		mg/L	
Total Xylenes ¥	2955	10.0	0.0005		mg/L	
trans-1,2-Dichloroethylene ¥	2979	0.1	0.0005		mg/L	
Trichloroethylene ¥	2984	0.005	0.0005		mg/L	
Vinyl Chloride ¥	2976	0.002	0.0004		mg/L	

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**VOLATILE ORGANIC COMPOUNDS - UNREGULATED
EPA 524.2**

Analyte	EPA CODE	Reporting Limit	Results	Units	Analysis Date/Analyst
1,1-Dichloroethane	2978	0.0005		mg/L	
1,1-Dichloropropene	2410	0.0005		mg/L	
1,1,1,2-Tetrachloroethane	2986	0.0005		mg/L	
1,1,2,2-Tetrachloroethane	2988	0.0005		mg/L	
1,2,3-Trichloropropane	2414	0.0005		mg/L	
1,3-Dichloropropane	2412	0.0005		mg/L	
cis-1,3-Dichloropropene	2413	0.0005		mg/L	
trans-1,3-Dichloropropene	2224	0.0005		mg/L	
2,2-Dichloropropane	2416	0.0005		mg/L	
Bromobenzene	2993	0.0005		mg/L	
Bromodichloromethane ¥	2943	0.0005		mg/L	
Bromoform ¥	2942	0.0005		mg/L	
Bromomethane	2214	0.0005		mg/L	
Chlorodibromomethane ¥	2944	0.0005		mg/L	
Chloroethane	2216	0.0005		mg/L	
Chloroform ¥	2941	0.0005		mg/L	
Chloromethane	2210	0.0005		mg/L	
Dibromomethane	2408	0.0005		mg/L	
m-Dichlorobenzene	2967	0.0005		mg/L	
o-Chlorotoluene	2965	0.0005		mg/L	
p-Chlorotoluene	2966	0.0005		mg/L	

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