LABORATORY COSTS
AND
SAMPLING PROCEDURES

Note:

It is the responsibility of each public water system and not the analytical laboratory to ensure that a copy of each analysis is submitted to the Division of Drinking Water.

FEBRUARY 2014

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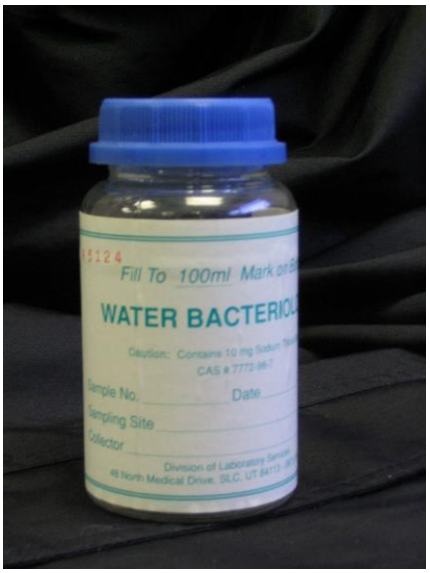
General

It is the responsibility of each public water supplier to ensure that samples are submitted to a state certified laboratory as required for the appropriate analysis. **It is also the responsibility of each public water system and not the analytical laboratory to ensure that a copy of each analysis is submitted to the Division of Drinking Water**. This document provides information on the containers needed for each test, the sampling procedures, and the estimated costs charged by certified laboratories. A sample description sheet must accompany each set of samples collected at a given location. All sample bottles must also be clearly labeled. Sample bottles and description sheets may be obtained from the Utah Public Health Laboratory, also called Utah State Health Laboratory at (801) 965-2405 or from the certified laboratory of your choice. All pesticides and unregulated organic samples must be scheduled with the laboratory you utilize before collection. Sample containers must be obtained from the laboratory involved.

This instruction sheet is offered as a guide and does not replace any applicable State or Federal regulations. Please note that the interval between sampling is based on many factors which include: whether the results of previous samples are reliably and consistently below the MCL; whether VOCs or Pesticides are used, manufactured, transported, stored and/or disposed of in the area; or whether the source is susceptible to contamination. Through these three different criteria, waivers may be issued. The monitoring frequency can range from quarterly to once every nine years, depending on if a waiver is issued and the type of waivers and the results of analysis.

Bacteriologic Monitoring



Fee: Estimated at: $17.00 to $25.00 per sample.

Who: Community, Non-Transient Non-Community and Non-Community systems.

When: Monthly for Community system. Quarterly for Non-Transient Non-Community and Non-Community systems. In each case, the number of samples will vary depending on the population served. GWR: Systems with groundwater source(s) which do not disinfect to 4-log removal of virus, must collect one bacteriological sample from each source in-use following a positive sample collected from the distribution system.

Where: Representative sites within the distribution system (water systems must maintain a sampling site plan). GWR: from each source in-use, prior to disinfection or treatment. A representative sample of more than one source(s) may be collect at a location approved by the DDW (water systems must submit a source sampling plan).

Containers: (a) A sterilized 4-ounce plastic or glass bottle with a dechlorinating agent.
(b) Sample description sheet.
(c) Mailing container.
(d) coolant

Form: Bacteriologic

How: Samples should be collected from consumer's cold water taps (without water treatment devices such as softeners or filters). Points selected on the distribution system should be representative of the water served. Avoid freezeless yard hydrants and taps with aerators, screens or hose-bib type threads. Bathtub taps are acceptable in homes. GWR: Samples should be collected from a sampling tap without threads.

Flaming the faucet is not necessary. The faucet should be opened and allowed to run for several minutes before sampling. The laboratory must analyze samples within 30 hours of collection.

Parameter: Coliform Bacteria, E coli

<u>Lead and Copper Monitoring</u>

Fee: Lead: Estimated at $17 to 20 per sample.
Copper: Estimated at $17 to 20 per sample.
or combined Lead/Copper estimated at $30 to 40per sample.

Who: Community, Non-Transient Non-Community.

When:

Population Range	**Base Number of Samples**	**Reduced Monitoring Number of Samples**	**Reduced Monitoring Number of Samples**
	Note 1	Note 2	Note 3
Greater than 100,000	100 every 6 months	50 annually	50 every 3 years
Between 50,001 and 100,000	60 every 6 months	30 annually	30 every 3 years
Between 10,001 and 50,000	60 every 6 months	30 annually	30 every 3 years
Between 3,301 and 10,000	40 every 6 months	20 annually	20 every 3 years
Between 501 and 3,300	20 every 6 months	10 annually	10 every 3 years
Between 101 and 500	10 every 6 months	5 annually	5 every 3 years
Less than 100	5 every 6 months	5 annually	5 every 3 years

Reduced Monitoring:

Note 1: must have two rounds of satisfactory monitoring and quality before qualifying for reduced or annual monitoring.

Note 2: must have three rounds of satisfactory annual monitoring and quality before qualifying for reduced or once every three year monitoring.

Note 3: three year monitoring continues forever or until EPA changes its rule.

Where: All samples must be collected from either kitchen or bathroom taps at "Tier 1" sites. If this is not possible, then collect as many as possible from the "Tier 1" sites and collect the remaining required samples from "Tier 2" sites. If this is not possible, collect as many as possible from "Tier 1" sites first, then as many as possible from "Tier 2" sites and then the remaining required samples can be collected from "Tier 3" sites. If "Tier 2" or "Tier 3" sites are used, the water utility shall explain in a letter, when submitting the data to the state, why "Tier 2" and/or "Tier 3" sites were selected.

For Community Systems:

Tier 1 Single family structures that contain lead pipe, or copper pipes with lead solder installed between 1982 and 1986 inclusive, or are served by lead service lines.

Tier 2 Buildings and multiple family residences that contain lead pipes, or copper pipes with lead solder installed between 1982 and 1986 inclusive, or are served by lead service lines.

Tier 3 Single-family structures that contain copper pipes with lead solder installed before 1982.

For Non-transient Non-Community water systems**:**

Tier 1 Buildings that contain copper pipes with lead solder installed between 1982 and 1986 inclusive, or are served by lead service lines.

Tier 2 Buildings that contain copper pipes, with lead solder installed before 1982.

Containers: (a) 1 liter container with nitric acid preservative.
(b) Sample description sheet.

Form: Type 8 metals.

How: Care must be taken to not overflow the containers with acid preservative as the results of the chemical analysis can be affected. The water in the kitchen or bathroom tap must not be used for at least six hours before a first draw sample can be taken. Complete the sample description sheet and send the samples to the laboratory within 5 days. The results of analysis must be reported on forms provided by the Division of Drinking Water, a gray form for Lead and a yellow form for Copper.

Parameters: Lead/Copper.

Haloacetic Acids: (HAA's)

Fee: Estimated at $150.00 to $175.00 per sample

Who: Every Community water system using chlorine for disinfection or purchasing chlorinated water.

When: Quarterly for community water systems that disinfect unless they are on a reduced monitoring schedule.

Where: Four points in the distribution system per plant (plant meaning as defined by the state).

Containers: (a) Three 40 amber ml clear glass vials with teflon cap liner. 65 mg of ammonia chloride used as preservatives.
(b) Sample description sheet
(c) coolant

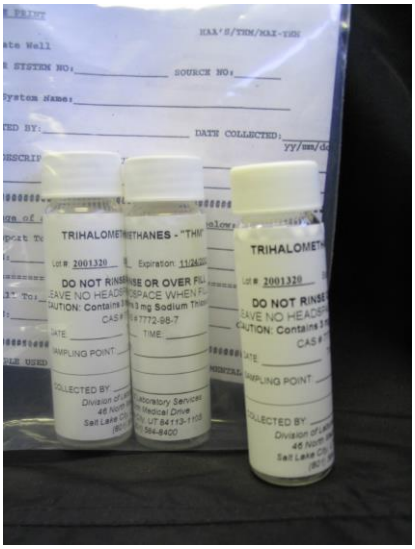
Form: Haloacetic Acids - 5 HAAs

How: Collect triplicate samples at each location. <u>You will be charged for only one analysis per site</u>. Three samples are needed by the lab for quality assurance or when dilutions are required. Allow sample tap to run for 2 - 3 minutes until the water temperature stabilizes, indicating water stabilization conditions. Slowly fill sample vials from a distribution system tap entirely full check for air bubbles by inverting the vial. If a bubble is evident, slowly fill the remaining portion of the container to its edge and turn the vial upside down as before to check for air bubbles. Be sure not to over fill the vial to prevent flushing out the dechlorinating agent. Samples should be kept refrigerated or on ice and analyzed within 14 days.

Maximum Holding Time: 14 days

Parameters: Monochloracetic acid (MCAA), Trichlroacetic acid (TCAA)
Dichloroacetic acid (DCAA), Dibromoacetic acid (DBAA),
Monobromoacetic acid (MBAA)

<u>Total Trihalomethane Monitoring</u>



Fee: Estimated at: $75.00 to $100.00 per sample.

Who: Every Community water system using chlorine for disinfection or purchasing chlorinated water and serving a population greater than 10,000.

When: Every calendar quarter, unless notified in writing by the State, that only a single set of samples is required each year. All samples in a given set should be collected on the same day.

Where: In the distribution system at locations furthest from the site of chlorination and at locations where at least a 0.2 mg/l chlorine residual is measured.

Containers: (a) Three, 40 ml clear glass vials with a special Teflon cap liner, and a dried dechlorinating agent.
(b) Sample description sheet for each location.

Form: Trihalomethanes (THM's).

How: Collect triplicate samples at each location. You will be charged for only one analysis. Three samples are needed by the lab for quality assurance or when dilutions are required. Allow sample tap to run for 2 - 3 minutes until the water temperature stabilizes indicating water main conditions. Collect a set of at least four representative samples from four different points in the distribution system (one set consisting of four samples in each calendar quarter). Twenty-five percent (25%) of each quarter's samples must be collected from the extreme ends of the distribution system. No samples may be collected immediately downstream of the chlorinated source(s), but must represent typical distribution system detention times. Slowly fill sample vials from a distribution system tap until entirely full and check for air bubbles by inverting the vial. If a bubble is evident, slowly fill the remaining portion of the container to its edge and turn the vial upside down as before to check for air bubbles. Samples should be kept refrigerated or on ice and analyzed within 14 days.

Parameters: Chloroform, Bromoform, Bromodichloromethane, Dibromochloromethane.

Asbestos Monitoring: (Distribution)

Fee: Estimated at: $250.00 to $330.00 per sample.
Utah Public Health lad does not offer this test.
Will be referred to another laboratory.

Who: Community and Non-Transient Non-Community systems, which have asbestos cement pipe in their distribution system.

When: Every nine years.

Where: In the distribution system at a site served by asbestos cement pipe.

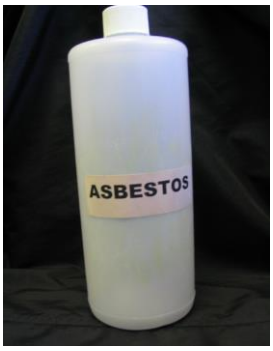
Containers: (a) One liter unpreserved plastic or glass container.
(b) Sample description sheet.

Waiver: If a waiver is issued, no sampling is required.

How: Fill container to the upper shoulder of the bottle. Complete the sample description sheet and send directly to the laboratory. (48 hours holding time advisory)

Parameter: Asbestos

Asbestos Monitoring: (Source)



Fee: Estimated at: $250.00 to $330.00 per sample.
Will be referred to another laboratory.

Who: Community, Non-Transient Non-Community systems (if notified by the state to sample).

When: Every nine years.

Where: Each source developed in asbestos containing geologic formations.

Containers: (a) 1 liter unpreserved plastic or glass container.
(b) Sample description sheet.

Waiver: If a waiver is issued, no sampling is required.

How: If source waters are developed in geologic formations containing asbestos, (the state will notify effected systems), sampling must be conducted at each entry point to the distribution system which is representative of the source water after treatment. Allow the sampling tap to flow for three to five minutes before sampling. Fill container to upper shoulder of the bottle. Complete the sample description sheet and send directly to the laboratory. (48 hours holding time)

Parameters: Asbestos

<u>Inorganics and Metals: (18 Parameters)</u>

Note: <u>Not a complete inorganic analysis. Compare with "Complete Inorganic of Chemistry or New Drinking Water Source Total Inorganic Water Chemistry" at end of this document</u>.

Fee: Estimated at: $270.00 to 325.00 per sample

Who: Community, Non-Transient Non-Community systems.

When: Once every three years for ground water sources, for surface water yearly sampling required.

Where: Each source or entry point into the distribution system.

Containers: (a) 500 ml container preserved with nitric acid (Metals).
(b) 2 liter plastic container preserved with sodium hydroxide pellets (Cyanide).
(c) 2 liter plastic bottle with no preservative (Inorganics).
(d) Sample description sheet.

Form: Type 9 Chemistry.

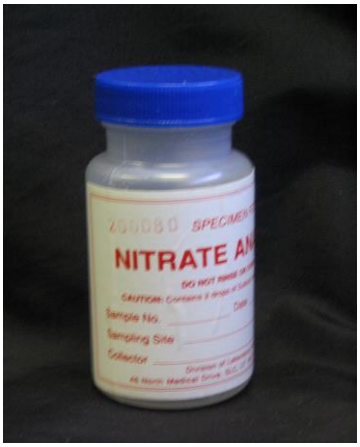
Waiver: If a waiver is issued, sampling frequency can be reduced to once every nine years.

How: Care must be taken not to overflow the container with acid preservative as the results of the chemical analysis can be adversely affected. Allow the sampling tap to flow for 3 to 5 minutes before sampling. Fill the container from the source to the upper shoulder of the bottle and no more. Complete the sample description sheet and send the samples to the laboratory within the specific holding times below.

Maximum Holding Time: 48 hours for Turbidity.
7 days for Total Dissolved Solids.
14 days for Cyanide.
28 days for Fluoride, Sulfate, and Mercury.
6 months for the other metals.

Parameter: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Cyanide, Fluoride, Lead, Mercury, Nickel, Selenium, Sodium, Sulfate, Thallium, Total Dissolved Solids (TDS), Turbidity.

<u>Nitrate</u>



Fee: Estimated at: $20.00 per sample.

Who: Community, Non-Transient Non-Community, Non-Community systems.

When: Surface sources for community systems quarterly - All other sources: once per year, unless advised otherwise by the Division of Drinking Water.

Where: Each source or entry point into the distribution system.

Containers: (a) 250 ml plastic container acidified (preserved) with sulfuric acid.
(b) Sample description sheet.
(c) coolant

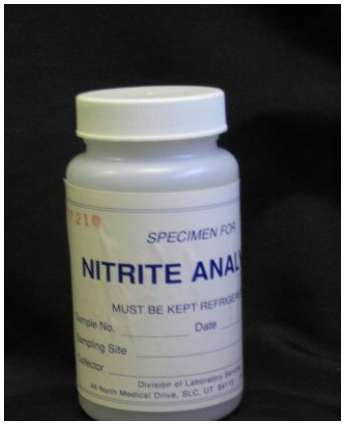
Form: Nutrients in Water Type 1 Nutrients.

How: Allow the sampling tap to flow 3 to 5 minutes before sampling. Fill the container to the upper shoulder of the bottle. Samples must be kept on ice to reach optimum temperature range of 4°C. Complete the sample description sheet and immediately deliver to the laboratory.

Maximum Holding Time: 28 days at 4° C

Parameter: Nitrate.

Nitrite



Fee: Estimated at: $25.00 to 30.00 per sample.

Who: Community, Non-Transient Non-Community, Non-Community systems.

When: Surface water sources for community systems: quarterly. All other sources: once per year, unless advised otherwise by the Division of Drinking Water.

Where: Each source or entry point into the distribution system.

Containers: (a) 250 ml unpreserved plastic container.
(b) Sample description sheet.

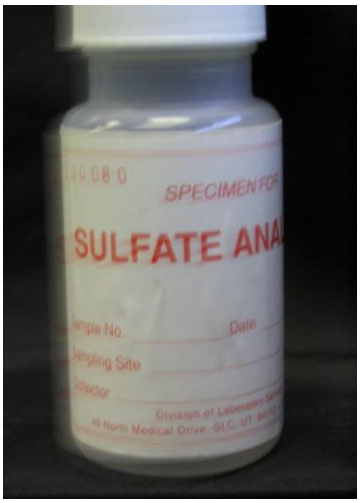
Form: Nitrite in water type 1 nutrient.

How: Same as for Nitrate.

Maximum Holding Time: 48 hrs at 4° C, schedule sample collection in coordination with the laboratory of your choice.

Parameter: Nitrite.

Sulfate



Fee: Estimated at: $15.00 to $20.00 per sample.

Who: Non-Community systems.

When: Surface or ground water sources must have samples analyzed once every three years.

Where: Each source or entry point into the distribution system.

Waiver: If a waiver is issued, sampling frequency can be reduced to once every 9 years.

Containers: (a) A 4 ounce unpreserved plastic container.
(b) Sample description sheet.

Form: Same Form as Nitrate.

How: Allow the sampling tap to flow for three to five minutes before sampling. Fill container to the upper shoulder of the bottle. Complete the sample description sheet and send the sample to the laboratory within five days.

Parameter: Sulfate.

VOC's

Note: <u>To save expense if you are required to monitor for "unregulated organics", ask the laboratory to analyze list 1 and 3 at the same time as the regulated VOCs.</u>

Fee: Estimated at: $200.00 to 220.00 per sample.

Who: Community, Non-Transient Non-Community.

When: Annually or quarterly if contaminants are <u>detected</u>.

Where: Each source or entry point into the distribution system.

Waiver: If a waiver is issued, Surface Water not required; Ground Water every six years.

Containers: (a) Three 40 ml clear glass vials with a special Teflon cap liner, and a dried dechlorinating agent. Samples must be adjusted to a pH of less than two with Hydrochloric acid, during the collection process. Add two drops of acid when the bottle is full. The acid will sink into the bottle, displacing two drops of the sample. A trip blank (or fourth bottle) is included with the sample bottles. Nothing needs to be done with this bottle.
(b) Sample description sheet.

Form: Volatile Organic Compounds (VOC) Method 502.2. or Method 524.2

Maximum Holding

Time: Fourteen days. (VOCs do not require scheduling)

How: Ground and surface water systems should collect samples at the source or point of entry into the distribution system. Samples should represent each source, and be collected after treatment has been applied. For surface water samples, collection is best where water leaves the treatment plant.

The following are general procedures for VOC sampling. The sampler is encouraged to discuss sampling procedures questions with the laboratory.

1. When sampling from a water tap open the tap and allow the system to flush until water temperature has stabilized (usually 5 to 10 minutes).

2. Fill vials, being careful not to wash out the preservative or aerate the sample. No air bubbles should pass through the sample as the bottle is filled, or is trapped in the sample when the vial is sealed. Fill the bottle full then add two drops of acid from the acid vial, provided with the VOC kit.

3. The pH of the sample must be adjusted to a pH of less than two by carefully adding two drops of the acid from the acid vial, provided by the laboratory. Highly buffered water may require more acid. Samples of a pH greater than two will be discarded.

4. Following the addition of the acid the vial must be sealed with the Teflon face down, shaken vigorously for one minute and stored at 4° C until received by the Laboratory.

5. Samples must be delivered to the laboratory as soon as possible. (VOCs do not require scheduling).

Parameters: Benzene, Carbon Tetrachloride, o-Dichlorobenzene, p-Dichlorobenzene, 1,2-Dichloroethane, 1,1-Dichloroethylene, cis-1,2 Dichloroethylene, trans-1,2-Dichlorethylene, Dichloromethane, 1,2-Dichloropropane, Ethylbenzene, Monochlorbenzene, Styrene, Tetrachloroethylene, Toluene, 1,2,4-Trichlorobenzene, 1,1,1-Trichloroethane, 1,1,2-Trichloroethane,. Trichloroethylene, Vinyl Chloride, Xylene (total),

Pesticides

Note: In connection with Pesticide sampling, check to see if you also have to collect list 2 "unregulated Organics". If so, request that the laboratory perform list 2 "unregulated Organics" analysis. No additional bottles will be necessary, but considerable cost savings could be realized.

Fee: Estimated at: $875.00 to $950.00 for combined regulated and unregulated contaminants excluding VOCs.

Estimated at: $1065.00 to $1150.00 per sample for regulated, unregulated contaminants and VOCs

Who: Community, Non-Transient Non-Community.

When: Four quarterly samples. If <u>no</u> chemical parameters are detected and the system serves more than 3,300 people, sampling may be reduced to 2 samples in separate calendar quarters every 3rd year. Systems serving less than 3,300 people, 1 sample every 3 years.

Where: Each source or entry point into the distribution system.

Containers: (a) 4, one liter amber glass bottle with Teflon fitted screw caps.
(b) 2, 40 ml glass bottles with Teflon lined septa.
(c) 1, 40 ml amber glass bottle with Teflon lined septa.
(d) All samples should be properly refrigerated or kept cold, and <u>must</u> include a sample description sheet.

Form: Phase II & V Organics.

Waiver: If a waiver is issued, no sampling is required.

How: Fill the sample container to the shoulder of the bottle. Place the cap on the container. Send the sample on ice to the laboratory. It must be kept at 4°C and sent to the laboratory no later than two days after collection of the sample. Do not pre-rinse the bottle before sample collection.

For the 2, one liter amber glass bottles with Teflon fitted screw caps same as container group (b) above: conventional sampling practices should be followed; the bottle must not be pre-rinsed before collection. After the sample is collected add the vial of acid to the bottle and shake vigorously. Do not use Tygon tubing for collection. Please follow the directions supplied with the sample bottles.

For the 1, 40 ml amber glass bottles with Teflon lined septa same as container group (c) above: collect the sample in the bottle containing buffer, in such a way that there is at least one inch head space. Seal the bottle and shake vigorously for one minute.

For all other sample bottles use conventional sampling practices. The bottles must not be pre-rinsed before collection. Fill the vials to the shoulder level, do not over fill them.

Maximum Holding Time: 7 to 28 days dependent upon each individual parameter. Therefore, it is imperative to get the samples to the laboratory as soon as possible.

Regulated Parameters:

Alachlor, Aldicarb, Aldicarb sulfone, Aldicarb sulfoxide, Atrazine, Benzo(a)pyrene, Carbofuran, Chlordane, Dalapon, Dinoseb, Endrin, Di(2-ethylhexyl) adipate, Di(2-ethylhexyl) phthalate, Heptachlor (H-34 Heptose), Heptachlor epoxide, Hexachlorobenzene, Hexachlorocyclopentadiene, Lindane, Methoxychlor, Oxamyl (Vydate), Polychlorinated biphenyls (PCBs), Pentachlorophenol, Picloram, Toxaphene, 2,4,5-TP (Silvex), Simazine ,2,4-D.

Radionuclides

Fee: Gross Alpha estimated at $60.00 to $95.00 for (ground water sources).
Radium 226 estimated at $125.00 to 150.00
Radium 228 estimated at $170.00 to 190.00
Gross Alpha estimated at $60.00 to $95.00 for (surface water sources).
Total Uranium estimated at 75.00

Contaminant	Detection Level (DL)	Maximum Contamination Level (MCL)
Gross Alpha	3 pCi/L	15 pCi/L
Radium - 226	1 pCi/L	5 pCi/L
Radium - 228	1 pCi/L	5 pCi/L
Uranium		30 pCi/L
Gross Beta		4 mrem/yr

If the gross alpha result exceeds 5pCi/L then the Laboratory will automatically analyze the sample for Radium - 226.

If the gross alpha result exceeds 15pCi/L then the laboratory will

automatically analyze the sample for Uranium.

Only systems designated by the Executive Secretary as vulnerable are required to sample for Gross Beta.

Radium-228 is a separate sampling requirement. Initially it must be sampled for at least two calendar quarters. If these results are less than the detection level then when a sample is taken for gross alpha the lab will also test for radium – 228.

Who: All Community water systems

When: New sources must sample for gross alpha for at least two calendar quarters, if these results are less than 15 pCi/L then the frequency of sampling will be reduced according to the table below. All public drinking water sources must have at least two calendar quarters of initial radium-228 samples. If these results are below 5 pCi/L then the frequency of sampling will be reduced according to the table below.

Result	Reduced Sampling Frequency
< DL	1/9 years
< ½ MCL, and above DL	1/6 years
> ½ MCL, and below the MCL	1/3 years
> MCL	Quarterly

Where: Each source or entry point to the distribution system

Containers: (a) ½ gallon plastic bottle with nitric acid preservative.
(b) ½ pint unpreserved plastic bottle, (marked **Conductivity**).
(c) metals bottle
(d) Sample description sheet.

Form: Type 1 Radiological.

How: Care must be taken not to overflow the ½ gallon container with the acid preservative as the results of the chemical analysis can be adversely affected. Allow the sampling tap to flow for 3 to 5 minutes before sampling. Fill both sample containers separately to the upper shoulder of the bottle and no more. Do not pour water from the ½ pint bottle into the ½ gallon. Complete the sample description sheet and send the samples to the laboratory within five days.

Parameters: Gross Alpha, Radium 226, Radium 228, Uranium, and Gross Beta

Unregulated Organics

Unregulated Contaminants - sampling for unregulated contaminates may be performed in conjunction with regulated VOCs and Regulated Pesticide monitoring. Therefore, if you need to collect VOC and/or pesticide samples, ask the laboratory to also perform the analysis for "unregulated organics" at the same time. Cost for unregulated analyses are much less if sampled at the same time the VOC and Pesticide contaminants are done. (See VOC and Pesticide section for specific information).

Fee: Estimated at: $1050.00 to $1150.00 for Unregulated Lists 1,2, and 3 (SVOC and VOC).
Estimated at: $200.00 to 220.00 Unregulated List 1 and 3(VOC only).
Estimated at: $875.00 to 950.00 Unregulated List 2. (SVOC only)

Who: Community, Non-Transient Non-Community systems.

When: One sample, in each of four consecutive quarters.

Where: Each source or entry point into the distribution system.

Containers: (a) 4, one liter amber glass bottles with Teflon cap.
(b) 1, 40 ml amber glass bottle with Teflon septa.
(c) 3, 40 ml glass bottles with Teflon septa.
(d) sample description sheets.

Form: Same Form as Pesticides.

Waiver: If a waiver is issued - no sampling is required.

How: Identical to regulated VOCs for lists 1 and 3. (See page 9.)
Conventional sampling practices for list 2. Do not pre-rinse the sample bottle. After the sample is collected in the bottle containing preservatives, seal the bottle and shake vigorously for one minute.

Maximum Holding Time: 7 days.

Parameters: Note: List 1 and 3 can be performed with the VOC analysis and List 2 can be performed with the Pesticide analysis.

List 1: Bromobenzene, Bromodichloromethane, Bromoform, Bromomethane, Chlorobenzene, Chloroethane, Chloroform, Chlorodibromomethane, Chloromethane, o-Chlorotoluene, p-Chlorotoluene, m-Dichlorobenzene, Dibromomethane,1,1-Dichloroethane, 1,3-Dichloropropane, 2,2-Dichloropropane, 1,1-Dichloropropene, 1,3-Dichloropropene, 1,1,1,2-Tetrachloroethane, 1,1,2,2-Tetrachloroethane, 1,2,3-Trichloropropane.

List 2: Aldrin, Butachlor, Carbaryl, Dicamba, Dieldrin, 3-Hydroxycarbofuran, Methomyl, Metolachlor, Metribuzin, Propachlor.

List 3: Bromochloromethane, n-Butylbenzene, Sec-Butylbenzene, Tert-Butylbenzene, Dichlorodifluoromethane, Fluorotrichloromethane, Hexachlorobutadiene, Isopropylbenzene, p-Isopropyltoluene, Naphthalene, n-Propylbenzene, 1,2,3-Trichlorobenzene, 1,2,4-Trimethylbenzene, 1,3,5-Trimethylbenzene.

Microscopic Particulate Analysis

Note: At present the Utah Public Health Laboratory does not offer the Microscopic

Particulate Examination.

Fee: $295.00 plus shipping costs.

Who: Any public water system source where surface water influence is suspected.

When: High spring run-off or during times when rapid changes in temperature, turbidity, pH, conductivity are anticipated (consult with the Division of Drinking Water).

Where: Ground water sources which are suspected to be under the direct influence of surface water and at water treatment plants where filter performance is being evaluated.

Containers: (a) 1 micron filter, housing canister and connecting hoses.
(b) Sample description sheet.

Holding Time: Sample must be received at the lab within 48 hrs of collection

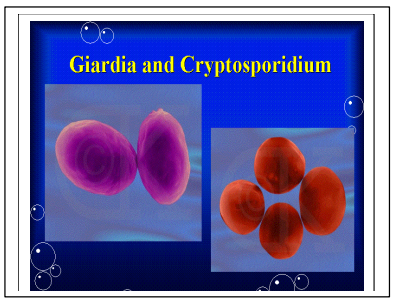
Form: MPA/ Giardia and Crytosporidium water source identification

How: Samples should be collected by passing 500 - 1,000 gallons through a one-micron filter. Arrangements can be made with the Division of Drinking Water to borrow a sampling apparatus.

Parameter: Algae, Crustacea, Cryptosporidium*, Diatoms, Giardia*, Insects, Nematodes, Plant Debris, Free-Living Protozoa, Rotifers,.

*** Not a conclusive test for Cryptosopridium or Giardia.**

Giardia and Cryptosporidium



Fee: Estimated at: $ 400.00 (by 1623 method)
$ 100.00 to 120.00 per sample filter

$ 325.00 to 350.00 per test analysis

Who: Any public water system source where surface water influence is suspected.

When: High spring run-off or during times when rapid changes in temperature, turbidity, pH, conductivity are anticipated (consult with the Division of Drinking Water).

Where: To determine the effectiveness of disinfection procedures.

Containers: (a) Gelman Envirochek Capsule Filter, No. 12110. No substitution. Available through lab.
(b) Sample description sheet.

Form: MPA/Giardia and Cryptosporidium water source identification

How: Ten liters must be run through the filter minimum.
The sample will only be validated if at least 10 liters is run through the filter.
Arrangement should be made with the Division of Drinking Water to borrow a filter-housing canister and connecting hoses.

Parameters: Giardia and Cryptosporidium

New Drinking Water Sources - Total Inorganic Water Chemistry (46 Parameters) - (Type 7)

Note: Some of the constituents in the New Drinking Water Total Inorganic Water Chemistry tests (odor, color, turbidity, surfactants) have very short holding times that require the analysis to be performed within 48 hours or less. When requesting the

proper containers from the laboratory of your choice, it is important to schedule with the laboratory when you plan to submit samples. This is especially important if samples are to be collected and submitted to the laboratory late in the week. It is the preference of the laboratory to have samples collected and received at the laboratory during the first part of the week.

Fee: $750.00 to $800.00.

Who: All public systems (first time for all new sources).

When: When the source is proposed as a new source for a public water system.

Where: A site which is representative of the new source.

Containers:
(a) ½ gallon (chemistry) unpreserved container.
(b) ½ gallon (cyanide) container preserved with sodium hydroxide pellets.
(c) 32oz brown glass bottle marked - Surfactant
(d) 16oz brown glass bottle marked - Odor
(e) 8oz plastic (metals) with nitric acid preservative
(f) 8oz plastic bottle marked – Color
(g) 16oz plastic nutrient bottles with sulfuric acid preservative
(h) 1, 4oz brown glass bottle marked -TOC
(i) Sample description sheet.

How: Care must be taken not to overflow the containers with acid preservative as the results of the chemical analysis can be adversely affected. Allow the sampling tap to flow for 3 to 5 minutes before sampling. If sampling from a river, lake, well discharge, spring box, or reservoir where the preserved container may overflow, fill the ½ gallon unpreserved container from the source and pour the water immediately into the smaller containers. Fill all sample containers to the upper shoulder of the bottle and no more. Complete the sample description sheet and send the samples to the laboratory within two days.

Parameters: Aluminum, Ammonia as N, Antimony, Arsenic, Barium, Beryllium, Bicarbonate, Boron, Cadmium, Calcium, Carbon Dioxide, Carbonate, Carbonate Solids, Chemical Balance, Chloride, Chromium, Copper, Corrosivity, Cyanide, Fluoride, Hydroxide, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Nitrate plus Nitrite, Odor, pH, Potassium, Selenium, Silica, dissolved as SiO_2, Silver, Sodium, Specific Conductance, Sulfate, Surfactant as MBAS, Thallium, Total Alkalinity, Total Dissolved Solids, Total Hardness,Total Phosphate, Total Suspended Solids, Turbidity, Zinc.

Complete Inorganic Chemistry: Total (Surface) Water Chemistry (33 parameters)

Fee: $270.00 to $338.00

Who: All public systems (first time for all new sources).

When: When the source is proposed as a new source for a public water system.
Where: Each new source.

Containers: (a) ½ gallon unpreserved container.
(b) Pint container with Nitric acid preservative.
(c) ½ pint container with sulfuric acid preservative.
(d) Sample description sheet.

Form: Type 6 Chemistry.

How: Care must be taken not to overflow the containers with acid preservative as the results of the chemical analysis can be adversely affected. Allow the sampling tap to flow for 3 to 5 minutes before sampling. If sampling from a river, lake, well discharge, spring box, or reservoir where the preserved container may overflow, fill the ½ gallon container from the source and pour the water immediately into the smaller containers. Fill all sample containers to the shoulder of the bottle and no more. Complete the sample description sheet and send the samples to the laboratory within two days.

Parameters: Arsenic, Barium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Potassium, Selenium, Silver, Sodium, Zinc, Turbidity, Specific Conductance, Bicarbonate, Carbon Dioxide, Carbonate, Chloride, Carbonate Solids, Total Alkalinity, Total Hardness, Chemical Balance, pH, Sulfate, Hydroxide, Nitrate plus Nitrite, Total Phosphate, Total Dissolved Solids, Fluoride, Total Suspended Solids.

Initially, samples (see "Base Number of Samples" column) must be collected in two six month periods. If the trigger level for both Lead and Copper are not exceeded in two rounds of six months monitoring, the frequency of monitoring can be reduced to annual monitoring and to the number shown in the column entitled: " Reduced Monitoring Number of Samples". If the trigger level for both Lead and Copper are not exceeded in three rounds of annual monitoring, the frequency of monitoring can be further reduced to once every three years.

Radon

Fee: Estimated at $70.00 to 75.00 per sample.

Who: All Community Water Systems
(Rule not yet finalized)

When: EPA will promulgate a final rule.

Where: Point of entry into the distribution system.

Containers: 3, 40 ml glass bottles (vials) with Teflon lined septa

Form: Radon analysis for drinking water

How: Care must be taken to minimize contact with the air and to avoid aeration as the sample is collected. Therefore, the following technique is used. Allow the well-head tap to run a few minutes with a tygon tube attached prior to collecting the sample. The sample vial is placed in a larger beaker, larger pan or small bucket with the lid off. Slowly begin to fill the beaker (or other suitable container) with water from the end of the tygon tube.

Make sure the vial is upright so that it does not float to the surface. Place the tip of the tygon tube inside the submerged sample vial until the vial is purged with water that has not had contact with the air above the surface of the beaker. Cap the sample vial under the water. Remove the vial and invert to be sure there is no air bubbles in the sample.

Parameter: Radon

Aeromonas

Fee: Estimated at $50.00 to 60.00 per sample

Who: Surface Water Treatment Plants who opt to monitor their distribution systems. (This is a non-regulated contaminate) but falls under the UCMR rule.

When: Surface Water Treatment Plants, as needed, during potential Taste and Odor problems.

Where: Distribution System

Container: Samples must be collected in a sterile 1 L container

Maximum Holding Time: 30 Hours

Form: Aeromonas Test Request Form

How: Fill bottle at least to the neck for 1 L volume. Do not rinse or over fill.
If you are doing a Matrix Spike, collect two containers from the same site.
Samples must be shipped or delivered in coolers using wet ice or freezer packs, be careful not to allow samples to freeze. Samples receipt temperature should not exceed 10° C. Samples must arrive at the Lab within 24 hours of the time of collection.

Perchlorate

Fee: Estimated at $50.00 to 60.00 per sample

Who: Drinking Water Systems that manufacture Perchlorate or Aerospace, fireworks and explosives plants. Water systems downgradent of perchlorate manufacturing. (EPA to monitor for this soon).

When: As needed

Where: At sites that manufacture Perchlorate

Container: CLO4 Container (125-ml plastic bottle) plus 1, Conductivity container

Maximum Holding Time: 28 days

Form: Miscellaneous Form, Write in Perchlorate, also a Conductivity sample must be collected.

How: Allow the sampling tap to flow for 1 to 3 minutes before sampling from a well discharge, spring box, or reservoir sample from the source. Fill the 125-mL container to the shoulder of the bottle and no more. Place the container in a cooler and store at 4° C. Complete the sample description sheet and send the sample to the laboratory within two days.

MTBE

Fee: Estimated at $80.00 to 85.00 per sample

Who: Community, Non-Transient Non-Community systems, and Non Community systems (This is a non-regulated contaminate) but falls under the UCMR rule.

When: As needed

Where: Sites near Gas Stations

Container: 3, 40 ml glass bottles with Teflon septa, [1, 40 ml bottle as a trip blank]

Maximum Holding Time: 14 days

Form: VOCs form: Write in - MTBE

How: 1. When sampling from a water tap open the tap and allow the system to flush until water temperature has stabilized (usually 5 to 10 minutes).

2. Fill vials, being careful not to wash out the preservative or aerate the sample. No air bubbles should pass through the sample as the bottle is filled, or is trapped in the sample when the vial is sealed. Fill the bottle full then add two drops of acid from the acid vial, provided with the VOC kit.

3. The pH of the sample must be adjusted to a pH of less than two by carefully adding two drops of the acid from the acid vial, provided by the laboratory. Highly buffered water may require more acid. Samples of a pH greater than two will be discarded.

4. Following the addition of the acid the vial must be sealed with the Teflon face down, shaken vigorously for one minute and stored at 4° C until received by the Laboratory.

5. Samples must be delivered to the laboratory as soon as possible.