

SONOMA STATE UNIVERSITY



2005

DRINKING WATER:

MONITORING PROGRAM,
BACTERIOLOGICAL SITE SAMPLING PLAN &
EMERGENCY NOTIFICATION PLAN

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Attachment 1

SSU Drinking Water Sampling Schedule

Attachment 2

Routine Bacteriological Sampling Locations

Attachment 3

EPA Bacteriological Sampling Procedure

Attachment 4

General Drinking Water Sampling Instructions (BSK Labs)

Attachment 5

Consumer Confidence Report Template with MCL's

Attachment 6

SSU Lead & Copper Sample Location Description with Maps

Attachment 7

SSU Site Map

Attachment 8

- 8.1 Emergency Notice: "Do Not Drink Your Tap Water"
- 8.2 Health Effects Language for Coliform Bacteria

Attachment 9

Chlorine Residual Colorimeter Instructions

Attachment 10

Ice Pack and Wet Ice Instructions

Introduction & System Information

The purpose of this plan is to provide guidance to Facilities Services and Environmental Health and Safety personnel in the proper procedure for monitoring the quality of the water provided to the Sonoma State University campus community. This plan includes procedures for emergency notification and general operations.

There are twenty-two service connections serving a population of approximately 7,000 students at the Sonoma State University campus. All drinking water is derived from two wells located in the northwest corner of campus. These wells pump raw water to the large storage tanks at the west end of the Facilities Services Corporation Yard. The campus water supply is a closed loop system with one pressure zone. The system classification is T1 and D2, for treatment and distribution, respectively.

Sample Frequency & Sample Collection Procedures

Sample parameters and frequency are identified in the following attachments:

Attachment 1 - SSU Drinking Water Sampling Schedule (matrix) for sample frequency on water quality parameters or constituents.

Supplemental information to assist with sample collection and interpretation of data can be found in the following attachments:

Attachment 2 - SSU Drinking Water System Routine Bacteriological Sample Locations (rotational sampling scheme with initial and repeat sample locations).

Attachment 3 - EPA Bacteriological Sampling Procedure (modified).

Attachment 4 - Sampling Procedure for Volatile Organic Compounds ("Filling VOA Vials").

Attachment 5 - Sample SSU Annual Water Quality Report with Maximum Contaminant Levels (MCL's)

Attachment 6 - Lead & Copper Sampling Locations List (maps and labels are located in EH&S Files).

Sample Locations

Chlorine Residual (17 samples per week)

Chlorine residual samples are taken Monday through Friday from three sample locations: (1) Sauvignon Village Cooperage, (2) Domestic Pump House, and (3) Residence Halls. The Cooperage and Residence Halls are considered to be the furthest points in the water distribution system while the domestic pump house is the point of chlorine injection.

Two additional chlorine residual samples are taken just prior to the two weekly bacteriological samples as identified in the attached schedule. Regulations require that chlorine residual be maintained above 0.20 ppm at distribution points in the system. Adjust accordingly.

Bacteriological - Raw Water

Raw water bacteriological samples are taken at each well head prior to treatment and storage and prior to entry into the distribution system. Raw water samples are analyzed by Total Coliform MTF/MPN and Fecal Coliform MTF/MPN. Only values of zero or less than the detection limit (e.g. "<" symbol preceding result) are considered absent for compliance purposes. These samples are considered routine and require a repeat sample set in the event of a positive total coliform sample.

Bacteriological - Weekly Distribution Point (2 routine samples per week)

The weekly samples taken for "Bacteriological-Distribution Points" are taken at representative sample locations along the water distribution system. These points are selected on a rotational basis from the locations listed on the form in Attachment Two: "Routine Bacteriological Sample Locations." Also, see Attachment Three: "Weekly Bacteriological Sampling Procedure for the SSU Drinking Water System" flow chart.

Total Dissolved Solids Analysis – Weekly Distribution Point (2 routine samples per week)

Total dissolved solids (TDS) analysis is performed in-house with a TDS meter. This test is performed in conjunction with weekly bacteriological testing and chlorine residual.

Lead & Copper Distribution Point

Lead & Copper distribution point sampling may be requested by the Department of Health Services; these samples are not taken at regular intervals and may or may not be represented on the SSU Drinking Water Sampling Schedule.

If requested by the DHS to do so, samples are taken from twenty distribution points identified on the Lead & Copper Sample Location Description & Maps in the EH&S Office of Drinking Water file. It is imperative that these samples are taken from the same locations during each sample period. Follow the checklist instructions for these locations.

Disinfection By-Products Rule (DBR) - THM/ HAA5

Trihalomethane/ haloacetic acid (THM/HAA5) samples are taken from the least-active, furthest-from-the-main point in the system: the hosebib at the northwest corner of the Boiler Plant shop (inside the roll-up door at the north loading dock).

Qualified Analytical Laboratory

The test for residual chlorine and Total Dissolved Solids (TDS) are the only tests that can be completed by SSU personnel using a portable test kit. All other tests must be conducted by a water testing laboratory certified by the State Department of Health for the particular analysis requested. In addition, EPA methods 502.2, 524.1, 504.2, or 502.1 and 503.1 must be used for the analysis of volatile organics.

Sample Collection Procedures & Integrity of Sample

All Samples

- (1) Obtain prepared sample bottles from the contract analytical lab or other appropriate vendor. These prepared bottles will typically contain specific preservatives for each material to be analyzed. Do not rinse sample bottles or allow sample to overflow the container.
- (2) Label with (a) Date, (b) Time, (c) Sample Location or ID #, (d) Type of Sample, and (e) "Sonoma State University."
- (3) Follow specific sample collection procedures identified (below).
- (4) Complete laboratory or SSU Chain of Custody form and retain a copy for University records.
- (5) Refrigerate sample and have contract laboratory pick up the same day or deliver to laboratory if pickup service is unavailable. At a minimum, pack delivered samples in ice packs. Add wet ice if necessary (i.e. during warm weather). See ice instructions in Attachment Ten.

Bacteriological Samples

- (1) Follow the instructions on Attachment Three: "EPA Bacteriological Sampling Procedure" to preserve the integrity of the sample.

General Mineral, General Physical, or Radioactivity

- (1) These samples do not require any special handling other than filling the laboratory-provided containers with cold water from the sample location.

Inorganic Chemical

- (1) Fill sample container with cold water. Do not overfill or rinse container.

Nitrate as NO₃

- (1) Fill sample container with cold water. Do not overfill or rinse container.
- (2) The maximum contaminant level for nitrate is 45 mg/L. Nitrate samples are required each quarter IF a sample result from a well is greater than or equal to 22 mg/L (22CCR 64432.1).
- (3) Chill samples per ice instructions. Sample must be analyzed within 48 hours. Use overnight service when mailing to laboratory.

Volatile Organics

- (1) Follow the instructions on Attachment Four: "Filling VOA Vials - Procedure" to preserve the integrity of the sample.
- (2) Chill sample per Attachment Ten.

THM/HAA5

- (1) Follow the instructions on Attachment Four: "Filling VOA Vials - Procedure" to preserve the integrity of the sample.
- (2) Chill sample per Attachment Ten.

Bacteriological Re-Sampling

In the event that an initial weekly sample is identified present or positive for total coliform by the laboratory, the responsible Facilities Services Engineer will:

- (1) Immediately notify Environmental Health & Safety staff.
- (2) Collect three separate repeat samples for each total coliform-positive sample within 24 hours of laboratory notification. The repeat sample set shall consist of:
 - (i) One repeat sample shall be collected from the sampling tap where the original coliform-positive sample was taken.
 - (ii) One repeat sample shall be collected upstream from the original total coliform-positive site.
 - (iii) One repeat sample shall be collected downstream from the original total coliform-positive site.

Note: If repeat sample collection is not possible within 24 hours, the Department of Health Services must be notified within 24 hours. If the original sample location has no upstream or downstream location, two samples shall be taken at the original location in addition to the existing upstream or downstream location.

- (3) Label the repeat samples as "'REPEAT', date, location, & SSU" and submit to the contract laboratory on the same day the samples were taken.

Procedure for First Total Coliform-Positive Repeat Samples

In the event that one of the three samples in the first repeat sample set is total coliform-positive, but not fecal coliform-positive or E. Coli positive, the responsible Facilities Services Engineer will:

- (1) Immediately notify Environmental Health & Safety staff, who will in turn notify the Department of Health Services if the Bacteriological MCL is exceeded for that month.
- (2) Complete a second repeat sample set in the same locations within 24 hours of being notified of the positive repeat sample result.

Procedure for Second Total Coliform-Positive Repeat Samples

In the event that a second repeat sample is total coliform-positive, but not fecal coliform-positive or E. Coli positive, the responsible Facilities Services Engineer will:

- Department of Health Services no later than the 10th of the following month

(4) Annual Reports

Annual Report to the Department of Health Services - Office of Drinking Water

Forms used to complete these reports will be mailed to Sonoma State University from the Department of Health Services. These annual reports are prepared by the Facilities Services Supervisor of Engineering and Engineering staff and forwarded to Environmental Health & Safety staff prior to March 1 for the preceding year. Annual reports are typically due on March 30th for the previous year.

Sonoma State University Consumer Confidence Report

The previous year's report is prepared by SSU Environmental Health & Safety staff and published on the EHS web page by July 1st (www.sonoma.edu/EHS/DW.html).

Recordkeeping Requirements

Records related to the SSU Water System shall be maintained by the Environmental Health & Safety Department. These records shall be maintained as follows:

- * Complaints 5 years
All verbal and written water quality and system water outage complaints, including the nature of the complaint and the corrective action taken
- * Analytical results
Bacteriological 10 years
All others 10 years
- * Communications 10 years after completion of survey
Written reports, summaries, or other communications related to any sanitary survey of the system
- * Variances 5 years after expiration of variance

SSU Sampling Personnel

Name	Grade of Operator	Certificate Number
Kevin Davis	D2	22034
Davide Furtado	T1, D1	19254, 22032
George Petru	T1, D2	13211, 22033