

# CAMP 701

## SECONDARY SYSTEM AND WATER TREATMENT PLANT SAMPLE POINTS

*Two → after article  
to be examined*

DOCUMENT TYPE: Technical

CLASSIFICATION: NNSR

REVISION: 17

EFFECTIVE DATE: May 7, 2002

REVIEWER: N/A

APPROVAL AUTHORITY: Manager of Chemistry

PROCEDURE OWNER (title): Manager of Chemistry

OWNER GROUP: Chemistry

Verified Current Copy: \_\_\_\_\_  
Signature Date Time

List pages used for Partial Performance

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Controlling Work Document Numbers

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*A/176*

SECONDARY SYSTEM AND WATER TREATMENT  
PLANT SAMPLE POINTS

---

1.0 PURPOSE

This procedure provides a list of approved sample points, their location, minimum purge volumes for secondary sample collection, and additional sampling guidance as appropriate for secondary water chemistry and water treatment.

2.0 PREREQUISITES

Appropriate collection bottles

3.0 PRECAUTIONS AND LIMITATIONS

NOTE: Sample points not included in this procedure require Chemistry lab supervisor approval prior to use.

- 3.1 In certain instances, alternate sample points may be required to determine the effects, if any, of sample tubing runs.
- 3.2 Care should be taken when sampling at points other than the sample panels. These points will not have gone through a heat exchanger and may be hot. They may also be under pressure.
- 3.3 Sampling in the primary sample room requires the technician to work under a standing RWP. All steps shall be taken to comply with the standing RWP procedure (NP 4.2.21).
- 3.4 When samples have activity greater than  $1.00 \text{ E-3 } \mu\text{ci/cc}$  Beta/Gamma or,  $1.00 \text{ E-3 } \mu\text{ci/cc } {}_1\text{H}^3$ , the handling precautions of CAMP 602 shall be followed.
- 3.5 Secondary samples collected in the primary sample room are to be considered contaminated until verified not to be contaminated.
- 3.6 The discharge of sink sample hoses shall always be directed away from the sampler when first opening any sink sample valve.
- 3.7 Wear heavy gloves to protect hands from possible burns when obtaining steam generator blowdown filter outlet samples.
- 3.8 Samples for anion analysis may be grabbed on the discharge of a thoroughly flushed cation column if the cations present in the sample cause matrix problems.
- 3.9 Sampling and handling shall be done in accordance with NP 3.2.1.

SECONDARY SYSTEM AND WATER TREATMENT  
PLANT SAMPLE POINTS

---

NOTE: Steps 5.2.3 and 5.2.4 can be completed concurrently if sampling both steam generators.

5.2.3 IF sampling the A S/G in the Primary Sample Sink,  
THEN perform the following:

NOTE: RE-219 might alarm in the control room due to low flow.

- a. Inform the control room that RE-219 might alarm due to low flow.
- b. Open SS-148 and SS-151.
- c. Purge the line per Attachment A for "A" Steam Generator Controlled Side Sample Room.
- d. Shut SS-148 and SS-151.
- e. Open SS-146 and SS-152.
- f. Collect appropriate sample volume.
- g. Shut SS-146 and SS-152.
- h. IF RE-219 alarmed,  
THEN contact the control room to see if you should reset the alarm.

5.2.4 IF sampling the B S/G in the Primary Sample Sink,  
THEN perform the following:

NOTE: RE-219 might alarm in the control room due to low flow.

- a. Inform the control room that RE-219 might alarm due to low flow.
- b. Open SS-149 and SS-151.
- c. Purge the line per Attachment A for "A" Steam Generator Controlled Side Sample Room.
- d. Shut SS-149 and SS-151.
- e. Open SS-147 and SS-153.
- f. Collect appropriate sample volume.
- g. Shut SS-147 and SS-153.

SECONDARY SYSTEM AND WATER TREATMENT  
 PLANT SAMPLE POINTS

ATTACHMENT A  
 TABLE OF PURGE VOLUMES FOR SECONDARY SYSTEM

NOTE: Hotwell conductivity verification to be sampled at outlet of installed conductivity cell.

| Unit 1 Grab Samples                     |                  |                                |                          |
|---|------------------|--------------------------------|--------------------------|
| Sample                                  | Valve Number     | Location                       | Min. Purge Volume (ml)   |
| Condensate Pump Discharge <sup>4</sup>  | 1SS-68           | Sample Panel Turbine Hall 8'   | 6600 <sup>1</sup>        |
| Steam Generator Feed Pump Suction       | 1SS-69           | Sample Panel Turbine Hall 8'   | 11100 <sup>1</sup>       |
| 5B Feedwater Heater Outlet <sup>4</sup> | 1SS-70           | Sample Panel Turbine Hall 8'   | 13700 <sup>1</sup>       |
| Heater Drain Tank <sup>1</sup>          | 1SS-71           | Sample Panel Turbine Hall 8'   | 8800 <sup>1</sup>        |
| Auxiliary Feed                          | 1SS-72           | Sample Panel Turbine Hall 8'   | 4000 <sup>1</sup>        |
| Main Steam                              | 1SS-73           | Sample Panel Turbine Hall 8'   | 36300 <sup>1</sup>       |
| Hotwell 1, 2, 3, 4                      | 1CS84F<br>1CS84G | 8' Level U1 Turbine Hall       | 3200 <sup>1</sup><br>N/A |
| "A" Steam Generator <sup>5</sup>        | 1FI-4251A        | SGBD Panel Turbine Hall 8'     | 145000                   |
| "B" Steam Generator <sup>5</sup>        | 1FI-4253A        | SGBD Panel Turbine Hall 8'     | 137000 <sup>1</sup>      |
| "A" Steam Generator                     | 1SS-152          | U1 Controlled Side Sample Room | 300 <sup>2</sup>         |
| "B" Steam Generator                     | 1SS-153          | U1 Controlled Side Sample Room | 300 <sup>3</sup>         |
| Steam Generator Blowdown Filter Out     | 1-MS-310         | Aux. Bldg. 8' Level South      | 200                      |
| Steam Generator Blowdown Filter Inlet   | 1-MS-302         | Aux. Bldg. 8' Level South      | 1700                     |
| Steam Generator Blowdown Filter Inlet   | 1-MS-306         | Aux. Bldg. 8' Level South      | 1600                     |
| Radwaste Steam Condensate Return        | RW-7             | 8' U1 Turbine Hall             | 2300                     |

<sup>1</sup> Samples that have continuous flow.

<sup>2</sup> Minimum purge volume when there is continuous flow through FI-04251A (minimum purge volume when NOT continuous is 72900ml).

<sup>3</sup> Minimum purge volume when there is continuous flow through FI-04253A (minimum purge volume when NOT continuous is 65900 ml).

<sup>4</sup> Integrated samples for condensate pump discharge, 5B feedwater heater outlet, and heater drain tank are taken from 1SS-38, 1SS-40, and 1SS-41, respectively.

<sup>5</sup> Anion samples for SG1A and SG1B are taken from 1FI-4251C and 1FI-4253C, respectively.

SECONDARY SYSTEM AND WATER TREATMENT  
 PLANT SAMPLE POINTS

ATTACHMENT B  
 TABLE OF COMMON GRAB SAMPLES FOR SECONDARY SYSTEM

| Sample                           | Valve Number | Location                          | Min. Purge Volume (ml) |
|----------------------------------|--------------|-----------------------------------|------------------------|
| "A" Condensate Storage Tank      | AF-13B       | 26' Turbine Hall                  | 100                    |
| "B" Condensate Storage Tank      | AF-14B       | 26' Turbine Hall                  | 100                    |
| Heating Boiler Feed/Condensate   | AF-68B       | 8' U2 Turbine Hall<br>(SW corner) | 300                    |
| "A" House Heating Boiler         | HV-757       | 26' U2 Turbine Hall               | 600                    |
| "B" House Heating Boiler         | HV-771       | 26' U2 Turbine Hall               | 1000                   |
| 1P29 Auxiliary Feed Pump Suction | 1AF25        | 8' Level Turbine Hall             | 100                    |
| 1P29 Auxiliary Feed Pump Leakoff | Local        | 8' Level Turbine Hall             | 900 <sup>1</sup>       |
| P38A Auxiliary Feed Pump Suction | AF38         | 8' Level Turbine Hall             | 100                    |
| P38A Auxiliary Feed Pump Leakoff | Local        | 8' Level Turbine Hall             | 900 <sup>1</sup>       |
| P38B Auxiliary Feed Pump Suction | AF51         | 8' Level Turbine Hall             | 100                    |
| P38B Auxiliary Feed Pump Leakoff | Local        | 8' Level Turbine Hall             | 1500 <sup>1</sup>      |
| 2P29 Auxiliary Feed Pump Suction | 2AF63        | 8' Level Turbine Hall             | 100                    |
| 2P29 Auxiliary Feed Pump Leakoff | Local        | 8' Level Turbine Hall             | 900 <sup>1</sup>       |
| Unit 1 Service Water Overboard   | SW-146H      | 8' Level U1 Control Side          | 500 <sup>2</sup>       |
| Unit 2 Service Water Overboard   | SW-104H      | 8' Level Turbine Hall             | 500 <sup>3</sup>       |

- <sup>1</sup> Samples that have a continuous drip or flow.
- <sup>2</sup> Minimum purge volume when service water return header pump is running (minimum purge volume when NOT running is 3000 ml).
- <sup>3</sup> Minimum purge volume when service water return header pump is running (minimum purge volume when NOT running is 9800 ml).

SECONDARY SYSTEM AND WATER TREATMENT  
 PLANT SAMPLE POINTS

ATTACHMENT C  
 WATER TREATMENT GRAB SAMPLES (continued)

| Sample                                  | Valve Number | Location              | Root Valve | Min. Purge Volume(ml) |
|---|--------------|-----------------------|------------|-----------------------|
| "C" Reverse Osmosis Feedwater           | WT-651C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| "C" Manual Feedwater SDI Sample         | WT-654C      | U2 TH 8'/U17C         | WT-650C    | 200                   |
| F-225C First Stage "A" Membrane Outlet  | WT-665C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-226C First Stage "B" Membrane Outlet  | WT-666C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-227C First Stage "C" Membrane Outlet  | WT-667C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-228C Second Stage "A" Membrane Outlet | WT-668C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-229C Second Stage "B" Membrane Outlet | WT-669C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-230C Third Stage "A" Membrane Outlet  | WT-670C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-231C Third Stage "B" Membrane Outlet  | WT-671C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-232C Fourth Stage "A" Membrane Outlet | WT-672C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| F-233C Fourth Stage "B" Membrane Outlet | WT-673C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| "C" Reverse Osmosis Product             | WT-662C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
| "C" Reverse Osmosis Reject              | WT-660C      | U2 TH 8'/U17C         | WT-650C    | 100                   |
|   |              |                       |            |                       |
| "A" Cation Inlet                        | WT-303A      | U10A                  | WT-300A    | 100                   |
| "B" Cation Inlet                        | WT-303B      | U10B                  | WT-300B    | 100                   |
| "C" Cation Inlet                        | WT-303C      | U10C                  | WT-300C    | 100                   |
| "A" Cation Outlet                       | FI-9354A     | WT Sample Panel       | WT 312A    | 16000                 |
| "B" Cation Outlet                       | FI-9354B     | WT Sample Panel       | WT 312B    | 14500                 |
| "C" Cation Outlet                       | FI-9354C     | WT Sample Panel       | WT 312C    | 13000                 |
|   |              |                       |            |                       |
| Deaerator Outlet <sup>2</sup>           |              |                       |            |                       |
| "A" Anion Inlet                         | WT 403A      | U14A                  | WT 402A    | 600                   |
| "B" Anion Inlet                         | WT 403B      | U14B                  | WT 402B    | 600                   |
| "C" Anion Inlet                         | WT 403C      | U14C                  | WT 402C    | 600                   |
|   |              |                       |            |                       |
| "A" Anion 2/3                           | FI-9363A     | WT Sample Panel       | WT 413A    | 15400                 |
| "B" Anion 2/3                           | FI-9363B     | WT Sample Panel       | WT 413B    | 15100                 |
| "C" Anion 2/3                           | FI-9363C     | WT Sample Panel       | WT 413C    | 16500                 |
|   |              |                       |            |                       |
| "A" Anion Outlet                        | FI-9369A     | WT Sample Panel       | WT 412A    | 14200                 |
| "B" Anion Outlet                        | FI-9369B     | WT Sample Panel       | WT 412B    | 13900                 |
| "C" Anion Outlet                        | FI-9369C     | WT Sample Panel       | WT 412C    | 15300                 |
|   |              |                       |            |                       |
| "A" Mixed Bed Outlet                    | FI-9378A     | WT Sample Panel       | WT 512A    | 9200                  |
| "B" Mixed Bed Outlet                    | FI-9378B     | WT Sample Panel       | WT 512B    | 9200                  |
|   |              |                       |            |                       |
| Water Treatment Reverse Osmosis Reject  | WT-688       | U2 TH 8' Sample Panel | WT-687     | 14000                 |
| Neutralizing Tank Sample                | WT-58        | WT Bench Sink         | WT-57      | 500                   |

<sup>2</sup> Sample the deaerator outlet at the online anion inlet listed below.