Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

Tank Farm Plant Operating Procedure

USQ # EV-18-1984-S, Rev.0

Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

Table of Contents

1.0 Purpose and Scope .............................................................................................................................................. 3
  1.1 Purpose .......................................................................................................................................................... 3
  1.2 Scope ............................................................................................................................................................ 3

Change History (≤ last 5 Rev-Mods)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-7</td>
<td>01/14/2019</td>
<td>DOE-0359 Change Implementation</td>
<td>Updated Safety section regarding preventative maintenance and applicable ERA to use.</td>
</tr>
<tr>
<td>K-6</td>
<td>09/24/2018</td>
<td>Changes found in Periodic Review process</td>
<td>Changed 3.4 from Environmental protection to compliance. Reformatted Step 5.3.2.</td>
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<tr>
<td>K-5</td>
<td>04/24/2018</td>
<td>Inconsequential change</td>
<td>Delete the &quot;(green)&quot; from the NOTE in Sec. 5.3</td>
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<tr>
<td>K-4</td>
<td>02/15/2018</td>
<td>Operations request - so that it can be performed when 242-A is in either OPERATION or SHUTDOWN modes</td>
<td>Section 5.1 moved step &quot;OPEN Raw Water Filter F-H-1 Vent valve H-3A&quot; Section 5.2 moved step &quot;OPEN Raw Water Filter F-H-2 Vent valve H-6A&quot; Struck out “5.4.1” ENSURE the seal water system is switched to filter” 5.4.2 changed from SET to ENSURE, Added “If in operation mode” to Steps 5.4.3 &amp; 5.4.14, Steps 5.4.4 &amp; 5.4.15 changed from SLOWLY to CRACK, Moved Step &quot;OPEN Process condensate Filter F-C-5 Vent valve 1-83&quot; Struck out 5.4.13 “IF in Operation Mode, ENSURE the seal water system is switched to filter raw water per TO-600-210 while performing this task.” Moved Step 5.4.21 “OPEN Process condensate Filter F-C-4 Vent valve 1-88”, Added new step 5.5.4 “IF F-C-4 is NOT charged GO TO step 5.5.6”, Modified Step 5.5.5 from “ENSURE the seal water system is switched to filter raw water per TO-600-210 while performing this task” to “IF F-C-4 is charged: with sub steps 5.5.5.1 “ENSURE inlet valve 1-86 is OPEN,” and 5.5.5.2 “ENSURE outlet valve 1-89 is OPEN.” Moved Step 5.5.16 “OPEN Process condensate Filter F-C-5 Vent valve 1-83,” Added note prior to 5.5.25 “In SHUTDOWN MODE, Steps 5.5.25 through 5.5.30 can be skipped.” Added new step 5.6.4 “IF F-C-5 is NOT charged GO TO step 5.5.6”, Modified Step 5.5.5 from “ENSURE the seal water system is switched to filter raw water per TO-600-210 while performing this task” to “IF F-C-5 is charged: with sub steps 5.5.5.1 “ENSURE inlet valve 1-82 is OPEN,” and 5.5.5.2 “ENSURE outlet valve 1-85 is OPEN.” Moved Step 5.6.16 “OPEN Process condensate Filter F-C-4 Vent valve 1-88.” Added note prior to step 5.6.25 “If in SHUTDOWN MODE, Steps 5.6.25 through 5.6.30 can be skipped.”</td>
</tr>
<tr>
<td>K-3</td>
<td>03/02/2017</td>
<td>Operations request to allow more flexibility</td>
<td>Added Steps to inspect and evaluate to the replace or clean sections of filters as well as Purpose section. Step 5.5.17 added &quot;used Process Condensate filters,&quot; Step 5.6.17 Added used Process Condensate filters,&quot; Condensate should be capitalized.</td>
</tr>
</tbody>
</table>

Reference

TO-600-180

Page 1 of 28
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

2.0 Information ........................................................................................................................................... 3
  2.1 General Information ............................................................................................................................ 3

3.0 Precautions and Limitations .................................................................................................................. 4
  3.1 Personnel Safety .................................................................................................................................. 4
  3.2 Equipment Safety ............................................................................................................................... 5
  3.3 Radiation and Contamination Control ............................................................................................... 5
  3.4 Environmental Compliance ............................................................................................................... 5

4.0 Prerequisites .......................................................................................................................................... 6
  4.1 Special Tools, Equipment, and Materials ............................................................................................. 6
  4.2 Performance Documents .................................................................................................................... 6
  4.3 Field Preparation ................................................................................................................................ 6

5.0 Procedure ............................................................................................................................................ 7
  5.1 Remove Filter F-H-1 From Service and Inspect/ Evaluate and, If Required, Change Filter Elements .......................................................................................................................... 7
  5.2 Remove Filter F-H-2 from Service and Inspect/Evaluate and, If Required, Change Filter Element .......................................................................................................................... 10
  5.3 Inspect/Evaluate and Clean In-Line Strainer F-H-3 ......................................................................... 13
  5.4 Swap F-C-4 and F-C-5 Filters ........................................................................................................... 15
  5.5 Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element .......................................................................................................................... 17
  5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element .......................................................................................................................... 22
  5.7 Records ............................................................................................................................................. 26

Figure 1 Raw Water Strainer & Filters Flow Diagram ................................................................................ 27
Figure 2 Process Condensate Filters Flow Diagram ................................................................................ 28
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for inspecting/evaluating and changing Raw Water Filters F-H-1 and F-H-2, Process Condensate Filters F-C-5 and F-C-4, and inspecting/evaluating and cleaning In-Line Strainer F-H-3 located in the HVAC and Condenser Room at the 242-A Evaporator.

1.2 Scope

This procedure applies to the Raw Water Filters F-H-1 and F-H-2, Process Condensate Filters F-C-5 and F-C-4, the F-H-3 In-Line Strainer, and their associated valving, located in the HVAC and Condenser Room at the 242-A Evaporator.

2.0 INFORMATION

2.1 General Information

2.1.1 Maintenance personnel are responsible for:

- Opening and closing Raw Water and Process Condensate Filters' cover plates
- Removing and replacing Filters
- Opening and closing Raw Water Strainer's cover plate
- Removing, cleaning and reinstalling Raw Water Strainer basket.

2.1.2 Raw Water Filter F-H-1 ΔP can be monitored on the MCS on PDI-FH1-1 (G10, F4, Current Trend #5).

2.1.3 Raw Water Filter F-H-2 ΔP can be monitored on the MCS on PDI-FH2-1 (G10, F4, Current Trend #5).

2.1.4 Raw Water Strainer F-H-3 ΔP can be monitored on the MCS on PDI-FH3-1 (G10, F4, Current Trend #5).

2.1.5 Process Condensate Filters F-C-5 and F-C-4 ΔP can be monitored on the MCS on PDI-FC4/5 (G18, 27, Current Trend #47).

2.1.6 When cleaning the F-C-4 or F-C-5 filters with the evaporator operating, the seal water system is to be switched to FRW to reduce the chances of dropping pressure/flow to the pump seals while switching/cleaning filters.
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 When changing filters in the condenser room, with cooling water on-line to the condensers, hearing protection is required (minimum is ear plugs).

3.1.1 Operation of electrical equipment and overcurrent protective devices shall be performed by a qualified person.

3.1.2 Component operation requires an Electrical Risk Assessment (ERA).

3.1.3 When the clean and inspects are current on the electrical equipment (breaker, switchgear, disconnects, motor starters, etc.), the ERA for normal operating condition is applicable, for those workers interacting with electrical equipment.

3.1.4 When the clean and inspects are delinquent, the ERA for non-normal operating condition is applicable, for those workers interacting with electrical equipment.

3.1.4.1 Use safety glasses and leather gloves when manipulating electrical components per the normal ERA.

3.1.5 When the clean and inspects are delinquent, the ERA for non-normal operating condition is applicable, for those workers interacting with electrical equipment.
3.2 Equipment Safety

**CAUTION** - Valving must be performed in the exact order given, or the Filtered Raw Water System could be shut down, resulting in shutdown of Pumps PB-1 and PB-2.

3.2.1 Valving must be performed in the exact order given, or the Seal Water System could be shut down, resulting in shutdown of Pumps PB-1 and PB-2, if the facility is operating.

3.3 Radiation and Contamination Control

3.3.1 When work is performed in or when work will result in a high contamination, high radiation, or an airborne radioactivity area, then an approved work package or approved procedure must be developed which is reviewed by Radiological Control per the ALARA procedure TFC-ESHQ-RP_RWP-C-03.

3.3.2 A general Radiological Work Permit may be used to perform this procedure contingent upon no part of the activity being performed within a High Contamination Area, High Radiation Area, or Airborne Radioactivity Area.

3.4 Environmental Compliance

3.4.1 Process condensate is to be considered a mixed waste; any item that has come into contact with the process condensate should also be considered a mixed waste and managed accordingly per TO-100-052 or an approved waste planning checklist. (Examples of these items include but are not limited to spent filters, collected process condensate liquid, process condensate contacted PPE, etc.)
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Materials

The following supplies will be needed to perform this procedure:

- Appropriate Plastic Disposal Bags, for used Filters
- Scrub brush for cleaning Strainer Basket
- Twenty-four (24) single height or twelve (12) double height 25-micron OR 10-micron CUNO Filters (For F-H-1 or F-H-2)
- Twelve (12) single height or four (4) triple height 5-micron OR 10-micron CUNO Filters (for F-C-5 or F-C-4)
- Bucket to clean strainers in
- Paper (for protecting and covering floor and surrounding equipment from contamination)
- Waste container as specified by Hazardous Waste Coordinator (HWC)
- Absorbent Material.

4.2 Performance Documents

The following document may be needed to perform this procedure:

- TO-600-210, Operate PB-1 and PB-2 Seal Water Filter System
- TO-100-052, Perform Waste Generation, Segregation, Accumulation, and Clean-Up.

4.3 Field Preparation

The following conditions must be met before this procedure or the listed Sections may commence:

- Supervision has directed the F-H-1 and F-H-2 Raw Water Filters be inspected, evaluated, and if required changed out, and/or the F-C-5 and F-C-4 Process Condensate Filters be inspected, evaluated, and if required changed out, and/or the F-H-3 Raw Water Strainer be inspected, evaluated, and cleaned
- Section 5.1, Raw Water Filter F-H-1 in service, Raw Water Filter F-H-2 in standby
- Section 5.2, Raw Water Filter F-H-2 in service, Raw Water Filter F-H-1 in standby
- Section 5.5, Process Condensate Filter F-C-5 in service, Process Condensate Filter F-C-4 in standby
- Section 5.6, Process Condensate Filter F-C-4 in service, Process Condensate Filter F-C-5 in standby.
5.0 PROCEDURE

CAUTION
Valving must be performed in the exact order given, or the Filtered Raw Water System could be shut down, resulting in shutdown of Pumps PB-1 and PB-2.

5.1 Remove Filter F-H-1 From Service and Inspect/ Evaluate and, If Required, Change Filter Elements

5.1.1 ENSURE Raw Water Filter F-H-2 Drain valve H-6B is CLOSED.

5.1.2 OPEN Raw Water Filter F-H-2 Vent valve H-6A.

5.1.3 SLOWLY OPEN Raw Water Filter F-H-2 Inlet valve H-5.

NOTE - When Raw Water Filter F-H-2 is filling, air should be heard hissing from Vent valve H-6A.

- When Raw Water Filter F-H-2 is full, water will come out of Vent valve H-6A.

5.1.4 WHEN Raw Water Filter F-H-2 is full indicated by water coming out the vent valve H-6A, CLOSE Vent valve H-6A.

5.1.5 OPEN Raw Water Filter F-H-2 Outlet valve H-6.

5.1.6 CLOSE Raw Water Filter F-H-1 Outlet valve H-4.

5.1.7 CLOSE Raw Water Filter F-H-1 Inlet valve H-3.

5.1.8 OPEN Raw Water Filter F-H-1 Drain valve H-3B to Drain Filter F-H-1.

5.1.9 OPEN Raw Water Filter F-H-1 Vent valve H-3A.
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

5.1 Remove Filter F-H-1 From Service and Inspect/ Evaluate and, If Required, Change Filter Elements (Cont)

5.1.10 AFTER Raw Water Filter F-H-1 has drained, PERFORM the following:

5.1.10.1 REMOVE Raw Water Filter F-H-1 cover plate.

5.1.10.2 REMOVE used CUNO filters from Raw Water Filter F-H-1.

5.1.10.3 INSPECT/EVALUATE used CUNO filters from Raw Water filter F-H-1.

5.1.10.4 IF it is determined that the CUNO filters do not need to be replaced, RE-INSTALL used filters AND

GOTO Step 5.1.10.6.

5.1.10.5 IF it is determined that the CUNO Filters need to be replaced, PERFORM the following:

a. PLACE used CUNO filters in plastic disposal bag.

b. INSTALL new CUNO filters in Raw Water Filter F-H-1.

5.1.10.6 REPLACE Raw Water Filter F-H-1 cover plate.

5.1.11 CLOSE Raw Water Filter F-H-1 Drain valve H-3B.

5.1.12 SLOWLY OPEN Raw Water Filter F-H-1 Inlet valve H-3.

NOTE - When Raw Water Filter F-H-1 is filling, air should be heard hissing from Vent valve H-3A.

- When Raw Water Filter F-H-1 is full, water will come out of Vent valve H-3A.

5.1.13 WHEN Raw Water Filter F-H-1 is full indicated by water coming out the vent valve H-3A, CLOSE Vent valve H-3A.

5.1.14 CHECK Raw Water Filter F-H-1 cover plate for water leaks.
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

5.1 Remove Filter F-H-1 From Service and Inspect/ Evaluate and, If Required, Change Filter Elements (Cont)

5.1.15 IF water leaks are present, PERFORM the following actions:

5.1.15.1 CLOSE Raw Water Filter F-H-1 Inlet valve H-3.

5.1.15.2 OPEN Drain valve H-3B.

5.1.15.3 AFTER craft personnel have worked on leak, CLOSE Drain valve H-3B.

5.1.15.4 OPEN Vent valve H-3A.

5.1.15.5 SLOWLY OPEN raw water inlet valve H-3.

5.1.15.6 WHEN raw water filter F-H-1 is full, CLOSE Vent valve H-3A AND

CHECK filter cover plate for leaks.

5.1.15.7 IF water leaks are still present, GO TO Step 5.1.15.1.

5.1.16 CLOSE Raw Water Filter F-H-1 Inlet valve H-3.

5.1.17 PLACE "IN SERVICE" sign on F-H-2 and "STANDBY" sign on F-H-1 filter housings.

5.1.18 NOTIFY Shift Manager that Raw Water Filter F-H-2 is in service and Raw Water Filter F-H-1 is in standby with new CUNO filters in place.
5.2 Remove Filter F-H-2 from Service and Inspect/Evaluate and, If Required, Change Filter Element

5.2.1 ENSURE Raw Water Filter F-H-1 Drain valve H-3B is CLOSED.

5.2.2 OPEN Raw Water Filter F-H-1 Vent valve H-3A.

5.2.3 SLOWLY OPEN Raw Water Filter F-H-1 Inlet valve H-3.

NOTE - When Raw Water Filter F-H-1 is filling, air should be heard hissing from Vent valve H-3A.

- When Raw Water Filter F-H-1 is full, water will come out of Vent valve H-3A.

5.2.4 WHEN Raw Water Filter F-H-1 is full indicated by water coming out the vent valve H-3A, CLOSE Vent valve H-3A.

5.2.5 OPEN Raw Water Filter F-H-1 Outlet valve H-4.

5.2.6 CLOSE Raw Water Filter F-H-2 Outlet valve H-6.

5.2.7 CLOSE Raw Water Filter F-H-2 Inlet valve H-5.

5.2.8 OPEN Raw Water Filter F-H-2 Drain valve H-6B to Drain Filter F-H-2.

5.2.9 OPEN Raw Water Filter F-H-2 Vent valve H-6A.
5.2 Remove Filter F-H-2 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

5.2.10 AFTER Raw Water Filter F-H-2 has drained, DIRECT craft personnel to perform the following actions:

5.2.10.1 REMOVE Raw Water Filter F-H-2 cover plate.

5.2.10.2 REMOVE used CUNO filters from Raw Water Filter F-H-2.

5.2.10.3 INSPECT/EVALUATE used CUNO filters from Raw Water filter F-H-2.

5.2.10.4 IF it is determined that the CUNO filters do not need to be replaced, RE-INSTALL used filters AND GOTO Step 5.2.10.6.

5.2.10.5 IF it is determined that the CUNO Filters need to be replaced, PERFORM the following:

   a. PLACE used CUNO filters in plastic disposal bag.


5.2.10.6 REPLACE Raw Water Filter F-H-2 cover plate.

5.2.11 CLOSE Raw Water Filter F-H-2 Drain valve H-6B.

5.2.12 SLOWLY OPEN Raw Water Filter F-H-2 Inlet valve H-5.

NOTE - When Raw Water Filter F-H-2 is filling, air should be heard hissing from Vent valve H-6A.

   - When Raw Water Filter F-H-2 is full, water will come out of Vent valve H-6A.

5.2.13 WHEN Raw Water Filter F-H-2 is full indicated by water coming out the vent valve H-6A, CLOSE Vent valve H-6A.

5.2.14 CHECK Raw Water Filter F-H-2 cover plate for water leaks.
5.2 Remove Filter F-H-2 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

5.2.15 IF leaks are present, PERFORM the following actions:

5.2.15.1 CLOSE Raw Water Filter F-H-2 Inlet valve H-5.

5.2.15.2 OPEN Drain valve H-6B.

5.2.15.3 AFTER craft personnel have worked on leak, CLOSE Drain valve H-6B.

5.2.15.4 OPEN Vent valve H-6A.

5.2.15.5 SLOWLY OPEN raw water inlet valve H-5.

5.2.15.6 WHEN raw water filter F-H-2 is full, CLOSE Vent valve H-6A AND

CHECK filter cover plate for leaks.

5.2.15.7 IF water leaks are still present, GO TO Step 5.2.15.1.

5.2.16 CLOSE Raw Water Filter F-H-2 Inlet valve H-5.

5.2.17 PLACE "IN SERVICE" sign on F-H-1 and "STANDBY" sign on F-H-2 filter housings.

5.2.18 NOTIFY Shift Manager that Raw Water Filter F-H-1 is in service and Raw Water Filter F-H-2 is in standby with new CUNO filters in place.
5.3 **Inspect/Evaluate and Clean In-Line Strainer F-H-3**

NOTE - The handle on In-Line Strainer F-H-3 Selection valve H-2 points to the strainer currently in service.

5.3.1 **PERFORM** following actions to position In-Line Strainer Selection valve H-2 to isolate strainer to be cleaned:

5.3.1.1 **LOOSE** retainer bar HV-H-1B.

5.3.1.2 **POSITION** In-Line Strainer F-H-3 Selection valve H-2 to point away from the strainer to be cleaned.

5.3.1.3 **TIGHTEN** retainer bar HV-H-1B.

5.3.1.4 **OPEN** Drain valve (H-2A or H-2B) for the strainer to be cleaned to depressurize strainer enclosure.

5.3.2 **REMOVE** strainer cover AND **PERFORM** the following:

- **INSPECT/EVAUATE**
- **CLEAN** basket of the In-Line Strainer just isolated.

5.3.3 **AFTER** craft personnel report the strainer basket inspected, evaluated and cleaned, **PERFORM** following actions to place the cleaned strainer back in service:

5.3.3.1 **CLOSE** Drain valve (H-2A or H-2B) for the isolated strainer.

5.3.3.2 **LOOSE** retainer bar HV-H-1B.

5.3.3.3 **POSITION** In-Line Strainer F-H-3 Selection valve H-2 to point to the strainer that was just inspected, evaluated and cleaned.

5.3.3.4 **TIGHTEN** retainer bar HV-H-1B.

5.3.4 **CHECK** cover plate on strainer for water leaks.
5.3 Inspect/Evaluate and Clean In-Line Strainer F-H-3 (Cont.)

5.3.5 IF leaks are present, PERFORM the following actions:

5.3.5.1 LOOSEN retainer bar HV-H-1B.

5.3.5.2 POSITION In-Line Strainer Selection valve H-2 to point away from the leaking strainer.

5.3.5.3 TIGHTEN retainer bar HV-H-1B.

5.3.5.4 OPEN Drain valve (H-2A or H-2B) for the isolated strainer to depressurize strainer enclosure.

5.3.5.5 TROUBLESHOOT leaks.

5.3.6 AFTER craft personnel have worked on the leak, PERFORM the following actions:

5.3.6.1 CLOSE Drain valve (H-2A or H-2B) for the isolated strainer.

5.3.6.2 LOOSEN retainer bar HV-H-1B.

5.3.6.3 POSITION In-Line Strainer F-H-3 Selection valve H-2 to point to the strainer that was just worked on.

5.3.6.4 TIGHTEN retainer bar HV-H-1B.

5.3.6.5 CHECK for water leaks.

5.3.6.6 IF water leaks are still present, GO TO Step 5.3.5.1.

5.3.7 IF no water leaks are present, PERFORM the following actions to isolate the newly cleaned strainer:

5.3.7.1 LOOSEN retainer bar HV-H-1B.

5.3.7.2 POSITION In-Line Strainer F-H-3 Selection valve H-2 to point away from the strainer just worked on.

5.3.7.3 TIGHTEN retainer bar HV-H-1B.

5.3.8 NOTIFY Shift Manager that F-H-3 Strainer has been cleaned.
5.4 Swap F-C-4 and F-C-5 Filters

NOTE - The following two activities may be omitted, performed in any order, or performed separately at the discretion of the Shift Manager.

Remove F-C-5 from Service and Place F-C-4 In Service

5.4.1 ENSURE Process condensate Filter F-C-4 Drain valve 1-87 is CLOSED.

5.4.2 ENSURE P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-ON.

5.4.3 IF in Operation Mode, OPEN Process condensate Filter F-C-4 Vent valve 1-88.

5.4.4 CRACK OPEN Process condensate Filter F-C-4 Inlet valve 1-86.

NOTE - When Process condensate Filter F-C-4 is filling, air should be heard hissing from Vent valve 1-88.

- When Process condensate Filter F-C-4 is full, process condensate will come out of Vent valve 1-88.

5.4.5 WHEN Process condensate Filter F-C-4 is full indicated by process condensate coming out of Vent valve 1-88, CLOSE Vent valve 1-88.

5.4.6 OPEN Process condensate Filter F-C-4 Outlet valve 1-89.

5.4.7 CLOSE Process condensate Filter F-C-5 Outlet valve 1-85.

5.4.8 CLOSE Process condensate Filter F-C-5 Inlet valve 1-82.

5.4.9 OPEN Process condensate Filter F-C-5 Drain valve 1-84 to Drain Filter F-C-5.

5.4.10 OPEN Process condensate Filter F-C-5 Vent valve 1-83.

5.4.11 IF directed by Shift Manager, RETURN to process condensate per TO-600-210.
5.4  Swap F-C-4 and F-C-5 Filters (Cont.)

Remove F-C-4 from Service and Place F-C-5 In Service

5.4.12  ENSURE Process condensate Filter F-C-5 Drain valve 1-84 is CLOSED.

5.4.13  ENSURE P-C106 is CF-ON as follows:

5.4.13.1  SET P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-ON.

5.4.14  IF in Operation Mode, OPEN Process condensate Filter F-C-5 Vent valve 1-83.

5.4.15  CRACK OPEN Process condensate Filter F-C-5 Inlet valve 1-82.

NOTE - When Process condensate Filter F-C-5 is filling, air should be heard hissing from Vent valve 1-83.

- When Process condensate Filter F-C-5 is full, process condensate will come out of Vent valve 1-83.

5.4.16  WHEN Process condensate Filter F-C-5 is full indicated by process condensate coming out of Vent valve 1-83, CLOSE Vent valve 1-83.

5.4.17  OPEN Process condensate Filter F-C-5 Outlet valve 1-85.

5.4.18  CLOSE Process condensate Filter F-C-4 Outlet valve 1-89.

5.4.19  CLOSE Process condensate Filter F-C-4 Inlet valve 1-86.

5.4.20  OPEN Process condensate Filter F-C-4 Drain valve 1-87 to Drain Filter F-C-4.

5.4.21  OPEN Process condensate Filter F-C-4 Vent valve 1-88.

5.4.22  IF directed by Shift Manager, RETURN to process condensate per TO-600-210.
5.5 Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element

5.5.1 ENSURE HPT coverage is available for job.

5.5.2 IF inspecting/evaluating and changing filters in the condenser room, with cooling water on-line to the condensers, ENSURE hearing protection is donned (minimum ear plugs).

5.5.3 PREPARE work site as follows:

5.5.3.1 OBTAIN plastic bags with absorbent for disposal of waste and the removed filters.

5.5.3.2 LAY paper and plastic to protect floor, wall, and equipment from possible contamination.

5.5.3.3 ESTABLISH contamination area boundaries including a step off pad.

5.5.4 IF F-C-4 is NOT charged GO TO step 5.5.6.

5.5.5 IF F-C-4 is charged:

5.5.5.1 ENSURE inlet valve 1-86 is OPEN.

5.5.5.2 ENSURE outlet valve 1-89 is OPEN.

5.5.6 ENSURE Process condensate Filter F-C-4 Drain valve 1-87 is CLOSED.

5.5.7 IF Evaporator is SHUTDOWN, ENSURE MCC-1 Cubicle G6 (Condensate Recycle Pump P-C106) is ON.

5.5.8 ENSURE P-C106 is CF-ON as follows:

5.5.8.1 SET P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-ON.

5.5.9 OPEN Process condensate Filter F-C-4 Vent valve 1-88.

5.5.10 SLOWLY OPEN Process condensate Filter F-C-4 Inlet valve 1-86.
5.5 Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

NOTE - When Process condensate Filter F-C-4 is filling, air should be heard hissing from Vent valve 1-88.

- When Process condensate Filter F-C-4 is full, process condensate will come out of Vent valve 1-88.

5.5.11 WHEN Process condensate Filter F-C-4 is full indicated by process condensate coming out of Vent valve 1-88, CLOSE Vent valve 1-88.

5.5.12 OPEN Process condensate Filter F-C-4 Outlet valve 1-89.

5.5.13 CLOSE Process condensate Filter F-C-5 Outlet valve 1-85.

5.5.14 CLOSE Process condensate Filter F-C-5 Inlet valve 1-82.

5.5.15 OPEN Process condensate Filter F-C-5 Drain valve 1-84 to Drain Filter F-C-5.

5.5.16 OPEN Process condensate Filter F-C-5 Vent valve 1-83.

5.5.17 AFTER Process condensate Filter F-C-5 has drained, DIRECT craft personnel to perform the following actions:

5.5.17.1 REMOVE Process condensate Filter F-C-5 cover plate.

5.5.17.2 PERFORM a dose rate and removable contamination survey upon removal of filter F-C-5 cover plate.

5.5.17.3 REMOVE used CUNO filters from Process condensate Filter F-C-5.

5.5.17.4 SURVEY filters as removed.

5.5.18 INSPECT/EVALUATE used process condensate filters from Process Condensate Filter F-C-5.

5.5.19 IF inspection/evaluation determines filters do not need to be replaced, RE-INSTALL CUNO filters AND GOTO Step 5.5.23.
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

5.5 Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

5.5.20 IF inspection/evaluation determines filters must be replaced, PERFORM the following:

5.5.20.1 IF inspection/evaluation determines that flushing is required, FLUSH per Steps 5.5.21 through 5.5.21.6.

5.5.20.2 PLACE used CUNO filters in yellow plastic disposal bag(s).

5.5.20.3 PLACE plastic bagged old filters away from work area but still in the CA.

5.5.20.4 PIGTAIL WRAP plastic bag end with 2" wide green tape to seal bag.

5.5.20.5 DISPOSE of bagged CUNO filters as Mixed Waste AND GOTO Step 5.5.22.

5.5.21 FLUSH filter by performing the following:

5.5.21.1 OBTAIN a water hose.

5.5.21.2 ENSURE valve A2-4 is OPEN to supply water to valve 1-40.

5.5.21.3 CONNECT water hose to valve 1-40 located in basement of condenser room.

5.5.21.4 OPEN valve 1-40.

5.5.21.5 WASH filter housing using water hose.

5.5.21.6 WHEN washing is completed, CLOSE valve 1-40.

5.5.22 Craft Personnel INSTALL new CUNO filters in Process condensate Filter F-C-5.

5.5.23 Craft Personnel REPLACE Process condensate Filter F-C-5 cover plate.

5.5.24 CLOSE Process condensate Filter F-C-5 Drain valve 1-84.
5.5 **Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)**

NOTE - If in SHUTDOWN MODE, Steps 5.5.25 through 5.5.30 can be skipped.

5.5.25 **SLOWLY OPEN** Process condensate Filter F-C-5 Inlet valve 1-82.

NOTE - When Process condensate Filter F-C-5 is filling, air should be heard hissing from Vent valve 1-83.

- When Process condensate Filter F-C-5 is full, process condensate will come out of Vent valve 1-83.

5.5.26 **WHEN** Process condensate Filter F-C-5 is full indicated by process condensate coming out of Vent valve 1-83, **CLOSE** Vent valve 1-83.

5.5.27 **CHECK** Process condensate Filter F-C-5 cover plate for process condensate leaks.

5.5.28 **IF** process condensate leaks are present, **PERFORM** the following actions:

5.5.28.1 **CLOSE** Process condensate Filter F-C-5 Inlet valve 1-82.

5.5.28.2 **OPEN** Drain valve 1-84.

5.5.28.3 **TROUBLESHOOT** cover plate leak.

5.5.28.4 **AFTER** craft personnel have worked on leak, **CLOSE** Drain valve 1-84.

5.5.28.5 **OPEN** Vent valve 1-83.

5.5.28.6 **SLOWLY OPEN** Process Condensate inlet valve 1-82.

5.5.28.7 **WHEN** Process Condensate filter F-C-5 is full, **CLOSE** Vent valve 1-83 AND **CHECK** filter cover plate for leaks.

5.5.28.8 **IF** process condensate leaks are still present, **GO TO** Step 5.5.28.1.

5.5.29 **CLOSE** Process condensate Filter F-C-5 Inlet valve 1-82.

5.5.30 **IF** management directs the seal water system to be operated on process condensate, **SWITCH** the seal water system to process condensate per TO-600-210.
## Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

### 5.5 Remove Filter F-C-5 From Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

- **5.5.31** IF seal water system is not operating, or is not using process condensate SHUT DOWN P-C106 as follows:
  - **5.5.31.1** SET P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-OFF.
  - **5.5.31.2** IF Evaporator is SHUTDOWN, ENSURE MCC-1 Cubicle G6 (Condensate Recycle Pump P-C106) is OFF.

- **5.5.32** ENSURE all removed filters are yellow plastic wrapped and pigtailed.

- **5.5.33** ENSURE all plastic wrapped filters are properly disposed of per TO-100-052 as mixed waste.

- **5.5.34** AFTER all tools have been surveyed and released by HPT, REMOVE all tools and equipment from work site.

- **5.5.35** REMOVE paper and plastic from floor area AND DISPOSE of per TO-100-052 as mixed waste.

- **5.5.36** SURVEY work area for contamination.

- **5.5.37** IF work area cannot be released, DECONTAMINATE the area(s) indicated per HPT until work area is released.

- **5.5.38** PLACE "IN SERVICE" sign on F-C-4 and "STANDBY" sign on F-C-5 filter housings.

- **5.5.39** NOTIFY Shift Manager that Process condensate Filter F-C-4 is in service and Process condensate Filter F-C-5 is in standby with new CUNO filters in place.
5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element

5.6.1 ENSURE HPT support is available for job.

5.6.2 IF inspecting/evaluating and changing filters in the condenser room, with cooling water on-line to the condensers, ENSURE hearing protection is donned (minimum ear plugs).

5.6.3 PREPARE work site as follows:

5.6.3.1 OBTAIN plastic bags with absorbent for disposal of waste and the removed filters.

5.6.3.2 LAY paper and plastic to protect floor, wall, and equipment from possible contamination.

5.6.3.3 ESTABLISH contaminated area boundaries including a Step Off Pad (SOP).

5.6.4 IF F-C-5 is NOT charged GO TO step 5.6.6.

5.6.5 IF F-C-5 is charged:

5.6.5.1 ENSURE inlet valve 1-82 is OPEN.

5.6.5.2 ENSURE outlet valve 1-85 is OPEN.

5.6.6 ENSURE Process condensate Filter F-C-5 Drain valve 1-84 is CLOSED.

5.6.7 IF Evaporator is SHUTDOWN, ENSURE MCC-1 Cubicle G6 (Condensate Recycle Pump P-C106) is ON.

5.6.8 ENSURE P-C106 is CF-ON as follows:

5.6.8.1 SET P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-ON.

5.6.9 OPEN Process condensate Filter F-C-5 Vent valve 1-83.

5.6.10 SLOWLY OPEN Process condensate Filter F-C-5 Inlet valve 1-82.
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

NOTE -  When Process condensate Filter F-C-5 is filling, air should be heard hissing from Vent valve 1-83.
-  When Process condensate Filter F-C-5 is full, process condensate will come out of Vent valve 1-83.

5.6.11 WHEN Process condensate Filter F-C-5 is full indicated by process condensate coming out of Vent valve 1-83, CLOSE Vent valve 1-83.

5.6.12 OPEN Process condensate Filter F-C-5 Outlet valve 1-85.

5.6.13 CLOSE Process condensate Filter F-C-4 Outlet valve 1-89.

5.6.14 CLOSE Process condensate Filter F-C-4 Inlet valve 1-86.

5.6.15 OPEN Process condensate Filter F-C-4 Drain valve 1-87 to Drain Filter F-C-4.

5.6.16 OPEN Process condensate Filter F-C-4 Vent valve 1-88.

5.6.17 AFTER Process condensate Filter F-C-4 has drained, DIRECT craft personnel to perform the following actions:

5.6.17.1 REMOVE Process condensate Filter F-C-4 cover plate.

5.6.17.2 PERFORM a dose rate and removable contamination survey upon removal of filter F-C-4 cover plate.

5.6.17.3 REMOVE used CUNO filters from Process condensate Filter F-C-4.

5.6.17.4 SURVEY filters as removed.

5.6.18 INSPECT/EVALUATE used process condensate filters from Process condensate Filter F-C-4.

5.6.19 IF inspection/evaluation determines filters do not need to be replaced, RE-INSTALL CUNO filters AND

GOTO Step 5.6.23.
5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

5.6.20 IF inspection/evaluation determines filters must be replaced, PERFORM the following:

5.6.20.1 IF inspection/evaluation determines that flushing is required, FLUSH per Steps 5.6.21 through 5.6.21.6.

5.6.20.2 PLACE used CUNO filters in yellow plastic disposal bag(s).

5.6.20.3 PLACE plastic bagged old filters away from work area but still in SCA.

5.6.20.4 PIGTAIL WRAP plastic bag end with 2" wide green tape to seal bag.

5.6.20.5 DISPOSE of used CUNO filters as Mixed Waste AND GOTO Step 5.6.22.

5.6.21 FLUSH filter by performing the following:

5.6.21.1 OBTAIN a water hose.

5.6.21.2 ENSURE valve A2-4 is OPEN to supply water to valve 1-40.

5.6.21.3 CONNECT water hose to valve 1-40 located in basement of condenser room.

5.6.21.4 OPEN valve 1-40.

5.6.21.5 WASH filter housing using water hose.

5.6.21.6 WHEN washing is completed, CLOSE valve 1-40.

5.6.22 Craft personnel INSTALL new CUNO filters in Process condensate Filter F-C-4.

5.6.23 Craft personnel REPLACE Process condensate Filter F-C-4 cover plate.

5.6.24 CLOSE Process condensate Filter F-C-4 Drain valve 1-87.
5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

NOTE - If in SHUTDOWN MODE, Steps 5.6.25 through 5.6.30 can be skipped.

5.6.25 SLOWLY OPEN Process condensate Filter F-C-4 Inlet valve 1-86.

NOTE - When Process condensate Filter F-C-4 is filling, air should be heard hissing from Vent valve 1-88.

- When Process condensate Filter F-C-4 is full, process condensate will come out of Vent valve 1-88.

5.6.26 WHEN Process condensate Filter F-C-4 is full indicated by process condensate coming out of Vent valve 1-88, CLOSE Vent valve 1-88.

5.6.27 CHECK Process condensate Filter F-C-4 cover plate for process condensate leaks.

5.6.28 IF leaks are present, PERFORM the following actions:

5.6.28.1 CLOSE Process condensate Filter F-C-4 Inlet valve 1-86.

5.6.28.2 OPEN Drain valve 1-87.

5.6.28.3 TROUBLESHOOT cover plate leak.

5.6.28.4 AFTER craft personnel have worked on leak, CLOSE Drain valve 1-87.

5.6.28.5 OPEN Vent valve 1-88.

5.6.28.6 SLOWLY OPEN PC inlet valve 1-86.

5.6.28.7 WHEN PC filter F-C-4 is full, CLOSE Vent valve 1-88 AND CHECK filter cover plate for leaks.

5.6.28.8 IF process condensate leaks are still present, GO TO Step 5.6.28.1.

5.6.29 CLOSE Process condensate Filter F-C-4 Inlet valve 1-86.

5.6.30 IF management directs the seal water system to be operated on process condensate, SWITCH the seal water system to process condensate per TO-600-210.
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

5.6 Remove Filter F-C-4 from Service and Inspect/Evaluate and, If Required, Change Filter Element (Cont.)

5.6.31 IF seal water system is not operating, or is not using process condensate, SHUTDOWN P-C106 as follows:

5.6.31.1 SET P-C106 (G18/10, F27) CONDENSATE RECYCLE PUMP to CF-OFF.

5.6.31.2 IF Evaporator is SHUTDOWN, ENSURE MCC-1 Cubicle G6 (Condensate Recycle Pump P-C106) is OFF.

5.6.32 ENSURE all removed filters are yellow plastic wrapped.

5.6.33 ENSURE all yellow plastic wrapped filters are properly disposed of per TO-100-052 as mixed waste.

5.6.34 AFTER all tools have been surveyed and released by HPT, REMOVE all tools and equipment from work site.

5.6.35 REMOVE paper and plastic from floor area AND DISPOSE of per TO-100-052.

5.6.36 SURVEY work area for contamination.

5.6.37 IF work area cannot be released, DECONTAMINATE the area(s) indicated per HPT until work area is released.

5.6.38 PLACE "IN SERVICE" sign on F-C-5 and "STANDBY" sign on F-C-4 filter housings.

5.6.39 NOTIFY Shift Manager that Process condensate Filter F-C-5 is in service and Process condensate Filter F-C-4 is in standby with new CUNO filters in place.

5.7 Records

No records are generated during the performance of this procedure.
Figure 1  Raw Water Strainer & Filters Flow Diagram
Evaluate and Change Raw Water and Process Condensate Filters, and Clean In Line Strainer

Figure 2 Process Condensate Filters Flow Diagram