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### Demineralized Water System Operation

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<th>Description</th>
<th>Page</th>
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Data Sheet 1 - Demineralized Water System Manual Valve Lineup

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Type: CONTINUOUS  
Document No.: ETF-95D-001  
Rev/Mod: A-4  
Release Date: 01/07/2019  
Page 2 of 10
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the safe operation of the DW system at ETF. This system supplies demineralized water for the H₂O₂ feed system and a backup water supply to the thin film dryer boiler and the evaporator boiler.

1.2 Scope

This procedure involves providing instructions for startup, normal operation, and shutdown of the DW system. This procedure also provides instructions to valve in/valve out verification water to the boilers using the demin water piping system.

2.0 INFORMATION

2.1 Terms and Definitions

- DW – Demineralized Water.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

3.1.1 When this procedure is worked in radiological areas, an approved radiological work permit (RWP) is required. If radiological conditions or work performed falls outside the scope of the RWP, all work activities must be discontinued until a new or revised RWP has been issued in accordance with TFC-ESHQ-RP_RWP-C-03.

3.2 Environmental Compliance

3.2.1 In the event of a spill/leak/release, notify the SOM/FWS and respond per ETF-ERP-85B-003, Emergency Spill or Release at ETF.
4.0 PREREQUISITES

4.1 Performance Documents

The following documents may be needed to perform this procedure:

- ETF-95H-001, Raw Water System Operation
- ETF-60H-001, Verification System Operations.

4.2 Field Preparations

4.2.1 CONFIRM Raw Water System in operation per ETF-95H-001, Raw Water System Operation.

4.2.2 CONFIRM Verification System in operation per ETF-60H-001, Verification System Operations.
5.0 PROCEDURE

Special Instructions

When verification water is valved into service, valve 95D-042 will be OPEN. Refer to procedure for step to align boiler with verification water.

Sections 5.1 through 5.11 may be worked concurrently, independently or in any logical order.

5.1 Valve Lineup Determination

5.1.1 (SOM) DETERMINE which valve lineup Checklists/Data sheets need to be performed.

5.1.2 (SOM) IF valves are known to be in the required position and do not require verification, INITIAL/DATE AND DOCUMENT reason in the comments section of the Checklist/Data Sheet.

5.1.3 (SOM) IF valves are not in the required position because of an existing process (i.e., LOTO, Caution Tag, Work Package, Administrative Lock, Facility Tag or Status Seals), MARK N/A on the Checklist/Data Sheet.

5.1.4 INITIAL/DATE AND DOCUMENT reason in the comments section of the Checklist/Data Sheet.

5.2 Prestart Verifications

5.2.1 LOCALLY ENSURE the following breaker is ON:

<table>
<thead>
<tr>
<th>Location</th>
<th>Breaker</th>
<th>Equipment/Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>DP-3</td>
<td>CKT # 6</td>
<td>IDP-5</td>
</tr>
</tbody>
</table>

5.2.2 ENSURE manual valve lineup per Data Sheet 1.

5.3 System Startup

5.3.1 OPEN 95D-030, raw water inlet.

5.3.2 PLACE DW Skid AIS-95D110 ON/OFF local switch to ON.

5.3.3 POSITION LCP-95D-110 BANK switch to BANK A or BANK B.
### 5.3 System Startup (Cont.)

5.3.4 **IF** supplying demin water for peroxide pump priming/flushing, **OPEN** valve 95D-014.

5.3.5 **IF** supplying demin water for boiler operation, **CLOSE** valve 95D-042 **AND** **OPEN** valve 95D-040.

5.3.6 **ENSURE** normal system operation per Section 5.4.

### 5.4 DW System Operation

**NOTE** - Normal operation is one demineralizer bank in use and the other in standby. When one bank is exhausted, the system automatically switches to the fresh demineralizer bank. When both banks are exhausted, the system is shut down until a fresh unit is installed.

5.4.1 (Operations) **LOCALLY CHECK** the following indications for selected demineralizer bank:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank A/B in Use</td>
<td>AMBER LIGHT ON</td>
</tr>
<tr>
<td>Bank A/B Good Water Quality</td>
<td>GREEN LIGHT ON</td>
</tr>
<tr>
<td>Bank A/B Water Quality Poor Indication</td>
<td>RED LIGHT OFF</td>
</tr>
<tr>
<td>Bank A/B Bleed Indicating</td>
<td>AMBER LIGHT OFF</td>
</tr>
<tr>
<td>Resistivity Indicator, AI-95D110</td>
<td>&gt; 1 MEGOHM-CM</td>
</tr>
</tbody>
</table>

5.4.2 **ENSURE**, on alarm summary screen, resistivity level alarm, AAL-95D110 is cleared (not displayed).

### 5.5 Change Out Of Exhausted DW Bank

5.5.1 **CLOSE** the following inlet and outlet valves for bank to be changed:

<table>
<thead>
<tr>
<th>Bank</th>
<th>Inlet Valve</th>
<th>Outlet Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>95D-104</td>
<td>95D-115</td>
</tr>
<tr>
<td>B</td>
<td>95D-105</td>
<td>95D-116</td>
</tr>
</tbody>
</table>

5.5.2 **REMOVE** exhausted bank.

5.5.3 **RETURN** exhausted bank to supplier for regeneration.
5.5 Change Out Of Exhausted DW Bank (Cont.)

5.5.4 WHEN replacement bank is received, **RE-INSTALL** regenerated bank.

5.5.5 **OPEN** the following applicable inlet/outlet valves:

<table>
<thead>
<tr>
<th>Bank</th>
<th>Inlet Valve</th>
<th>Outlet Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>95D-104</td>
<td>95D-115</td>
</tr>
<tr>
<td>B</td>
<td>95D-105</td>
<td>95D-116</td>
</tr>
</tbody>
</table>

5.6 Change Out Cuno Filter, 95D-F-1

5.6.1 **CLOSE** the following water inlet and outlet valves:
- 95D-030
- 95D-101.

5.6.2 **OPEN** vent valve 95D-033.

5.6.3 **REMOVE** dirty filter 95D-F-1.

5.6.4 **INSTALL** new filter.

5.6.5 **CLOSE** vent valve 95D-033.

5.6.6 **OPEN** the following water inlet and outlet valves:
- 95D-030
- 95D-101.

5.7 Valve In Verification Water to Boilers

5.7.1 **CLOSE** valve 95D-040.

5.7.2 **OPEN** the following valves:
- 60H-069
- 95D-042.

5.8 Valve Out Verification Water to Boilers

5.8.1 **CLOSE** valve 95D-042.

5.9 Valve Out Demin Water to Boilers

5.9.1 **CLOSE** valve 95D-040.
5.10 System Shutdown

5.10.1 **POSITION** AIS-95D110 On/Off Local switch to OFF.

5.10.2 **CLOSE** the following valves:
- 95D-030
- 95D-040
- 95D-014.

5.11 Flushing Demineralizer Banks (A or B)

5.11.1 **IF** demin water is not being used for boiler feed water, **CONFIRM** valve 95D-040 is CLOSED.

5.11.2 **OPEN** valve 95D-014.

5.11.3 **OPEN** valve 60D-374.

5.11.4 **OPEN** valve 60D-372.

5.11.5 **FLUSH** until conductivity returns to operational range or demineralizer bank is confirmed as bad.

5.11.6 **NOTIFY** SOM/FWS and CRO of flush results.
5.12 Records

5.12.1 PERFORM the following for records identified within this procedure.

5.12.1.1 RECORD the number of times the record was generated in applicable column

OR

PLACE a check mark (✓) in the N/A column.

5.12.1.2 SUBMIT the package to FWS/OE/Shift Manager.

<table>
<thead>
<tr>
<th>Records Submittal Checklist</th>
<th>Number of times completed</th>
<th>N/A (✓)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Sheets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Sheet 1 - Demineralized Water System Manual Valve Lineup</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FWS/OE/Shift Manager SEND the completed records to the Central Shift Office for records retention.

____________________ / __________________________ / __________
Signature

Print (First and Last)

Date

FWS/OE/Shift Manager

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02
## Data Sheet 1 - Demineralized Water System Manual Valve Lineup

<table>
<thead>
<tr>
<th>Valve Number</th>
<th>Valve Name &amp; Location</th>
<th>Required Position</th>
<th>Initials</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>95D-101</td>
<td>Demineralizer Raw Water Inlet Isolation</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV-95D108</td>
<td>Demineralizer Supply Pressure Regulator</td>
<td>In Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-102</td>
<td>Demineralizer Bank Inlet Isolation</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-104</td>
<td>Demineralizer Bank A Inlet</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-115</td>
<td>Demineralizer Bank A Outlet</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-105</td>
<td>Demineralizer Bank B Inlet</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-116</td>
<td>Demineralizer Bank B Outlet</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-010</td>
<td>DW or Verif Water Supply to Evap Boiler Isolation</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-011</td>
<td>DW or Verif Water Supply to Dryer Boiler CT</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-030</td>
<td>Raw Water to Demin Bottles</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-031</td>
<td>Filter Inlet Press. Ind Isolation</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-032</td>
<td>Filter Outlet Press. Ind Isolation</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-033</td>
<td>Filter Vent Valve</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-034</td>
<td>Hose Connection Isolation</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-040</td>
<td>Demin Water to Boilers for Flushing</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-042</td>
<td>Verification Water to Boilers</td>
<td>CLOSED(1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-014A</td>
<td>Demineralizer Sample</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-014</td>
<td>Demineralizer Flush to H2O2 Valve 60D-374</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Special Instructions

(1) When verification water is valved into service, valve 95D-042 will be OPEN. Refer to procedure for step to align boiler with verification water.

### Comments:

---

**Signature** / **Print (First & Last)** / **Initials** / **Date**

**NCO or SOE**

---

**Signature** / **Print (First & Last)** / **Initials** / **Date**

**NCO or SOE**

---

**Signature** / **Print (First & Last)** / **Initials** / **Date**

**SOM Completion Review**