USQ Not Required – ETF is a < Hazard Category 3 Radiological Facility

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>A-3</td>
<td>03/22/2018</td>
<td>Process Improvement</td>
<td>Updated records section. Updated print/sign/date throughout procedure. Updated data sheets for better use. Combined steps 5.2.1 and 5.2.2.</td>
</tr>
<tr>
<td>A-2</td>
<td>12/27/2016</td>
<td>Inconsequential change</td>
<td>Updated records section.</td>
</tr>
<tr>
<td>A-1</td>
<td>06/16/2016</td>
<td>PER Response - WRPS-PER-2015-1837</td>
<td>Remove unnecessary Independent Verification from the following procedure datasheets; update datasheets and shading to standard.</td>
</tr>
<tr>
<td>A-0</td>
<td>01/27/2016</td>
<td>Converting to WRPS Format</td>
<td>New Procedure; Supersedes ETF-PRO-OP-52173 (POP-95H-001)</td>
</tr>
</tbody>
</table>

Table of Contents

1.0 PURPOSE AND SCOPE ................................................................................................................................. 2
  1.1 Purpose ..................................................................................................................................................... 2
  1.2 Scope .......................................................................................................................................................... 2

2.0 INFORMATION .................................................................................................................................................. 2
  2.1 Terms and Definitions ............................................................................................................................... 2

3.0 PRECAUTIONS AND LIMITATIONS ............................................................................................................... 3
  3.1 Equipment Safety ..................................................................................................................................... 3
  3.2 Radiation and Contamination Control ...................................................................................................... 3
  3.3 Environmental Compliance ...................................................................................................................... 3

4.0 PREREQUISITES ............................................................................................................................................ 4
  4.1 Performance Documents ............................................................................................................................ 4
  4.2 Field Preparations .................................................................................................................................. 4

5.0 PROCEDURE .................................................................................................................................................. 5
  5.1 Startup ...................................................................................................................................................... 5
  5.2 Strainer Blowdown .................................................................................................................................. 5
  5.3 Strainer Clean-Out .................................................................................................................................... 6
  5.4 Shutdown .................................................................................................................................................. 7
  5.5 Loss of Raw Water ................................................................................................................................... 7
  5.6 Records ..................................................................................................................................................... 8

Data Sheet 1 - Raw Water System Valve Lineup ................................................................................................. 9
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for raw water system operation and shutdown. This procedure also ensures availability of the raw water supply to the modu-tanks operated by others east of the 2025E building.

1.2 Scope

This procedure involves instructions for the startup, strainer blowdown, and cleanout of the raw water system, as well as steps to take for loss of water. During normal operation, no operator action is required.

2.0 INFORMATION

2.1 Terms and Definitions

- NCO - Nuclear Chemical Operator.
- SOE – Stationary Operating Engineer
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Equipment Safety

CAUTION - Rapid opening of raw water inlet valve 95D-001 can cause inadvertent pressure transients and water hammer, which could lead to equipment damage.

3.1.1 Fire main supply pressure upstream of the raw water supply pressure regulating valve is normally 180 psig and placing raw water in service by slowly opening 95D-001 avoids pressure transients.

3.1.2 Loss of raw water system will impact the following systems:

- 95C, cooling tower
- 95D, demineralized water.

3.1.3 Isolation of the eastern portion of the ETF firewater loop will cause loss of the raw water system and loss of the modu-tank makeup water supply.

3.2 Radiation and Contamination Control

3.2.1 Work in radiological areas will be performed using a radiological work permit following review by Radiological Control per ALARA Work Planning procedure, TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Compliance

3.3.1 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-95C-001, Cooling Water System Operation
- ETF-95D-001, Demineralized Water System Operation.

4.2 Field Preparations

4.2.1 CONFIRM fire water available, as indicated by PI-35C-102 in northwest stairwell.

4.2.2 CONFIRM SOE is available to perform designated steps.
5.0 PROCEDURE

NOTE - SOM determines component lineup requirements.

5.1 Startup

NOTE - Raw water supply valves to other systems are initially closed and repositioned in accordance with the applicable operating procedure.

5.1.1 ENSURE valve lineup per Data Sheet 1.

CAUTION

Rapid opening of raw water inlet valve 95D-001 can cause inadvertent pressure transients and water hammer, which could lead to equipment damage.

NOTE - Fire main supply pressure upstream of the raw water supply pressure regulating valve is normally 180 psig and placing raw water in service by slowly opening 95D-001 avoids pressure transients.

5.1.2 (SOE) SLOWLY OPEN raw water isolation valve 95D-001.

5.2 Strainer Blowdown

5.2.1 IF weather conditions warrant, ENSURE a hose is connected to HC-7 AND ROUTE the hose end away from the paved road to avoid ice buildup.

5.2.2 SLOWLY OPEN strainer 95D-036 blowdown valve 95D-037.

5.2.3 WAIT 30 seconds, SLOWLY CLOSE blowdown valve 95D-037.
5.3 Strainer Clean-Out

5.3.1 CONFIRM raw water will not be required to the following services for several hours:
- H₂O₂ feed pump priming.

5.3.2 IF cooling water system cannot be shut down due to operations requirements, PERFORM the following:

5.3.2.1 ROUTE temporary hose from hose bib downstream of back flow preventer 95I-RPBFP-10 at the chemical storage tanks berm to cooling tower basin.

5.3.2.2 PARTIALLY REMOVE access hatch on cooling tower basin on side of basin nearest cooling fan that is not selected on graphic cooling.

5.3.2.3 INSERT hose into cooling tower basin through partially removed cover.

5.3.2.4 OPEN hose bib valve to supply sanitary water to cooling tower basin.

5.3.3 (SOE) SLOWLY CLOSE raw water isolation valve 95D-001.

5.3.4 REQUEST Maintenance remove, clean, and replace strainer element from strainer 95D-036.

CAUTION

Rapid opening of raw water inlet valve 95D-001 can cause inadvertent pressure transients and water hammer, which could lead to equipment damage.

NOTE - Fire main supply pressure upstream of the raw water supply pressure regulating valve is normally 180 psig and placing raw water in service by slowly opening 95D-001 avoids pressure transients.

5.3.5 (SOE) SLOWLY OPEN raw water isolation valve 95D-001.
5.3 Strainer Clean-Out (Cont.)

5.3.6 IF a temporary makeup water supply was used, PERFORM the following:

5.3.6.1 ISOLATE temporary makeup water supply AND REMOVE hose from cooling tower basin access hatch.

5.3.6.2 SECURE cooling tower basin access hatch.

5.4 Shutdown

5.4.1 ENSURE cooling water system is shut down per ETF-95C-001.

5.4.2 ENSURE demineralized water system is shut down per ETF-95D-001.

5.5 Loss of Raw Water

NOTE - Section 5.5 may be performed to provide an alternate supply of water to the cooling tower and seal water tank in the event of loss of raw water.

- Operation of cooling water system using the alternate supply may not support operation of the cooling water blowdown pump.

5.5.1 WHEN necessary, SHUT DOWN the blowdown pump per ETF-95C-001.

5.5.2 (SOE) CLOSE raw water inlet valve 95D-001.

5.5.3 ROUTE hose sections from the vicinity of the cooling tower basin to an alternate water supply.

5.5.4 REQUEST Maintenance connect one end of the hose to the raw water inlet strainer blowdown valve 95D-037 outlet.

5.5.5 REQUEST Maintenance connect the other end to alternate water supply.

5.5.6 OPEN alternate water supply isolation valve.

5.5.7 OPEN valve 95D-037 raw water strainer blowdown valve.
5.5 Loss of Raw Water (Cont.)

5.5.8 WHEN raw water is restored, PERFORM the following:

5.5.8.1 CLOSE valve 95D-037 raw water strainer blowdown valve.

5.5.8.2 CLOSE alternate water supply isolation valve.

5.5.8.3 (SOE) SLOWLY OPEN raw water isolation valve 95D-001.

5.5.8.4 REQUEST Maintenance remove hose from hose connections at 95D-037 and at the alternate water supply.

5.6 Records

5.6.1 PERFORM the following for records identified within this procedure.

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

OR

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

5.6.1.2 SUBMIT the package for verification of completed records.

<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 - Raw Water System 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 & 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 - Raw Water System 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-037</td>
<td>Strainer Blowoff Valve (south of Cooling Tower)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-160</td>
<td>PI-95D002 Isolation Valve (south of Cooling Tower at PCV-95D-001)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-161</td>
<td>PCV-95D001 Sensing Line Isolation Valve (south of Cooling Tower at PCV-95D-001)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-162</td>
<td>PCV-95D001 Sensing Line Drain (below 95D-160)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNA</td>
<td>Raw Water Backflow Preventer Upstream Block Valve (first blue-handled valve downstream of 95D-001)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NNA</td>
<td>Raw Water Backflow Preventer Downstream Block Valve (second blue-handled valve downstream of 95D-001)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-022</td>
<td>Pressure Regulator Sensing Line Isolation (west of cooling tower at PCV-95D-002)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-164</td>
<td>PI-95D003 Isolation Valve (west of cooling tower at PCV-95D-002)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-165</td>
<td>Raw Water Bleed to Cooling Tower Isolation Valve (below 95D-164)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-047</td>
<td>Pressure Regulator Sensing Line Drain (below and north of 95D-165)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-046</td>
<td>Raw Water Bleed to Cooling Tower Throttle Valve (Cooling tower, downstream of 95D-047)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95C-060</td>
<td>Cooling Water Makeup Isolation Valve (Cooling tower)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35C-060</td>
<td>Modu-Tank Supply Backflow Preventer Upstream Shutoff Valve</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35C-061</td>
<td>Modu-Tank Supply Back Flow Preventer Downstream Shutoff Valve</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-020</td>
<td>Seal Water Tank Makeup Valve (top of Seal Water Tank)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Special Instructions

1. Valve is adjusted per ETF-95C-001 when cooling tower is placed in operation.
2. Component known to be in the Required Position per SOM. **IF** known to be in required position, **INITIAL AND NOTE** reason in Comments section.

(Continued on Next Sheet)
### Raw Water System Operation

**Data Sheet 1 - Raw Water System Valve Lineup (Cont.)**

<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-006</td>
<td>Raw Water Hose Station 3 Isolation Valve (Verification Pump)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-048</td>
<td>Raw Water Hose Station 7 Isolation Valve (in Thin Film Dryer Room, South Wall)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-005</td>
<td>Raw Water Hose Station 2 Isolation Valve (Polisher, north wall)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-025</td>
<td>Raw Water Hose Station 6 Isolation Valve (Polisher, north wall)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-049</td>
<td>Raw Water to Hose Station 2 and 7 Isolation Valve (Polisher North Wall)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-013</td>
<td>Sampling Sink Raw Water Isolation Valve (SWRT, north wall)</td>
<td>OPEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-007</td>
<td>Raw Water Hose Station 4 Isolation Valve (North of Vapor Compressor)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-004</td>
<td>Raw Water Hose Station 1 Isolation Valve (behind Rough/Fine Filter)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-008</td>
<td>Raw Water Hose Station 5 Isolation Valve (North of UV/OX, next to air jumper box)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95D-012</td>
<td>Drum Washer/Dryer Raw Water Isolation (Thin Film Dryer, mezzanine, east wall)</td>
<td>CLOSED</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Special Instructions**
Component known to be in the Required Position per SOM. **IF** known to be in required position, **INITIAL AND NOTE** reason in Comments section.

**Comments:**

---

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

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

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

---