Emergency Shower Setup, Startup, Inspection and Shutdown

Tank Farm Operating Procedure

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>C-11</td>
<td>11/05/2018</td>
<td>WRPS-PER-2018-1622.3</td>
<td>Updated Shower unit identification. Removal of P-101 Main Supply Pump Disconnect from Section 5.6. Updated title of Section 5.7 specific to Units 009 and 011. Removal of steps from Section 5.10 regarding temperature reading/ settings. Additional clarification to water temperature. Clarify step to refill emergency shower tank if needed.</td>
</tr>
<tr>
<td>C-10</td>
<td>08/09/2018</td>
<td>Operations request</td>
<td>Additional caution statements regarding immersion heater added to several sections, removal of &quot;Initial Setup of Emergency Shower&quot; section, movement of &quot;Drain Water from Shower Plumbing Lines&quot; section, updates to the Records section to bring it into line with current standards.</td>
</tr>
<tr>
<td>C-9</td>
<td>05/16/2018</td>
<td>Operations request</td>
<td>Added new section 5.5 – Connect power to SY Farm, added variations for old showers 001 through 008 versus new showers 009 through 011 in steps, table, gallons. Modified PPE in 3.1, updated records section.</td>
</tr>
<tr>
<td>C-8</td>
<td>03/22/2018</td>
<td>Operations request</td>
<td>Added new section 5.5 – Connect power to SY Farm, modified 3 tables for AP, AW, and AX. Added step to 5.18</td>
</tr>
<tr>
<td>C-7</td>
<td>03/12/2018</td>
<td>Operations request</td>
<td>Added 2 breakers to 3 tables for AP, AW, and AX.</td>
</tr>
</tbody>
</table>

Table of Contents

1.0 PURPOSE AND SCOPE ...................................................................................................................... 3
  1.1 Purpose ....................................................................................................................................... 3
  1.2 Scope ......................................................................................................................................... 3

2.0 INFORMATION ................................................................................................................................. 4
  2.1 General Information ..................................................................................................................... 4

3.0 PRECAUTIONS AND LIMITATIONS ............................................................................................. 5
  3.1 Personnel Safety ......................................................................................................................... 5
  3.2 Equipment Safety ......................................................................................................................... 5
  3.3 Radiation and Contamination Control .......................................................................................... 6
  3.4 Environmental Protection ............................................................................................................ 6

4.0 PREREQUISITES ............................................................................................................................. 7
  4.1 Special Tools, Equipment and Supplies ....................................................................................... 7
  4.2 Performance Documents .............................................................................................................. 7
  4.3 Field Preparation .......................................................................................................................... 7

5.0 PROCEDURE ................................................................................................................................... 8
5.1 Connect Power Supply to A Farm Emergency Shower .............................................. 8
5.2 Connect Power Supply to AP Farm Emergency Shower ......................................... 10
5.3 Connect Power Supply to AW Farm Emergency Shower ....................................... 13
5.4 Connect Power Supply to AX Farm Emergency Shower ....................................... 16
5.5 Connect Power Supply to AY Farm Emergency Shower ....................................... 19
5.6 Connect Power Supply to SY Farm Emergency Shower ....................................... 22
5.7 Connect External Power Supply to Portable Emergency Shower (Unit 009 and Unit 011) ................................................................. 25
5.8 Perform Shock Water Treatment ........................................................................... 27
5.9 Fill Tank with Potable Water .................................................................................. 31
5.10 Start System ........................................................................................................... 33
5.11 Perform Operability Test ....................................................................................... 36
5.12 Drain Water from Tank *TK-101 ........................................................................... 38
5.13 Remove Liquid from Sump .................................................................................... 42
5.14 Drain Water from Shower Plumbing Lines .............................................................. 46
5.15 Shutdown System to Non-Operational Status ......................................................... 47
5.16 Winterize Emergency Shower ............................................................................... 49
5.17 Records .................................................................................................................. 50

Figure 1: – Emergency Shower/Eyewash System Layout ................................................ 51
Figure 2: – Emergency Shower/Eyewash System Piping Layout ..................................... 53
Figure 3 – Recirculation System .................................................................................... 54
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for setup, startup and shut down of Emergency Shower/Eyewash/Drench Hose Systems (Emergency Shower). The procedure also covers the Operability Check (performed at Startup and Weekly while the unit is in operation).

1.2 Scope

1.2.1 This procedure applies to Emergency Shower equipment and components as indicated below:
- Grounding Lug
- 240VAC/120VAC - 60 AMP Electrical Distribution Panel
- 600-Gallon Water Supply Tank (Units 001 through 008)
- 400-Gallon Water Supply Tank (Units 009 through 011)
- Water Supply Tank Heater
- Recirculation Pump
- Main Supply Pump
- Emergency Shower
- Eyewash
- Drench Hose
- 400-Gallon sump
- Space Heater
- Miscellaneous support equipment.

1.2.2 This procedure DOES NOT APPLY to the removal of contaminated liquid or liquid of an unknown constitution from the sump. Removal of contaminated liquid or liquid of an unknown constitution from the sump must have a work package developed in accordance with TFC-OPS-MAINT-C-01 to perform and is outside the scope of this procedure.
2.0 INFORMATION

2.1 General Information

Equipment nomenclature referenced herein is preceded with an asterisk (*) that correlates to individual number for each Emergency Shower Unit, as indicated:

<table>
<thead>
<tr>
<th>Emergency Shower Unit</th>
<th>Replace * with the following</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit 001</td>
<td>POR251-EMER-</td>
</tr>
<tr>
<td>Unit 002</td>
<td>POR252-EMER-</td>
</tr>
<tr>
<td>Unit 003</td>
<td>POR253-EMER-</td>
</tr>
<tr>
<td>Unit 004</td>
<td>POR254-EMER-</td>
</tr>
<tr>
<td>Unit 005</td>
<td>POR255-EMER-</td>
</tr>
<tr>
<td>Unit 006</td>
<td>POR256-EMER-</td>
</tr>
<tr>
<td>Unit 007</td>
<td>POR257-EMER-</td>
</tr>
<tr>
<td>Unit 008</td>
<td>POR258-EMER-</td>
</tr>
<tr>
<td>Unit 009</td>
<td>POR571-EMER-ESE-</td>
</tr>
<tr>
<td>Unit 010</td>
<td>POR572-EMER-ESE-</td>
</tr>
<tr>
<td>Unit 011</td>
<td>POR573-EMER-ESE-</td>
</tr>
</tbody>
</table>
3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

**WARNING** - Improper grounding can cause electrical shock to personnel resulting in injury and death.

**WARNING** - Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

**WARNING** - Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

**WARNING** - Sodium hypochlorite is an oxidizer and can cause chemical burns to personnel on contact with skin.

3.1.1 Only potable water shall be used to fill the platform water tank.

3.1.2 Personnel trained in the operation of breakers and disconnects will wear the following PPE as a minimum:
- Non-melting (untreated natural fiber) pants and long-sleeved shirt
- Safety glasses
- Leather or insulating gloves
- Hearing protection.

3.1.3 Slip and trip hazards exist when working around Emergency Showers. The power cord to the unit can also be a tripping hazard.

3.1.4 When in an operational status, the Emergency Shower/Eyewash/Drench Hose assembly will be tested on a weekly basis per Section 5.11 to ensure proper operation.

3.2 Equipment Safety

**CAUTION** - Failure to ensure the immersion heater is covered with water when in use may cause the heating element to burn out.

**CAUTION** - During freezing conditions, failure to start the space heater and/or immersion heater when Emergency Shower is filled with water may cause water to freeze in tank, pumps and lines causing damage to equipment. If filling the Water Tank per Section 5.9, Startup of the system per Section 5.10 must be performed immediately to ensure cold weather protection (e.g., space heater, tank immersion heater).
3.3 Radiation and Contamination Control

3.3.1 Emergency Shower Units will not be set up in the following Radiological Areas: RBA (Radiological Buffer Area [contamination]), CA (Contamination Area), HCA (High Contamination Area), SCA (Soil Contamination Area) or ARA (Airborne Radiological Area).

3.3.2 If an Emergency shower unit is used to decontaminate personnel, potential contact with Tank waste and radiological concerns must be re-evaluated by Radiological Controls.

3.4 Environmental Protection

3.4.1 Report all leaks or unplanned discharges to Environmental and the Central Shift Office (CSO) per TFC-ESHQ-ENV_FS-C-01.

3.4.2 In accordance with TFC-ESHQ-ENV_RM-C-04, Water Discharge in Tank Farms, routine maintenance and operation activities may result in small incidental discharge of raw water as long as the below listed limits and conditions are met. Per TFC-ESHQ-ENV_RM-C-04, Table 2, emergency shower discharges are exempt from permitting.

- Any chemicals discharged for the emergency shower must be procured directly from the site water purveyor and be acceptable for discharge (Hydrochloride used for shock treatment is acceptable provided is procured directly from the site water purveyor)
- Appropriate best management practices shall be implemented to prevent unnecessary discharges
- During pre-job planning, measures to limit soil erosion will be incorporated in the work plan
- Care needs to be taken to prevent any discharge from:
  - Ponding or pooling
  - Causing erosion
  - Flowing into a tank farm or other contamination site.
- There is no allowable discharge volume for discharges resulting from operating error.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following special tools, equipment and supplies may be needed to perform this procedure:

- Leather Gloves, safety glasses, a long sleeved shirt and long pants of non-melting or untreated natural fiber
- water supply line(s), if needed, for filling the tank with potable water
- water drain line(s), pump, and suitable container, if needed, for draining the water tank or sump (See Section 5.12 and 5.13)
- Step Ladder to access hatch on top of tank
- Water diverter sleeve
- 5 gallon bucket
- Shop vacuum
- Heat gun
- Drip pans.

4.2 Performance Documents

The following documents may be needed to perform this procedure:

- 5-EMER-783, Emergency Shower Annual Inspection and Maintenance
- Form A-6006-212 - Emergency Shower Water Usage Log
- GHS-SDS and/or MSDS #012044 for 12.5% Sodium Hypochlorite
- GHS-SDS and/or MSDS #023398B for Sodium Hypochlorite
- GHS-SDS and/or MSDS #012915 for Clorox
- TF-OR-PWR-01, Power Operator Rounds
- TF-OR-PWR-02, Stationary Operating Engineer West Area.

4.3 Field Preparation

4.3.1 **ENSURE** Emergency Shower is staged at approved location.

4.3.2 **CONTACT** Water Purveyor if potable water is required to fill Supply Tank.

4.3.3 **IF** shocking water in accordance with Section 5.8, **CONFIRM** portable eyewash station with drench hose is staged at the worksite.
5.0 PROCEDURE

NOTE - Initial setup and testing of Emergency Showers will require one of the following Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6 or 5.7 and all of the sections 5.9 through 5.11 to be performed. After these sections have been performed during initial setup, any section may be performed independently or in any logical order thereafter.

- Some of the Emergency Showers may be connected to an electrical rack and some may be direct connected to a diesel generator.

5.1 Connect Power Supply to A Farm Emergency Shower

WARNING
Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.1.1 ENSURE personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.1.2 ENSURE the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.1.3 ENSURE the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.1 Connect Power Supply to A Farm Emergency Shower (Cont.)

5.1.4 **ENSURE** the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO2249-EDS-DS-003</td>
<td>South East Corner of Emergency shower</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>MO2249-EDS-DP-003 Ckt 3</td>
<td>South Side of MO2249</td>
<td>I/ON</td>
<td></td>
</tr>
</tbody>
</table>
5.2 Connect Power Supply to AP Farm Emergency Shower.

5.2.1 Shift Manager/OE **DETERMINE** required external power supply AND **MARK ✓** the required external power supply:

- Normal
- Portable Generator

_________________________ / ______________________ / 
Signature                Print (First & Last)       Date
Shift Manager /OE

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.2.2 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.2.3 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.2.4 **ENSURE** the following lineup at *DP-101, DISTRIBUTION:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.2 Connect Power Supply to AP Farm Emergency Shower.

5.2.5 IF power supply will be NORMAL, ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP271-EDS-MCC-001</td>
<td>AP271-EDS-MCC-001 (Cubicle E3A)</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>BKR-113</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-107</td>
<td>271AP East Interior Wall</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Ckt 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-MTS-001</td>
<td>West Side of Emergency Shower</td>
<td>NORMAL POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Ckt 1 &amp; 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Ckt 2 &amp; 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WARNING
Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.2.6 IF using portable generator, PERFORM the following:

5.2.6.1 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP271-EDS-MTS-001</td>
<td>West Side of Emergency Shower</td>
<td>CENTER OFF (OFF)</td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Main</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Ckt 1 &amp; 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AP271-EDS-DP-108</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>Ckt 2 &amp; 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2.6.2 ENSURE National Electrical Code (NEC) inspection is complete.

5.2.6.3 ROUTE electrical cables so as to minimize potential tripping hazards.
5.2 Connect Power Supply to AP Farm Emergency Shower. (Cont.)

5.2.6.4 **ENSURE** the portable generator is OFF/DE-ENERGIZED prior to connecting the power cables.

5.2.6.5 **CONNECT** power cable to AP271-EDS-RCPT-001.

5.2.6.6 **POWER** the portable generator.

5.2.6.7 **ENSURE** the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AP271-EDS-MTS-001</td>
<td>West Side of Emergency Shower</td>
<td>AP271-EDS-RCPT-001 POWER ON (ON)</td>
<td></td>
</tr>
</tbody>
</table>
5.3 Connect Power Supply to AW Farm Emergency Shower

5.3.1 Shift Manager/OE **DETERMINE** required external power supply AND **MARK ✓** the required external power supply:

- Normal
- Portable Generator

_________________________ / ______________________ / 
Signature Print (First & Last) Date
Shift Manager /OE

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.3.2 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.3.3 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.3.4 **ENSURE** the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.3 Connect Power Supply to AW Farm Emergency Shower (Cont.)

5.3.5 IF power supply will be NORMAL, ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW271-EDS-BKR-108</td>
<td>AW271-EDS-MCC-001 (Cubicle B3)</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-108A Ckt 8</td>
<td>AW273</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-MTS-001 Main</td>
<td>South Side of Emergency Shower</td>
<td>NORMAL POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-001 Ckt 1 &amp; 3</td>
<td>South Side of Emergency Shower</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-001 Ckt 2 &amp; 4</td>
<td>South Side of Emergency Shower</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING**
Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.3.5.1 IF using portable generator, PERFORM the following:

5.3.5.2 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW273-EDS-MTS-001</td>
<td>South Side of Emergency Shower</td>
<td>CENTER OFF (OFF)</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-001 Main</td>
<td>South Side of Emergency Shower</td>
<td>Closed/ON</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-001 Ckt 1 &amp; 3</td>
<td>South Side of Emergency Shower</td>
<td>Closed/ON</td>
<td></td>
</tr>
<tr>
<td>AW273-EDS-DP-001 Ckt 2 &amp; 4</td>
<td>South Side of Emergency Shower</td>
<td>Closed/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.3.5.3 ENSURE National Electrical Code (NEC) inspection is complete.

5.3.5.4 ROUTE electrical cables so as to minimize potential tripping hazards.
5.3 Connect Power Supply to AW Farm Emergency Shower (Cont.)

5.3.5.5 ENSURE the portable generator is OFF/DE-ENERGIZED prior to connecting the power cables.

5.3.5.6 CONNECT power cable to AW273-EDS-RCPT-001.

5.3.5.7 POWER the portable generator.

5.3.5.8 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AW273-EDS-MTS-001</td>
<td>South Side of Emergency Shower</td>
<td>AW273-EDS-RCPT-001 POWER ON (ON)</td>
<td></td>
</tr>
</tbody>
</table>
5.4 Connect Power Supply to AX Farm Emergency Shower

5.4.1 Shift Manager/OE **Determine** required external power supply AND **Mark** the required external power supply:

- Normal
- Portable Generator

________________________ / ______________________ / ______________________
Signature Print (First & Last) Date
Shift Manager /OE

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.4.2 **Ensure** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.4.3 **Ensure** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.4.4 **Ensure** the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.4 Connect Power Supply to AX Farm Emergency Shower (Cont.)

5.4.5 **IF** power supply will be NORMAL, **ENSURE** the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>A701-EDS-BKR-133</td>
<td>A701-EDS-MCC-003</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-MTS-105</td>
<td>North Side of Emergency Shower</td>
<td>NORMAL POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Main</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Ckt 1 &amp; 3</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Ckt 2 &amp; 4</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING**

Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.4.6 **IF** using portable generator, **PERFORM** the following:

5.4.6.1 **ENSURE** the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>A701-EDS-MTS-105</td>
<td>North Side of Emergency Shower</td>
<td>CENTER OFF (OFF)</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Main</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Ckt 1 &amp; 3</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>A701-EDS-DP-120 Ckt 2 &amp; 4</td>
<td>North Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.4.6.2 **ENSURE** National Electrical Code (NEC) inspection is complete.

5.4.6.3 **ROUTE** electrical cable so as to minimize potential tripping hazards.

5.4.6.4 **ENSURE** the portable generator is OFF/DE-ENERGIZED prior to connecting the power cable.
5.4 Connect Power Supply to AX Farm Emergency Shower (Cont.)

5.4.6.5 CONNECT power cable to A701-EDS-RCPT-001.

5.4.6.6 POWER the portable generator.

5.4.6.7 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>A701-EDS-MTS-105</td>
<td>North Side of Emergency Shower</td>
<td>A701-EDS-RCPT-001 POWER ON (ON)</td>
<td></td>
</tr>
</tbody>
</table>
5.5 **Connect Power Supply to AY Farm Emergency Shower.**

5.5.1 Shift Manager/OE **DETERMINE** required external power supply AND **MARK ✓** the required external power supply:

<table>
<thead>
<tr>
<th>Normal</th>
<th>Portable Generator</th>
</tr>
</thead>
</table>

____________________________________ / __________________________________ / ___________

Signature Print (First & Last) Date
Shift Manager /OE

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.5.2 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.5.3 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>&quot;PUSH TO ACTIVATE&quot; button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.5.4 **ENSURE** the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker #</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.5 Connect Power Supply to AY Farm Emergency Shower. (Cont.)

5.5.5 IF power supply will be NORMAL, ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY-PDP-1 BKR 3</td>
<td>South of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-MTS-108</td>
<td>East Side of Emergency Shower</td>
<td>NORMAL POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Main</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Ckt 1 &amp; 3</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Ckt 2 &amp; 4</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING**

Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.5.6 IF using portable generator, PERFORM the following:

5.5.6.1 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY241-EDS-MTS-108</td>
<td>East Side of Emergency Shower</td>
<td>CENTER OFF (OFF)</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Main</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Ckt 1 &amp; 3</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>AY241-EDS-DP-141 Ckt 2 &amp; 4</td>
<td>East Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.5.6.2 ENSURE National Electrical Code (NEC) inspection is complete.

5.5.6.3 ROUTE electrical cables so as to minimize potential tripping hazards.
5.5 Connect Power Supply to AY Farm Emergency Shower. (Cont.)

5.5.6.4 ENSURE the portable generator is OFF/DE-ENERGIZED prior to connecting the power cables.

5.5.6.5 CONNECT power cable to AY241-EDS-RCPT-112.

5.5.6.6 POWER the portable generator.

5.5.6.7 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>AY241-EDS-MTS-108</td>
<td>East Side of</td>
<td>AY241-EDS-RCPT-112 POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emergency Shower</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.6 Connect Power Supply to SY Farm Emergency Shower

5.6.1 Shift Manager/OE **DETERMINE** required external power supply AND **MARK ✓** the required external power supply:

- Normal
- Portable Generator

_________________________________________ / __________________________________ / ____________________________________________________
Signature Print (First & Last) Date
Shift Manager /OE

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.6.2 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.6.3 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.6.4 **ENSURE** the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
5.6 Connect Power Supply to SY Farm Emergency Shower (Cont.)

5.6.5 IF power supply will be NORMAL, ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWG-E-001 BUS1-2B</td>
<td>252S</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>DP-E-001 Ckt 25</td>
<td>252S</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-MTS-102</td>
<td>West Side of Emergency Shower</td>
<td>NORMAL POWER ON (ON)</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Main</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Ckt 1 &amp; 3</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Ckt 2 &amp; 4</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.6.6 IF using portable generator, PERFORM the following:

5.6.6.1 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>Description</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S252-EDS-MTS-102</td>
<td>West Side of Emergency Shower</td>
<td>CENTER OFF (OFF)</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Main</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Ckt 1 &amp; 3</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
<tr>
<td>S252-EDS-DP-110 Ckt 2 &amp; 4</td>
<td>West Side of Emergency Shower</td>
<td>CLOSED/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.6.6.2 ENSURE National Electrical Code (NEC) inspection is complete.

5.6.6.3 ROUTE electrical cables so as to minimize potential tripping hazards.

5.6.6.4 ENSURE the portable generator is OFF/DE-ENERGIZED prior to connecting the power cables.
5.6 Connect Power Supply to SY Farm Emergency Shower (Cont.)

5.6.6.5 CONNECT power cable to S252-EDS-RCPT-102.

5.6.6.6 POWER the portable generator

5.6.6.7 ENSURE the following electrical lineup:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S252-EDS-MTS-102</td>
<td>West Side of Emergency Shower</td>
<td>S252-EDS-RCPT-102 POWER ON (ON)</td>
<td></td>
</tr>
</tbody>
</table>
5.7 Connect External Power Supply to Portable Emergency Shower (Unit 009 and Unit 011)

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.7.1 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.7.2 **PRIOR** to connecting the Emergency shower unit power cord to portable generator, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description/Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>Portable Generator Disconnect/Breaker</td>
<td>OPEN</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.7.3 **ENSURE** the following lineup at *DP 101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>
Emergency Shower Setup, Startup, Inspection and Shutdown

5.7 Connect External Power Supply to Portable Emergency Shower (Unit 009 and Unit 011)(Cont.)

**WARNING**
Improper grounding can result in electrical shock to personnel resulting in injury and death.

**WARNING**
Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.7.4 CONNECT grounding electrode wire from emergency safety shower ground lug to grounding electrode.

**WARNING**
Improper electrical cable routing during installation may result in tripping hazards and personnel injuries.

5.7.5 ROUTE cables and grounding electrode conductor so as to minimize potential tripping hazards.

5.7.6 IF portable generator is used as a power source, ENSURE the portable generator is OFF/DE-ENERGIZED prior to connecting the power cables.

5.7.7 CONNECT Emergency shower *DP-101 DISTRIBUTION PANEL to external power supply or portable generator (240 VAC/120VAC, 60 amps service).

5.7.8 ENSURE National Electrical Code (NEC) inspection is complete.

5.7.8.1 WHEN the cables have been connected, POWER the portable generator or external power supply.
5.8 Perform Shock Water Treatment

**Special Instruction:**

This section may be skipped at the discretion/direction of the water purveyor.

**NOTE** - This section is used following a maintenance evolution where the water supply piping has been disconnected/broken and sterilization is needed prior to filling for Normal Operations or for initial setup.

- All potable water certification is performed by the water purveyor.
- Section 5.8 may be repeated to bring the potable water into compliance with certification requirements.

5.8.1 **IF** performing shock treatment of Units 001 through Unit 008, **CONTACT** the Hanford Site water purveyor to fill water supply tank to a level between 380 and 400 gallons of potable water.

5.8.2 **IF** performing shock treatment of Units 009 through Unit 011, **CONTACT** the water purveyor to fully fill water supply tank (approximately 367 gallons).

5.8.3 **ENSURE** “PUSH TO ACTIVATE” button (outside to right of front doors) is PULLED out.

5.8.4 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label/Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V-101</td>
<td>Tank Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-103</td>
<td>Sump Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-104</td>
<td>Water Supply Filter Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Deluge Shower Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Drench Hose Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Eyewash Push Plate Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-102</td>
<td>Recirc Pump Inlet Valve</td>
<td>OPEN</td>
<td></td>
</tr>
</tbody>
</table>

5.8.5 **OPEN/REMOVE** hatch from top tank opening.

5.8.6 **ENSURE** inside of tank is free of foreign matter using a vacuum and/or rags.
5.8 Perform Shock Water Treatment (Cont.)

**WARNING**

Sodium hypochlorite is an oxidizer and can cause chemical burns to personnel on contact with skin.

5.8.7 REQUEST MSA perform shock treatment of the system.

5.8.8 IF performing shock treatment of Units 001 through Unit 008, ENSURE water supply tank is filled to a level between 380 and 400 gallons.

5.8.9 IF performing shock treatment of Units 009 through Unit 011, ENSURE water supply tank is filled to a level (approximately 367 gallons).

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.8.10 ENSURE personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

**CAUTION**

Failure to ensure the immersion heater is covered with water when in use may cause the element to burn out.

5.8.11 ENSURE the following lineup at *DP-101, DISTRIBUTION PANEL:
5.8 Perform Shock Water Treatment (Cont.)

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>I/ON</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Outlet</td>
<td>I/ON</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Horn &amp; Light</td>
<td>I/ON</td>
<td></td>
</tr>
<tr>
<td>5/7</td>
<td>220 V Space Heater</td>
<td>I/ON</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Recirc Pump</td>
<td>I/ON</td>
<td></td>
</tr>
<tr>
<td>8/10</td>
<td>220V Tank Pump</td>
<td>I/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.8.12 If shocking water on Unit 001 through Unit 008, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>

5.8.13 If shocking water on Unit 009 through Unit 011, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>
5.8 Perform Shock Water Treatment (Cont.)

5.8.14 AFTER the recirculation pump is running NOTIFY MSA to continue with the shock treatment.

5.8.14.1 SUPPORT MSA in shock treatment by starting and stopping the main supply pump and/or recirculation pump as directed by MSA personnel. (The main supply pump should start when the “PUSH TO ACTIVATE” button is pushed in and stop when the “PUSH TO ACTIVATE” button is pulled out.)

5.8.15 AFTER 24-hour shock period, DRAIN system per Section 5.12 per Shift Manager/OE direction.

5.8.16 REQUEST MSA flush system with fresh potable water AND WAIT for Washington Department of Health sample results before proceeding.

5.8.17 IF water level is low FILL system per Section 5.9.
5.9 Fill Tank with Potable Water

NOTE - Units 001 through Unit 008 supply tank must contain 380 gallons (minimum) to 400 gallons (maximum) of potable water for Emergency Shower system to be operational.

- Units 009 through Unit 011 supply tank must be filled to the top with potable water for Emergency Shower system to be operational.

- MSA will assist in filling system with clean potable water.

5.9.1 ENSURE the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label/Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V-101</td>
<td>Tank Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-102</td>
<td>Recirc Pump Inlet Valve</td>
<td>OPEN</td>
<td></td>
</tr>
<tr>
<td>*V-103</td>
<td>Sump Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-104</td>
<td>Water Supply Filter Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Deluge Shower Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Drench Hose Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td>Eyewash Push Plate Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
</tbody>
</table>

5.9.2 OPEN/REMOVE hatch from top tank opening.

5.9.3 ENSURE inside of tank is free of foreign matter.

5.9.4 ROUTE fill hose from potable water source to top hatch opening.

5.9.5 STAGE an observer near tank to monitor tank level and prevent overfill.

5.9.6 IF filling Unit 001 through Unit 008, FILL *TK-101, WATER SUPPLY TANK (380 to 400 gallons).

5.9.7 IF filling Unit 009 through Unit 011, FILL *TK-101, WATER SUPPLY TANK (approximately 367 gallons)

5.9.8 DRAIN fill hose to lowest point to minimize spillage to the ground when removing the fill hose.
5.9 Fill Tank with Potable Water (Cont.)

5.9.9 REMOVE fill hose.

5.9.10 CLOSE/REINSTALL top hatch cover.

5.9.11 ADJUST the Water Supply Level Switch for proper operation.

NOTE - Step 5.9.12 is only applicable when system has been shocked per Section 5.8.

5.9.12 IF determining compliance after shocking system, CONTACT MSA (373-5152) for results from samples.

5.9.12.1 IF water is determined to not be in compliance with certification requirements, REPEAT Section 5.8 until water is compliant.

CAUTION

During freezing conditions, failure to start the space heater and/or immersion heater when Emergency Shower is filled with water may cause water to freeze in tank, pumps and lines causing damage to equipment.

5.9.13 NOTIFY the Central Shift Office that the emergency shower is ready to be placed into service.

5.9.14 ENSURE any water that is added to the system is recorded on Form A-6006-212 - Emergency Shower Water Usage Log.
5.10 Start System

5.10.1 **ENSURE** “PUSH TO ACTIVATE” button (outside to right of front doors) is PULLED out.

5.10.2 **ENSURE** tank was filled per Steps 5.9.6 or 5.9.7.

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.10.3 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

**CAUTION**

Failure to ensure the immersion heater is covered with water when in use may cause the element to burn out.

5.10.4 **ENSURE** the following lineup at *DP-101, DISTRIBUTION PANEL:

<table>
<thead>
<tr>
<th>Breaker #</th>
<th>Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>I/ON</td>
<td></td>
</tr>
</tbody>
</table>

5.10.5 **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label/Description</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V-102</td>
<td>RECIRC PUMP INLET VALVE</td>
<td>OPEN/ON</td>
<td></td>
</tr>
<tr>
<td>*V-104</td>
<td>Water Supply Filter Drain Valve</td>
<td>CLOSED</td>
<td></td>
</tr>
</tbody>
</table>
5.10 Start System (Cont.)

5.10.6 IF starting Unit 001 through Unit 008, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>

5.10.7 IF starting Unit 009 through Unit 011, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE** - Steps 5.10.8, 5.10.9 or 5.10.10 is required to be performed on initial setup and may be performed independently at any time to check and/or adjust heater controller settings.
5.10 Start System (Cont.)

5.10.8 **ENSURE** water heater temperature controller is set to maintain water temperature between 85 to 89 °F.

5.10.9 **IF** starting Unit 001 through Unit 008, **ENSURE** *HTR-102, ROOM HEATER* temperature setting of 70 °F.

5.10.10 **IF** starting Unit 009 through Unit 011, **ENSURE** *HTR-102, is adjusted to maintain room temperature setting of 70 °F and 75 °F.
5.11 Perform Operability Test

NOTE - Emergency Shower operability testing in this Section is used to ensure system is operating after staging and setup. Testing is required weekly when system is in use and the surveillance is documented using TF-OR-PWR-01 and TF-OR-PWR-02.

5.11.1 PUSH IN the “PUSH TO ACTIVATE” button located on outside of doors, to start the shower supply pump.

NOTE - Pushing “PUSH TO ACTIVATE” button in will activate the alarm strobe.

- Pump assembly contains a by-pass orifice to eliminate the possibility of deadheading the pump.

5.11.2 OBSERVE the interior light and exterior emergency strobe turns ON.

5.11.3 IF possible, STAGE a bucket/capture container under eye wash station to capture as much water as possible during test, to reduce/eliminate water flow to sump.

5.11.4 OPERATE eyewash plate handle to observe immediate water flow from both eyewash outlets.

5.11.5 OPERATE eyewash plate handle to stop water flow.

5.11.6 STAGE a bucket/capture container at the drench hose to capture the water as the drench hose is tested to reduce or eliminate adding water to the sump.

5.11.7 AIM drench hose into bucket or capture container AND

SQUEEZE drench hose control to observe immediate water flow from hose.

5.11.8 RELEASE drench hose control to stop flow.

5.11.9 HOLD bucket/capture container directly under shower head.

5.11.10 PULL shower head control to ensure immediate water flow at shower head.

5.11.11 REPOSITION shower head control to stop water flow.

NOTE - Testing may need repeated.

5.11.12 IF any test is unsatisfactory, PULL “PUSH TO ACTIVATE” button OUT AND

AFTER correction of deficiencies using an approved procedure or work package, REPEAT this Section from the beginning.
5.11 Perform Operability Test (Cont.)

5.11.13 CONFIRM satisfactory water flow.

5.11.14 PULL “PUSH TO ACTIVATE” button OUT to place unit in operable standby.

5.11.15 CONFIRM Supply Tank water temperature is 80 °F to 90 °F.

5.11.16 PERFORM Visual Inspection.

5.11.17 DRAIN residual fluid from Emergency Shower plumbing lines per Section 5.14.

NOTE - Step 5.11.18 and Step 5.11.19 may be performed in any order or concurrently.

5.11.18 IF the Emergency shower tank needs to be refilled after operability testing, RE-FILL tank with potable water per Section 5.9.

5.11.19 IF sump needs to be emptied (e.g., contains a pumpable quantity of liquid), REMOVE liquid from sump per Section 5.13 per Shift Manager/OE direction.

5.11.20 CONFIRM emergency shower is operable and in-service.

5.11.21 WHEN unit is placed into service, DOCUMENT Operational Status Checks per TF-OR-PWR-01 and TF-OR-PWR-02.

5.11.21.1 NOTIFY Shift Manager/OE unit is placed into service.

5.11.21.2 REMOVE Out-Of-Service sign from unit.

5.11.21.3 CONTACT the Hanford Site water purveyor AND REQUEST a weekly check for residual chlorine.

   a. IF it is determined chlorine needs to be added PROVIDE system operational assistance as requested by the water purveyor.

5.11.22 ENSURE any water that is added to or drained from the system is recorded on Form A-6006-212 - Emergency Shower Water Usage Log.
5.12 **Drain Water from Tank *TK-101**

5.12.1 **ENSURE** “PUSH TO ACTIVATE” Button is **PULLED** out.

5.12.2 **ENSURE** tank *TK-101 is properly vented to allow air in when water is removed.

5.12.3 **IF** draining Unit 001 through Unit 008, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description/Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>*V-102</td>
<td>RECIRC PUMP INLET VALVE</td>
<td>OPEN</td>
<td></td>
</tr>
</tbody>
</table>

5.12.4 **IF** draining Unit 009 through Unit 011, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description/Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>*V-102</td>
<td>RECIRC PUMP INLET VALVE</td>
<td>OPEN</td>
<td></td>
</tr>
</tbody>
</table>
5.12 Drain Water from Tank *TK-101 (Cont.)

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.12.5 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

**CAUTION**

Failure to ensure the immersion heater is covered with water when in use may cause the element to burn out.

5.12.6 **ENSURE** the following breaker at DP-101, DISTRIBUTION PANEL as indicated:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>

**WARNING**

Sodium hypochlorite is an oxidizer and can cause chemical burns to personnel on contact with skin.

5.12.7 **IF** draining shocked water, **DON** proper chemical PPE per the GHS-SDS and/or MSDS (minimum of splash goggles and rubber gloves).

5.12.8 **IF** draining tank to the sump, **PERFORM** the following actions:

5.12.8.1 **ENSURE** sump has sufficient capacity to contain tank volume.

5.12.8.2 **ENSURE** cap is installed on sump drain valve *V-103.

5.12.8.3 **ENSURE** sump drain valve *V-103 is closed.

5.12.8.4 **ENSURE** tank drain valve *V-101 CLOSED.

5.12.8.5 **ENSURE** cap is removed from tank drain valve *V-101.

5.12.8.6 **OPEN** tank drain valve *V-101.
5.12 Drain Water from Tank *TK-101 (Cont.)

5.12.8.7 MONITOR sump level to prevent sump from overflowing.
   a. IF sump will overflow, CLOSE tank drain valve *V-101.
   b. DRAIN sump per section 5.13.
   c. CONTINUE draining until empty.

5.12.8.8 WHEN liquids have been drained as much as possible, CLOSE tank drain valve *V-101.

5.12.8.9 INSTALL cap on tank drain valve *V-101.

5.12.8.10 PROCEED to section 5.13

5.12.9 IF using submersible pump to empty the tank to ground, PERFORM the following:

5.12.9.1 OBTAIN approval of Shift Manager/OE to perform this section.

__________________________ / ______________________ / ____________
Signature                  Print (First & Last)         Date
Shift Manager /OE

5.12.9.2 REQUEST Environmental name/signature and date for approval of liquid discharge to ground.

__________________________ / ______________________ / ____________
Signature                  Print (First & Last)         Date
Environmental

5.12.9.3 OPEN/REMOVE hatch from top tank opening.

5.12.9.4 CONNECT a hose to the submersible pump.

5.12.9.5 ROUTE hose outlet to suitable drainage location.

5.12.9.6 INSTALL submersible pump in tank.

5.12.9.7 START submersible pump.

5.12.9.8 WHEN spraying water, ENSURE water does not pool, cause erosion or flow into tank farms.
5.12 Drain Water from Tank *TK-101(Cont.)

5.12.9.9 WHEN liquids have been removed as much as possible, STOP submersible pump.

5.12.9.10 REMOVE submersible pump.

5.12.9.11 CLOSE/REINSTALL hatch to top tank opening.

5.12.10 IF gravity draining tank to ground, PERFORM the following:

5.12.10.1 OBTAIN approval of Shift Manager/OE to perform this section.

_________________________ / ______________________ / __________
Signature                Print (First & Last)        Date
Shift Manager /OE

5.12.10.2 REQUEST Environmental name/signature and date for approval of liquid discharge to ground.

_________________________ / ______________________ / __________
Signature                Print (First & Last)        Date
Environmental

5.12.10.3 ENSURE tank drain valve *V-101 CLOSED.

5.12.10.4 ENSURE cap is removed from tank drain valve *V-101.

5.12.10.5 CONNECT hose to tank drain valve *V-101.

5.12.10.6 ROUTE hose outlet to suitable drainage location.

5.12.10.7 WHEN draining water, ENSURE water does not pool, cause erosion or flow into tank farms.

5.12.10.8 OPEN tank drain valve *V-101.

5.12.10.9 WHEN liquids have drained as much as possible, CLOSE tank drain valve *V-101.

5.12.10.10 INSTALL cap on tank drain valve *V-101.
5.13 Remove Liquid from Sump

**WARNING**

Sodium hypochlorite is an oxidizer and can cause chemical burns to personnel on contact with skin.

5.13.1 **IF** draining shocked water, **DON** proper chemical PPE per the GHS-SDS and/or MSDS (minimum of splash goggles and rubber gloves).

5.13.2 **IF** draining sump to ground via gravity drain, **PERFORM** the following:

5.13.2.1 **OBTAIN** approval of Shift Manager/OE to perform this section.

_____________________________ / __________________________ / __________
Signature Print (First & Last) Date

Shift Manager /OE

5.13.2.2 **REQUEST** Environmental name/signature and date for approval of liquid discharge to ground.

_____________________________ / __________________________ / __________
Signature Print (First & Last) Date

Environmental

5.13.2.3 **ENSURE** sump drain valve *V-103 CLOSED.

5.13.2.4 **ENSURE** cap is removed from sump drain valve *V-103.

5.13.2.5 **CONNECT** hose to sump drain valve *V-103.

5.13.2.6 **ROUTE** hose outlet to suitable drainage location.

5.13.2.7 **OPEN** sump drain valve *V-103.

5.13.2.8 **WHEN** draining water, **ENSURE** water does not pool, cause erosion or flow into tank farms.

5.13.2.9 **WHEN** liquids have drained as much as possible,

CLOSE sump drain valve *V-103.

5.13.2.10 **INSTALL** cap on sump drain valve *V-103.
5.13 Remove Liquid from Sump (Cont.)

5.13.3 **IF** pumping sump to ground with submersible pump, **PERFORM** the following:

5.13.3.1 **OBTAIN** approval of Shift Manager/OE to perform this section.

_________________________ / ______________________ / ____________
Signature Print (First & Last) Date
Shift Manager /OE

5.13.3.2 **REQUEST** Environmental name/signature and date for approval of liquid discharge to ground.

_________________________ / ______________________ / ____________
Signature Print (First & Last) Date
Environmental

5.13.3.3 **REMOVE** a section floor grating.

5.13.3.4 **CONNECT** a hose to the submersible pump.

5.13.3.5 **ROUTE** hose outlet to suitable drainage location.

5.13.3.6 **WHEN** spraying water, **ENSURE** water does not pool, cause erosion or flow into tank farms.

5.13.3.7 **INSTALL** submersible pump in sump.

5.13.3.8 **START** submersible pump.

5.13.3.9 **WHEN** liquids have been removed as much as possible, **STOP** submersible pump.

5.13.3.10 **REMOVE** submersible pump.

5.13.3.11 **REINSTALL** floor grating.
5.13 Remove Liquid from Sump (Cont.)

5.13.4 IF water and sewer utilities is pumping sump with vacuum pump truck; PERFORM the following:

5.13.4.1 CONTACT Water and Sewer Utilities to coordinate pumping of sump.

5.13.4.2 REMOVE a section of floor grating.

5.13.4.3 PUMP sump, removing as much liquid as possible.

5.13.4.4 REINSTALL floor grating.

5.13.5 IF pumping sump to transportable collection container with submersible pump, PERFORM the following:

NOTE - Transportable collection container with a capacity greater than 400 gallons is required.

5.13.5.1 CONNECT a hose from submersible pump to a suitable collection container.

5.13.5.2 INSTALL drip pan(s) under hose connection points.

5.13.5.3 REMOVE a section of floor grating.

5.13.5.4 INSTALL submersible pump.

5.13.5.5 START submersible pump.

5.13.5.6 CHECK connections for leaks.

5.13.5.7 IF leaks occur, PERFORM the following:

a. STOP pumping.

b. TIGHTEN fittings.

c. RECOMMENCE pumping.

d. IF leakage persists, NOTIFY SM/OE.
5.13 Remove Liquid from Sump (Cont.)

5.13.5.8 WHEN liquids have been removed, STOP submersible pump.

5.13.5.9 DRAIN hose to lowest point to minimize spillage to the ground when disconnecting and removing the hose.

5.13.5.10 DISCONNECT hose from pump to collection container.

5.13.5.11 REMOVE submersible pump from sump or tank.

5.13.5.12 REINSTALL floor grating.

5.13.6 ENSURE any water that is drained from the system is recorded on Form A-6006-212 - Emergency Shower Water Usage Log.
5.14 Drain Water from Shower Plumbing Lines

5.14.1 **ENSURE** “PUSH TO ACTIVATE” Button is pulled out.

5.14.2 **STAGE** a bucket or capture container under the shower head and eye wash to capture as much water as possible.

5.14.3 **PULL** the shower head control cord to ensure any water trapped at the shower head is drained **AND**

**RELEASE** control cord when water stops draining.

5.14.4 **PUSH** the eyewash push plate **AND**

**RELEASE** the eyewash push plate when water stops draining.

5.14.5 **STAGE** a bucket or capture container under the drench hose to capture as much water as possible.

5.14.6 **SQUEEZE** the drench hose control lever while keeping the hose as straight as possible and staying below the connection to the shower/eyewash pip stand **AND**

**CYCLE** shower and eyewash valves until water stops draining.

5.14.7 **RELEASE** the drench hose control lever when water stops draining.

5.14.8 **STAGE** a bucket or capture container under FLT-101 (water supply filter housing) to capture as much water as possible.

5.14.9 **OPEN** *V-104 (water supply filter drain valve).

5.14.10 **CLOSE** *V-104 when water stops draining from water supply filter.

5.14.11 **DISPOSE** of liquid per Shift Manager/OE direction.

5.14.12 **ENSURE** any water that is drained from the system is recorded on Form A-6006-212 - Emergency Shower Water Usage Log.
5.15 Shutdown System to Non-Operational Status

5.15.1 **ENSURE** “PUSH TO ACTIVATE” Button is **PULLED** out.

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

5.15.1.1 **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

**NOTE** - Steps 5.15.2 and 5.15.5 must be performed within a short time to prevent damaging equipment in cold/freezing conditions.

5.15.2 **IF** shutting down Unit 001 through Unit 008, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.15.3 **IF** shutting down Unit 009 through Unit 011, **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.15.4 **IF** directed by SM/OE, **DRAIN** Emergency Shower tank and system per Section 5.12 per Shift Manager/OE direction.
5.15  Shutdown System to Non-Operational Status (Cont.)

5.15.5  **ENSURE** the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label/Location</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V-102</td>
<td>RECIRC PUMP INLET VALVE</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-101</td>
<td>TANK DRAIN VALVE</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-103</td>
<td>SUMP DRAIN VALVE</td>
<td>CLOSED</td>
<td></td>
</tr>
<tr>
<td>*V-104</td>
<td>WATER SUPPLY FILTER DRAIN VALVE</td>
<td>CLOSED</td>
<td></td>
</tr>
</tbody>
</table>

5.15.6  **IF** relocating this unit, **PERFORM** the following:

---

**WARNING**

Failure to comply with proper PPE and controls per DOE–0359, Hanford Site Electrical Safety Program can cause serious personnel injury or death from electrocution.

---

5.15.6.1  **ENSURE** personnel trained in the operation of breakers and disconnects dons PPE (See Section 3.1).

5.15.6.2  **ENSURE** the following breaker position at DP-101, DISTRIBUTION PANEL as indicated:

<table>
<thead>
<tr>
<th>Breaker</th>
<th>Description</th>
<th>Position</th>
<th>Check Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/3</td>
<td>220V Tank Heater</td>
<td>O/OFF</td>
<td></td>
</tr>
</tbody>
</table>

5.15.6.3  **POSITION** site disconnect switch providing power to the unit, to OFF/DE-ENERGIZED.

a.  **DISCONNECT** electrical cable from the site power source.

b.  **DISCONNECT** grounding electrode conductor.
5.16 Winterize Emergency Shower

5.16.1 DRAIN Emergency Shower tank and system per Section 5.12 per Shift Manager/OE direction.

5.16.2 DRAIN shower plumbing lines per Section 5.14.

5.16.3 NOTIFY maintenance that shower winterization/draining is required.

5.16.4 ENSURE the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Label/Location</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>*V-102</td>
<td>RECIRC PUMP INLET VALVE</td>
<td>OPEN</td>
<td>✓</td>
</tr>
<tr>
<td>*V-101</td>
<td>TANK DRAIN VALVE</td>
<td>CLOSED</td>
<td>✓</td>
</tr>
<tr>
<td>*V-103</td>
<td>SUMP DRAIN VALVE</td>
<td>CLOSED</td>
<td>✓</td>
</tr>
<tr>
<td>*V-104</td>
<td>WATER SUPPLY FILTER DRAIN VALVE</td>
<td>CLOSED</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.16.5 IF winterizing Unit 001 through Unit 008, ENSURE the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S1</td>
<td>P-101 MAIN SUPPLY PUMP DISCONNECT</td>
<td>OFF</td>
<td>✓</td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td>✓</td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td>✓</td>
</tr>
</tbody>
</table>

5.16.6 IF winterizing Unit 009 through Unit 011, ENSURE the following lineup on emergency shower components:

<table>
<thead>
<tr>
<th>EIN</th>
<th>Description / Label</th>
<th>Position</th>
<th>Check ✓ Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>“PUSH TO ACTIVATE” button</td>
<td>Pulled OUT</td>
<td></td>
</tr>
<tr>
<td>S2</td>
<td>P-102 RECIRC PUMP DISCONNECT</td>
<td>OFF</td>
<td>✓</td>
</tr>
<tr>
<td>S3</td>
<td>HTR-102 ROOM HEATER DISCONNECT</td>
<td>OFF</td>
<td>✓</td>
</tr>
</tbody>
</table>
5.17 Records

5.17.1 PERFORM the following for records identified within this procedure.

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

OR

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

5.17.1.2 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>5.0 PROCEDURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.4.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.6.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.12.9.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.12.9.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.12.10.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.12.10.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.13.2.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.13.2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.13.3.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 5.13.3.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Site Forms

Site form A-6006-212

_________________________________________ / ______________________________________ / ______________________
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.
Figure 1: – Emergency Shower/Eyewash System Layout

Note - All equipment should be preceded with POR25X-EMER-
Where “X” is 1 to 8 for the corresponding shower units

S1 : P-101, MAIN SUPPLY PUMP Disconnect
S2 : P-102, RECIRC PUMP Disconnect
S3 : ROOM HEATER Disconnect
Emergency Shower Setup, Startup, Inspection and Shutdown

Figure 1: – Emergency Shower/Eyewash System Layout (Cont.)

600 Gal. Tank (TK-101)
End Cross View

Recirculation Pump

400 Gal Sump
Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)

End Cross View

Space Heater

Recirculation Pump

400 Gal Sump

Side Cross View

600 Gal. Tank (TK-101)

Space Heater (HTR-102)

400 Gal Sump

Compartmen
Plastic Curtain

Light

Shower

Eye Wash

Electrical Panel (DP-101)

Water Temperature Gauge

400 Gal. Sump

“Push To Activate” button

Double Acting Impact Doors

Emergency Light Beacon

Horn

600 Gal. Tank (TK-101)
Figure 2: – Emergency Shower/Eyewash System Piping Layout

Note - All equipment should be preceded with POR25X-EMER- Where “X” is 1 to 11 for the corresponding shower units

Note - Units 1 - 8 have a 600 Gallon water supply tank, Units 9 – 11 have a 400 water supply tank.

Main Supply Pump

Recirc Pump

Water Supply Tank

Tank Drain Valve

Drench Hose Valve

Push Plate Valve

Eye Wash

Sump Drain Valve

Water Supply Filter

Top Tank Hatch

Deluge Shower Valve

Level Switch

V-101

TK-101

P-101

V-102

400 Gal. Sump

P-102

V-103

V-104

 FLT-101

Water Supply Filter

Units 1 – 8 have a 600 Gallon water supply tank, Units 9 – 11 have a 400 water supply tank.
Figure 3 – Recirculation System

Note - All equipment should be preceded with POR25X-EMER-
Where “X” is 1 to 11 for the corresponding shower units.