Tank Farm Alarm Response Procedure

USQ # EV-18-1237-S, Rev. 0

**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>L-2</td>
<td>08/06/2018</td>
<td>Operations request</td>
<td>Removed References to RXS-ASCON, RXSARHVAC, RSH-ASCON from TOC page 1. Delete pages 5,6,11,15,18</td>
</tr>
<tr>
<td>L-1</td>
<td>10/16/2017</td>
<td>Operations request</td>
<td>Added new sub steps to NOTIFY Shift Manager in immediate actions.</td>
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<tr>
<td>L-0</td>
<td>04/06/2015</td>
<td>Periodic review</td>
<td>Updated drawing references.</td>
</tr>
<tr>
<td>K-4</td>
<td>12/02/2014</td>
<td>Operations request, no trends available.</td>
<td>Deleted steps to check current trends.</td>
</tr>
<tr>
<td>K-3</td>
<td>02/19/2014</td>
<td>Operations request to match field conditions.</td>
<td>Changed setpoint on alarm to reflect that it is calculated.</td>
</tr>
</tbody>
</table>

**242-A EVAPORATOR GRAPHIC #23 ALARM INDEX**

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Color</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSHAREVAP</td>
<td>...........................................EVAP ROOM AREA RAD HIGH ...........................................</td>
<td>RED</td>
<td>2</td>
</tr>
<tr>
<td>RSH-ARC4</td>
<td>...........................................COND RM 4TH LEVL AREA RADN HIGH ...........................................</td>
<td>RED</td>
<td>3</td>
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<tr>
<td>RSH-ARCB</td>
<td>...........................................COND RM BASEMENT AREA RAD HIGH ...........................................</td>
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<td>4</td>
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<tr>
<td>RSH-ARAMU</td>
<td>...........................................AMU ROOM AREA RAD HIGH ...........................................</td>
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<tr>
<td>RSH-ARHES</td>
<td>...........................................SLY SAMP &amp; LOADOUT AREA RAD HIGH ...........................................</td>
<td>RED</td>
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<tr>
<td>RXSAREVAP</td>
<td>...........................................EVAP ROOM AREA MON FAIL ...........................................</td>
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<td>9</td>
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<tr>
<td>RXS-ARC4</td>
<td>...........................................COND RM 4TH LEVEL AREA MON FAIL ...........................................</td>
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<td>RXS-ARCB</td>
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<td>RXS-ARAMU</td>
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<tr>
<td>RXS-ARHES</td>
<td>...........................................SLY SAMP &amp; LOADOUT AREA MON FAIL ...........................................</td>
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<td>13</td>
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<tr>
<td>FSH-SW-1</td>
<td>...........................................SAFETY SHOWER FLOW STATUS ...........................................</td>
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<td>14</td>
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</tbody>
</table>

**RECORDS**

No records are generated during the performance of this procedure.

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.
Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A  Setpoint: 100 mR/hr
Source: RIAs-AR-6

Alarm Class: Area Status
Alarm Description: EVAP ROOM AREA RAD HIGH (G23, F41); there is High Radiation in the Evaporator Room. This Radiation Detector is only active when the Evaporator is shut down and Maintenance will be occurring in the Evaporator Room. This radiation detector is a Portable Detector installed when maintenance activity is occurring in the evaporator room.

This alarm is Out of Service

Automatic Actions: None

Immediate Actions: None

Probable Causes: None

References: None
### Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator  
**Graphic:** 23  
**Panel:** N/A  
**Source:** RIAS-AR-2  
**Setpoint:** 5.0 mR/hr

<table>
<thead>
<tr>
<th>Alarm Class</th>
<th>RED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm #</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Panel:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Source:</strong></td>
<td>RIAS-AR-2</td>
</tr>
<tr>
<td><strong>Setpoint:</strong></td>
<td>5.0 mR/hr</td>
</tr>
</tbody>
</table>

**Alarm Description:** COND RM 4TH LEVL AREA RADN HIGH (G23, F41); the dose rate in the Condenser Room 4th Level is above the High Alarm setpoint.

### Automatic Actions:
1. Activates Audible Alarms in the Condenser Room and on RI-AR-C4.

### Immediate Actions:
1. **EVACUATE** all personnel from Condenser Room.
2. **IF** multiple area radiation and/or continuous air monitor alarms occur, **PERFORM** the following:
   1. **EXIT** this Alarm Response.
   2. **NOTIFY** Shift Manager.
   3. **GO TO** TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release.
3. **CHECK** Current Trend display #36 RI-AR-C4 COND RM 4TH LEVL AREA RADN for recent dose rate changes.
4. **NOTIFY** HPT.
5. **SECURE** access into Condenser Room to prevent unauthorized entry until released by HPT.

### Probable Causes:
1. High radiation levels in Condenser Room (4th Level).
2. Ongoing maintenance PM.
3. Instrument malfunction.

### References:
- **Drawings:** H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4 and 21
- **Documents:** TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-1  Setpoint: 30 mR/hr

Alarm Class: Area Status
Alarm Description: COND RM BASEMENT AREA RAD HIGH (G23, F41); the dose rate in the Condenser Room Basement is above the High Alarm setpoint.

Automatic Actions:
1. Activates audible alarms in the Condenser Room and on RI-AR-CB.

Immediate Actions:
[1] EVACUATE all personnel from Condenser Room.
[2] IF multiple area radiation and/or continuous air monitor alarms occur, PERFORM the following:
  [2.1] EXIT this Alarm Response.
  [2.2] NOTIFY Shift Manager.
[4] NOTIFY HPT.
[5] SECURE access into Condenser Room to prevent unauthorized entry until released by HPT.

Probable Causes:
1. High radiation levels in Condenser Room basement.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:
Drawings: H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4, 16, and 21
Documents: TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release
**Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator**

Facility: 242-A Evaporator

**Graphic:** 23  **Alarm #:** N/A

**Panel:** N/A

**Source:** RIAS-AR-3  **Setpoint:** 5.0 mR/hr

**Alarm Class:** Area Status

**Alarm Description:** AMU ROOM AREA RAD HIGH (G23, F41); the dose rate in the AMU Room is above the High Alarm setpoint.

**Automatic Actions:**

1. Activates audible alarms in the AMU Rooms and RI-AR-AMU.

**Immediate Actions:**

1. **EVACUATE** all personnel from AMU Room.
2. **IF** multiple area radiation and/or continuous air monitor alarms occur, **PERFORM** the following:
   2.1 **EXIT** this Alarm Response.
   2.2 **NOTIFY** Shift Manager.
   2.3 **GO TO** TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release.
3. **CHECK** Current Trend display #37 RI-AR-AMU, AMU ROOM AREA RADN for recent dose rate changes.
4. **NOTIFY** HPT.
5. **SECURE** access into AMU Room to prevent unauthorized entry until released by HPT.
6. **IF** Current Trend display #37 RI-AR-AMU, AMU ROOM AREA RADN indicates radiation levels greater than or equal to 5.0 mR/hr, **NOTIFY** Shift Manager of plant conditions and that emergency classifications/notifications needs to be evaluated/performed.

(Continued on Next Page)
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-3  Setpoint: 5.0 mR/hr

Probable Causes:
1. High radiation levels in AMU Room.
2. Ongoing maintenance PM.
3. Instrument malfunction.
4. Radio transmitter too close to alarm.
5. Loss of Evaporator confinement

References:
- Drawings: H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4, 16, and 21
- Documents: TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release
  DOE-0223, Emergency Plan Implementing Procedures Recognizing &
  Classifying Emergencies
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 23       Alarm #: N/A
Panel: N/A
Source: RIAS-AR-8    Setpoint: 35 mR/hr

Alarm Class: Area Status
Alarm Description: SLY SAMP & LOADOUT AREA RAD HIGH (G23, F42); the dose rate for the Slurry Sampler area and/or the Loadout Room is above the High Alarm setpoint.

Automatic Actions:
1. Activates audible alarms in the Sample and Loadout area and RI-ARHES.

Immediate Actions:
[1] IF multiple area radiation and/or continuous air monitor alarms occur, PERFORM the following:
   [1.1] EXIT this Alarm Response.

   NOTE - Feed or slurry sampling could activate the alarm.
[2] IF sampling activities are going on when alarm activates, CONTACT sampling crew to determine the following:
   [2.1] CHECK dose rates within Loadout and Slurry Sampler Area are within allowed RWP limits for slurry sampling activity.
   [2.2] NOTIFY Shift Manager.
   [2.3] IF dose rates are within RWP limits, EXIT this Alarm Response.
[3] EVACUATE all personnel from Loadout and Pump Rooms.
[4] CHECK RI-ARHES (G23, F42) SLY SAMP and LOADOUT AREA RADN Current Trend trace for recent dose rate changes:
[5] NOTIFY HPT.
[6] SECURE access into the Loadout and Pump Rooms to prevent unauthorized entry until released by HPT.

(Continued on Next Page)
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-8  Setpoint: 35 mR/hr

Probable Causes:
1. High radiation levels in the Loadout Room and/or Pump Room.
2. Ongoing maintenance PM.
3. Instrument malfunction

References:
Drawings: H-2-99059 Sheet 10, H-2-99085 Sheets 4 and 21
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23      Alarm #: N/A
Panel: N/A
Source: RIAS-AR-6  Setpoint: N/A

Alarm Class: Equipment Status

Alarm Description: EVAP ROOM AREA MON FAIL (G23, F41); the Evaporator Room Area Radiation Monitor has failed. This Radiation Detector is only installed and active when the Evaporator is shut down and Maintenance will be occurring in the Evaporator Room.

This alarm is Out of Service

Automatic Actions:

None

Immediate Actions:

None

Probable Causes:

None

References:

None
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms
at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23                  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-2           Setpoint: N/A

Alarm Class: Equipment Status

Alarm Description: COND RM 4TH LEVEL AREA MON FAIL (G23, F41); the Condenser Room 4th Level Area Radiation Monitor has failed.

Automatic Actions:

1. An Audible alarm is received on RXS-ARC-4

Immediate Actions:

[1] NOTIFY Shift Manager.
[2] AS directed by Shift Manager, PERFORM the following:
   [2.2] CHECK Current Trend #36 RI-AR-C4 COND RM 4TH LEVL AREA RADN traces for recent radiation level increases.
   [2.3] IF RI-AR-C4 reads 0, NOTIFY HPT that the Condenser Room 4th Level area radiation monitor has failed.

Probable Causes:

1. Failure of Condenser Room 4th Level area radiation monitor.
2. Instrument malfunction.

References:

Drawings: H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4, 16, and 21
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-1  Setpoint: N/A
Alarm Class: Equipment Status
Alarm Description: COND RM BASEMENT AREA MON FAIL (G23, F41); the Condenser Room Basement Area Radiation Monitor has failed.

Automatic Actions:
1. An audible alarm is received on RXS-AR-CB.

Immediate Actions:
[1] NOTIFY Shift Manager.
[2] AS directed by Shift Manager, PERFORM the following:
   [2.1] CHECK RI-AR-CB (G23, F41) COND RM BASEMENT AREA RADN radiation reading.
   [2.2] CHECK Current Trend #36 RI-AR-CB COND RM 4TH LEVLAREA RADN traces for recent radiation level increases.
   [2.3] IF RI-AR-CB reads 0, NOTIFY HPT that the Condenser Room basement area radiation monitor has failed.

Probable Causes:
1. Failure of Condenser Room basement area radiation monitor.
2. Instrument malfunction.

References:
Drawings: H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4, 16, and 21
Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-3  Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: AMU ROOM AREA MON FAIL (G23, F41); the AMU Room Area Radiation Monitor has failed.

Automatic Actions:
1. An audible alarm is received on RXS-ARAMU.

Immediate Actions:
[1] NOTIFY Shift Manager.
[2] AS directed by Shift Manager, PERFORM the following:
   [2.1] CHECK RI-AR-AMU (G23, F41) AMU ROOM AREA RADN radiation reading.
   [2.2] CHECK Current Trend #37 RI-ARAMU, AMU ROOM AREA RADN traces for recent radiation level increases.
   [2.3] IF RI-AR-AMU reads 0, NOTIFY HPT the AMU Room area radiation monitor has failed.

Probable Causes:
1. Failure of AMU Room area radiation monitor.
2. Instrument malfunction.

References:
Drawings: H-2-99059, Sheet 10, Zone E-7; H-2-99085, Sheets 4, 16, and 21
Respond to Radiation Monitoring K1 Ventilation Graphic #23 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 23  Alarm #: N/A
Panel: N/A
Source: RIAS-AR-8  Setpoint: N/A
Alarm Class: Equipment Status
Alarm Description: SLY SAMP & LOADOUT AREA MON FAIL (G23, F42); the Area Radiation Monitor for the Slurry Sampler and Loadout Rooms has failed.

Automatic Actions:
1. An audible alarm is received on RXS-ARHES.

Immediate Actions:
[1] NOTIFY Shift Manager.
[2] AS directed by Shift Manager, PERFORM the following:
   [2.1] CHECK RI-ARHES (G23, F42) SLY SAMP & LOADOUT AREA RADN radiation reading.
   [2.2] CHECK Current Trend #37 RI-ARHES SLY SAMP & LOADOUT AREA RADN traces for recent radiation level increases.
   [2.3] IF RI-ARHES reads 0, NOTIFY HPT that the Slurry Sampler and Loadout Room area radiation monitor has failed.

Probable Causes:
1. Failure of Slurry Sampler and Loadout Room area radiation monitor.
2. Instrument malfunction.

References:
Drawings: H-2-99059 Sheet 10, H-2-99085 Sheets 4 and 21
Facility: 242-A Evaporator  
Graphic: 23  
Alarm #: N/A  
Panel: N/A  
Source: FSH-SW-1  
Setpoint: N/A  
Alarm Class: Personnel Safety  
Alarm Description: SAFETY SHOWER FLOW STATUS (G23, F44).

Automatic Actions:
1. An audible alarm is received on FSH-SW-1.

Immediate Actions:

[1] CHECK safety showers at following locations for personnel needing assistance AND TAKE appropriate action:
- AMU Room near airlock door.
- Condenser Room Basement.
- Condenser Room 4th Level.

Probable Causes:
1. At least one safety shower or eyewash station is being used by injured personnel.
2. Loose electrical wire.
4. Loss of electric power to circuit C14-H.
5. Instrument malfunction.

References:
Drawings: H-2-829563, Sheet 2 (P&ID); H-2-99085, Sheet 11 (Electrical Elementary)