# Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

## Tank Farm Alarm Response Procedure

242-A Evaporator

## 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>G-7</td>
<td>01/03/2019</td>
<td>WRPS-PER-2016-1001</td>
<td>The high alarm set points for tags CI-STM-1 modified from 8.5 to 50 USCM (CI-STM-1)</td>
</tr>
<tr>
<td>G-6</td>
<td>07/10/2018</td>
<td>Inconsequential Change</td>
<td>Updated Drawing number zone and Drawing number.</td>
</tr>
<tr>
<td>G-5</td>
<td>06/14/2017</td>
<td>242-A Rad Monitor Upgrade Project</td>
<td>Update Terms and Definitions. Update RI-RC1-1 Alarm. Delete RI-RC1-1 (HW) Alarm. Update RXA-RC1-1 Alarm</td>
</tr>
<tr>
<td>G-4</td>
<td>05/11/2017</td>
<td>242-A Rad Monitor Upgrade Project</td>
<td>RI-RC1-1 change setpoint from 80 cps to 3.2 cps Added New Alarm RI-RC1-1 (HW)</td>
</tr>
<tr>
<td>G-3</td>
<td>04/17/2017</td>
<td>242-A Rad Monitor Upgrade Project</td>
<td>Pages 3-5 Struck out Alarm RSH-EA1-1 completely. Pages 6 &amp; 7 modified from RSH to RI, source from RSH to RM Page 8 modified from RSH to RM, source from RIAS to RM Added two new steps [14] &amp; [15] Struck out step [17] Page 9 modified from RSH to RI, source from RIAS to RM Page 13 modified from YELLOW to RED, source from RIAS to RM. Modified automatic Actions from none to &quot;Activates Interlock 58&quot; &quot;Positions HV-RC1-3 to CF-DVRT (G14, F30) after &gt; 5 Seconds.&quot; Modified immediate action 1 RIAS to RM, struck out &quot;Radiation Monitor Cabinet in the Control Room&quot; ADDED &quot;Condenser Room 1st floor.&quot; Page 14 modified from YELLOW to RED, source from RIAS to RM. Modified Supplemental action RIAS to RM. Added possible cause #2 &quot;Open loop/short circuit detected for RI RC1-1 or RXA-RC1-1.&quot; Page 20 Struck out Immediate Action #2 and sub steps Page 21 Struck out Immediate Action #6 Page 22 modified RSH to RI Pages 24, 27, 31 and 33 Modified immediate action #1 RSH to RI and options in step.</td>
</tr>
</tbody>
</table>

## 242-A EVAPORATOR GRAPHIC #14 ALARM INDEX

<table>
<thead>
<tr>
<th>Alarm #</th>
<th>Description</th>
<th>Color</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI-RC1-1</td>
<td>SC SAMPLER RADN</td>
<td>RED</td>
<td>4</td>
</tr>
<tr>
<td>RC1-PIG</td>
<td>SC SAMPLER FLOW LOW</td>
<td>YELLOW</td>
<td>11</td>
</tr>
<tr>
<td>RXA-RC1-1</td>
<td>SC RAD SYSTEM FAIL</td>
<td>RED</td>
<td>14</td>
</tr>
<tr>
<td>LSL-RC1-1</td>
<td>WEIR BOX LEVEL LOW</td>
<td>YELLOW</td>
<td>17</td>
</tr>
<tr>
<td>LSL-C1031</td>
<td>WEIR BOX OVERFLOW TRAP LEVEL LO</td>
<td>YELLOW</td>
<td>19</td>
</tr>
<tr>
<td>LSL-C1032</td>
<td>WEIR BOX SC-LINE TRAP LEVEL LO</td>
<td>YELLOW</td>
<td>20</td>
</tr>
<tr>
<td>ZS-EA1-2D</td>
<td>STEAM CONDENSATE DIVERTED TO 102AW</td>
<td>YELLOW</td>
<td>22</td>
</tr>
<tr>
<td>ZS-RC1-3D</td>
<td>STEAM CONDENSATE DIVERTED TO 102AW</td>
<td>YELLOW</td>
<td>24</td>
</tr>
<tr>
<td>AI-STM-1</td>
<td>(HIGH) AI-STM-1 STEAM CONDSATE PH</td>
<td>YELLOW</td>
<td>26</td>
</tr>
<tr>
<td>AI-STM-1</td>
<td>(LOW) AI-STM-1 STEAM CONDSATE PH</td>
<td>YELLOW</td>
<td>28</td>
</tr>
</tbody>
</table>
**Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator**

<table>
<thead>
<tr>
<th>Description</th>
<th>Color</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI-RC1-1A AVERAGE STEAM CONDSATE FLOW</td>
<td>YELLOW</td>
<td>30</td>
</tr>
<tr>
<td>RC1-1A AVERAGE STEAM CONDSATE FLOW</td>
<td>YELLOW</td>
<td>31</td>
</tr>
<tr>
<td>CI-STM-1 STEAM CONDSATE CONDUCTIVITY HIGH (G14, F31/12)</td>
<td>YELLOW</td>
<td>32</td>
</tr>
<tr>
<td>RCI-STM-1 STEAM CONDSATE CONDUCTIVITY HIGH (G14, F31/12)</td>
<td>YELLOW</td>
<td>33</td>
</tr>
<tr>
<td>RCI-STM-1 STEAM CONDSATE CONDUCTIVITY HIGH (G14, F31/12)</td>
<td>YELLOW</td>
<td>34</td>
</tr>
</tbody>
</table>

**RECORDS**

No records are generated during the performance of this procedure.
1.0 PURPOSE

1.1 This attachment provides guidance to operators for responding to alarms associated with the Steam Condensate Graphic #14 Alarms at the 242-A Evaporator.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Terms and Definitions
Hardware Alarm – Monitoring & Control System detected an instrument hardware / communication problem.

Alarm Description contains the following terms:

<table>
<thead>
<tr>
<th>Analog Inputs (AI)</th>
<th>Digital Inputs (DI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBAD</td>
<td>BAD</td>
</tr>
<tr>
<td>RANG</td>
<td></td>
</tr>
<tr>
<td>OVER</td>
<td></td>
</tr>
<tr>
<td>IBAD</td>
<td></td>
</tr>
<tr>
<td>UNDR</td>
<td></td>
</tr>
<tr>
<td>OCD</td>
<td></td>
</tr>
<tr>
<td>TMR</td>
<td></td>
</tr>
<tr>
<td>CNTR</td>
<td></td>
</tr>
</tbody>
</table>
Facility: 242-A Evaporator

Graphic: 14, 151  Alarm #: N/A

Panel: N/A

Source: RM-RC1-1  Setpoint:

Alarm State: (HI) - 16 cps
Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem

Alarm Class: Environmental Impact

The RC-1 steam condensate radiation monitoring/diversion system shall be OPERABLE. The RC-1 system may be inoperable for less than or equal to 1 hour.

Alarm Description: Alarm State: (HI)

SC SAMPLER RADN (G151, F30); radiation in Steam Condensate Sampler RC-1 is above the high alarm setpoint.

Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)

SC SAMPLER RADN (G151, F30); the MCS has detected a hardware problem with RM-RC1-1 Steam Condensate Radiation Monitor system.

Automatic Actions:

Alarm State: (HI)

   • Positions HV-EA1-2/(G14/9, F30) STEAM CONDSATE DIVERT VALVE to DIVERT
   • Positions HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE to DIVERT
   • Closes FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE
   • Opens HV-EA1-3/PROCESS AIR TO REBOILER ISOLATION VALVE to allow 18 psig air into reboiler chest
   • Positions the following valves to their normal positions:
     - HV-RC1-1/RC-1 SAMPLE DIVERT/BYPASS VALVE goes to NORMAL (flow through pig)
     - HV-RC1-2/RC-1 PIG DRAIN CLOSES
     - HV-RC1-4/RC-1 FLUSH FUNNEL ISOLATION CLOSES.
   • Deactivates FQI-RC1NM, (F31) WEIR BOX FLOW TOTALIZR (x10)
   • Activates FQI-RC1-D, DIVERTED SC TOTALIZR (x10) (F31).

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14       Alarm #: N/A
Panel: N/A
Source: RM-RC1-1

Setpoint:
Alarm State: (HI) - 16 cps
Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem

(Continued)

Automatic Actions:

Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)

1. Activates software Interlock #58 – (G151) “ILK58 (SC)”;
   • Positions HV-RC1-3 CF-DVRT (G151) after > 5 Seconds.

Immediate Actions:

[1] EVALUATE alarm state for the following:
   OR
   IF Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)
   PERFORM Steps [4] through [4.7].

Alarm State: (HI)

[2] PERFORM the following for Alarm State (HI):

[3] IF multiple area radiation and/or continuous air monitor alarms occur, EXIT this ARP AND
   GO TO TF-ERP-EVAP-005.
   NOTE - The sudden loss of boil off caused by FV-EA1-1 closing will result in erratic
   Weight Factor (WF) reading, which may cause PB-1 to shut down.

   [3.1] IF PB-1 SHUTS DOWN, PLACE PB1-BYPAS (G12/8, F5) into BYP-ON status.
   [3.2] RESTART the PB-1 pump.
   [3.3] IF PB-1 will not restart, at SM direction EMPTY C-A-1 vessel per TO-600-060.
   [3.4] CHECK that HV-EA1-2 (G14/9, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT.

   [3.4.1] IF HV-EA1-2 status is not CF-DVRT, PLACE HV-EA1-2 to CF-DVRT status.

(Continued on Next Page)
Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A  Setpoint:

<table>
<thead>
<tr>
<th>Alarm State:</th>
<th>(HI) - 16 cps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm State:</td>
<td>(OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem</td>
</tr>
</tbody>
</table>

Immediate Actions (Cont.):

[3.4.2] **IF** HV-EA1-2 status does not change to CF-DVRT, **REQUEST** the Backside Operator reposition HV-EA1-2 Isolation valve 2-9 to CLOSED.

[3.5] **CHECK** that HV-RC1-3 (G14/9, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT.

[3.5.1] **IF** HV-RC1-3 (G14/9, F30) is not CF-DVRT, **PLACE** HV-RC1-3 into CF-DVRT status.

[3.5.2] **IF** HV-RC1-3 status does not change to CF-DVRT, **REQUEST** the Backside Operator **CLOSE** the following Sample Cooler raw water supply valves:

- 2-6
- 2-7.

[3.6] **CHECK** that FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE is CLOSED as follows:

[3.6.1] **ENSURE** that FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status is INTERLOK and STM OFF.

[3.6.2] **ENSURE** that ZI-EA1-1 (F12) REBOILER STM FLOW VALVE POSITION indicates approximately 0%.

[3.6.3] **ENSURE** that ZS-EA1-1C (F12) REBOILER 10# STM FLO VALV CLOSED status is CLOSED.

[3.6.4] **ENSURE** HV-EA1-4 (G14/1, F30) STEAM CONDSATE BLOCK VALVE closes approximately 5 minutes after FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status changes to STM OFF.

[3.7] **IF** FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE does not indicate AIR ON status, **PLACE** FV-EA1-1 into STM OFF status.

[3.7.1] **RECHECK** the status of the EPNs per Step [3.6].

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A
Source: RM-RC1-1  Setpoint: RI-RC1-1

Alarm State: (HI) - 16 cps
Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem

Immediate Actions (Cont.):

[3.8] IF FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE will not close, REQUEST the Backside Operator to CLOSE FV-EA1-1 Isolation valve H-30, located in the HVAC Room.

[3.9] ENSURE HV-EA1-3 REBOILER AIR VALVE indicates AIR ON status.
    [3.9.1] NOTIFY Shift Manager if HV-EA1-3 REBOILER AIR VALVE does NOT indicate AIR ON.

[3.10] CHECK Condenser Room for elevated area radiation levels as follows:
    [3.10.1] PRESS CURR TREND, 36 AND PRESS ENTER.
    [3.10.3] NOTIFY Shift Manager and HPT of any increased radiation levels.

[3.11] NOTIFY Shift Manager that a steam condensate sample will need to be taken per TO-630-040 when resources are available and it is safe to do so.

[3.12] PLACE Evaporator in Recirculation without vacuum per TO-600-060.
    [3.12.1] IF PB-1 is not running, SET PB1-BYPASS (G12/8, F5) to BYP ON status.
    OR
    IF cannot be restarted at SM direction, EMPTY C-A-1 vessel per TO-600-060.

[3.13] FLUSH RC-1 pig per TO-630-220.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

<table>
<thead>
<tr>
<th>Graphic</th>
<th>Panel</th>
<th>Source</th>
<th>Setpoint</th>
<th>Alarm State</th>
<th>Alarm State</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>N/A</td>
<td>RM-RC1-1</td>
<td>RI-RC1-1</td>
<td>(HI) - 16 cps</td>
<td>(OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)</td>
</tr>
</tbody>
</table>

**Immediate Actions (Cont.):**

3.14 IF the RC-1 system cannot be restored within 1 hour, EMPTY C-A-1 vessel per TO-600-060.

3.15 NOTIFY ETF Control Room of the process disruption due to activation of the steam condensate sampler radiation high alarm.

3.16 GO TO step [5]

**Alarm State:** (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)

[4] PERFORM the following for Alarm State (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR):

4.1 CHECK that HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT.

4.1.1 IF HV-RC1-3 (G14/9, F30) is not CF-DVRT, PLACE HV-RC1-3 into CF-DVRT status.

4.1.2 IF HV-RC1-3 status does not change to CF-DVRT, REQUEST the Backside Operator CLOSE the following Sample Cooler raw water supply valves:

- 2-6
- 2-7.

4.2 PLACE the Evaporator in Recirculation without vacuum mode per TO-600-060.

4.3 Shift Manager CONTACT Engineering to coordinate troubleshooting and repair of radiation monitor loop.

4.4 NOTIFY ETF Control Room of the process disruption due to activation of the steam condensate sampler radiation system failure.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel:  N/A
Source: RM-RC1-1  Setpoint:

Alarm State: (HI) - 16 cps
Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem

Immediate Actions (Cont.):

[4.5]  IF alarm clears in less than 12 hours, GO TO step [5].
[4.6]  IF alarm is active for 12 hours, per SM direction, EMPTY the C-A-1 vessel per TO-600-060.
[4.7]  GO TO step [5].

Supplemental Actions:

Alarm State: (HI) or (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)

[5]  REQUEST Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of the steam condensate sampler radiation high alarm (RI-RC1-1) or RC1 system failure.
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A  Setpoint:

Source: RM-RC1-1  Alarm State: (HI) - 16 cps

Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR) - Hardware problem

Possible Causes:

Alarm State: (HI)
1. Reboiler tube leak.
2. Excess radiation in Steam Condensate.
3. Line noise affecting MCS reading.
5. Ongoing maintenance PM.

Alarm State: (OBAD, RANG, TMR, OVER, OCD, IBAD, UNDR or CNTR)
6. Detector malfunction.
7. Open loop/short circuit detected for RI-RC1-1 or RXA-RC1-1.
8. Loss of power to RC-1.
10. Ongoing maintenance PM.

References:

Drawings:  H-2-69332; H-2-98992, Zone E-8; H-2-98993, Zones B-4, C-5, C-6, and E-5; H-2-98995, Sheets 1 and 2

Documents:  TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release
TF-AOP-EVAP-009, Response to Process Upset
TO-600-060, Shut Down 242-A Evaporator System
TO-630-040, Sample 242-A Steam Condensate
TO-630-220, Flush RC-1 Monitoring Pig
Facility: 242-A Evaporator

Graphic: 14   Alarm #: N/A
Panel: N/A
Source: FIAS-RC1-1   Setpoint: 0.3 GPM

Alarm Class: Environmental Impact
The RC-1 steam condensate radiation monitoring/diversion system shall be OPERABLE.

Alarm Description: SC SAMPLER FLOW LOW (F30); the flowrate through the RC1 Steam Condensate Sampler is below the Low Flow Alarm Setpoint.

Automatic Actions: None

Immediate Actions:

[1] IF Evaporator is SHUT DOWN, CHECK that RC1-PIG is inhibited (F92).

[1.1] IF Alarm is not inhibited, NOTIFY SM that this alarm needs to be INHIBITED.

[1.2] EXIT this ARP.

[2] CHECK that YS-P-RC1 (F30/10) P-RC1 SC SAMPL PUMP CONFIRM status is ON.

[3] IF YS-P-RC1 status is not ON, ATTEMPT to start P-RC-1 as follows:

[3.1] SET RC1-SAMP (G14/8, F30/4) STEAM CONDSATE SAMPLER SYSTEM to CF-ON status.

[3.2] CHECK that RC1-SAMP status changes to CF-ON.

[4] IF RC1-SAMP status changes to CF-ON and this Alarm resets, NOTIFY the Shift Manager AND EXIT this ARP.

[5] IF RC1-SAMP Alarm does not reset, PERFORM the following actions:

[5.1] NOTIFY the Shift Manager.

[5.2] REQUEST the Backside Operator check for flow through Rotameter FIAS-RC1-1, located on the 2nd level of the Condenser Room.

[6] IF Rotameter FIAS-RC1-1 shows flow greater than 0.33 gpm, ENSURE the flow through FIAS-RC1-1 is greater than 0.33 gpm once per hour until this Alarm is reset.

(Continued on Next Page)
Immediate Actions (Cont.):

NOTE - Sometimes a bubble of air gets caught in the sample tubing. Switching the sample pump off then on again sometimes can remove this air pocket and re-establish flow through the sampler.

[7] IF flow cannot be maintained greater than 0.33 gpm, PERFORM the following to attempt re-establish flow through the sampler:

[7.1] SET RC1-SAMP (G14/8, F30/4) STEAM CONDENSATE SAMPLER SYSTEM to CF-OFF status.

[7.2] CHECK that RC1-SAMP status changes to CF-OFF.

[7.3] SET RC1-SAMP (G14/8, F30/4) STEAM CONDENSATE SAMPLER SYSTEM to CF-ON status.

[7.4] CHECK that RC1-SAMP status changes to CF-ON.

[7.5] IF the alarm resets, NOTIFY management AND EXIT this ARP.

[8] IF Rotameter FIAS-RC1-1 shows flow less than 0.33 gpm, PERFORM the following:

[8.1] ADJUST valve RC1-18 until the flow through FIAS-RC1-1 is greater than 0.3 gpm.

[8.2] AFTER flow through FIAS-RC1-1 reads greater than 0.33 gpm, CONFIRM this alarm has reset.

[8.3] IF Rotameter FIAS-RC1-1 shows flow greater than 0.33 gpm AND IF the alarm has not reset, ENSURE the flow through FIAS-RC1-1 is greater than 0.33 gpm once per hour until this Alarm is reset.

[9] IF Rotameter FIAS-RC1-1 does not show flow greater than 0.33 gpm, PERFORM Steps [10] through [13] to stop transfer of Steam Condensate to TEDF.

[10] CHECK that HV-RC1-3 (G14/10, F30/7) STEAM CONDENSATE DIVERT VALVE status is CF-DVRT.

[11] IF HV-RC1-3 (G14/10, F30/7) STEAM CONDENSATE DIVERT VALVE status is not CF-DVRT, SET HV-RC1-3 to CF-DVRT status.

[11.1] CHECK that HV-RC1-3 status changes to CF-DVRT.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  
Alarm #: N/A

Panel: N/A  
Source: FIAS-RC1-1  
Setpoint: 0.3 GPM

Immediate Actions (Cont.):

[12] IF HV-RC1-3 status does not change to CF-DVRT, **CLOSE** the following Sample Cooler raw water supply valves:
   - 2-6
   - 2-7.

[13] **PLACE** the Evaporator in recirculation with vacuum mode per TO-600-060 **AND REPAIR** RC-1.

Supplemental Actions:


[15] **REQUEST** Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of the steam condensate divert or process disruption.

Possible Causes:

1. Sample line valve misalignment.
2. RC-1 Sample Pump malfunction.
3. Sample line leak.
4. Tank C-103 Weir Box Low Level.
5. Ongoing maintenance PM.

References:

Drawings:  H-2-98993, Zone C-6  
Documents:  TO-600-060, Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14, 151  Alarm #: N/A
Panel: N/A  Setpoint: Hardware problem
Source: RM-RC1-1

Alarm Class: Environmental Impact
The RC-1 steam condensate radiation monitoring/diversion system shall be OPERABLE. The RC-1 system may be inoperable for less than or equal to 1 hour.

Alarm Description: Alarm State: (CFN)
SC RAD SYSTEM FAIL (G151, F30); the RC-1 Steam Condensate Radiation Monitor system has failed.

Alarm State: (BAD)
SC SAMPLER RADN (G151, F30); the MCS has detected a hardware problem with RM-RC1-1 Steam Condensate Radiation Monitor system.

Automatic Actions: Activates Software Interlock # 58 – “ILK58 (SC)”
• Positions HV-RC1-3 to CF-DVRT (G151) after > 5 Seconds.

Immediate Actions:
[1] EVALUATE alarm state for the following:
   [1.1] IF Alarm State: (CFN), or (BAD) PERFORM Steps [2] through [2.7].

Alarm State: (CFN or BAD)
[2] PERFORM the following for Alarm State (CFN or BAD):
   [2.1] CHECK that HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT.

   [2.1.1] IF HV-RC1-3 (G14/9, F30) is not CF-DVRT, PLACE HV-RC1-3 into CF-DVRT status.

   [2.1.2] IF HV-RC1-3 status does not change to CF-DVRT, REQUEST the Backside Operator CLOSE the following Sample Cooler raw water supply valves:
   • 2-6
   • 2-7.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14  Alarm #: N/A
Panel: N/A
Source: RM-RC1-1  Setpoint: Hardware problem

Immediate Actions (Cont.):

[2.2]  **PLACE** Evaporator in Recirculation without vacuum per TO-600-060.
[2.2.1]  **IF** PB-1 is not running, **SET** PB1-BYPASS (G12/8, F5) to BYP ON status.
[2.2.2]  **RESTART** PB-1

**OR**

**IF** cannot be restarted at SM direction, **EMPTY** C-A-1 vessel per TO-600-060.

[2.3]  **NOTIFY** ETF Control Room of the process disruption due to activation of the steam condensate sampler radiation system failure.

**NOTE:** In the event of a hardware alarm at the radiation monitor, the green light on top of the instrument will begin to flash, and will continue to do so until the alarm has cleared itself or been manually acknowledged.

[2.4]  Shift Manager **CONTACT** Engineering to coordinate troubleshooting and repair of radiation monitor loop.

[2.5]  **IF** alarm clears in less than 12 hours, **GO TO** Step [3].

[2.6]  **IF** alarm is active for 12 hours, per SM direction, **EMPTY** the C-A-1 vessel per TO-600-060.

[2.7]  **GO TO** step [3].

(Continued on Next Page)
Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A
Source: RM-RC1-1  Setpoint: Hardware problem

Supplemental Actions:

Alarm State: (CFN) or (BAD)

[3] REQUEST Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of the steam condensate sampler radiation system failure.


Possible Causes:

1. Detector malfunction.
2. Open loop/short circuit detected for RI-RC1-1 or RXA-RC1-1.
3. Loss of power to RC-1.
5. Ongoing maintenance PM.

References:

Drawings: H-2-98993, Zones C-5 and C-6
Documents: TO-600-060, Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14    Alarm #: N/A
Panel: N/A
Source: LEL-RC1-1    Setpoint: 17 inches below top of weir wall

Alarm Class: Environmental Impact
Alarm Description: WEIR BOX LEVEL LOW (F31); Steam Condensate is going to TEDF and the low liquid level sensor in Tank C-103 weir box has sensed a low level.

Automatic Actions:
1. P-RC1-1, RC-1 STEAM CONDENSATE SAMPLE PUMP will shut down.

Immediate Actions:

[1] CHECK YS-P-RC1/P-RC-1 SC SAMPL PUMP CONFIRM (F30) status.

NOTE - Element LEL-RC1-1 receives power from Panel Board B, circuit breaker #26 which is the same circuit that powers P-RC-1 pump. If breaker #26 is “OFF” or has tripped, LSL-RC1-1 (Weir Box Level Low) alarm is expected.

[2] IF P-RC1-1/SC SAMPL PUMP status is OFF, CHECK Panel Board B, circuit breaker #26 to see if the breaker is OFF or has tripped AND NOTIFY Shift Manager of results.

[3] IF Panel Board B, circuit breaker #26 is ON and P-RC1-1/SC SAMPL PUMP is OFF NOTIFY Shift Manager of potential RC-1 Sampler System shutdown on Low Weir Box Level.

[4] IF Panel Board B circuit breaker #26 is “ON”, REQUEST the Backside Operator to check TK-C-103 Weir Box level locally.

[5] IF the Weir Box level is normal, REQUEST the Shift Manager to arrange for instrument troubleshooting.

[6] IF P-RC1 SC SAMPL PUMP is not ON, and Weir Box level returns to normal, START P-RC1 as follows:

[6.1] SELECT RC1-SAMP (F30) STEAM CONDENSATE SAMPLER SYSTEM.

[6.2] SELECT G14/8 SD-RESET to reset the Sampler.

[6.3] SELECT G14/8 START to start SAMPL PUMP.

[6.4] CHECK that RC1-SAMP status changes to status changes to CF-ON.


[8] STOP transfer of Steam Condensate to TEDF via SC-501 pipeline as follows:

[8.1] SET HV-RC1-3 (G14/10, F30) STEAM CONDENSATE DIVERT VALVE to CF-DVRT status.

[8.2] CHECK that HV-RC1-3 status changes to CF-DVRT.

(Continued on Next Page)
Immediate Actions (Cont.):

[9] IF HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status does not change to CF-DVRT, CLOSE the following Sample Cooler raw water supply valves:
   - 2-6
   - 2-7.

[10] PLACE the Evaporator in Recirculation with vacuum mode per TO-600-060 AND REPAIR RC-1.

[11] IF RC-1 is determined to be INOPERABLE and cannot be restored within 1 hour, and the Evaporator Vessel, C-A-1 was placed in Recirculation Mode AND IF troubleshooting or repair of the problem is anticipated to take longer than 12 hours, PLACE the Evaporator Vessel, C-A-1, in the EMPTY condition in accordance with procedure TO-600-060, at the Shift Manager's direction.

Supplemental Actions:


[13] REQUEST Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of the steam condensate divert or process disruption.

Possible Causes:

1. Low Steam Condensate Flow to TK-C-103.
2. TK-C-103 leak.
3. Leak in the sample piping.
4. Ongoing maintenance PM.
5. Instrument malfunction.
6. Panel Board B, circuit breaker #26 is “OFF” or has tripped.

References:

Drawings: H-2-98993, Zone C-3
Documents: TO-600-060 Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14 Alarm #: N/A
Panel: N/A
Source: LYL-C103-1 Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: WEIR BOX OVERFLOW TRAP LEVEL LO (F31); liquid level in the Tank C-103 overflow seal loop is low.

Automatic Actions: None

Immediate Actions:
[1] REQUEST the backside operator to fill the Overflow Trap Seal Loop as follows:
  [1.1] OBTAIN a container of water for filling overflow line trap.
  [1.2] OPEN valve 2-5A, TK-C-103 OVERFLOW LINE TRAP SEAL LOOP FUNNEL ISOLATION VALVE, located on the second floor of the Condenser Room.
  [1.3] ADD approximately 2 gallons of water to the Seal Loop through the funnel.
  [1.4] AFTER the Overflow Trap Seal Loop is full, CLOSE valve 2-5A, TK-C-103 OVERFLOW LINE TRAP FUNNEL ISOLATION VALVE.
[2] CHECK WEIR BOX OVERFLOW TRAP LEVEL LO (F31) alarm cleared.
[3] IF the alarm does not clear, NOTIFY the Shift Manager that the Level Sensor for the Tank C-103 Overflow Trap Seal Loop requires maintenance.

Possible Causes:
1. Instrument malfunction.
2. Ongoing maintenance PM.

References:
Drawings: H-2-98993, Sheet 1, Zone C-3
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Graphic: 14, 151  Alarm #: N/A
Panel: N/A
Source: LYL-C103-2  Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: WEIR BOX SC-LINE TRAP LEVEL LO (G14, F31); liquid level in line trap on 4 inch DR-502-M27 line is low.

Automatic Actions:
None

Immediate Actions:

[1] IF the Evaporator is SHUT DOWN, GO TO Step [6].
[2] CHECK HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status.
[3] IF HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT, NOTIFY the Shift Manager that Level Sensor LYL-103-2 for the Steam Condensate Line Trap level requires maintenance.
[4] IF HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status is CF-NORM, REQUEST Supervision direction to reposition HV-RC1-3 to divert.
[5] AFTER Supervision has directed HV-RC1-3 repositioning, POSITION HV-RC1-3 to divert as follows:
[5.1] SET HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE to CF-DVRT status.
[5.2] CHECK that HV-RC1-3 status changes to CF-DVRT.
[5.3] AFTER Alarm has reset, SET HV-RC1-3 to CF-NORM status.
[5.4] IF this Alarm will not reset, NOTIFY the Shift Manager that Level Sensor LYL-C103-2 for the Steam Condensate Line Trap level requires maintenance AND
SET HV-RC1-3 to CF-NORM.
[5.5] EXIT this ARP.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14 Alarm #: N/A
Panel: N/A Source: LYL-C103-2 Setpoint: N/A

YELLOW

LSL-C1032

(Continued)

Immediate Actions (Cont.):

[6] **ENSURE** HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE status is CF-DVRT.

[6.1] **REQUEST** the Backside Operator to add water to one of the following:

- Valve 2-5A funnel,
  **OR**
- TK-C-103 through the top of the tank,
  **OR**
- The Sample Cooler by overflow using valves 2-6 and 2-7.

[6.2] **IF** this Alarm does not reset after adding water to TK-C-103, **NOTIFY** the Shift Manager that Level Sensor LYL-C103-2 for the Steam Condensate Line Trap level requires maintenance.

[6.3] **SET** HV-RC1-3 to CF-NORM.

[6.4] **EXIT** this ARP.

Supplemental Actions:


[8] **REQUEST** Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of the steam condensate divert or process disruption.

Possible Causes:

1. Low Steam Condensate Line Trap level.
2. Instrument malfunction.
3. Ongoing maintenance PM.

References:

Drawings: H-2-98993, Sheet 1, Zone B-1
H-2-98995 Sheet 2, Zone C-4
Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A
Source: ZS-EA1-2D  Setpoint: HV-EA1-2 is Diverted
Alarm Class: Equipment Status
Alarm Description: STEAM CONDENSATE DIVERTED TO 102AW; steam condensate divert valve HV-EA1-2 (F30) is diverted.

Automatic Actions:
None

Immediate Actions:

[1] IF multiple Area Radiation, Continuous Air Monitor and/or Effluent Radiation Alarms (G-23) occur, EXIT this ARP AND GO TO TF-ERP-EVAP-005.

[2] CHECK RI-RC1-1/STEAM CONDENSATE RADN Current Trend trace for recent radiation changes as follows:

[2.1] PRESS CURR TREND, 33 AND PRESS ENTER.

[2.2] CHECK RI-RC1-1 Current Trend trace for recent radiation increases.

[3] CHECK Condenser Room for elevated area radiation levels as follows:

[3.1] PRESS CURR TREND, 36 AND PRESS ENTER.


[3.3] NOTIFY the Shift Manager and HPT of any increased radiation levels.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14 Alarm #: N/A
Panel: N/A
Source: ZS-EA1-2D Setpoint: HV-EA1-2 is Diverted

(Continued)

Immediate Actions (Cont.):

[4] IF RI-RC1-1 indicates excessive radiation above alarm setpoint, EXIT this Alarm Response AND

PROCCEED to Alarm Response RI-RC1-1/SC SAMPLER RADN on page 3 of this procedure.

[5] IF RI-RC1-1 does not indicate excessive radiation above alarm setpoints, PLACE HV-EA1-2 in the CF-NORM position as follows:

[5.1] SET HV-EA1-2 (G14/9, F30) STEAM CONDSATE DIVERT VALVE to CF-NORM status.

[5.2] CHECK that HV-EA1-2 status changes to CF-NORM.

Possible Causes:

1. Reboiler tube leak.
2. Ongoing maintenance PM.
3. Instrument malfunction

References:

Drawings: H-2-98993, Zone D-5
Documents: TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release TO-630-040, Sample 242-A Steam Condensate
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14  Alarm #: N/A
Panel: N/A
Source: ZS-RC1-3D  Setpoint: HV-RC1-3 is Diverted
Alarm Class: Equipment Status
Alarm Description: STEAM CONDENSATE DIVERTED TO 102AW; Steam condensate divert valve HV-RC1-3 (F30) is diverted.

Automatic Actions:
None

Immediate Actions:

[1] IF multiple Area Radiation, Continuous Air Monitor and/or Effluent Radiation Alarms (G-23) occur, EXIT this Alarm Response Procedure AND GO TO TF-ERP-EVAP-005.

[2] CHECK RI-RC1-1/STEAM CONDSATE RADN Current Trend trace for recent radiation changes as follows:

[2.1] PRESS CURR TREND, 33 AND PRESS ENTER.

[2.2] CHECK RI-RC1-1 Current Trend trace for recent radiation increases.

[3] CHECK Condenser Room for elevated area radiation levels as follows:

[3.1] PRESS CURR TREND, 36 AND PRESS ENTER.


[3.3] NOTIFY the Shift Manager and HPT of any increased radiation levels.


(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14 Alarm #: N/A
Panel: N/A
Source: ZS-RC1-3D Setpoint: HV-RC1-3 is Diverted

(Continued)

Immediate Actions (Cont.):

[5] IF RI-RC1-1 does not indicate active radiation alarm setpoints, ENSURE HV-EA1-2
AND HV-RC1-3 are in the CF-NORM position as follows:

[5.1] SET HV-EA1-2 (G14/9, F30) STEAM CONDSATE DIVERT VALVE to
CF-NORM status.

[5.2] CHECK that HV-EA1-2 status changes to CF-NORM.

[5.3] SET HV-RC1-3 (G14/10, F30) STEAM CONDSATE DIVERT VALVE to
CF-NORM status.

[5.4] CHECK that HV-RC1-3 status changes to CF-NORM.

Possible Causes:

1. Reboiler tube leak.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Drawings: H-2-98993, Zone C-2
Documents: TF-ERP-EVAP-005, 242-A Respond to Evaporator High Radiological Release
TO-630-040 242-A Steam Condensate
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14  Alarm #: N/A
Panel: N/A
Source: AI-STM-1  Setpoint: 8.5
Alarm Class: Environmental Impact
Alarm Description: AI-STM-1 STEAM CONDSATE PH HIGH (G14, F31). The pH of the steam condensate is above the HIGH alarm setpoint.

Automatic Actions:
None

Immediate Actions:

[1] IF RI-RC1-1 (F30) SC SAMPLER RADN status is RADN HI, RESPOND per Alarm RI-RC1-1 on page 3 of this procedure.

[2] CHECK that flow through FI-RC1-2 is approximately 0.2 gpm, ADJUST flow as necessary.

[3] IF adequate flow cannot be achieved VERIFY valve line up is correct.

[4] IF pH remains high, NOTIFY the Johnson Controls, LWPF Shift Manager, and TEDF operators of the high steam condensate pH alarm at the evaporator.

[5] TAKE a grab sample of the steam condensate as follows:
   [5.1] OPEN valve RC1-17 for 10 seconds to flush tygon tubing with steam condensate.
   [5.2] AFTER 10 seconds, CLOSE valve RC1-17.
   [5.3] PLACE sample container under outlet from valve RC1-17.
   [5.4] SLOWLY OPEN valve RC1-17 to begin filling sample container.
   [5.5] AFTER enough sample has been obtained for pH measurement, CLOSE valve RC1-17.

[6] MEASURE the pH of the steam condensate using a portable pH tester or litmus paper.


[8] IF pH indicated by portable tester or litmus paper is within 5.5 to 8.5 pH, NOTIFY Shift Manager of SC pH monitor problems AND MONITOR pH using Steps [5] and [6] once every 8 hours until pH monitoring system problem is corrected.

[9] IF the pH of the SC as indicated by the portable tester or litmus paper is not within allowable limits, on management’s direction, SHUTDOWN the Evaporator to Recirculation with Vacuum per TO-600-060.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A
Source: AI-STM-1  Setpoint: 8.5

Supplemental Actions:

[10] REQUEST Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of any abnormal pH readings or process disruption.

Possible Causes:

1. Ongoing maintenance PM.
2. Instrument malfunction.
3. Reboiler tube leak.
4. Johnson Controls process change or upset.
5. Disruption of flow to the pH instrument.

References:

Drawings: H-2-98993, Zone C-7
Documents: RPP-16922, Environmental Specification Requirements
TO-600-060, Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14       Alarm #: N/A
Panel: N/A       Source: AI-STM-1 Setpoint: 5.5
Alarm Class: Environmental Impact
Alarm Description: AI-STM-1 STEAM CONDSATE PH LOW (G14, F31). The pH of the steam condensate is below the LOW alarm setpoint.

Automatic Actions: None

Immediate Actions:

[1] IF RI-RC1-1 (F30) SC SAMPLER RADN HIGH activates, EXIT this Alarm Response AND
    RESPOND per Alarm RI-RC1-1 on page 3 of this procedure.
[2] CHECK that flow through FI-RC1-2 is approximately 0.2 gpm, AND
    ADJUST flow as necessary.
[3] IF adequate flow cannot be achieved VERIFY valve line up is correct.
[4] IF pH remains low, NOTIFY the LWPF Shift Manager of the low steam condensate pH alarm at the evaporator.
[5] TAKE a grab sample of the steam condensate as follows:
    [5.1] OPEN valve RC1-17 for 10 seconds to flush tygon tubing with steam condensate.
    [5.2] AFTER 10 seconds, CLOSE valve RC1-17.
    [5.3] PLACE sample container under outlet from valve RC1-17.
    [5.4] SLOWLY OPEN valve RC1-17 to begin filling sample container.
    [5.5] AFTER enough sample has been obtained for pH measurement, CLOSE valve RC1-17.
[6] MEASURE the pH of the steam condensate using a portable pH tester or litmus paper.
[8] IF SC pH as indicated by portable tester or litmus paper is within 5.5 to 8.5 pH, NOTIFY Shift Manager of the SC pH monitor problems AND
    MONITOR the pH using Steps [5] and [6] once every 8 hours until the pH monitoring system problem is corrected.
[9] IF the pH of the SC as indicated by the portable tester or litmus paper is not within allowable limits, then on management’s direction, SHUTDOWN the Evaporator to Recirculation with Vacuum per TO-600-060.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14       Alarm #: N/A
Panel: N/A
Source: AI-STM-1  Setpoint: 5.5

Supplemental Actions:

REQUEST Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of any abnormal pH readings or process disruption.

Possible Causes:

1. Ongoing maintenance PM.
2. Instrument malfunction.
3. Reboiler tube leak.
4. Disruption of flow to the pH instrument.

References:

Drawings: H-2-98993, Zone C-7
Documents: RPP-16922, Environmental Specification Requirements
           TO-600-060, Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A  Setpoint: 104 gpm
Source: FI-RC1-1  Alarm Class: Equipment status

Alarm Description: AVERAGE STEAM CONDENSATE FLOW (F31). The 5 minute average flowrate through the steam condensate system is above the high flow setpoint.

Automatic Actions:
None

Immediate Actions:

[1] CHECK FIC-EA1-1 (G13/8, F12) REBOILER STEAM FLOW.

[2] IF steam flow is less than 30,000 lb/hr, NOTIFY Shift Manager of discrepancies in the two flow readings AND

   CHECK the weir box locally for signs of the weir box not properly draining to TEDF.

NOTE - The flow reading is derived from the weir box level. A reading of >104 gpm indicates that the weir box has a level much higher than the V-notch on both sides of the box and is probably overflowing.

[3] IF the weir box is not overflowing, NOTIFY the Shift Manager of a potential instrument malfunction/failure.

[4] IF the weir box is overflowing, NOTIFY the Shift Manager for direction on reducing or stopping steam flow to the reboiler.

[5] IF steam flow is greater than 30,000 lb/hr, REDUCE steam flow to less than 30,000 lb/hr or to value specified in Process Memo.

[6] IF reboiler steam flow is greater than 30,000 lb/hr and cannot be reduced to desired level, NOTIFY Shift Manager of alarm status AND

   REQUEST direction.

(Continued on Next Page)
Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A

Panel: N/A

Source: FI-RC1-1  Setpoint: 104 gpm

**Possible Causes:**

1. Ongoing maintenance PM.
4. Full or partial plugging of the weir box drain line to TEDF.

**References:**

Drawings:  H-2-98993, Zone E-7
Documents:  RPP-16922, Environmental Specification Requirements
**Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator**

<table>
<thead>
<tr>
<th>Facility:</th>
<th>242-A Evaporator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphic:</td>
<td>14</td>
</tr>
<tr>
<td>Panel:</td>
<td>N/A</td>
</tr>
<tr>
<td>Source:</td>
<td>CI-STM-1</td>
</tr>
<tr>
<td>Setpoint:</td>
<td>50 USCM</td>
</tr>
<tr>
<td>Alarm Class:</td>
<td>Environmental Impact</td>
</tr>
<tr>
<td>Alarm Description:</td>
<td>CI-STM-1 STEAM CONDSATE CONDUCTIVITY HIGH (G14, F31). The conductivity of the steam condensate is above the HIGH alarm setpoint.</td>
</tr>
</tbody>
</table>

**Automatic Actions:**

None

**Immediate Actions:**

1. **IF** RI-RC1-1 (F30) SC SAMPLER RADN status is RADN HI, **RESPOND** per alarm RI-RC1-1 on page 3 of this procedure.
2. **VERIFY** valve line up is correct.
3. **IF** conductivity remains high, **NOTIFY** the Johnson Controls, LWPF Shift Manager, and TEDF operators of the high steam condensate conductivity alarm at the evaporator.
4. **IF** AI-STM-1 (G14, F31) STEAM CONDSATE PH HIGH, on management’s direction, **SHUTDOWN** the Evaporator to Recirculation with Vacuum per TO-600-060.
5. **IF** pH indicated by AI-STM-1 (G14, F31) is within 5.5 to 8.5 pH, **NOTIFY** Shift Manager of SC conductivity monitor problems **AND** **MONITOR** RI-RC1-1 and pH until conductivity monitoring system problem is corrected.

**Supplemental Actions:**

6. **REQUEST** Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of any abnormal conductivity readings or process disruption.

(Continued on Next Page)
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 14     Alarm #: N/A
Panel: N/A
Source: CI-STM-1     Setpoint: 50 USCM

Possible Causes:
1. Ongoing maintenance PM.
2. Instrument malfunction.
3. Reboiler tube leak.
4. Johnson Controls process change or upset.
5. Disruption of flow to the conductivity instrument.

References:
Drawings: H-2-98993, Zone C-7
Documents: RPP-16922, Environmental Specification Requirements
TO-600-060, Shut Down 242-A Evaporator System
Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 14  Alarm #: N/A
Panel: N/A  Setpoint: 5.5
Source: CI-STM-1  Alarm Class: Environmental Impact
Alarm Description: CI-STM-1 STEAM CONDSATE CONDUCTIVITY LOW (G14, F31). The conductivity of the steam condensate is below the LOW alarm setpoint.

Automatic Actions: None

Immediate Actions:

[1] IF RI-RC1-1 (F30) SC SAMPLER RADN status is RADN HI, **RESPOND** per alarm RI-RC1-1 on page 4 of this procedure.

[2] **VERIFY** valve line up is correct.

[3] IF conductivity remains low, **NOTIFY** the Johnson Controls, LWPF Shift Manager, and TEDF operators of the low steam condensate conductivity alarm at the evaporator.

[4] IF pH indicated by AI-STM-1 (G14, F31) is within 5.5 to 8.5 pH, **NOTIFY** Shift Manager of SC conductivity monitor problems **AND**

**MONITOR** RI-RC1-1 and pH until conductivity monitoring system problem is corrected.

[5] IF AI-STM-1 (G14, F31) STEAM CONDSATE PH is not within allowable limits, on management’s direction, **SHUTDOWN** the Evaporator to Recirculation with Vacuum per TO-600-060.

Supplemental Actions:

[6] **REQUEST** Shift Manager to notify Environmental per TFC-ESHQ-ENV_FS-C-01 of any abnormal conductivity readings or process disruption.

(Continued on Next Page)
### Respond to Steam Condensate Graphic #14 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

<table>
<thead>
<tr>
<th>Graphic</th>
<th>Alarm #</th>
<th>Panel</th>
<th>Source</th>
<th>Setpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>N/A</td>
<td>N/A</td>
<td>CI-STM-1</td>
<td>5.5</td>
</tr>
</tbody>
</table>

**Possible Causes:**

1. Ongoing maintenance PM.
2. Instrument malfunction.
3. Johnson Controls process change or upset.
4. Disruption of flow to the conductivity instrument.

**References:**

- **Drawings:** H-2-98993, Zone C-7
- **Documents:** RPP-16922, Environmental Specification Requirements
  TO-600-060, Shut Down 242-A Evaporator System