242-A EVAPORATOR GRAPHIC #13 ALARM INDEX

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RECORDS
No records are generated during the performance of this procedure.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13
Panel: N/A
Source: YYC-EA1-1
Alarm Description: Re-boiler outlet temperature high-high.

Automatic Actions:

NOTE - Automatic actions will automatically place plant in safe condition with no required actions from Operator.
1. Activates interlock S2, flammable gas control system:
2. Starts 30 minute time delay following initial trip.
3. Opens vessel vacuum break valve HV-EC1-5.
4. Opens valve HV-CA1-1.
5. Shuts off feed pump AW-P-102.
6. Closes 10 lb steam supply valve HV-EA1-5.
7. Shuts off pump P-B-1.

NOTE - If the MCS receives a "relay trip confirmed" signal, the MCS will mimic S2 logic by taking the final elements to the defined safe state via general service contactors (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1).
8. Relay trip confirmed sent to MCS.
9. After 30 minute timer expires, HV-CA1-7 and HV-CA1-9 go to dump emptying C-A-1.

Immediate Actions:

[1] PLACE PB1-BYPAS in BYPASS (G12, F5) (Extends 8 minute C-A-1 dump time).
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] NOTIFY Shift Manager

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

**Graphic:** 13

**Panel:** N/A

**Source:** YYC-EA1-1

**Alarm #:** N/A

**Setpoint:** 157 °F

**RED**

**TAHH-EA1-1**

(Continued)

**Supplemental Actions:**

1. **CHECK** that interlock actions have been completed.
2. **IF** interlock actions have not completed, **REQUEST** Shift Manager to enter LCO 3.1.
3. **NOTIFY** Engineering.
4. **CLOSE** MS-V-44.
5. **ENSURE** 10 lb steam is completely shutdown before MS-V-44 is re-opened.

**Probable Causes:**

1. High waste temperature.
2. Instrument malfunction.

**References:**

**Drawings:** None

**Documents:** HNF-15279, 242-A Evaporator Technical Safety Requirements.
Facility: 242-A Evaporator

Graphic: 13
Panel: N/A
Source: YYC-EA1-1

Alarm #: N/A
Setpoint: N/A


Alarm Description: Re-boiler outlet temperature instrument trouble.

Automatic Actions:

1. Activates interlock S2, flammable gas control system.
2. Starts 30 minute time delay following initial trip.
3. Opens vessel vacuum break valve HV-EC1-5.
4. Opens valve HV-CA1-1.
5. Shuts off feed pump AW-P-102.
6. Closes 10 lb steam supply valve HV-EA1-5.
7. Shuts off pump P-B-1.

NOTE - If the MCS receives a “relay trip confirmed” signal, the MCS will mimic S2 logic by taking the final elements to the defined safe state via general service contactors (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1).
8. Relay trip confirmed sent to MCS.
9. After 30 minute timer expires, HV-CA1-7 and HV-CA1-9 go to dump emptying C-A-1.

Immediate Actions:

[1] PLACE PB1-BYPAS in BYPASS (G12, F5) (Extends 8 minute C-A-1 dump time).
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13   Alarm #: N/A
Panel: N/A   Setpoint: N/A
Source: YYC-EA1-1

Supplemental Actions:

[4] CHECK that interlock actions have been completed.
[5] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[7] CLOSE MS-V-44.
[8] ENSURE 10 lb steam is completely shutdown before MS-V-44 is re-opened.

Probable Causes:

1. Instrument malfunction.
2. Circuit breaker has tripped.

References:

Drawings: None
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13

Panel: N/A

Source: YYC-EA1-1S

Alarm #: N/A

Setpoint: 157 °F


Alarm Description: Re-boiler outlet temperature high-high.

Automatic Actions:

NOTE - Automatic actions will automatically place plant in safe condition with no required actions from Operator.

1. Activates interlock S2, flammable gas control system.
2. Starts 30 minute time delay following initial trip.
3. Opens vessel vacuum break valve HV-EC1-5.
4. Opens valve HV-CA1-1.
5. Shuts off feed pump AW-P-102.
6. Closes 10 lb steam supply valve HV-EA1-5.
7. Shuts off pump P-B-1.

NOTE - If the MCS receives a “relay trip confirmed” signal, the MCS will mimic S2 logic by taking the final elements to the defined safe state via general service contactors (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1).

8. Relay trip confirmed sent to MCS.
9. After 30 minute timer expires, HV-CA1-7 and HV-CA1-9 go to dump emptying C-A-1.

Immediate Actions:

[1] PLACE PB1-BYPAS in BYPASS (G12, F5) (Extends 8 minute C-A-1 dump time).

[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.


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TSR Compliance

Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13
Panel: N/A
Source: YYC-EA1-1S

Alarm #: N/A
Setpoint: 157 °F

Supplemental Actions:
[4] CHECK that interlock actions have been completed.
[5] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[7] CLOSE valve MS-V-44.
[8] ENSURE 10 lb steam is completely shutdown before MS-V-44 is re-opened.

Probable Causes:
1. High waste temperature.
2. Instrument malfunction.

References:
Drawings: None
**Facility:** 242-A Evaporator  
**Graphic:** 13  
**Panel:** N/A  
**Source:** YYC-EA1-1S  
**Setpoint:** 157 °F


**Alarm Description:** Re-boiler outlet temperature instrument trouble.

---

**Automatic Actions:**

- NOTE - Automatic actions will automatically place plant in safe condition with no required actions from Operator.

1. Activates interlock S2, flammable gas control system.
2. Starts 30 minute time delay following initial trip.
3. Opens vessel vacuum break valve HV-EC1-5.
4. Opens valve HV-CA1-1.
5. Shuts off feed pump AW-P-102.
6. Closes 10 lb steam supply valve HV-EA1-5.
7. Shuts off pump P-B-1.

- NOTE - If the MCS receives a “relay trip confirmed” signal, the MCS will mimic S2 logic by taking the final elements to the defined safe state via general service contactors (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1).

8. Relay trip confirmed sent to MCS.
9. After 30 minute timer expires, HV-CA1-7 and HV-CA1-9 go to dump emptying C-A-1.

---

**Immediate Actions:**

- [1] **PLACE** PB1-BYPAS in BYPASS (G12, F5) (Extends 8 minute C-A-1 dump time).
- [2] **IF** steam is not valved into the 242-A facility, **CONTACT** maintenance for service **AND EXIT** this ARP.
- [3] **NOTIFY** Shift Manager.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13
Panel: N/A
Source: YYC-EA1-1S

Alarm #: N/A
Setpoint: 157 °F

Supplemental Actions:

[4] CHECK that interlock actions have been completed.
[5] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[7] CLOSE valve MS-V-44.
[8] ENSURE 10 lb steam is completely shutdown before MS-V-44 is re-opened.

Probable Causes:

1. Instrument malfunction.
2. Circuit breaker has tripped.

References:

Drawings: None
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13
Panel: N/A
Source: YYC-EA1-1

Alarm #: N/A
Setpoint: 150 °F

Alarm Class: Equipment Status.

Alarm Description: REBOILER OUTLET SLURRY TEMP (HIGH-HIGH) (G13, F13); the temperature of the slurry leaving the Reboiler is high. YYC-CA1 is the primary temperature sensor on the Reboiler outlet.

Automatic Actions:
1. Activates Interlock 45.
2. Closes FV-EA1-1 to close off steam to the reboiler.
3. Pressurizes reboiler with 18 psig air by opening HV-EA1-3.

Immediate Actions:
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] CHECK the following temperatures:
   • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   • TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   • TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   • TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
   • TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
[4] IF TI-EA1-1 temperature does not read within 5°F of points in Step [3], NOTIFY Shift Manager of failure of Temperature Indicator TI-EA1-1.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13 Alarm #: N/A
Panel: N/A
Source: YYC-EA1-1 Setpoint: 150 °F

Immediate Actions (Cont.):

[5] INCREASE vacuum slowly to process memo limit

OR

AS SPECIFIED by Shift Manager to cool down C-A-1.

[6] IF temperature does not decrease to process memo limits, PLACE Evaporator in recirc with vacuum per TO-600-060.

[7] MONITOR one of the following for stable Evaporator Liquid Level:
   - LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
   - LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[8] MONITOR the following as the vessel temperature decreases to the Process Memo limit:
   - TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   - TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T.


Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings: H-2-98988, Sheet 2, Zone C-6 and E-7.
Documents: TO-600-060, Shut Down the 242-A Evaporator.
OSD-T-151-00012, Operating Specifications for the 242-A Evaporator.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  
Panel: N/A

Source: YYC-EA1-1S  
Setpoint: 150 °F

Alarm Class: Equipment Status.

Alarm Description: REBOILER OUTLET SLURRY SPARE T (HIGH-HIGH) (G13, F13); the temperature of the slurry leaving the Reboiler is high. YYC-CA1S is a redundant temperature sensor to TI-EA1-1 on the Reboiler outlet.

Automatic Actions:
1. Activates Interlock 45.
2. Closes FV-EA1-1 to close off steam to the reboiler.
3. Pressurizes reboiler with 18 psig air by opening HV-EA1-3.

Immediate Actions:
[1] CHECK TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T temperature.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] CHECK the following temperatures:
   • TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   • TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   • TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   • TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
   • TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
[4] IF TI-EA1-1S temperature does not read within 5°F of points in Step [3], NOTIFY Shift Manager of failure of Temperature Indicator TI-EA1-1S.
[6] INCREASE vacuum slowly to process memo limit,
   OR
   AS specified by Shift Manager to cool down C-A-1.
[7] IF temperature does not decrease to process memo limits, PLACE Evaporator in Recirc with vacuum per TO-600-060.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13          Alarm #: N/A
Panel: N/A          Setpoint: 150 °F
Source: YYC-EA1-1S

Immediate Actions (Cont.):

[8] **MONITOR** one of the following for stable Evaporator Liquid Level:
   - LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
   - LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[9] **MONITOR** the following as the vessel temperature decreases to the Process Memo limit:
   - TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   - TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T.

[10] **NOTIFY** the Shift Manager of actions and status.

Probable Causes:
1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:
- Drawings: H-2-98988, Sheet 2, Zone C-6 and E-7.
### Facility: 242-A Evaporator

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<th>Panel: N/A</th>
<th>Source: TE-EA1-7</th>
<th>Setpoint: 150°F</th>
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### Alarm Class: Equipment Status.

### Alarm Description:
REBOILER INLET SLURRY TEMP (HIGH-HIGH) (G13, F13); the temperature of the slurry entering the Reboiler is over the high-high temperature setpoint. TI-EA1-7 is the primary temperature sensor for the Reboiler inlet.

### Automatic Actions:
None.

### Immediate Actions:

1. **CHECK** TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP temperature.
2. **IF** steam is not valved into the 242-A facility, **CONTACT** maintenance for service **AND EXIT** this ARP.
3. **CHECK** the following temperatures:
   - TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   - TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   - TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   - TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   - TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
4. **IF** TI-EA1-7 temperature does not read within 5°F of points in Step [3], **NOTIFY** Shift Manager of failure of Temperature Indicator TI-EA1-7.
5. **REDUCE** FIC-EA1-1 until output is 0%.
6. **NOTIFY** Shift Manager of alarm.

### Temperature of TI-EA1-7 is >157 °F

7. **IF** TI-EA1-7 is greater than 157 °F, **PERFORM** the following:
   - [7.1] **NOTIFY** Shift Manager.
   - [7.2] **BEGIN** emptying C-A-1 vessel within one hour of the initial alarm, using TO-600-060.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 150°F
Source: TE-EA1-7  RED

Immediate Actions (Cont.):

Temperature of TI-EA1-7 is >147 °F, but ≤ 157 °F

[8] IF TI-EA1-7 temperature >147 °F, but ≤ 157 °F, PERFORM the following to ensure C-A-1 cool down.

[9] INCREASE vacuum slowly to process memo limit,

OR

AS SPECIFIED by Shift Manager to cool down C-A-1.

[10] MONITOR one of the following for stable Evaporator Liquid Level:

- LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
- LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[11] MONITOR the following as the vessel temperature decreases to the Process Memo limit:

- TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
- TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.

[12] IF unable to cool down C-A-1 below 147 °F, SHUT DOWN per TO-600-060.


Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings: H-2-98988, Sheet 2, Zone C-6.
Documents: TO-600-060 Shut Down the 242-A Evaporator.
            OSD-T-151-00012, Operating Specifications for the 242-A Evaporator.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13    Alarm #: N/A
Panel: N/A
Source: TE-EA1-7S    Setpoint: 150°F

Alarm Class: Equipment Safety.
Alarm Description: REBOILER INLET SLURRY SPARE T (HIGH-HIGH) (G13, F13); the temperature of the slurry entering the Reboiler is over the high temperature setpoint. TI-EA1-7S is a redundant temperature sensor to TI-EA1-7 on the Reboiler inlet.

Automatic Actions: None.

Immediate Actions:
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] CHECK the following temperatures:
   • TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   • TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   • TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   • TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP.
[4] IF TI-EA1-7S temperature does not read within 5°F of points in Step [3], NOTIFY Shift Manager of failure of Temperature Indicator TI-EA1-7S.
[5] REDUCE FIC-EA1-1 until output is 0%.

Temperature of TI EA1 7S is >157 °F
[7] IF TI-EA1-7S is greater than 157 °F, PERFORM the following:
   [7.1] NOTIFY Shift Manager.
   [7.2] BEGIN emptying C-A-1 vessel within one hour of the initial alarm, using TO-600-060.

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

Alarm #: N/A

Panel: N/A

Source: TE-EA1-7S

Setpoint: 150°F

Immediate Actions (Cont.):

**Temperature of TI EA1 7S is >147 °F, but ≤ 157 °F**

[8] IF TI EA1 7S temperature >147 °F, but ≤ 157 °F, **PERFORM** the following to ensure C-A-1 cool down.

[9] **INCREASE** vacuum slowly to process memo limit, OR

**AS SPECIFIED** by Shift Manager.

[10] **MONITOR** one of the following for stable Evaporator Liquid Level:

- LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
- LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[11] **MONITOR** the following as the vessel temperature decreases to the Process Memo limit:

- TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
- TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.

[12] **IF** unable to cool down C-A-1 below 147 °F, **SHUT DOWN** per TO-600-060.


Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

- Drawings: H-2-98988, Sheet 2, Zone C-6.
- Documents: TO-600-060, Shut Down the 242-A Evaporator.
OSD-T-151-00012, Operating Specifications for the 242-A Evaporator.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13          Alarm #: N/A
Panel: N/A
Source: TE-DSH-3    Setpoint: 250 °F

Alarm Class: Plant Stability.
Alarm Description: DESUP OUTLET TEMP HIGH (F12); the temperature of the steam downstream of FV-EA1-1 is high. TSH-DSH-3 is a hardwired switch performing same function as TI-DSH-3 in activating interlock #38.

Automatic Actions:
1. Activates hardwired interlock #38.
2. Closes FV-EA1-1 to close off steam to the reboiler.
3. Pressurizes reboiler with 18 psig air by opening HV-EA1-3.

Immediate Actions:
[1] ENSURE FIC-EA1-1 (G13/8, F12) REBOILER STEAM FLOW output reads 0.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] ENSURE FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE is STM OFF.
[4] CONFIRM air to reboiler is ON.
   [4.1] CONFIRM PI-EA1-1 (F12) REBOILER STEAM INLET PRESSURE is increasing.
   [4.2] ENSURE HV-EA1-4 (G14/1) STEAM CONDSATE BLOCK VALVE closes approximately 5 minutes after FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status changes to STM OFF.

   NOTE - PI-EA1-1 pressure will not read greater than 28 psia until valve HV-EA1-4 is closed.
   [4.3] CHECK that PI-EA1-1 (F12) REBOILER STEAM INLET PRESSURE reads greater than 28 psia.
[5] REQUEST Shift Manager direction to restart Evaporator steam to Reboiler per TO-600-030 or place Evaporator in recirculation with vacuum per TO-600-060.

(Continued on Next Page)
Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 250 °F
Source: TE-DSH-3  TSH-DSH-3

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

References:
Drawings: H-2-98992, Zone F-5.
Documents: TO-600-030, Start Up the 242-A Evaporator System.
TO-600-060, Shut Down the 242-A Evaporator.
Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 7 psig
Source: PT-STM-1  Alarm Class: Equipment Status.

Alarm Description: 10 PSI STEAM SUPPLY PRESSURE (LOW) (G13, F12); pressure in the 10 lb steam line (10 inch STM-410-M2) feeding the reboiler is low.

Automatic Actions:
None.

Immediate Actions:

[1] CHECK PI-STM-1 (G13, F12, CURRENT TREND #12) 10 PSI STEAM SUPPLY PRESSURE.

[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.

[3] CHECK PI-EA1-14 (G13, F12, CURRENT TREND #12) 10 PSI STEAM TO DESUP PRESSURE.


[5] REQUEST the Backside Operator to check the following local steam pressure gauges:
   - PI-EA1-5 (located in the HVAC Room upstream of manual valve HV-H-10A)
   - PI-EA1-4 (10 PSIG steam pressure located outside at the Steam Station).

[6] IF at any time the low pressure boiler is shut down or cannot maintain adequate steam pressure as indicated by PI-STM-1 LOW and PI-EA1-4 indicating less than 5 psig, PERFORM the following:
   [6.1] IF the Evaporator is operating, SHUT DOWN the Evaporator to recirculation with vacuum per TO-600-060.

   [6.2] NOTIFY JCI of the low pressure boiler trouble and request them to CLOSE the following valves:
   - MS-V-17
   - MS-V-18
   - MS-V-21.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 7 psig
Source: PT-STM-1

Immediate Actions (Cont.):
[6.3] **ENSURE** the following valves are positioned as indicated:

<table>
<thead>
<tr>
<th>Valve</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-16</td>
<td>CLOSED</td>
</tr>
<tr>
<td>H-14</td>
<td>OPEN</td>
</tr>
<tr>
<td>H-13</td>
<td>OPEN</td>
</tr>
<tr>
<td>* S-409-39</td>
<td>OPEN</td>
</tr>
<tr>
<td>* S-409-41</td>
<td>OPEN</td>
</tr>
</tbody>
</table>

[* = SOE responsibility to manipulate.]

[6.4] **NOTIFY** Shift Manager of plant conditions.

[6.5] **EXIT** this ARP AND

GO TO TF-AOP-EVAP-005.

[7] **IF** PI-EA1-4 and PI-EA1-5 readings differ by greater than 5 psig, **NOTIFY** Shift Manager the 10-inch steam strainer may require cleaning.

[8] **IF** PI-EA1-4 and PI-EA1-5 read less than 7 psig, **REQUEST** JCI troubleshoot the low pressure boilers low boiler outlet pressure and to adjust boiler outlet pressure to 8 to 14 psig.

[9] **IF** JCI is unable to set the outlet pressure of the low pressure boiler to between 8 to 14 psig, on Shift Manager direction, **PLACE** the Evaporator in recirculation with vacuum per TO-600-060.

[10] **IF** PI-EA1-4 and PI-EA1-5 read greater than or equal to 7 psig, **NOTIFY** Shift Manager that PI-STM-1 has a transmitter problem.

[11] **NOTIFY** Shift Manager of all findings.

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

Graphic: 13  
Alarm #: N/A

Panel: N/A  
Setpoint: 7 psig

Source: PT-STM-1  

Probable Causes:
2. Ongoing maintenance PM.
3. Instrument malfunction.
4. Plugged strainer upstream of valve H-16.
5. Transmitter PT-STM-1 needs maintenance.

References:
TO-600-060, Shut Down 242-A Evaporator System.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 15 psig
Source: PT-STM-1  Alarm Class: Equipment Status.

Alarm Description: 10 PSI STEAM SUPPLY PRESSURE (HIGH) (G13, F12); pressure in the 10 lb steam line (10-inch STM-410-M2) feeding the reboiler is high.

Automatic Actions:
None.

Immediate Actions:

[1] **CHECK** PI-STM-1 (G13, F12, CURRENT TREND #12) 10 PSI STEAM SUPPLY PRESSURE.

[2] **IF** steam is not valved into the 242-A facility, **CONTACT** maintenance for service **AND** **EXIT** this ARP.

[3] **CHECK** PI-EA1-14 (G13, F12, CURRENT TREND #12) 10 PSI STEAM TO DESUP PRESSURE.


[5] **REQUEST** the Backside Operator to check the following local steam pressure gauges:
   - PI-EA1-5 (located in the HVAC Room upstream of manual valve HV-H-10A)
   - PI-EA1-4 (10 PSIG steam pressure located outside at the Steam Station).

[6] **IF** PI-EA1-4 and PI-EA1-5 read 8 to 14 psig, **NOTIFY** Shift Manager that PI-STM-1 has a transmitter problem.

[7] **IF** PI-EA1-4 and PI-EA1-5 read greater than 15 psig, **REQUEST** JCI troubleshoot the low pressure boilers high boiler outlet pressure and to adjust boiler outlet pressure to 8 to 14 psig.

[8] **IF** JCI is unable to set the outlet pressure of the low pressure boiler to between 8 and 14 psig, **PLACE** the Evaporator in recirculation with vacuum per TO-600-060.

[9] **NOTIFY** Shift Manager of Evaporator status and findings.

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

Graphic: 13
Panel: N/A
Source: PT-STM-1

Alarm #: N/A
Setpoint: 15 psig

Probable Causes:
1. Ongoing maintenance PM.
2. Instrument malfunction.
3. JCI boiler malfunction.

References:
Documents: TO-600-060, Shut Down the 242-A Evaporator.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13
Panel: N/A
Source: TE-EA1-1

Alarm #: N/A
Setpoint: 140 °F

Alarm Class: Equipment Safety.
Alarm Description: REBOILER OUTLET SLURRY TEMP (HIGH) (G13, F13); the temperature of the slurry leaving the Reboiler is high. TI-EA1-1 is the primary temperature sensor on the Reboiler outlet.

Automatic Actions:
None.

Immediate Actions:
[1] IF performing a deep flush, EXIT this ARP.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[4] CHECK the following temperatures:
   • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   • TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   • TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   • TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
   • TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
[5] IF TI-EA1-1 temperature does not read within 5 °F of points in Step [4], NOTIFY Shift Manager of failure of Temperature Indicator TI-EA1-1.
[6] IF TI-EA1-1 temperature reads within 5 °F of points in Step [4], SLOWLY LOWER FIC-EA1-1 output to 0%.
[7] ENSURE FV-EA1-1 status is STM OFF.
[8] ENSURE air to the reboiler is ON.
[9] INCREASE vacuum slowly to process memo limit,
   OR
   AS specified by Shift Manager.
[10] IF temperature does not decrease to process memo limits, SHUT DOWN Evaporator per TO-600-060.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13          Alarm #: N/A
Panel: N/A
Source: TE-EA1-1     Setpoint: 140°F

Immediate Actions (Cont.):

[11] MONITOR one of the following for stable Evaporator Liquid Level:
    • LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
    • LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[12] MONITOR the following as vessel temperature decreases to Process Memo Limit:
    • TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
    • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T.


Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings:    H-2-98988, Sheet 2, Zone C-6.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

**Graphic:** 13  
**Alarm #:** N/A

**Panel:** N/A  
**Setpoint:** 140°F

**Source:** TE-EA1-1S  
**Alarm Class:** Equipment Safety.

**Alarm Description:** REBOILER OUTLET SLURRY SPARE T (HIGH) (G13, F13); the temperature of the slurry leaving the Reboiler is high. TI-EA1-1S is a redundant temperature sensor to TI-EA1-1 on the Reboiler outlet.

**Automatic Actions:** None.

**Immediate Actions:**

1. IF performing a deep flush, EXIT this ARP.
2. IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
3. CHECK TI-EA1-1S (G13, F13) EVAP VESSEL SLURRY TEMP temperature.
4. CHECK the following temperatures:
   - TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   - TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   - TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   - TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
   - TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
5. IF TI-EA1-1S temperature does not read within 5 °F of points in Step [4], NOTIFY Shift Manager of failure of Temperature Indicator TI-EA1-1S.
6. IF TI-EA1-1S temperature reads within 5 °F of points in Step [4], SLOWLY LOWER FIC-EA1-1 output to 0 %.
7. ENSURE FV-EA1-1 status is STM OFF.
8. ENSURE air to the reboiler is ON.
9. INCREASE vacuum slowly to process memo limit,
   **OR**
   AS SPECIFIED by Shift Manager.
10. IF temperature does not decrease to process memo limits, SHUT DOWN Evaporator per TO-600-030.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 140°F
Source: TE-EA1-1S  Ti-EA1-1S

(YELLOW)

Immediate Actions (Cont.):
[11] MONITOR one of the following for stable Evaporator Liquid Level:
   • LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
   • LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[12] MONITOR the following as vessel temperature decreases Process Memo Limit:
   • TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T.


Probable Causes:
1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:
Drawings: H-2-98988, Sheet 2, Zone C-6.
Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A    Setpoint: 140 °F
Source: TE-EA1-7

Alarm Class: Equipment Status.
Alarm Description: REBOILER INLET SLURRY TEMP (HIGH) (G13, F13); the temperature of the slurry entering the Reboiler is over the high-high temperature setpoint. TI-EA1-7 is the primary temperature sensor for the Reboiler inlet.

Automatic Actions:
None.

Immediate Actions:

[1] IF performing a deep flush, EXIT this ARP.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[4] CHECK the following temperatures:
   • TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   • TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   • TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   • TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   • TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.
[6] IF TI-EA1-7 temperature reads within 5 °F of points in Step [4], SLOWLY LOWER FIC-EA1-1 output to 0%.
[7] ENSURE FV-EA1-1 status is STM OFF.
[8] ENSURE air to the reboiler is ON.
[9] INCREASE vacuum slowly to process memo limit.

OR

AS specified by Shift Manager.

[10] IF temperature does not decrease to process memo limits, SHUT DOWN Evaporator per TO-600-030.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A
Source: TE-EA1-7  Setpoint: 140 °F

Immediate Actions (Cont.):

[11] **MONITOR** one of the following for stable Evaporator Liquid Level:
- LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
- LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

[12] **MONITOR** the following as vessel temperature decreases to lower Process Memo Limit:
- TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
- TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.


Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings:  H-2-98988, Sheet 2, Zone C-6.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

**Graphic:** 13  **Alarm #:** N/A

**Panel:** N/A  **Setpoint:** 140 °F

**Source:** TE-EA1-7S  **Alarm Class:** Equipment Status.

**Alarm Description:** REBOILER INLET SLURRY SPARE T (HIGH) (G13, F13); the temperature of the slurry entering the Reboiler is over the high temperature setpoint. TI-EA1-7S is a redundant temperature sensor to TI-EA1-7 on the Reboiler inlet.

**Automatic Actions:**

None.

**Immediate Actions:**

1. IF performing a deep flush, **EXIT** this ARP.
2. IF steam is not valved into the 242-A facility, **CONTACT** maintenance for service **AND** **EXIT** this ARP.
3. **CHECK** TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T temperature.
4. **CHECK** the following temperatures:
   - TI-EA1-1 (G13, F13) REBOILER OUTLET SLURRY TEMP
   - TI-EA1-1S (G13, F13) REBOILER OUTLET SLURRY SPARE T
   - TI-CA1-6 (G10, F4) EVAP VESSEL SLURRY TEMP
   - TI-CA1-6S (G10, F4) EVAP VESSEL SLURRY SPARE T
   - TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP.
5. IF TI-EA1-7S temperature does not read within 5 °F of points in Step [4], **NOTIFY** Shift Manager of failure of Temperature Indicator TI-EA1-7S.
6. IF TI-EA1-7S temperature reads within 5 °F of points in Step [4], **SLOWLY LOWER** FIC-EA1-1 output to 0%.
7. **ENSURE** FV-EA1-1 status is STM OFF.
8. **ENSURE** air to the reboiler is ON.
9. **INCREASE** vacuum slowly to process memo limit, **OR**
   - **AS** specified by Shift Manager.
10. IF temperature does not decrease to process memo limits, **SHUT DOWN** Evaporator per TO-600-030.

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

Graphic: 13  Alarm #: N/A
Panel: N/A
Source: TE-EA1-7S  Setpoint: 140 °F

Immediate Actions (Cont.):

11. **MONITOR** one of the following for stable Evaporator Liquid Level:
   - LIC-CA1-1 (G10/9, F2) EVAP CA1-1 LEVEL CONTROLR
   - LIC-CA1-2 (G10/10, F2) EVAP CA1-2 LEVEL CONTROLR.

12. **MONITOR** the following as vessel temperature decreases to Process Memo Limit:
   - TI-EA1-7 (G13, F13) REBOILER INLET SLURRY TEMP
   - TI-EA1-7S (G13, F13) REBOILER INLET SLURRY SPARE T.

13. **NOTIFY** the Shift Manager of actions and status.

Probable Causes:

1. Slurry too concentrated.
2. Excess steam to the reboiler.
3. Low vacuum in CA1.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings: H-2-98988, Sheet 2, Zone C-6.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: N/A
Source: FV-EA1-1

Alarm Class: Equipment Status.
Alarm Description: REBOILER 10# STM FLO VALV CLOSED (F12); Reboiler steam inlet valve FV-EA1-1 has closed, possibly due to a software or hardware interlock.

Automatic Actions: None.

Immediate Actions:

[1] ENSURE FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status is STM OFF.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] IF FV-EA1-1 status is INTERLOCK, CHECK FV-EA1-1 INTERLOCKS to determine which interlock has shut valve FV-EA1-1.
   [3.1] SELECT FV-EA1-1 (G13, 10)
      [3.1.1] SELECT interlock diamond.
      [3.1.2] DETERMINE which interlock is active.
      [3.1.3] RESET/BYPASS active interlocks.
[4] AFTER the FV-EA1-1 Interlock has cleared, ATTEMPT to reestablish Reboiler steam flow per TO-600-030.

Probable Causes:
1. Reboiler steam flow valve FV-EA1-1 is closed due to a software or hardware interlock.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:
Drawings: H-2-98992, Zone B-4.
Documents: TO-600-030, Start Up the 242-A Evaporator System.
Facility: 242-A Evaporator  
Graphic: 13  
Alarm #: N/A  
Panel: N/A  
Source: TE-DSH-3  
Setpoint: 245 °F  
Alarm Class: Plant Stability.

Alarm Description: REBOILER STEAM INLET TEMP (HIGH) (G13, F12); the temperature of the steam entering the Reboiler is high. Interlock #38 will activate and shut valve FV-EA1-1 when TI-DSH-3 reading reaches 250 °F.

Automatic Actions: None.

Immediate Actions:

NOTE - FIC-EA1-1 does not use temperature for control; if the temperature does go greater than or equal to 245 °F, it indicates a problem with the 10# steam supply system.

[1] COMPARE TI-DSH-3 (G13, F12) REBOILER STEAM INLET TEMPERATURE to TI-DSH-2 (G13, F12) DESUP INLET 10# STM TEMP.

[1.1] IF TI-DSH-3 reading is 5 °F less than or more than TI-DSH-2, NOTIFY Shift Manager that TI-DSH-3 or TI-DSH-2 requires maintenance.

[1.2] IF TI-DSH-3 and TI-DSH-2 are comparable within 5 °F of one another, CHECK PI-STM-1 (G13, F12) 10 PSI STEAM HEADER PRESSURE.

[1.3] IF PI-STM-1 is greater than 10 psi, REQUEST JCI to check their 10# steam supply system.

[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.

[3] ATTEMPT to clear the interlock.

[4] AFTER the FV-EA1-1 interlock is cleared, ATTEMPT to re-establish Reboiler steam flow per TO-600-030.


Probable Causes:

1. Ongoing maintenance PM.
2. Instrument malfunction.

References:

2. Documents: TO-600-030, Start Up the 242-A Evaporator System.
Facility: 242-A Evaporator

Graphic: 13  
Panel: N/A

Source: (TI-EA1-1 or -1S) - (TI-EA1-7 or -7S)  
Setpoint: 5.5 °F

Alarm Class: Plant Stability.

Alarm Description: REBOILER SLURRY (OUT) - (IN) DELTA T (HIGH) (G13, F13); the slurry passing through the Reboiler is gaining too much temperature. The inlet and outlet temperature sensor pairs (TI-EA1-7 and -7S, TI-EA1-1 and -1S) automatically select for the sensor with the lowest reading of the two. In addition, TI-CA1-7 may be substituted for TI-EA-1 or -1S using SELECT-TI (G13/9) if TI-EA1-1 and -1S both fail.

Automatic Actions: None.

Immediate Actions:

NOTE - Reducing Reboiler Steam flow with FIC-EA1-1 must be done slowly to prevent lifting Steam Pressure Relief Valves.

[1] SET FIC-EA1-1 (G13, F12) REBOILER STEAM FLOW to MANUAL mode AND SLOWLY LOWER steam flow.

[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.


[4] IF TDI-EA1-1 reading does not begin to drop within 10 minutes, REPEAT Step [1] of this alarm response.

[5] IF FI-EC1-2 (G16, F14) E-C-1 CONDENSER FLOW boil off rate is reduced below the range specified by Process Memo, NOTIFY Shift Manager.

Probable Causes:

1. High Reboiler steam temperature/pressure.  
2. Ongoing maintenance PM.  
3. Instrument malfunction.  
4. Lack of recirculation in CA1 vessel.

References:

Drawings: H-2-98988, Sheet 2, Zone D-6.  
Documents: None.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 80 psig

Alarm Description: 90 PSI STEAM HEADER PRESSURE (LOW) (G13, F12); the pressure in the 90-lb steam line feeding the 90 psig steam system is low.

Automatic Actions:

None.

Immediate Actions:

[1] CHECK PI-EA1-13 (G13, F12, CURRENT TREND #12) 90 PSI STEAM HEADER PRESSURE.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] NOTIFY JCI of low 90# steam pressure condition.
[4] REQUEST the Backside Operator to check the following local steam pressure gauges:
   • PI-409-2 (90 psig steam pressure, located outside at the Steam Station)
   • PI-VA-2-1 (90 psig steam pressure, located in the HVAC Room).
[5] IF PI-409-2 and PI-VA-2-1 read less than 80 psig but greater than 65 psig, REQUEST JCI to troubleshoot the medium pressure boiler low output pressure problem.
[6] IF PI-409-2 and PI-VA-2-1 read greater than or equal to 80 psig, NOTIFY Shift Manager that PI-EA1-13 has a transmitter problem.

(Continued on Next Page)
**Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator**

**Facility:** 242-A Evaporator  
**Graphic:** 13  
**Alarm #:** N/A  
**Panel:** N/A  
**Source:** PT-EA1-13  
**Setpoint:** 80 psig

**YELLOW**

**PI-EA1-13**

### Immediate Actions: (Cont.)

1. **IF** at any time the medium pressure (#90) boiler is shut down or cannot maintain adequate steam pressure as indicated by PI-EA1-13 LOW and PI-409-2 or PI-VA-2-1 reading less than 10 psig, **PERFORM** the following:

   - **[7.1]** **PERFORM** TF-AOP-EVAP-005 AND  
     RETURN to this procedure.

   - **[7.2]** **REQUEST** the SOE position the following valves as indicated:

<table>
<thead>
<tr>
<th>Valve</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-409-70</td>
<td>OPEN</td>
</tr>
<tr>
<td>S-409-73</td>
<td>CLOSED</td>
</tr>
<tr>
<td>242A-18-A</td>
<td>CLOSED</td>
</tr>
<tr>
<td>HV-H-50C</td>
<td>CLOSED</td>
</tr>
<tr>
<td>* HV-H-32E</td>
<td>CLOSED</td>
</tr>
<tr>
<td>* - This valve is the NCO's responsibility</td>
<td></td>
</tr>
</tbody>
</table>

2. **[7.3]** **IF** the Evaporator is operating, **SHUT DOWN** the Evaporator to recirculation without vacuum per TO-600-060.

3. **[8]** **NOTIFY** JCI of the boiler outlet pressure problems.

4. **[9]** **NOTIFY** Shift Manager of all findings.

### Probable Causes:

2. Ongoing maintenance PM.
3. Instrument malfunction.

### References:

- **Drawings:** H-2-98992, Zones B-6 and D-6.
- **Documents:** TO-600-060, Shut Down 242-A Evaporator System.  
  TF-AOP-EVAP-005, Response to 242-A Evaporator Loss of Steam System.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

**Graphic:** 13  
**Alarm #:** N/A

**Panel:** N/A  
**Setpoint:** 115 psig

**Source:** PT-EA1-13

**Alarm Class:** Equipment Status.

**Alarm Description:** 90 PSI STEAM HEADER PRESSURE (HIGH) (G13, F12); the pressure in the 90-lb steam line feeding 90 psig steam system is at the HIGH setpoint.

**Automatic Actions:**

None.

**Immediate Actions:**

1. **CHECK** PI-EA1-13 (G13, F12, CURRENT TREND #12) 90 PSI STEAM HEADER PRESSURE.
2. **IF** steam is not valved into the 242-A facility, **CONTACT** maintenance for service **AND** **EXIT** this ARP.
3. **NOTIFY** JCI of the high 90# steam pressure condition.
4. **REQUEST** the Backside Operator to check the following local steam pressure gauges:
   - PI-409-2 (90 psig steam pressure, located outside at the steam station)
   - PI-VA-2-1 (90 psig steam pressure, located in the HVAC Room).
5. **IF** PI-409-2 and PI-VA-2-1 read greater than 115 psig, **REQUEST** JCI to troubleshoot the medium pressure boiler high output pressure problem.
6. **IF** PI-409-2 and PI-VA-2-1 read less than or equal to 115 psig, **NOTIFY** Shift Manager that PI-EA1-13 has a transmitter problem.
7. **IF** JCI is unable to reduce boiler steam pressure to less than 115 psig, **PERFORM** the following:
   7.1 **IF** the evaporator is operating, on Shift Manager direction, **SHUT DOWN** the Evaporator to recirculation without vacuum per TO-600-060.
   7.2 **ON** Shift Manager direction, **SHUT DOWN** the 90 psig steam system per TO-600-056.
8. **NOTIFY** JCI of the boiler outlet pressure problems.
9. **NOTIFY** Shift Manager of all findings.

(Continued on Next Page)
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13    Alarm #: N/A
Panel: N/A
Source: PT-EA1-13    Setpoint: 115 psig

Probable Causes:

2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Drawings: H-2-98992, Zones B-6 and D-6.
Documents: TO-600-060, Shut Down 242-A Evaporator System.

TO-600-056, Start Up and Shut Down Evaporator 90Lb Steam System.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 3000 lb/hr
Source: FT-EA1-1  Alarm Class: Equipment Status.

Alarm Description: REBOILER STEAM FLOW (LOW) (G13/8, F12); steam flow in the 10-lb steam line (12-inch STM-470-M2) downstream of FV-EA1-1 is low.

Automatic Actions:
1. Opens HV-EA1-3 to pressurize reboiler.
2. Shuts Reboiler steam flow valve FV-EA1-1.

Immediate Actions:

1. ENSURE that FV-EA1-1 (G13/10, F12, CURRENT TREND #13) REBOILER STEAM FLOW VALVE is STM OFF.
2. IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
3. IF FV-EA1-1 status is STM OFF and INTERLOK, CHECK Graphic 54 FV-EA1-1 INTERLOCKS to determine which interlock has shut valve FV-EA1-1.
   [3.1] SELECT FV-EA1-1 (G13, 10).
   [3.1.1] SELECT interlock diamond.
   [3.1.2] DETERMINE which interlock is active.
   [3.1.3] RESET/BYPASS active interlocks.
4. IF Reboiler steam flow cannot be restored, PERFORM the following:
   [4.1] PLACE Evaporator in recirculation with vacuum per TO-600-060.
   [4.2] NOTIFY Shift Manager of Evaporator status.

Probable Causes:
1. Loss of steam supply to 242-A.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:
Drawings: H-2-98992, Zone E-5.
Documents: TO-600-060, Shut Down 242-A Evaporator System.
Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 17.7 psia
Source: PT-EA1-1  Alarm Class: Equipment Status.

Alarm Description: REBOILER STEAM INLET PRESSURE (LOW) (G13, F12); steam pressure downstream of FV-EA1-1 is low.

Automatic Actions:
None.

Immediate Actions:

[1] CONFIRM FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] IF FV-EA1-1 status is STM OFF and INTERLOK, CHECK Graphic #54 FV-EA1-1 INTERLOCKS to determine which interlock has shut valve FV-EA1-1.
[3.1] SELECT FV-EA1-1 (G13, 10).
[3.1.1] SELECT interlock diamond.
[3.1.2] DETERMINE which interlock is active.
[3.1.3] RESET/BYPASS active interlocks.
[4] AFTER the FV-EA1-1 interlock is cleared, ATTEMPT to re-establish Reboiler steam flow per TO-600-030.

Probable Causes:

1. Low steam pressure.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Documents: TO-600-030, Start Up the 242-A Evaporator System.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  Alarm #: N/A
Panel: N/A  Setpoint: 29.7 psia
Source: PT-EA1-1  Alarm Class: Equipment Status.

Alarm Description: REBOILER STEAM INLET PRESSURE (HI) (G13, F12); steam pressure downstream of FV-EA1-1 is high. This alarm is normally ON when air to the Reboiler is ON.

Automatic Actions:
None.

Immediate Actions:
[1] CHECK FV-EA1-1 (G13/10, F12) REBOILER STEAM FLOW VALVE status.
[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.
[3] IF FV-EA1-1 status is STM OFF and INTERLOK, CHECK Graphic #54 FV-EA1-1 INTERLOCKS to determine which interlock has shut valve FV-EA1-1.
   [3.1] SELECT FV-EA1-1 (G13, 10).
      [3.1.1] SELECT interlock diamond.
      [3.1.2] DETERMINE which interlock is active.
      [3.1.3] RESET/BYPASS active interlocks.
[4] AFTER the FV-EA1-1 Interlock is cleared, ATTEMPT to reestablish Reboiler steam flow per TO-600-030.

Probable Causes:
1. HV-EA1-3 has been opened.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:
Documents: TO-600-030, Start Up the 242-A Evaporator System.
Respond to EA1 Reboiler Graphic #13 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 13  
Panel: N/A  
Source: TE-EA1-5  
Alarm #: N/A  
Setpoint: 190 °F

Alarm Class: Equipment Status.

Alarm Description: REBOILER STEAM CONDSATE TEMP (HIGH) (G13, F13); the temperature of the steam condensate exiting the Reboiler is high, indicating that the incoming steam is not being condensed properly.

Automatic Actions: None.

Immediate Actions:

[1] REDUCE steam flow on FIC-EA1-1 at the direction of Shift Manager.

[2] IF steam is not valved into the 242-A facility, CONTACT maintenance for service AND EXIT this ARP.

[3] CHECK that the following points read within the ranges given below:

- TI-DSH-3 (G13, F12, CURRENT TREND #13) REBOILER STEAM INLET TEMP 218 to 235 °F (Alarm #9)
- PI-EA1-1 (G13, F12, CURRENT TREND #13) REBOILER STEAM INLET PRESSURE 18 to 23 psia (Alarm #15).

[4] IF either TI-DSH-3 or PI-EA1-1 reads greater than the ranges given, PERFORM the actions in their respective alarm responses in this Alarm Response Procedure.


Probable Causes:

5. Ongoing maintenance PM.
7. Steam flow to reboiler without waste or water in C-A-1 vessel.

References:

Documents: None.