Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Tank Farm Alarm Response Procedure

242-A Evaporator

USQ # EV-17-0558 Rev 3

CHANGE HISTORY (≤ LAST 5 REV-MODS)

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<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<tr>
<td>B-5</td>
<td>10/18/2018</td>
<td>Operations request</td>
<td>Updated automatic actions, immediate actions, and supplemental actions on pages 3, 6, 7, 8, 9, 11, 15, 17, 20, and 21.</td>
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<tr>
<td>B-4</td>
<td>02/07/2018</td>
<td>Operations request</td>
<td>All steps &quot;20-30 minutes&quot; modified to &quot;30 minutes&quot;</td>
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<td>B-3</td>
<td>09/13/2017</td>
<td>Operations request – Clarification</td>
<td>Global change replacement of &quot;IF interlock actions HV-EA1-5 is closed&quot; with &quot;IF HV-EA1-5 has been closed for more than 20-30 minutes&quot;</td>
</tr>
<tr>
<td>B-2</td>
<td>05/02/2017</td>
<td>Operations request - Prevent water hammer</td>
<td>Pages 3, 6, 8, 10, 11, 12, 14, 16, 18, 20 and 21 Changes throughout to ensure 10 lb steam is isolated prior to re-introducing 10 lb steam to HV-EA1-5 in the event of a SIS interlock activation.</td>
</tr>
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<td>B-1</td>
<td>06/02/2016</td>
<td>Operations request to increase the range of the analyzer.</td>
<td>Changed SCFM from between &quot;5 and 6&quot; to &quot;4.5 and 6&quot;</td>
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242-A EVAPORATOR ALARM INDEX

(GRAPHIC #400)

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<tr>
<td>XA-CA1-12</td>
<td>Safety Significant Pressure Monitoring Instrument Trouble Alarm</td>
<td>[YELLOW]</td>
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<td>YA-CA1-4A</td>
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<td>[RED]</td>
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<td>[YELLOW]</td>
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<td>FA-CA1-20B</td>
<td>C-A-1 Vessel purge air flow rate alarm out of range</td>
<td>[YELLOW]</td>
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<td>Low purge air flow</td>
<td>[YELLOW]</td>
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</tr>
<tr>
<td>FI-CA1-20</td>
<td>High purge air flow</td>
<td>[YELLOW]</td>
<td>22</td>
</tr>
</tbody>
</table>

RECORDS

No records are generated during the performance of this procedure.
Facility: 242-A Evaporator
Graphic: 400
Panel: N/A
Source: YYC-CA1-4
Alarm Class: Equipment Status
Alarm Description: Safety Significant Level Monitoring Instrument Trouble Alarm.

Automatic Actions:

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

1. Activates Interlock S1 performing the following actions:
   - Opens vessel vacuum break valve HV-EC1-5
   - Opens feed/dump valve HV-CA1-1
   - Shuts off feed pump AW-P-102
   - Closes 10 lb steam supply valve HV-EA1-5
   - Shuts off pump P-B-1.

   NOTE - If MCS receives a “relay trip confirmed” signal, MCS will mimic S1 logic by taking final elements to defined safe state via general service components (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1, Shuts off PB-1, and initiates the 30 min. Bottom Dump timer).

2. Relay trip confirmation sent to MCS.

3. After 30 minutes, HV-CA1-7 and HV-CA1-9 opens completely dumping C-A-1 vessel.

Immediate Actions:

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

Supplemental Actions:

[3] CHECK that interlock actions have been completed.
[4] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.2.
[6] IF HV-EA1-5 has been closed for more than 30 minutes ENSURE 10 lb steam is isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the interlock.

(Continued on Next Page)
 Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 400
Panel: N/A
Source: YYC-CA1-4

Alarm #: N/A
Setpoint: Fault

YLLOW

XA-CA1-4

(Continued)

Probable Causes:

1. Instrument malfunction.

References:

Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.2, C-A-1 Vessel Waste High Level Control System
Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator  
**Graphic:** 400  
**Alarm #:** N/A  
**Panel:** N/A  
**Source:** YYC-CA1-12 CA-1 Vessel Pressure Logic Solver  
**Setpoint:** Fault  
**Alarm Class:** Equipment Status  
**Alarm Description:** Safety Significant Pressure Monitoring of the CA-1 Vessel Flammable Gas Control System Instrumentation Trouble Alarm.

**Automatic Actions:**

1. Starts 30 minute time delay (indicator KY-PDS-12) following initial trip.
2. If flow rate alarms FA-CA1-20A and FA-CA1-20B are not in alarm, no further automatic actions will take place but 30 minute time delay will time out.
3. When time delay relay KY-PDS-12 times out, if purge air flow is not established and KY-FS-20A or KY-FS-20B timed out, interlock S2 activates and the following hard wired actions are performed:
   - Opens vessel vacuum break valve HV-EC1-5
   - Opens dump valve HV-CA1-1
   - Shuts off feed pump AW-P-102
   - Closes 10 lb steam supply valve HV-EA1-5
   - Shuts off pump P-B-1.

4. Relay trip confirmation sent to MCS.
5. After 30 minutes, HV-CA1-7 and HV-CA1-9 open completely dumping CA-1 vessel.

(Continued on Next Page)
Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 400
Panel: N/A
Source: YYC-CA1-12 CA-1 Vessel Pressure Logic Solver

YELLOW

XA-CA1-12

Alarm #: N/A

Setpoint: Fault

(Continued)

Immediate Actions:
[1] PLACE PB1-BYPAS in BYPASS (G12, F5). (Extends 8 minute C-A-1 dump time)
[3] OPEN HV-CA1-20 (G400, F33) turning Purge Air ON AND
ESTABLISH air flow \( \geq 3.1 \text{ to } \leq 14 \text{ scfm} \) (optimum range is between 4.5 and 6 scfm) which should clear flow rate alarms FA-CA1-20A and FA-CA1-20B.

Supplemental Actions:
[4] CHECK that interlock actions have been completed.
[5] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.2.
[7] PERFORM controlled dump of CA-1 vessel per TO-600-060.
[8] IF HV-EA1-5 has been closed for more than 30 minutes ENSURE 10 lb steam is isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the interlock.

Probable Causes:
1. Instrument malfunction.
2. Circuit breaker trip.

References:
Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator, LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Facility: 242-A Evaporator
Graphic: 400
Panel: N/A
Source: YYC-CA1-13 CA-1 Vessel Pressure Logic
Setpoint: Fault Solver
Alarm #: N/A
YELLOW

XA-CA1-13

Alarm Class: Equipment Status
Alarm Description: Safety Significant Pressure Monitoring of the C-A-1 Vessel Flammable Gas Control System Instrumentation Trouble Alarm.

Automatic Actions:

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

1. Starts 30 minute time delay (indicator KY-PDS-13) following initial trip.

2. If flow rate alarms FA-CA1-20A and FA-CA1-20B are not in alarm, no further automatic actions will take place but 30 minute time delay will time out.

3. When time delay relay KY-PDS-13 times out and purge air flow is not established, interlock S2 activates and the following hard-wired actions are performed:
   - Opens vessel vacuum break valve HV-EC1-5
   - Opens dump valve HV-CA1-1
   - Shuts off feed pump AW-P-102
   - Closes 10 lb steam supply valve HV-EA1-5
   - Shuts off pump P-B-1.

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

4. Relay trip confirmation sent to MCS.

5. After 30 minutes, HV-CA1-7 and HV-CA1-9 open completely dumping C-A-1 vessel.

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Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 400 Alarm #: N/A
Panel: N/A
Source: YYC-CA1-13 CA-1 Vessel Pressure Logic Setpoint: Fault Solver

Immediate Actions:

[1] PLACE PB1-BYPAS in BYPASS (G12, F5). (Extends 8 minute C-A-1 dump time)
[3] OPEN HV-CA1-20 (G400, F33) turning Purge Air ON AND
ESTABLISH air flow ≥ 3.1 to ≤ 14 scfm (optimum range is between 4.5 and 6 scfm)
which should clear flow rate alarms FA-CA1-20A and FA-CA1-20B.

Supplemental Actions:

[4] CHECK that interlock actions have been completed.
[5] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.2.
[7] PERFORM controlled dump of CA-1 vessel per TO-600-060.
[8] IF HV-EA1-5 has been closed for more than 30 minutes ENSURE 10 lb steam is
isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the
interlock.

Probable Causes:

1. Instrument malfunction.
2. Circuit breaker trip.

References:

Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 400  Alarm #: N/A
Panel: N/A
Source: Vessel Level SIS Relay (S1)  Setpoint: S1 Tripped
Alarm Class: Equipment Status
Alarm Description: Vessel level high level SIS activated.

Automatic Actions:

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

1. Activates Interlock S1 performing the following actions:
   - Opens vessel vacuum break valve HV-EC1-5.
   - Opens dump valve HV-CA1-1.
   - Shuts off feed pump AW-P-102.
   - Closes 10 lb steam supply valve HV-EA1-5.
   - Shuts off pump P-B-1.

NOTE - If MCS receives a “relay trip confirmed” signal, MCS will mimic S1 logic by taking final elements to defined safe state via general service components (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1, Shuts off pump PB-1, and initiates the 30 minute Bottom Dump timer).

2. Relay trip confirmation sent to MCS.
3. 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 dump time).
[3] IF alarm PDAHH-CA1-4 has not activated, ADJUST air flow in rotameters FIC-CA1-12 and FIC-CA1-13 to 1 to 1.5 scfh.
[4] IF alarm PDAHH-CA1-4 has activated AND IF flow is indicated by FQI-RW-1 (G15, F10), CLOSE valves 5-40 and 5-47 to ensure unintended water intrusion has not occurred.

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## Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator  
**Graphic:** 400  
**Panel:** N/A  
**Source:** Vessel Level SIS Relay (S1)  
**Alarm #:** N/A  
**Setpoint:** S1 Tripped

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<th>Step</th>
<th>Action</th>
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<td>[5]</td>
<td>IF alarm has cleared AND IF directed by Shift Manager, <strong>PERFORM</strong> the following:</td>
</tr>
<tr>
<td>[5.1]</td>
<td><strong>CLOSE</strong> valve MS-V-44 to isolate 10 lb steam.</td>
</tr>
<tr>
<td>[5.2]</td>
<td><strong>RESET</strong> S1 Interlock via MCS G400.</td>
</tr>
<tr>
<td>[5.3]</td>
<td><strong>CLOSE</strong> HV-CA1-1 (G301, F0).</td>
</tr>
<tr>
<td>[5.4]</td>
<td><strong>SHUTDOWN</strong> Slurry Pump PB-2 (G15/6, F6).</td>
</tr>
<tr>
<td>[5.5]</td>
<td><strong>OPEN</strong> HV-CA1-20 (G400, F33) turning Purge Air ON <strong>AND</strong> <strong>ESTABLISH</strong> air flow ≥ 3.1 to ≤ 14 scfm which should clear flow rate alarms FA-CA1-20A and FA-CA1-20B.</td>
</tr>
<tr>
<td>[5.6]</td>
<td><strong>NOTIFY</strong> Engineering.</td>
</tr>
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### Supplemental Actions:

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<th>Action</th>
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<tr>
<td>[6]</td>
<td>IF alarm cannot be cleared, <strong>CHECK</strong> that interlock actions have been completed.</td>
</tr>
<tr>
<td>[7]</td>
<td>IF interlock actions have not completed, <strong>REQUEST</strong> Shift Manager to enter LCO 3.2.</td>
</tr>
<tr>
<td>[8]</td>
<td>IF HV-EA1-5 has been closed for more than 30 minutes <strong>ENSURE</strong> 10 lb steam is shutdown per TO-600-055 before HV-EA1-5 is re-opened by resetting the interlock.</td>
</tr>
</tbody>
</table>

### Probable Causes:

1. High differential pressure across lower de-entrainment pad.
2. Out of range flow on upper or lower sensing legs.
3. Damaged sensing leg.

### References:

- **Drawings:** None
- **Documents:** HNF-15279, Technical Safety Requirements for the 242-A Evaporator  
  LCO 3.2, C-A-1 Vessel Waste High Level Control System
Facility: 242-A Evaporator

Graphic: 400  Alarm #: N/A
Panel: N/A  PDAHH-CA1-4
Source: YYC-EA1-1 Lower Deentrainer D/P  Setpoint: ≥ 7.5 in. WG
Logic Solver

Alarm Class: Equipment Status

Alarm Description: High differential pressure across lower de-entrainer pad for more than 5 seconds.

Automatic Actions:

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

1. Activates Interlock S1 performing the following actions:
   - Opens vessel vacuum break valve HV-EC1-5.
   - Opens feed/dump valve HV-CA1-1.
   - Shuts off feed pump AW-P-102.
   - Closes 10 lb steam supply valve HV-EA1-5.
   - Shuts off pump P-B-1.

   NOTE - If MCS receives a “relay trip confirmed” signal, MCS will mimic S1 logic by taking final elements to defined safe state via general service components (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1, and Shuts off PB-1). Relay trip confirmation sent to MCS.

2. 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 dump time).


[3] IF alarm PDAHH-CA1-4 has activated AND

   IF flow is indicated by FQI-RW-1 (G15, F10), CLOSE valves 5-40 and 5-47 to ensure unintended water intrusion has not occurred.

[4] IF alarm has cleared AND

   IF directed by Shift Manager, PERFORM the following:

   [4.1] CLOSE valve MS-V-44 to isolate 10 lb steam.
   [4.2] RESET S1 Interlock via MCS G400.

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

Graphic: 400               Alarm #: N/A
Panel: N/A                     Setpoint: ≥ 7.5 in. WG
Source: YYC-EA1-1 Lower Deentrainer D/P Logic Solver

[4.3] CLOSE HV-CA1-1 (G301, F0).

[4.4] SHUTDOWN Slurry Pump PB-2 (G15/6, F6).

[4.5] OPEN HV-CA1-20 (G400, F33) turning Purge Air ON AND

ESTABLISH air flow ≥ 3.1 to ≤ 14 scfm which should clear flow rate alarms
FA-CA1-20A and FA-CA1-20B.


Supplemental Actions:

[5] IF alarm cannot be cleared, CHECK that interlock actions have been completed.

[6] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.2.

[7] IF HV-EA1-5 has been closed for more than 30 minutes ENSURE 10 lb steam is shutdown per TO-600-055 before HV-EA1-5 is re-opened by resetting the interlock.

Probable Causes:

1. High differential pressure across lower de-entrainment pad.
2. Instrument malfunction.

References:

Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.2, C-A-1 Vessel Waste High Level Control System
Facility: 242-A Evaporator

Graphic: 400  Alarm #: N/A
Panel: N/A  Setpoint: S2 Tripped
Source: Flammable Gas SIS Relay (S2)  Alarm Class: Equipment Status

Alarm Description: Flammable gas SIS relay activated.

Automatic Actions:

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

1. Activates Interlock S2 performing the following actions:
   - Opens vessel vacuum break valve HV-EC1-5
   - Opens dump valve HV-CA1-1
   - Shuts off feed pump AW-P-102
   - Closes 10 lb steam supply valve HV-EA1-5
   - Shuts off pump P-B-1.

NOTE - If MCS receives a “relay trip confirmed” signal, MCS will mimic S2 logic by taking final elements to the defined safe state via general service components (i.e., Opens HV-EC1-1, Opens HV-CA1-1, Shuts off feed pump AW-P-102, Closes FV-EA1-1, Shuts off pump PB-1, and initiates the 30 minute Bottom Dump timer).

2. Relay trip confirmation sent to MCS.

3. 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 dump time).

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Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

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<th>Facility: 242-A Evaporator</th>
<th>Alarm #: N/A</th>
</tr>
</thead>
<tbody>
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<td>Graphic: 400</td>
<td>Setpoint: S2 Tripped</td>
</tr>
<tr>
<td>Panel: N/A</td>
<td>(Continued)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RED</th>
</tr>
</thead>
<tbody>
<tr>
<td>YA-CA1-13A</td>
</tr>
</tbody>
</table>

[4] **IF** alarm has cleared **AND**

**AS** directed by Shift Manager, **PERFORM** the following:

[4.1] **CLOSE** valve MS-V-44 to isolate 10 lb steam.

[4.2] **RESET** S2 Interlock via MCS G400.

[4.3] **CLOSE** HV-CA1-1 (G301, F0).

[4.4] **SHUTDOWN** slurry pump PB-2 (G15/6, F6).


**Supplemental Actions:**

[6] **IF** alarm condition cannot be reset, **CHECK** that interlock actions have been completed.

[7] **IF** interlock actions have not completed, **REQUEST** Shift Manager to enter LCO 3.1.

[8] **IF** HV-EA1-5 has been closed for more than 30 minutes **ENSURE** 10 lb steam is shutdown per TO-600-055 before HV-EA1-5 is re-opened by resetting the interlock.

**Probable Causes:**

1. No vacuum and no purge air.
3. Instrument malfunction.

**References:**

<table>
<thead>
<tr>
<th>Drawings:</th>
<th>Documents:</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>HNF-15279, Technical Safety Requirements for the 242-A Evaporator</td>
</tr>
<tr>
<td></td>
<td>LCO 3.1, C-A-1 Vessel Flammable Gas Control System</td>
</tr>
</tbody>
</table>
Facility: 242-A Evaporator

Graphic: 400

Panel: N/A

Source: YYC-CA1-12 CA-1 Vessel Pressure Logic

Setpoint: ≥ 190 torr

Alarm #: N/A

PAHH-CA1-12

Alarm Class: Equipment Status

Alarm Description: C-A-1 absolute pressure above range.

Automatic Actions:

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

1. Alarm starts 30 minute time delay (indicator KY-PDS-12).

2. If alarm is cleared, no further automatic actions are performed.

3. If flow rate alarms FA-CA1-20A and FA-CA1-20B are not in alarm, no further automatic actions will take place but 30 minute time delay will time out.

4. Trips interlock S2 relay if flow rate alarms FA-CA1-20A and FA-CA1-20B are in alarm.

Immediate Actions:

[1] CHECK FI-CA1-20 purge air flow.

[1.1] IF purge air is not on, TURN ON per the following:

[1.1.1] OPEN HV-CA1-20 (G400, F33) turning Purge Air ON AND

ESTABLISH air flow ≥ 3.1 to ≤ 14 scfm (optimum range is between 4.5 and 6 scfm) which should clear flow rate alarms FA-CA1-20A and FA-CA1-20B.


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Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 400             Alarm #: N/A
Panel: N/A
Source: YYC-CA1-12 CA-1 Vessel Pressure Logic  Setpoint: ≥ 190 torr
     Solver

YELLOW
PAHH-CA1-12

Supplemental Actions:
[3] IF alarm condition cannot be reset, CHECK that interlock actions have been completed.
[4] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[5] IF HV-EA1-5 has been closed for more than 30 minutes, ENSURE 10 lb steam is
    isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the
    interlock.

Probable Causes:
1. High pressure.
2. Instrument malfunction.

References:
Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
         LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 400    Alarm #: N/A
Panel: N/A
Source: YYC-CA1-13 CA-1 Vessel Pressure Logic  Setpoint: ≥ 190 torr
Solver

Alarm Class:   Equipment Safety
Alarm Description:   C-A-1 absolute pressure above range.

Automatic Actions:

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

1. Alarm starts 30 minute time delay (indicator KY-PDS-13).
2. If alarm is cleared, no further automatic actions are performed.
3. If flow rate alarms FA-CA1-20A and FA-CA1-20B are not in alarm, no further automatic actions will take place but 30 minute time delay will time out.
4. Trips interlock S2 relay if flow rate alarms FA-CA1-20A and FA-CA1-20B are in alarm.

Immediate Actions:

[1] CHECK FI-CA1-20 purge air flow.
   [1.1] IF purge air is not on, TURN ON per the following:
       [1.1.1] OPEN HV-CA1-20 (G400, F33) turning Purge Air ON AND
       ESTABLISH air flow ≥ 3.1 to ≤ 14 scfm (optimum range is between 4.5 and 6 scfm) which should clear flow rate alarms FA-CA1-20A and FA-CA1-20B.


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

Graphic: 400

Panel: N/A

Source: YYC-CA1-13 CA-1 Vessel Pressure Logic

Setpoint: \( \geq 190 \) torr

Reference:

DOCUMENT No.

ARP-T-601-400

Rev/Mod

B-5

Release Date

10/18/2018

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Supplemental Actions:

[3] IF alarm condition cannot be reset, CHECK that interlock actions have been completed.

[4] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.

[5] IF HV-EA1-5 has been closed for more than 30 minutes, ENSURE 10 lb steam is isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the interlock.

Probable Causes:

1. High pressure.
2. Instrument malfunction.

References:

Drawings:

None

Documents:

HNF-15279, Technical Safety Requirements for the 242-A Evaporator

LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Facility: 242-A Evaporator

**Graphic:** 13  
**Panel:** N/A  
**Source:** PT-CA1-12 and PT-CA1-13  
**Alarm Class:** Equipment Status  
**Alarm Description:** Differential between PI-CA1-12 and PI-CA1-13 is high (indication only).

**PDI-CA1-12**

**Alarm #:** N/A  
**Setpoint:** > 10 torr

**Automatic Actions:**

NONE

**Immediate Actions:**

[1] **NOTIFY** Shift Manager and Engineering.

**Probable Causes:**

1. Instrument malfunction.

**References:**

- **Drawings:** None
- **Documents:** None
Respond to SIS Graphic #400 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 13  Alarm #: N/A
Panel: N/A
Source: FSH/FSLL-CA1-20A  Setpoint: ≤ 3.1 scfm or ≥ 14 scfm
Alarm Class: Equipment Status
Alarm Description: C-A-1 Vessel purge air flow out of range.

Automatic Actions:

NOTE - Automatic actions will automatically place plant in safe condition with no required actions from Operator.
1. Alarm starts 30 minute time delay (indicator KY-FS-20A).
2. If alarm is cleared, no further automatic actions are performed.
3. If C-A-1 vessel absolute pressure ≤ 190 torr, no further automatic actions will take place but 30 minute time delay will time out.
4. Trips interlock S2 relay if flow rate alarms FA-CA1-20A and FA-CA1-20B are in alarm.

Immediate Actions:

[1] NOTIFY Shift Manager.
[2] IF C-A-1 vessel is ≥ 190 torr, ADJUST purge air via FC-CA1-20 (Condenser Room, 5th floor, South End of East Wall, top row of the instrument rack) between 4.5 to 6 scfm as read on FIT-CA1-20.

Supplemental Actions:

[3] IF alarm condition cannot be reset, CHECK that interlock actions have been completed.
[4] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[5] IF HV-EA1-5 has been closed for more than 30 minutes, ENSURE 10 lb steam is isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the interlock.

Probable Causes:

1. High or low purge air flow.
2. Instrument malfunction.

References:

Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Facility: 242-A Evaporator

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

Source: FSH/FSLL-CA1-20B   Setpoint: ≤ 3.1 scfm or ≥ 14 scfm

Alarm Description: C-A-1 Vessel purge air flow out of range.

Automatic Actions:

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

1. Alarm starts 30 minute time delay (indicator KY-FS-20B).
2. If alarm is cleared, no further automatic actions are performed.
3. If C-A-1 vessel absolute pressure ≤ 190 torr, no further automatic actions will take place but 30 minute time delay will time out.
4. Trips interlock S2 relay if flow rate alarms FA-CA1-20A and FA-CA1-20B are in alarm.

Immediate Actions:

[1] NOTIFY Shift Manager.
[2] IF C-A-1 vessel is ≥ 190 torr, ADJUST purge air via FC-CA1-20 (Condenser Room, 5th floor, South End of East Wall, top row of the instrument rack) between 4.5 to 6 scfm as read on FIT-CA1-20.

Supplemental Actions:

[3] IF alarm condition cannot be reset, CHECK that interlock actions have been completed.
[4] IF interlock actions have not completed, REQUEST Shift Manager to enter LCO 3.1.
[5] IF HV-EA1-5 has been closed for more than 30 minutes, ENSURE 10 lb steam is isolated by closing valve MS-V-44 before HV-EA1-5 is re-opened by resetting the interlock.

Probable Causes:

1. High or low purge air flow.
2. Instrument malfunction.

References:

Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Facility: 242-A Evaporator
Graphic: 13
Panel: N/A
Source: FIT-CA1-20

Yellow

Alarm #: N/A
Setpoint: < 4.5 scfm

Alarm Class: Equipment Status
Alarm Description: Low purge air flow. This alarm activates prior to minimum purge air flow of 3.1 scfm.

Automatic Actions:
NONE

Immediate Actions:
[1] NOTIFY Shift Manager.
[2] IF C-A-1 vessel is ≥ 170 torr, ADJUST purge air via FC-CA1-20 (Condenser Room, 5th floor, South End of East Wall, top row of the instrument rack) between 4.5 to 6 scfm as read on FIT-CA1-20.

Probable Causes:
1. Instrument malfunction.
2. Loss of instrument air.

References:
Drawings: None
Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.1, C-A-1 Vessel Flammable Gas Control System
Facility: 242-A Evaporator

Graphic: 13

Panel: N/A

Source: FIT-CA1-20

Alarm #: N/A

Setpoint: > 8 scfm

Alarm Class: Equipment Status

Alarm Description: High purge air flow. This alarm activates prior to maximum purge air flow of 14 scfm.

Automatic Actions:

NONE

Immediate Actions:

[1] NOTIFY Shift Manager.

[2] IF C-A-1 vessel is ≥ 170 torr, ADJUST purge air via FC-CA1-20 (Condenser Room, 5th floor, South End of East Wall, top row of the instrument rack) between 4.5 to 6 scfm as read on FIT-CA1-20.

Probable Causes:

1. Instrument malfunction.

References:

Drawings: None

Documents: HNF-15279, Technical Safety Requirements for the 242-A Evaporator
LCO 3.1, C-A-1 Vessel Flammable Gas Control System