Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Tank Farm Alarm Response Procedure

USQ # EV-17-1010-S, Rev. 1

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
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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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<td>I-2</td>
<td>11/21/2017</td>
<td>Operations Request</td>
<td>Changed from &quot;F28&quot; to &quot;F29&quot; on alarm description for alarms LXA-60M01D, LXA-60M01C and LXA-43-2</td>
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<td>I-1</td>
<td>08/01/2017</td>
<td>PCA to update format</td>
<td>Updated requirements and records sections to comply with current standards.</td>
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<tr>
<td>I-0</td>
<td>05/26/2015</td>
<td>Periodic Review</td>
<td>No Changes</td>
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<td>H-2</td>
<td>12/03/2014</td>
<td>Operations Request</td>
<td>Changed &quot;Leachate&quot; to &quot;Basin&quot; in parts of the procedure, changed immediate actions to shutdown evaporator if directed by Shift Manager, re-ordered steps throughout the procedure and corrected alarm source on page 27.</td>
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<td>H-1</td>
<td>07/22/2014</td>
<td>Alarm corrections</td>
<td>Corrected various alarm designations.</td>
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RECORDS

No records are generated during the performance of this procedure.
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A  Setpoint: Loss of Communications
Source: PCM0A/B  Alarm Class: Equipment Status

Alarm Description: LERF MODEM COMM STATUS (FAILED) (F28); loss of communications between the Evaporator and LERF PLCs.

Automatic Actions:
None.

Immediate Actions:

[1] MONITOR the status of YS-PLC-1 (F28) LERF MODEM COMM STATUS status is FAILED.

NOTE - The Evaporator and LERF Modems will automatically try to reestablish communications within 15 seconds.
- If YS-PLC-1 resets to NORMAL automatically within 1 minute, the remainder of this alarm response should not be performed.
- EVAP-ETF-MODEM-10 is located inside the EVAP-MC-10 cabinet on the west wall of the MUX room inside the Evaporator.
- LERF-MODEM-20 is located inside the LERF-MC-20 cabinet on the north wall of the 242AL-71 building at LERF.

[2] CONFIRM EVAP-ETF-MODEM-10 is powered and functional by checking the following lights on the modem:
- PWR: Green (solid)
- SYNC A: Green (solid)
- Data: Yellow (flashing)

[3] IF alarm does not clear within 1 minute, PERFORM the following:

[3.1] POSITION the power toggle switch on the power strip inside the modem cabinet to OFF at the EVAP-MC-10 cabinet (on the west wall of the MUX room).

[3.2] POSITION the power toggle switch on the power strip inside the modem cabinet to ON.

[3.3] IF communication was restored, EXIT this ARP.

(Continued on Next Page)
**Respond to LERF Graphic #24 Alarms at the 242-A Evaporator**

**Facility:** 242-A Evaporator

**Graphic:** 24  
**Alarm #:** N/A

**Panel:** N/A  
**Setpoint:** Loss of Communications

---

**RED**

**YS-PLC-1**

---

**Immediate Actions (Cont.):**

[4] IF communication was not restored, **REPEAT** Step [3] twice.

[5] **CONTACT** LEF Control Room Operator (373-9000) to verify that LERF-PLC and LERF-MODEM-20 are powered and show no communication alarms at the LEF control system.

[6] IF YS-PLC-1 has not cleared, **CONTACT** LEF Control Room Operator (373-9000) to request the following:

- **POSITION** the power toggle switch on the LERF-MODEM-20 to OFF at LERF-MC-20 (on north wall of 242AL-71 at LERF).

- **AFTER** 3 seconds, **POSITION** the power toggle switch on the LERF-MODEM-20 to ON.

- **IF** communication was restored, **EXIT** this ARP.

[7] **IF** communication was not restored, **REQUEST** LEF Control Room Operator to repeat Step [6] twice.

[8] **REQUEST** LEF Control Room Operator to provide status of the following alarms to check for Catch Basin leaks until the LERF modem communication is restored:

- LDS – BSN42
- LDS – BSN43
- LDS – BSN44.

[9] IF YS-PLC-1 status is still FAILED, **NOTIFY** Shift Manager of the loss of communication.

(Continued on Next Page)
### Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator  
**Graphic:** 24  
**Panel:** N/A  
**Source:** PCM0A/B  
**Alarm #:** N/A  
**Setpoint:** Loss of Communications  
**RED**  
**YS-PLC-1**  

(Continued)

### Possible Causes:

1. Loss of power to Evaporator PLC and/or modem.
2. Loss of power to LERF PLC and/or modem.
3. Loss of communications between the Evaporator and LERF PLCs.
4. Ongoing maintenance PM.
5. Instrument malfunction.

### References:

**Respond to LERF Graphic #24 Alarms at the 242-A Evaporator**

**Facility:** 242-A Evaporator

**Graphic:** 24

**Panel:** N/A

**Source:** PCM0A/B

**Setpoint:** LI-LCH42 signal error

**Alarm Class:** Equipment Status

**Alarm Description:** BASIN 42 LI-LCH42 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 42 Leachate level analog signal transmission.

**Automatic Actions:**

None.

**Immediate Actions:**

1. **CHECK** that LXS-LCH42 (F29) BASIN 42 LI-LCH42 SIGNAL STATUS status is ERROR.

2. **IF** alarm does not clear, **NOTIFY** Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Leachate Level Detector.

**Possible Causes:**

1. Disruption of Basin 42 Leachate Level analog signal.

2. Ongoing maintenance PM.

**References:**

**Drawings:**

- H-2-79614, Sheets 1 and 2
- H-2-88766, Sheets 1 through 5
- H-2-79649, Sheets 1 and 2
- H-2-79653, Sheets 1 and 2
- H-2-99085, Sheet 23
Facility: 242-A Evaporator

Graphic: 24  
Alarm #: N/A

Panel: N/A

Source: PCM0A/B  
Setpoint: LI-BSN42 signal error

Alarm Class: Equipment Status

Alarm Description: BASIN 42 LI-BSN42 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 42 level analog signal transmission.

Automatic Actions:
None.

Immediate Actions:

[1] CHECK that LXS-BSN42 (F29) BASIN 42 LI-BSN42 SIGNAL STATUS status is ERROR.

[2] IF alarm does not clear, NOTIFY the Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Basin Level Detector.

Possible Causes:
1. Disruption of Basin 42 level analog signal.
2. Ongoing maintenance PM.

References:

Facility: 242-A Evaporator

Graphic: 24  
Alarm #: N/A

Panel: N/A

Source: PCM0A/B  
Setpoint: LI-LCH43 signal error

Alarm Class: Equipment Status

Alarm Description: BASIN 43 LI-LCH43 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 43 Leachate level analog signal transmission.

Automatic Actions:
None.

Immediate Actions:

[1] CHECK that LXS-LCH43 (F29) BASIN 43 LI-LCH43 SIGNAL STATUS status is ERROR.

[2] IF alarm does not clear, NOTIFY the Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Leachate Level Detector.

Possible Causes:

1. Disruption of Basin 43 leachate level analog signal.
2. Ongoing maintenance PM.

References:

Drawings:  
H-2-79614, Sheets 1 and 2, H-2-88766, Sheets 1 through 5, H-2-79649, Sheets 1 and 2, H-2-79653, Sheets 1 and 2, H-2-99085, Sheet 23
Facility: 242-A Evaporator

Graphic: 24
Alarm #: N/A

Panel: N/A

Source: PCM0A/B
Setpoint: LI-BSN43 signal error

Alarm Class: Equipment Status

Alarm Description: BASIN 43 LI-BSN43 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 43 level analog signal transmission.

Automatic Actions:
None.

Immediate Actions:

[1] CHECK that LXS-BSN43 (F29) BASIN 43 LI-BSN43 SIGNAL STATUS status is ERROR.

[2] IF alarm does not clear, NOTIFY the Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Basin Level Detector.

Possible Causes:

1. Disruption of Basin 43 level analog signal.
2. Ongoing maintenance PM.

References:

# Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator

**Graphic:** 24  
**Alarm #:** N/A

**Panel:** N/A  
**Setpoint:** LI-LCH44 signal error

**Alarm Class:** Equipment Status

**Alarm Description:** BASIN 44 LI-LCH44 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 44 Leachate level analog signal transmission.

**Automatic Actions:**

None.

**Immediate Actions:**

1. **CHECK** that LXS-LCH44 (F29) BASIN 44 LI-LCH44 SIGNAL STATUS status is ERROR.

2. **IF** alarm does not clear, **NOTIFY** the Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Leachate Level Detector.

**Possible Causes:**

1. Disruption of Basin 44 leachate level analog signal.

2. Ongoing maintenance PM.

**References:**

**Drawings:**

- H-2-79614, Sheets 1 and 2
- H-2-88766, Sheets 1 through 5
- H-2-79649, Sheets 1 and 2
- H-2-79653, Sheets 1 and 2
- H-2-99085, Sheet 23
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A

Panel: N/A  LXS-BSN44

Source: PCM0A/B  Setpoint: LI-BSN44 signal error

Alarm Class: Equipment Status

Alarm Description: BASIN 44 LI-BSN44 SIGNAL STATUS (ERROR) (F29); there has been a disruption of the Basin 44 level analog signal transmission.

Automatic Actions:
None.

Immediate Actions:
[1] CHECK that LXS-BSN44 (F29) BASIN 44 LI-BSN44 SIGNAL STATUS status is ERROR.

[2] IF alarm does not clear, NOTIFY the Shift Manager that troubleshooting is required for the Evaporator, LERF Program Logic Controllers, and Basin Level Detector.

Possible Causes:
1. Disruption of Basin 44 level analog signal.
2. Ongoing maintenance PM.

References:
Facility: 242-A Evaporator

Graphic: 24 and 64  Alarm #: N/A
Panel: N/A

Source: LDE-A1-01 through -06  Setpoint: Liquid detected, greater than 5.5mA on LDI-A1

Alarm Class: Environmental Impact

Alarm Description: EVAP PC TO LERF LEAK (F28); liquid has been detected in the encasement of the pipeline to Liquid Effluent Retention Facility (PC-5000). LDI-A1 provides an indication (from 0 to 20mA, see Table 1 for corresponding location information) of the approximate location along the pipeline where a leak has been detected.

Automatic Actions: None.

Immediate Actions:

[1] COMPARE LDI-A1 value to Table 1 to determine the leak location.
[2] AT the LERF 43 Basin, CHECK the sight glass for the presence of liquid.
[3] IF liquid is not present at the sight glass, PERFORM the following:
   [3.2] CONTACT maintenance to troubleshoot instrument Trace-Tek module for LDI-A1 at LERF.
[4] IF liquid is present at the sight glass or additional zones alarm per Table 1, PERFORM the following:
   [4.1] ENSURE P-C100 CONDENSATE TANK PUMP status is CF-OFF.
   [4.2] ENSURE that HV-RC3-3 PROCESS CONDENSATE DIVERT VALVE status is CF-DVRT.
[5] IF leak is confirmed, PERFORM the following:
   [5.1] IF directed by Shift Manager SHUTDOWN the Evaporator per TO-600-060 AND
        GO TO Step [6],
   OR
        REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND
        GO TO Step [6].

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Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24 and 64  
Alarm #: N/A

Panel: N/A

Source: LDE-A1-01 through -06  
Setpoint: Liquid detected, greater than 5.5mA on LDI-A1

YELLOW  

LDI-A1

Immediate Actions (Cont.):

[6] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:

1. Liquid in encasement of pipeline PC-5000.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Drawings:  
H-2-88766, Sheets 1 through 5, H-2-79608, H-2-79609, H-2-79610, H-2-99059

Documents:  
TO-600-060, Shut Down 242-A Evaporator System

VI #22152, Sheets 98 through 117, Zone System Operator's Manual
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A
Setpoint: Liquid detected or continuity fault in the encasement of the LERF pipeline

Alarm Description: EVAP PC TO LERF LEAK (F28); liquid has been detected, or a continuity fault has occurred in the line encasement of the pipeline from 242-A to LERF (PC-5000).

Automatic Actions:
None.

Immediate Actions:

[1] COMPARE LDI-A1 value to Table 1 to determine the leak location.
[2] IF LDI-A1 value is less than 4.0 mA, CONTACT maintenance to troubleshoot instrument Trace-Tek module for LDI-A1 at LERF.
[3] IF LDI-A1 module is greater than 4.0 mA, RESPOND per LDI-A1 in this ARP.

Possible Causes:
1. Liquid in encasement of pipelines PC-5000.
2. Break in detector cable continuity.
3. Loss of power to Trace-Tek module (at LERF).
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:
**Respond to LERF Graphic #24 Alarms at the 242-A Evaporator**

**Facility:** 242-A Evaporator

**Graphic:** 24  
**Alarm #:** N/A

**Panel:** N/A  
**Source:** LDE-42-1  
**Setpoint:** Liquid detected

**Alarm Class:** Environmental Impact  
**Alarm Description:** CATCH BASIN 42 LEAK (F28); liquid has been detected in the LERF Catch Basin 42.

**Automatic Actions:**  
None.

**Immediate Actions:**

1. **CHECK** that LDS-BSN42 (F28) CATCH BASIN 42 LEAK status is LEAK.
2. **CONTACT** LEF Control Room Operator (373-9000) to determine cause of LDS-BSN42 alarm.
3. **ENSURE** that P-C100 (F28) CONDSATE TANK PUMP status is CF-OFF.

**Supplemental Actions:**

4. **IF** leak is confirmed, **REQUEST** Shift Manager notify Environmental On-Call of the leak at LERF.

**Possible Causes:**

1. Leak in Catch Basin 42 piping.
2. Accumulation of rain water in Catch Basin 42.
3. Failure of Catch Basin 42 drain check valve.
5. Ongoing maintenance PM.

**References:**

**Drawings:** H-2-79614, Sheets 1 and 2, H-2-88766, Sheets 1 through 5, H-2-79649, Sheets 1 and 2, H-2-79653, Sheets 1 and 2, H-2-99085, Sheet 23
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24              Alarm #: N/A
Panel: N/A                LDS-BSN43
Source: LDE-43-1          Setpoint: Liquid detected

Alarm Class: Environmental Impact
Alarm Description: CATCH BASIN 43 LEAK (F28); liquid has been detected in the LERF Catch Basin 43.

Automatic Actions:
None.

Immediate Actions:
[1] CHECK that LDS-BSN43 (F28) CATCH BASIN 43 LEAK status is LEAK.
[3] ENSURE that P-C100 (F28) CONDSATE TANK PUMP status is CF-OFF.

Supplemental Actions:
[4] IF leak is confirmed, REQUEST Shift Manager notify Environmental On-Call of the leak at LERF.

Possible Causes:
1. Leak in Catch Basin 43 piping.
2. Accumulation of rain water in Catch Basin 43.
3. Failure of Catch Basin 43 drain check valve.
5. Ongoing maintenance PM.

References:
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24               Alarm #: N/A
Panel: N/A
Source: LDE-44-1           Setpoint: Liquid detected

Alarm Class: Environmental Impact
Alarm Description: CATCH BASIN 44 LEAK (F28); liquid has been detected in the LERF Catch Basin 44.

Automatic Actions:
None.

Immediate Actions:
[1] CHECK that LDS-BSN44 (F28) CATCH BASIN 44 LEAK status is LEAK.
[3] ENSURE that P-C100 (F28) CONDSATE TANK PUMP status is CF-OFF.

Supplemental Actions:
[4] IF leak is confirmed, REQUEST Shift Manager notify Environmental On-Call of the leak at LERF.

Possible Causes:
1. Leak in Catch Basin 44 piping.
2. Accumulation of rain water in Catch Basin 44.
3. Failure of Catch Basin 44 drain check valve.
4. Loss of power to Leak Detection Element LDE-44-1.
5. Ongoing maintenance PM.

References:
Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A
Source: LY-42-1  Setpoint: High liquid level element in contact with liquid

Alarm Class: Equipment Status
Alarm Description: LERF LEACHATE PUMP 42 CONFIRM (F28); Basin 42 leachate sump pump has started.

Automatic Actions:
None.

Immediate Actions:

NOTE - This alarm is a status indicator for this pump.
[1] NOTIFY the Shift Manager.
[2] IF directed by Shift Manager, NOTIFY LEF Control Room Operator (373-9000) to watch for trends.

Possible Causes:

1. Liquid level in the Basin 42 sump has reached the high liquid level element, possibly as the result of a leak.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A
Source: LY-43-1  Setpoint: High liquid level element in contact with liquid

Alarm Class: Equipment Status
Alarm Description: LERF LEACHATE PUMP 43 CONFIRM (F28); Basin 43 leachate sump pump has started.

Automatic Actions:
None.

Immediate Actions:
NOTE - This alarm is a status indicator for this pump.
[1] NOTIFY the Shift Manager.
[2] IF directed by Shift Manager, NOTIFY LEF Control Room Operator (373-9000) to watch for trends.

Possible Causes:
1. Liquid level in the Basin 43 sump has reached the high liquid level element possibly as the result of a leak.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:
Facility: 242-A Evaporator

Graphic: 24  
Alarm #: N/A

Panel: N/A

Source: LY-44-1  
Setpoint: High liquid level element in contact with liquid

Alarm Class: Equipment Status

Alarm Description: LERF LEACHATE PUMP 44 CONFIRM (F28); Basin 44 leachate sump pump has started.

Automatic Actions: None.

Immediate Actions:

NOTE - This alarm is a status indicator for this pump.
[1] NOTIFY the Shift Manager.
[2] IF directed by Shift Manager, NOTIFY LEF Control Room Operator (373-9000) to watch for trends.

Possible Causes:

1. Liquid level in the Basin 44 sump has reached the high liquid level element possibly as the result of a leak.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A
Source: LDE_60M01D  Setpoint: Liquid detected

Alarm Class: Environmental Impact
Alarm Description: Interbasin pipeline PC-5010 has detected a leak at LERF Basin 42. (F28)

Automatic Actions:
None.

Immediate Actions:

[1]  IF not transferring to LERF Basin 42, CONTACT the Liquid Effluent Control Room Operator (373-9000) to determine the cause of the leak.


[3]  IF LDI-A1 is showing a leak indication, PERFORM the following:

[3.1]  IF directed by Shift Manager SHUTDOWN the Evaporator per TO-600-060 AND

   GO TO Step [4],

   OR

   REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND

   GO TO Step [4],

[4]  IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:

1. Leak in PC-5010 piping.
2. Ongoing maintenance PM.
3. Instrument malfunction.

References:

Documents:  TO-600-060, Shut Down 242-A Evaporator System
Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A  LXA-60M01D
Source: LDE_60M01D  Setpoint: Signal error

Alarm Class: Environmental Impact
Alarm Description: Interbasin pipeline PC-5010 leak detector at Basin 42 has experienced a failure. (F29)

Automatic Actions:
None.

Immediate Actions:

[1] IF not transferring to LERF Basin 42, CONTACT the Liquid Effluent Control Room Operator (373-9000) to have them troubleshoot the Trace-Tek leak detection module at LERF.


[3] IF LDI-A1 is showing a leak indication, PERFORM the following:
[3.1] IF directed by Shift Manager SHUTDOWN, the Evaporator per TO-600-060 AND

  GO TO Step [4],

  OR

  REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND

  GO TO Step [4].

[4] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:
1. Loss of communication with LERF PLL.
2. Ongoing maintenance PM.
3. Loss of power to the leak detection element LDE_60M01D at LERF.
## Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

**Facility:** 242-A Evaporator  
**Graphic:** 24  
**Panel:** N/A  
**Source:** LDE_60M01D  
**Alarm #:** N/A  
**Setpoint:** Signal error  

### References:

- **Drawings:** H-2-79614, Sheets 1 and 2, H-2-88766, Sheets 1 through 5, H-2-79649, Sheets 1 and 2, H-2-79653, Sheets 1 and 2, H-2-99085, Sheet 23  
- **Documents:** TO-600-060, Shut Down 242-A Evaporator System
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24                  Alarm #: N/A
Panel: N/A
Source: LDE_60M01C            Setpoint: Liquid detected
Alarm Class: Environmental Impact
Alarm Description: Interbasin pipeline PC-5005 has detected a leak at LERF Basin 44. (F28)

Automatic Actions:
None.

Immediate Actions:
[1] IF not transferring to LERF Basin 44, CONTACT the Liquid Effluent Control Room Operator (373-9000) to determine the cause of the leak.
[3] IF LDI-A1 is showing a leak indication, PERFORM the following:
   [3.1] IF directed by Shift Manager, SHUTDOWN, the Evaporator per TO-600-060 AND
       GO TO Step [4],
       OR
       REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND
       GO TO Step [4].
[4] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:
1. Leak in PC-5005 piping.
2. Ongoing maintenance PM.
3. Instrument malfunction.

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

Graphic: 24                  Alarm #: N/A
Panel: N/A                   Setpoint: Liquid detected
Source: LDE_60M01C          (Continued)

References:


Documents: TO-600-060, Shut Down 242-A Evaporator System
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A
Source: LDE_60M01C  Setpoint: Signal error

Alarm Class: Environmental Impact
Alarm Description: Interbasin pipeline PC-5010 leak detector at Basin 44 has experienced a failure. (F29)

Automatic Actions: None.

Immediate Actions:

[1] IF not transferring to LERF Basin 44, CONTACT the Liquid Effluent Control Room Operator (373-9000) to have them troubleshoot the Trace-Tek leak detection module at LERF.


[3] IF LDI-A1 is showing a leak indication, PERFORM the following:

[3.1] IF directed by Shift Manager SHUTDOWN, the Evaporator per TO-600-060 AND

GO TO Step [4],

OR

REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND

GO TO Step [4].

[4] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:

1. Loss of communication with LERF PLL.
2. Ongoing maintenance PM.
3. Loss of power to the leak detection element LDE_60M01C at LERF.

(Continued on Next Page)
Facility: 242-A Evaporator
Graphic: 24  Alarm #: N/A
Panel: N/A  Setpoint: Signal error
Source: LDE_60M01C  (Continued)

References:
Documents:  TO-600-060, Shut Down 242-A Evaporator System
Facility: 242-A Evaporator

Graphic: 24  Alarm #: N/A
Panel: N/A  Setpoint: Liquid detected
Source: LDE_43_2  Alarm Class: Environmental Impact

Alarm Description: Interbasin pipeline PC-5000 has detected a leak at LERF Basin 43. (F28)

Automatic Actions:
None.

Immediate Actions:

[1] AT the LERF 43 Basin, CHECK the sight glass for the presence of liquid.
[2] IF liquid is not present at the sight glass, MONITOR LDI-A1 for a leak indication
   [2.1] CONTACT maintenance to troubleshoot leak detector LDE_43_2 at LERF
[3] IF liquid is present at the sight glass, PERFORM the following:
   [3.1] ENSURE P-C100 CONDENSATE TANK PUMP status is CF-OFF.
   [3.2] ENSURE that HV-RC3-3 PROCESS CONDENSATE DIVERT VALVE status is CF-DVRT.
[4] IF leak is confirmed, PERFORM the following:
   [4.1] IF directed by Shift Manager SHUTDOWN, the Evaporator per TO-600-060 AND
         GO TO Step [5],
         OR
         REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND
         GO TO Step [5].
[5] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:

1. Leak in PC-5000 piping.
2. Ongoing maintenance PM.
3. Instrument malfunction.

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

Graphic: 24
Alarm #: N/A

Panel: N/A

Source: LDE_43_2
Setpoint: Liquid detected

References:


Documents: TO-600-060, Shut Down 242-A Evaporator System
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 24  Alarm #: N/A
Panel: N/A
Source: LDE_43_2  Setpoint: Signal error
Alarm Class: Environmental Impact
Alarm Description: Interbasin pipeline PC-5000 leak detector at Basin 43 has experienced a failure. (F29)

Automatic Actions: None.

Immediate Actions:
[1] AT the LERF 43 Basin, CHECK the sight glass for the presence of liquid.
[2] IF liquid is not present at the sight glass, MONITOR LDI-A1 for a leak indication
   [2.1] CONTACT maintenance to troubleshoot leak detector LDE_43_2 at LERF
[3] IF liquid is present at the sight glass, PERFORM the following:
   [3.1] ENSURE P-C100 CONDENSATE TANK PUMP status is CF-OFF.
   [3.2] ENSURE that HV-RC3-3 PROCESS CONDENSATE DIVERT VALVE status is CF-DVRT.
[4] IF leak is confirmed, PERFORM the following:
   [4.1] IF directed by Shift Manager SHUTDOWN, the Evaporator per TO-600-060 AND
       GO TO Step [5],
   OR
       REDUCE boil-off rate as necessary to maintain Tank C-100 at an acceptable level AND
       GO TO Step [5].
[5] IF leak is confirmed, REQUEST Shift Manager notify Radiological Control Engineering and Environmental On-Call of pipeline leak.

Possible Causes:
1. Loss of communication with LERF PLL.
2. Ongoing maintenance PM.
3. Loss of power to the leak detection element LDE_43_2.

(Continued on Next Page)
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator
Graphic: 24  Alarm #: N/A
Panel: N/A  Setpoint: Signal error
Source: LDE_43_2

References:
Documents: TO-600-060, Shut Down 242-A Evaporator System

(Continued)
Respond to LERF Graphic #24 Alarms at the 242-A Evaporator

Facility: 242-A Evaporator

Graphic: 24

Alarm #: N/A

Panel: N/A

Source: PCM0A/B

Setpoint: Alarm or Communication Error Detected

Alarm Class: Equipment Status

Alarm Description: A LERF leak detector alarm or communication error has caused the MCS software device to indicate an alarm. (F28)

Automatic Actions:
None.

Immediate Actions:

NOTE - This alarm will be accompanied by other LERF leak detector alarms.

[1] MONITOR the LERF leak detectors on Graphic #24 and Graphic #64 to identify the specific LERF leak detector alarm AND RESPOND per that ARP accordingly.

[2] IF there are no additional LERF leak detector alarms, CONTACT Engineering for troubleshooting support.

Possible Causes:

1. Loss of power to the Evaporator or LERF PLC or leak detection equipment.
2. Loss of power to the Evaporator or LERF modems.
3. Loss of communication between the Evaporator and LERF.
4. Ongoing maintenance PM.
5. Instrument malfunction.

References:

Drawings: None
Documents: None
Table 1 - Leak Locations Versus LDI-A1 Value

<table>
<thead>
<tr>
<th>Approximately LDI-A1 (mA) (MCS)</th>
<th>LDE Number, LDE-A1</th>
<th>Swab Riser Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.16 to 22.46</td>
<td>-01</td>
<td>4th riser from 242-A, 30 feet east of Canton Ave.</td>
</tr>
<tr>
<td>17.45 to 19.75</td>
<td>-02</td>
<td>14th riser from 242-A, 700 feet north of SC Basins</td>
</tr>
<tr>
<td>15.89 to 17.04</td>
<td>-03</td>
<td>24th riser from 242-A, 410 feet north of 7th street</td>
</tr>
<tr>
<td>13.00 to 14.15</td>
<td>-04</td>
<td>34th riser from 242-A, 370 feet north of 8th street</td>
</tr>
<tr>
<td>10.41 to 11.56</td>
<td>-05</td>
<td>44th riser from 242-A, 360 feet north of LERF south entry road</td>
</tr>
<tr>
<td>6.45 to 8.75</td>
<td>-06</td>
<td>Catch Basin 43, pipeline from 242-A</td>
</tr>
</tbody>
</table>