Tank Farm Alarm Response Procedure

USQ # TF-17-1308-S, Rev. 0

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-3</td>
<td>09/20/2017</td>
<td>Change to TFC-PLN-167</td>
<td>Inconsequential Change to update the White Label statement to latest changes to TFC-PLN-167.</td>
</tr>
<tr>
<td>I-2</td>
<td>06/12/2017</td>
<td>Update Procedure to Current Field Conditions</td>
<td>Removal of TO-060-358 due to inactivation of document and Supplemental Actions for Alarm LAL-AZ2-EWTK-1</td>
</tr>
<tr>
<td>I-1</td>
<td>08/31/2016</td>
<td>Requested by the electrical group.</td>
<td>Added the White Label program statement.</td>
</tr>
<tr>
<td>I-0</td>
<td>05/21/2015</td>
<td>All changes are as a result of the periodic review process.</td>
<td>No technical changes were made during this periodic review.</td>
</tr>
<tr>
<td>H-1</td>
<td>09/15/2014</td>
<td>MCS update to modify screen names per TFC-ENG-SCR-55647</td>
<td>Engineering request to address changes to the MCS software. Modified screen name to just a number.</td>
</tr>
</tbody>
</table>

GRAPHIC #09 EVAP AZ2 ALARM INDEX

<table>
<thead>
<tr>
<th>Alarm #</th>
<th>Description</th>
<th>Color</th>
<th>Page</th>
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<tbody>
<tr>
<td>1</td>
<td>FI-AZ2-EWR-1, LOW, AZ102 Evaporator Glycol Return Low Flow</td>
<td>Yellow</td>
<td>3</td>
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<tr>
<td>2</td>
<td>LAL-AZ2-EWTK-1, AZ102 Evaporator Glycol Expansion Tank Level Low</td>
<td>Yellow</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>AZ102EW-P-1A, Evaporator Glycol Pump 1A Status (OE)</td>
<td>Yellow</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>AZ102EW-P-1B, Evaporator Glycol Pump 1B Status (OE)</td>
<td>Yellow</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>AZ102EW-SP-1, Evaporator Water Spray Pump Status (OE)</td>
<td>Yellow</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>AZ102EW-T-1, Evaporator Water Tower Fan Status (OE)</td>
<td>Yellow</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>LALL-AZ2EWT-1, AZ102 Evaporator Tower Liquid Level (Low)</td>
<td>Yellow</td>
<td>9</td>
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</tbody>
</table>

RECORDS

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

1.1 This attachment provides guidance to operators for responding to alarms associated with the AY/AZ ventilation system.

1.2 Section 3.0 provides guidance to operators for starting up the Monitor and Control System so that they may determine current alarm status if the system is not on line when they report to the control room.

2.0 PRECAUTIONS AND LIMITATIONS

2.1 Personnel Safety

2.1.1 Non-electrical worker accessing electrical enclosures must ensure the following:
- The enclosure must have a white label indicating that it has been evaluated.
- The work activity within the enclosure does not involve:
  - Reaching around or moving electrical equipment
  - Contacting electrical connectors/connections
  - By-passing protective shielding/barriers.

2.1.1.1 Stop and notify management if these conditions cannot be met, or if discrepancies exist (e.g. conflicting or missing labels, missing or damaged protective barriers).

3.0 OPERATION

3.1 IF system does not respond and appears to be locked, REFER to procedure TO-060-356, Perform 702-AZ Exhauster Monitor and Control System Operations for instructions on re-setting and re-booting system AND RETURN to this procedure.

3.2 OPERATE system in accordance with procedure TO-060-356.
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 1

Source: FI-AZ2-EWR-1  Setpoint: 170 GPM

Alarm Class: Plant Stability
Alarm Description: AZ102 Evaporator Glycol Return Low Flow

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- If system flow decreases to less than 100 gpm, the standby re-circulation pump will start if it is in the AUTO/STANDBY mode.

Immediate Actions:

[1] THROTTLE OPEN re-circulation pump outlet valve HV-AZ102EWS-1A2 to increase flow.

[2] IF opening HV-AZ102EWS-1A2 does not increase flow enough to clear the low flow alarm, SWITCH to standby re-circulation pump AND READJUST HV-AZ102EWS-1A2 to establish flow between 187 gpm and 197 gpm.

Supplemental Actions:

[3] IF opening HV-AZ102EWS-1A2 AND starting the standby pump does not clear the low flow alarm, NOTIFY Shift Manager of actions and findings.

Possible Causes:
1. Problem with operational re-circulation pump.
2. Strainer AZ102-EW-F-1A or AZ102-EW-F-1B plugged on operating pump.

References:
Drawings: H-14-022507, Sht 2
**Facility:** AZ-102 Evaporative Cooling Tower

**Graphic:** 09  \hspace{1cm} **Alarm #:** 2

**Source:** LSL-AZ102-EW-TK-1  \hspace{1cm} **Setpoint:** Approx. 1 inch

**Alarm Class:** Equipment Status  
**Alarm Description:** AZ102 Evaporator Glycol Expansion Tank Level Low

**NOTE** - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

**Immediate Actions:**

1. [1] **CHECK** system for leaks locally AND CHECK sight glass on AZ102-EW-TK-1 for level indication.
2. [2] IF level is visible in the sight glass, **MONITOR** system periodically AND **NOTIFY** Shift Manager of findings.

**Supplemental Actions:**

3. [3] **NONE**

**Possible Causes:**

1. Loss of glycol solution (50% Dow Frost Heat Transfer Fluid -Material Safety Data Sheet #019856) from system (leak)
2. Failure of level indicator
3. Equipment failure.

**References:**

Drawings:  H-14-022507, Sht 2
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 3

Source: AZ102-EW-P-1A  Setpoint: N/A

Alarm Class: Equipment Status

Alarm Description: Evaporator Glycol Pump 1A Status (Fault)

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

Automatic Actions:
1. Pump AZ102EW-P-1A STOPS.
2. Pump AZ102EW-P-1B STARTS if in AUTO/STANDBY.

Immediate Actions:
[1] CHECK other associated alarms on annunciator panel.
[2] CHECK pump AZ102EW-P-1A has stopped and pump AZ102EW-P-1B is operating.
[3] IF pump AZ102EW-P-1B does not start automatically, START pump AZ102EW-P-1B as follows:
   [3.1] ENSURE pump starts and flow is normal.

Supplemental Actions:

Possible Causes:
1. Low flow rate from FI-AZ2EWR-1, below 100 gpm.
2. Pump failed (less than 2 amps).

References:
Drawings: H-14-022507, Sht 2
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 4

Source: AZ102-EW-P-1B  Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: Evaporator Glycol Pump 1B Status (Fault)

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

Automatic Actions:
1. Pump AZ102EW-P-1B STOPS.
2. Pump AZ102EW-P-1A STARTS if in AUTO/STANDBY.

Immediate Actions:
[1] CHECK other associated alarms on annunciator panel.
[2] CHECK pump AZ102EW-P-1B has stopped and pump AZ102EW-P-1A is operating.
[3] IF pump AZ102EW-P-1A does not start automatically, START pump AZ102EW-P-1A as follows:
   [3.1] ENSURE pump starts and flow is normal.

Supplemental Actions:

Possible Causes:
1. Low flow rate from FI-AZ2EWR-1, below 100 gpm.
2. Pump failed (less than 2 amps).

References:
Drawings: H-14-022507, Sht 2
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 5  
Source: AZ102-EW-SP-1  Setpoint: N/A

Yellow

Graphic:

Alarm #:

Source:

Setpoint:

Alarm Class: Plant Stability

Alarm Description: Evaporator Water Spray Pump Status (Fault)

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

Automatic Actions:
1. AZ102 cooling tower spray pump AZ102 EW-SP-1 shut down.
2. Evaporative cooling tower fan is interlocked to shut down if the spray pump fails.

Immediate Actions:
[1] IF running in DRY mode, DISREGARD this alarm.
[2] GO TO the AZ102 evaporative cooling tower AND CHECK the status of the spray pump.
[3] IF the spray pump is OFF, CHECK the status of the tower fan.

Supplemental Actions:
NOTE - The spray pump and the tower fan are interlocked to shut down on low-low cooling tower pan level. Therefore, if both the spray pump and the tower fan are off, the pan level may be too low.

[5] IF the spray pump and the tower fan are OFF AND IF it is suspected that a low-low level exists in the pan, GO TO alarm response for LALL-AZ2EWT-1 in this procedure.

Possible Causes:
1. Pump failure.
2. Low-Low cooling tower pan level.

References:
Drawings: H-14-022507, Sht 2
**Facility:** AZ-102 Evaporative Cooling Tower

**Graphic:** 09  
**Alarm #:** 6

**Source:** AZ102-EW-T-1  
**Setpoint:** N/A

**Alarm Class:** Plant Stability  
**Alarm Description:** Evaporator Water Tower Fan Status (Fault)

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**NOTE** - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

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**Automatic Actions:**

1. Tower fan STOPS

**Immediate Actions:**

1. [CHECK](#) the status of the AZ102 evaporative cooling tower cooling fan on graphic screen 09.
2. [IF](#) MONITOR CONTROL SYSTEM screen indicates the cooling fan is FAULTED, [SHUT DOWN](#) the cooling fan.

**Supplemental Actions:**

3. [NOTIFY](#) Shift Manager of actions and findings.

**Possible Causes:**

1. Fan failure.
2. Equipment failure.

**References:**

- Drawings: H-14-022507, Sht 2
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 12

Source: LSL-AZ102-EWT-1  Setpoint: N/A

Alarm Class: Equipment Status

Alarm Description: AZ102 Evaporator Tower Liquid Level (Low)

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.

Automatic Actions:
1. Heater will shut off in sump.
2. Spray pump will shut off.
3. Tower fan will shut off.

Immediate Actions:
[1] IF running in DRY mode, DISREGARD this alarm.
[2] ENSURE HS-AZ102EWT-1A1 on fluid cooler control panel UIC-AZ102EWT-1 is in the OFF position.
[3] ENSURE HS-AZ102EWSP-1A on fluid cooler control panel UIC-AZ102EWT-1 is in the OFF position.
[6] ENSURE HS-AZ102EWT-1A2 on fluid cooler control panel UIC-AZ102EWT-1 is in the OFF position.

(Continued on Next Page)
Facility: AZ-102 Evaporative Cooling Tower

Graphic: 09  Alarm #: 12
Source: LSL-AZ102-EWT-1  Setpoint: N/A

Supplemental Actions:
[7] IF no leaks are found, PERFORM the following:
   [7.1] OPEN tower access hatch AND
         OBSERVE water level.
   [7.2] CLOSE AND SECURE access hatch.
[8] IF water level is low, ENSURE HS-AZ102-WP-1 on PAN RECIRC DISCONNECT
     AZ102-W-P-1 is in the STOP position.
[9] CHECK pan recirculation pump stops, as indicated by a lack of pressure on pressure indicator.
[10] NOTIFY Shift Manager of actions and findings.

Possible Causes:
1. Tower leaking water faster than being supplied.
2. Instrument malfunction.
3. HV-AZ102RW-1 shut.

References:
Drawings: H-14-022507, Sht 2