Tank Farm Alarm Response Procedure

AY/AZ Farm

USQ # TF-16-1404-S, Rev. 1

**Graphic #06 Evap AY1 Alarm Index**

<table>
<thead>
<tr>
<th>Alarm</th>
<th>Description</th>
<th>Color</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>FI-AY1-EWR-1 LOW</td>
<td>AY101 Evaporator Glycol Return Flow Low</td>
<td>Yellow</td>
<td>3</td>
</tr>
<tr>
<td>LAL-AY1-EWTK-1</td>
<td>Evaporator Glycol Expansion Tank Level Low</td>
<td>Yellow</td>
<td>4</td>
</tr>
<tr>
<td>AY101EW-P-1A OE</td>
<td>Evaporator Glycol Pump 1A Status (Object Error)</td>
<td>Yellow</td>
<td>5</td>
</tr>
<tr>
<td>AY101EW-P-1B OE</td>
<td>Evaporator Glycol Pump 1B Status (Object Error)</td>
<td>Yellow</td>
<td>7</td>
</tr>
<tr>
<td>AY101EW-T-1 OE</td>
<td>Evaporator Water Tower Fan Status (Object Error)</td>
<td>Yellow</td>
<td>9</td>
</tr>
<tr>
<td>AY101EW-SP-1 OE</td>
<td>Evaporator Water Spray Pump Status (Object Error)</td>
<td>Yellow</td>
<td>10</td>
</tr>
<tr>
<td>LALL-AY1EWT-1</td>
<td>AY101 Evaporator Tower Liquid Level Low</td>
<td>Yellow</td>
<td>11</td>
</tr>
</tbody>
</table>

**RECORDS**

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

1.1 This procedure provides guidance to Nuclear Chemical Operators for responding to alarms associated with graphic AY-101 Evap Cooling (graphic 6) on the AY/AZ ventilation system MCS or the Tank Farms Monitor and Control System (TFMCS).

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 OPERATE MCS in accordance with procedure TO-060-356, Perform 702-AZ Exhauster Monitor and Control System Operations.
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06  
Alarm #: FI-AY1-EWR-1 LOW

Source: FI-AY1-EWR-1  
Setpoint: 170 GPM

Alarm Class: Plant Stability  
Alarm Description: AY101 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.
- The standby re-circulation pump will start if the DUTY/STANDBY faceplate is on and the pumps are configured to do so.

Immediate Actions:
[1] **THROTTLE OPEN** re-circulation pump outlet valve HV-AY101EWS-1A2 to increase flow.

[2] **IF** opening HV-AY101EWS-1A2 does not increase flow enough to clear the low flow alarm, **SWITCH** to standby re-circulation pump **AND**
**RE-ADJUST** HV-AY101EWS-1A2 to establish flow between 187 gpm and 197 gpm.

Supplemental Actions:
[3] **IF** opening HV-AY101EWS-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 AY101-EW-F-1A or AY101-EW-F-1B plugged on operating pump.

References:
Drawings: H-14-022506, Sht. 1
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06

Alarm #: LAL-AY1-EWTK-1

Source: LSL-AY101-EWTK-1

Setpoint: Approx. 1 inch

Alarm Class: Equipment Status

Alarm Description: 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:

[2] IF level is visible in the sight glass, MONITOR system periodically AND NOTIFY Shift Manager of findings.

Supplemental Actions:

[3] IF level is not visible in the sight glass, NOTIFY Shift Manager.

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-14-022506, Sht. 1
Documents: None
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06

Alarm #: AY101EW-P-1A
Object Error

AY101EW-P-1A
Object Error

Source: AY101-EW-P-1A
Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: Evaporator Glycol Pump 1A Status (Object Error)

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 AY101EW-P-1A STOPS.
2. Pump AY101EW-P-1B STARTS if in STANDBY and Duty/Standby faceplate is ON.

Immediate Actions:

[1] CHECK the status of AY101 evaporator glycol pump AY101EW-P-1A on graphic screen 06.
[2] CHECK evaporator glycol pump AY101EW-P-1A and associated equipment at the cooling tower pad for abnormalities.
[3] CHECK pump AY101EW-P-1A has stopped and pump AY101EW-P-1B is operating if available for service.
[4] IF pump AY101EW-P-1B is available for use, and does not start automatically, START pump AY101EW-P-1B:
   [4.1] ENSURE pump starts and flow is normal.
[5] IF AY101 evaporator glycol pump AY101EW-P-1A is safe to operate, RESET AY101EW-P-1A Object Error per procedure TO-060-350.
[6] IF AY101EW-P-1B is not available, and AY101EW-P-1A Object Error is clear, START pump AY101EW-P-1A.
   [6.1] ENSURE pump starts and flow is normal.

(Continued on Next Page)
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06  
Alarm #: AY101EW-P-1A  
Object Error

Source: AY101-EW-P-1A  
Setpoint: N/A

Supplemental Actions:

[7] NOTIFY Shift Manager of actions and findings.

Possible Causes:

1. Low flow rate from FI-AY1EWR-1, below 100 gpm.
2. Pump failed (less than 2 amps).

References:

Drawings: H-14-022506, Sht. 1  
Documents TO-060-350, Start, Stop and Operate AY/AZ Tank Ventilation Primary Exhaust System
Respond to Monitor Control System Graphic #06 Evap AY1 Alarms

**Facility:** AY-101 Evaporative Cooling Tower

**Graphic:** 06

**Alarm #:** AY101EW-P-1B Object Error

**Source:** AY101-EW-P-1B

**Setpoint:** N/A

**Alarm Class:** Equipment Status

**Alarm Description:** Evaporator Glycol Pump 1B Status (Object Error)

**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 AY101EW-P-1B STOPS.
2. Pump AY101EW-P-1A STARTS if in STANDBY and Duty/Standby faceplate is ON.

**Immediate Actions:**

[1] **CHECK** the status of AY101 evaporator glycol pump AY101EW-P-1B on graphic screen 06.

[2] **CHECK** evaporator glycol pump AY101EW-P-1B and associated equipment at the cooling tower pad for abnormalities.

[3] **CHECK** pump AY101EW-P-1B has stopped and pump AY101EW-P-1A is operating if available for service.

[4] **IF** pump AY101EW-P-1A is available for use, and does not start automatically, **START** pump AY101EW-P-1A.

[4.1] **ENSURE** pump starts and flow is normal.

[5] **IF** AY101 evaporator glycol pump AY101EW-P-1B is safe to operate, **RESET** AY101EW-P-1B Object Error per procedure TO-060-350.

[6] **IF** AY101EW-P-1A is not available, and AY101EW-P-1B Object Error is clear, **START** pump AY101EW-P-1B.

[6.1] **ENSURE** pump starts and flow is normal.

(Continued on Next Page)
Respond to Monitor Control System Graphic #06 Evap AY1 Alarms

Facility: AY-101 Evaporative Cooling Tower

Graphic: 06  
Alarm #: AY101EW-P-1B Object Error

Source: AY101-EW-P-1B  
Setpoint: N/A

YELLOW

AY101EW-P-1B
Object Error

(Continued)

Supplemental Actions:

[7] NOTIFY Shift Manager of actions and findings.

Possible Causes:

1. Low flow rate from FI-AY1EWR-1, below 100 gpm.
2. Pump failed (less than 2 amps).

References:

Drawings: H-14-022506, Sht. 1
Documents TO-060-350, Start, Stop and Operate AY/AZ Tank Ventilation Primary Exhaust System
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06

Alarm #: AY101EW-T-1
Object Error

Source: AY101-EW-T-1
Setpoint: N/A

Alarm Class: Plant Stability
Alarm Description: Evaporator Water Tower Fan Status (Object Error)

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. Tower fan stops.

Immediate Actions:
[1] CHECK the status of the AY101 evaporative cooling tower cooling fan on graphic screen 06.
[4] IF AY101EW-T-1 tower fan Object Error condition has cleared, ENABLE AY101EW-T-1 tower fan on MCS graphic 06.

Supplemental Actions:

Possible Causes:
1. Fan failure.
2. Equipment failure.

References:
Drawings: H-14-022506, Sht. 1
Documents: TO-060-350, Start, Stop and Operate AY/AZ Tank Ventilation Primary Exhaust System
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06

Alarm #: AY101EW-SP-1

Object Error

Source: AY101-EW-SP-1

Setpoint: N/A

Alarm Class: Plant Stability

Alarm Description: Evaporator Water Spray Pump Status (Object Error)

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. AY101 cooling tower spray pump AY101EW-SP-1 shuts down.

Immediate Actions:

[1] IF the AY-101 Evaporative Cooling Tower is running in DRY mode, DISREGARD this alarm.

[2] CHECK the status of the AY-101 spray pump on graphic screen 06.

[3] CHECK alarm LALL-AY1EWT-1 (Water Tower Level Low Low) is not activated.


[5] IF spray pump AY101EW-SP-1 is safe to operate, RESET AY101EW-SP-1 Object Error per procedure TO-060-350.

[6] IF AY101EW-SP-1 spray pump Object Error condition has cleared, ENABLE AY101EW-SP-1 spray pump on MCS graphic 06.

[7] NOTIFY Shift Manager of actions and findings.

Possible Causes:

1. Pump failure.
2. Low-low cooling tower pan level.

References:

Drawings: H-14-022506, Sht. 1

Documents TO-060-350, Start, Stop and Operate AY/AZ Tank Ventilation Primary Exhaust System
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06  
Alarm #: LALL-AY1EWT-1

Source: LSL-AY101-EWT-1  
Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: AY101 Evap Water Tower 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.

Immediate Actions:
[1] IF AY101 cooling tower is running in DRY mode, DISREGARD this alarm.
[2] ENSURE spray pump AY101-EW-SP-1 is OFF using the MCS or at HS-AY101EWSP-1A on fluid cooler control panel UIC-AY101EWT-1 (on the cooling tower pad).
[3] ENSURE tower pan heater is off at HS-AY101EWT-1A2 on fluid cooler control panel UIC-AY101EWT-1 (on the cooling tower pad).
[5] IF water leaks are found at the AY101 cooling tower, CLOSE HV-AY101RW-1.

Supplemental Actions:
[6] IF no water leaks are found at the AY101 cooling tower, PERFORM the following:
[6.1] ENSURE valve HV-AY101RW-1 is OPEN.
[6.2] OPEN tower access hatch AND OBSERVE water level.
[6.3] CLOSE AND SECURE access hatch.
[7] IF water level is low, ENSURE HS-AY101-WP-1 on PAN RECIRC DISCONNECT AY101-W-P-1 is in the STOP position.

(Continued on Next Page)
Facility: AY-101 Evaporative Cooling Tower

Graphic: 06  Alarm #: LALL-AY1EWT-1

Source: LSL-AY101-EWT-1  Setpoint: N/A

Supplemental Actions (Cont.):

[8] CHECK that pan recirculation pump stops, as indicated by a lack of pressure on pressure indicator.

[9] NOTIFY Shift Manager of actions and findings.

Possible Causes:

1. Tower leaking water faster than being supplied.
2. Instrument malfunction.
3. HV-AY101RW-1 shut.

References:

Drawings: H-14-022506, Sht. 1