Concentrate Tanks Alarms Response

ETF Alarm Response Procedure

Effluent Treatment Facility

USQ Not Required – ETF is a <Hazard Category 3 Radiological Facility

CHANGE HISTORY (≤ LAST 5 REV-MODS)

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Concentrate Tanks

Alarm

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RECORDS

No records are generated during the performance of this procedure.
CONCENTRATE RECEIVING TANK A READY ATTEMPT FAILURE

**DESCRIPTION:** CONCENTRATE RECEIVING TANK A READY ATTEMPT FAILURE

**Setpoint:** Logic permissive(s) not met

**Alarm Location:** Logic generated alarm

**Graphic:** Alarm Summary Screen

**Indications:** N/A

**Automatic Actions:**

1. Tank A transfers from ready to shut down.

**Immediate Actions:**

1. **CONFIRM** the following:
   1.1 Concentrate receiving tank receiving selection for CONC TK “B”:

<table>
<thead>
<tr>
<th>Action Description</th>
<th>Status Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT pump A in auto</td>
<td>CT pump A alarm is clear</td>
</tr>
<tr>
<td>Dryer in run or run initiated</td>
<td>CT A level alarm is clear</td>
</tr>
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<td>AOV-60J044 in auto</td>
<td>AOV-60J058 in auto</td>
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<td>AOV-65C041 in auto</td>
<td>AOV-60H024 in auto</td>
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<td>AOV-65C042 in auto</td>
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</tr>
<tr>
<td>AOV-60H040 in auto</td>
<td>AOV-60H024 in auto/closed</td>
</tr>
<tr>
<td>AOV-60J029 in auto - tank A</td>
<td>AOV-60J073 is closed (ZSC-60J014)</td>
</tr>
<tr>
<td>Seal water in operation</td>
<td>Cooling water in operation</td>
</tr>
<tr>
<td>Vessel off-gas in operation</td>
<td>Compressed air in operation</td>
</tr>
</tbody>
</table>

2. **RESTART** concentrate tank per ETF-60J-005.

**Possible Causes:**

1. Feed attempt failure.
2. Loss of running pump.

**References:**

- Drawings: None
- Documents: None
CONCEN RECEIVING TK B ATT FAIL

DESCRIPTION: CONCENTRATE RECEIVING TANK B READY ATTEMPT FAILURE

Setpoint: Logic permissive(s) not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. Tank B drops out of READY to SHUTDOWN.

Immediate Actions:
[1] CHECK the following:
[1.1] Concentrate receiving tank selection receiving for CONC TK “A”:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Pump B in auto</td>
<td>CT pump B alarm is clear</td>
</tr>
<tr>
<td>Dryer in run or run initiated</td>
<td>CT B level alarm is clear</td>
</tr>
<tr>
<td>AOV-60J-045 in auto</td>
<td>AOV-60J-053 in auto</td>
</tr>
<tr>
<td>AOV-65H-025 in auto</td>
<td>AOV-60H-024 in auto</td>
</tr>
<tr>
<td>AOV-65C-022 in auto</td>
<td>AOV-65C-023 in auto</td>
</tr>
<tr>
<td>AOV-60H-040 in auto</td>
<td>AOV-60H-025 in auto/closed</td>
</tr>
<tr>
<td>AOV-60J029 in auto to tank A</td>
<td>AOV-60J054 is closed (ZSC-60J013)</td>
</tr>
<tr>
<td>Seal water in operation</td>
<td>Cooling water in operation</td>
</tr>
<tr>
<td>Vessel off-gas in operation</td>
<td>Compressed air in operation</td>
</tr>
</tbody>
</table>


Possible Causes:
1. Feed attempt failure.
2. Loss of running pump.

References:
Drawings: None
Documents: None
CONCENTRATE RECEIVING TANK (A) [B] LEVEL HIGH

Setpoint: 92.7%
Alarm Location: (LT-60J001A) [LT-60J001B]
Graphic: Alarm Summary Screen
Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] SWITCH affected concentrate tank (A) [B] to READY.
[2] IF (CT A) [CT B] is not steady READY, PERFORM the following:
   [2.1] PLACE dryer in daily flush.
   [2.2] PERFORM pH adjustment per ETF-60J-005.
   [2.3] WHEN (CT A) [CT B] is steady READY, RETURN dryer to RUN.

Possible Causes:

1. (CT A) [CT B] reached normal fill level.
2. Faulty concentrate tank level transmitter (LT-60J001A) [LT-60J001B].

References:

Drawings: None
Documents: ETF-60J-005, Concentrate Tank System Operation
CONCENTRATE TANK (A) [B] LEVEL HI-HI

Setpoint: 94.8%

Alarm Location: (LT-60J001A) [LT-60J001B]

Graphic: Alarm Summary Screen

Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] PLACE affected concentrate tank (A) [B] to RECEIVING.

Possible Causes:

1. Low flow rate to dryer.
2. Too much delay placing (CT B) [CT A] in READY.
3. Faulty concentrate tank level transmitter (LT-60J001A) [LT-60J001B].

References:

Drawings: None
Documents: None
CONCENTRATE RECEIVING TANK (A) [B] LEVEL LOW

Setpoint: 4.4%

Alarm Location: (LT-60J001A) [LT-60J001B]

Graphic: Alarm Summary Screen

Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. (AOV-60J058) [AOV-60J053] closes.
2. (CT A) [CT B] transfers from READY to SHUTDOWN.

Immediate Actions:
[1] SWITCH concentrate tank to RECEIVING.
[2] IF other concentrate tank not in steady READY, PERFORM the following:
   [2.1] PLACE dryer in daily flush, THEN PLACE dryer in READY.
   [2.2] PERFORM pH adjustment per ETF-60J-005.
   [2.3] WHEN (CT B) [CT A] is steady READY, RETURN dryer to RUN.

Possible Causes:
1. Normal draw down low level of (CT A) [CT B].
2. Faulty concentrate tank level transmitter (LT-60J001A) [LT-60J001B].

References:
Drawings: None
Documents: ETF-60J-005, Concentrate Tank System Operation
CONCENTRATE RECEIVING TANK (A) [B] LEVEL LO-LO

Setpoint: 2.3%
Alarm Location: (LT-60J001A) [LT-60J001B]
Graphic: Alarm Summary Screen
Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. Concentrate tank pump (60J-P-1A) [60J-P-1B] stops.

Immediate Actions:
[1] CONFIRM (AOV-60J058) [AOV-60J053] is CLOSED.

Possible Causes:
1. (AOV-60J058) [AOV-60J053] did not close on low-level alarm.
2. Initial filling of an empty tank.
3. Faulty concentrate tank level transmitter (LT-60J001A) [LT-60J001B].

References:
Drawings: None
Documents: None
CONCENTRATE RECEIVING TANK PUMP (A) [B] DISCHARGE PRESSURE LOW

Setpoint: 40 psi (alarm clears at 45 psi rising)
Alarm Location: (PT-60J011A) [PT-60J011B]
Graphic: Alarm Summary Screen
Indications: N/A

<table>
<thead>
<tr>
<th>ALARM TAG MATRIX</th>
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</thead>
<tbody>
<tr>
<td>CT PUMP A (PT-60J001A)</td>
</tr>
</tbody>
</table>

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] CONFIRM (CT PUMP A) [CT PUMP B] is running.
[2] TURN OFF (CT-PA) [CT-PB].
[3] CONFIRM >5% level in CT.

Supplemental Actions:

[5] RESTART (CT-PA) [CT-PB].
[6.1] RECORD SOM direction in ETF Control Room Logbook.

Possible Causes:

1. Plugging of pump or suction piping or inlet strainer with solids.
2. Pump failure.
3. Faulty concentrate tank pump pressure transmitter (PT-60J011A) [PT-60J011B].

References:

Drawings: H-2-89302, logic drawing, sheet 24
Documents: ETF-60J-005, Concentrate Tank System Operation
CONCENTRATE RECEIVING TANK (A) [B] TEMPERATURE HIGH

Setpoint: 220°F

Alarm Location: (TT-60J002A) [TT-60J002B]

Graphic: Alarm Summary Screen

Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] ON graphic EVAP, CHECK 60I-108 evaporator dump valve position is CLOSED.


Possible Causes:

1. Excessively high temperature of evaporator brine (TI 60I111).

2. (TT-60J002A) [TT-60J002B] malfunction.

References:

Drawings: None
Documents: None
CONCENTRATE RECEIVING TANK (A) [B] PH HIGH

Setpoint:
- CT pH greater than 5.6 [5.6] for groundwater
- CT pH greater than 12.0 [12.0] for process condensate
- Or as otherwise directed by process memo

Alarm Location: (AIT-60J012A) [AIT-60J012B]

Graphic: Alarm Summary Screen

Indications: N/A

ALARM TAG MATRIX

| CT A (AAHX 60J012A) | CT B [AAHX 60J012B] |

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. (CT A) [CT B] will not go into steady READY.

Immediate Actions:
1. [1] DISPATCH floor operator to check pH line temperature for indication of plugging.
2. [2] IF plugged, GO TO ETF-60J-005.
3. [3] IF not plugged, GO TO ETF-60J-005 AND ADJUST pH DOWN.

Possible Causes:
1. High pH of evaporator brine (AIT-60I135).
2. pH line is plugging up.
4. Leak of caustic into tank.

References:
- Drawings: None
- Documents: ETF-60J-005, Concentrate Tank Operation
CONCEN RECEV AALX 60J012X

DESCRIPTION: CONCENTRATE RECEIVING TANK (A) [B] PH LOW

Setpoint:
CT pH less than 5.4 [5.4] for groundwater
CT pH less than 10.0 [10.0] for process condensate
Or as otherwise directed by process memo

Alarm Location: (AIT-60J012A) [AIT-60J012B]
Graphic: Alarm Summary Screen
Indications: N/A

ALARM TAG MATRIX

| CT A  (AALX 60J012A) | CT B  [AALX 60J012B] |

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:

1. (CT A) [CT B] will not go into steady READY.

Immediate Actions:

[1] IF process memo allows pH lower than the alarm setpoint, ENSURE CWRT A/B pH interlock bypass is ON per ETF-60J-005 AND EXIT this procedure.


[3] IF plugged, GO TO ETF-60J-005.

[4] IF not plugged, GO TO ETF-60J-005 AND ADJUST pH UP.

[5] CHECK acid feed lines to tank for open control valves.

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CONCENTRATE RECEIVING TANK (A) [B] PH LOW

Setpoint: CT pH less than 5.4 [5.4] for groundwater
CT pH less than 10.0 [10.0] for process condensate
Or as otherwise directed by process memo

Alarm Location: (AIT-60J012A) [AIT-60J012B]
Graphic: Alarm Summary Screen
Indications: N/A

Possible Causes:
1. Low pH of evaporator brine (AIT-60J135).
2. pH line is plugging up.
4. Leak of acid into tank.

References:
- Drawings: None
- Documents: ETF-60J-005, Concentrate Tank System Operation
CONCENTRATE RECEIVING TANK (A) [B] RECIRC PUMP

Setpoint: Logic permissive(s) not met

Alarm Location: Logic generated alarm

Graphic: Alarm Summary Screen

Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:

1. (CT A) [CT B] will not go into READY.

Immediate Actions:

[1] **LOCALLY CHECK** the following for faults:
   
   • Pump
   
   • Breaker.

Possible Causes:

1. Electrical/mechanical problems with pump.

References:

Drawings: None

Documents: None
EVAPORATOR LAHH 60I107

DESCRIPTION: EVAPORATOR VAPOR BODY LIQUID LEVEL HI HI (LAHH 60I107)
Setpoint: 90%
Alarm Location: LT-60I107
Graphic: Alarm Summary Screen
Indications: N/A

<table>
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<th>ALARM TAG MATRIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT A (LAL 60JBL1A)</td>
</tr>
</tbody>
</table>

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] **LOCALLY CHECK** the following for faults:
  - Pump
  - Breaker.

Possible Causes:

1. Normal draw down of (CT A) [CT B].

References:

Drawings: None
Documents: None
CONCENTRATE RECEIVING TANK (A) [B] MIXER LEVEL LO-LO

Setpoint: 38%

Alarm Location: (LT-60J001A) [LT-60J001B]

Graphic: Alarm Summary Screen

Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:

1. Mixer (60J-BL-1A) [60J-BL-1B] stops.

Immediate Actions:

[1] INCREASE liquid level to greater than 38%.

Possible Causes:

1. Excessive draw down of (CT A) [CT B].

References:

Drawings: None
Documents: None
CONCEN RECEV LAL 60JBL1XX

DESCRIPTION: CONCENTRATE RECEIVING TANK (A) [B] MIXER OFF
Setpoint: 41%
Alarm Location: (LT-60J001A) [LT-60J001B]
Graphic: Alarm Summary Screen
Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Immediate Actions:

[1] IF mixer is needed, START mixer.

Possible Causes:

1. Mixer not started when liquid level equal to or greater than 41%.

References:

Drawings: None
Documents: None
CT H₂SO₄ FEED SHUT DOWN ON LOW FLOW
FAL65C145

DESCRIPTION:  CT H₂SO₄ FEED SHUT DOWN DUE TO LOW REAGENT FLOW
Setpoint:  ON
Alarm Location:  FT-65C145, FQ65C145SP
Graphic:  Alarm Summary Screen
Indications:  N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected” alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. Stops reagent addition to the CT tank if it has not automatically stopped in an expected amount of time, which is calculated by the MCS using the flow totalizer setpoint and a hard-coded (not operator adjustable) MCS flow rate constant.

Immediate Actions:
[1] CHECK reagent addition has stopped.
[2] CHECK the pH of the CT tank being butted.
[3] TROUBLESHOOT to determine if alarm is due to flow instrument failure.

Possible Causes:
1. Flow instrument malfunction.
2. MCS card malfunction.
3. If instruments and MCS card have not malfunctioned, then:
   • FQ65C145SP set too low
   • Hard-coded MCS flow rate constant set too high.

References:
Drawings:  None
Documents:  None
CT NAOH FEED SHUT DOWN ON LOW FLOW
FAL65C245

DESCRIPTION: CT NaOH FEED SHUT DOWN DUE TO LOW REAGENT FLOW
Setpoint: ON
Alarm Location: FT-65C245, FQ65C245SP
Graphic: Alarm Summary Screen
Indications: N/A

NOTE - Alarm response procedures are not designed for, nor intended to be applied to, “expected”
alarms generated by approved maintenance or testing procedures.

Automatic Actions:
1. Stops reagent addition to the CT tank if it has not automatically stopped in an expected
amount of time, which is calculated by the MCS using the flow totalizer setpoint and a
hard-coded (not operator adjustable) MCS flow rate constant.

Immediate Actions:
[1] CHECK reagent addition has stopped.
[2] CHECK the pH of the CT tank being butted.
[3] TROUBLESHOOT to determine if alarm is due to flow instrument failure.

Possible Causes:
1. Flow instrument malfunction.
2. MCS card malfunction.
3. If instruments and MCS card have not malfunctioned, then:
   • FQ65C245SP set too low
   • Hard-coded MCS flow rate constant set too high.

References:
Drawings: None
Documents: None