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

CHANGE HISTORY (≤ LAST 5 REV-MODS)

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<td>10/16/2018</td>
<td>Changes found in Periodic Review process</td>
<td>Change Immediate Action, Step 2, on page 30 of 46 (50% NAOH TK SUMP LAH-20B008) to read, &quot;If leakage is present, notify CRO and SOM.&quot;- Change Immediate Action, step 4.1, on page 45 of 46 (CHEM MAKEUP BERM LAH-20B016) to read, &quot;Notify CRO and SOM.&quot;- Changes to nomenclature of pumps and valves on pages 3-7, 10, 12, 13, 17, 19-21, 23-26, 29, 30, 32, 34, 36 &amp; 37. - Pages 16 &amp; 17 (4% Acid Tk TAH &amp; TAHH) and Pages 36 &amp; 37 (4% NaOH Tk TAH &amp; TAHH) under Immediated Actions [4] and or [5] should read: Confirm 4% (Acid or NaOH) concentration is 3.5 to 4.5%. Page 45 Chemical Makeup Berrm LAH-20B016 LS20B016 under Immediate action [5.2] should read: GO TO response for 4% CHEM BERM LAH RESET REQ'D VD535120</td>
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<td>09/29/2015</td>
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Alarm

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Chemical Feed System

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CHEM MAKEUP BERM LAH-20B016 LS20B016
4% CHEM BERM LAH RESET REQ’D VD535120

RECORDS

No records are generated during the performance of this procedure.
### ACID FEED OPERATION FAILURE-1
VD53577

**DESCRIPTION:** Acid Feed Operation Failure - 1

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

**Alarm Location:** Logic generated alarm (Acid)

**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 work activities or procedures.

**Automatic Actions:**

1. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

**Immediate Actions:**

1. **CONFIRM** system is operating per ETF-65C-001.
2. **CHECK** level indicator LI65C101 indication greater than 5%.
3. **CHECK** level indicator LI65C111 indication greater than 5%.

**Possible Causes:**

1. Acid pump failure, P1 (65C-P-1) or 65C-P-3.
2. P1 (65C-P-1) or 65C-P-3 not in AUTO.
3. Level in 4% acid tank is less than 5%.
4. Level in 92% acid tank is less than 5%.
5. AOV-65C010 and AOV-65C052 not in AUTO.
6. 4% acid tank AOV failure (AOV-65C010 or AOV-65C052 do not open when commanded in AUTO, or do not close when commanded in AUTO or MANUAL).
7. AOV-65C052 is open but verification flow is low to 4% acid tank.
8. Verification tank not in verifying mode.

**References:**

- Drawings: None.
- Documents: ETF-65C-001, Chemical Feed System Operation.
NAOH FEED OPERATION FAILURE-2
VD53578

DESCRIPTION: NaOH Feed Operation Failure - 2

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 work activities or procedures.

Automatic Actions:
1. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CONFIRM system is operating per ETF-65C-001.
[2] CHECK level indicator LIT65C201 indication greater than 6%.
[3] CHECK level indicator LIT65C211 indication greater than 20%.

Possible Causes:
1. NaOH pump failure, 65C-P-2 or 65C-P-4.
2. 65C-P-2 or 65C-P-4 not in AUTO.
3. Level in 4% NaOH tank is less than 20%.
4. Level in 50% NaOH tank is less than 6%.
5. AOV-65C030 or AOV-65C051 not in AUTO.
6. 4% NaOH tank AOV failure (AOV-65C030 or AOV-65C051 do not open when commanded in AUTO, or do not close when commanded in AUTO or MANUAL).
7. AOV-65C051 is open but verification flow is low to 4% NaOH tank.
8. Verification tank not in verifying mode.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
**92% ACID TK TAH-65C121 VD51206**

**DESCRIPTION:** 92% H₂SO₄ Tank Temperature High Alarm

**Setpoint:** 110 to 149°F range (see ETF-65C-001 for current setpoint of VA51207)

**Alarm Location:** TT-65C121

**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 work activities or procedures.

**Immediate Actions:**

1. **DETERMINE** validity of high temperature on graphic Chemical.
2. **DETERMINE** status of 92% acid pump, P1 (65C-P-1), from graphic Chemical.
3. **NOTIFY** SOM.
4. **IF** P1 (65C-P-1) pump is operating, **DETERMINE** if alternate methods of ETF operation can reduce the time this pump is operating. If the temperature increases to the HI-HI alarm temperature, the 92% acid pump cutoff will shut down P1 (65C-P-1) pump.

**Possible Causes:**

1. Continuous use of P1 (65C-P-1) heats the acid.
2. TT-65C121 failure/malfunction/calibration.

**References:**

- Drawings: None.
- Documents: ETF-65C-001, Chemical Feed System Operation.
### 92% ACID TK TAHH-65C121 VD51205

<table>
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<th>DESCRIPTION:</th>
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<tr>
<td>Indications:</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**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. P1 (65C-P-1) pump stops running due to the setting of the pump cutoff. The pump cannot be started until both the HI HI and HI temperature alarms clear.
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

**Immediate Actions:**
- [1] **DETERMINE** validity of high temperature on graphic Chemical.
- [2] **CONFIRM** P1 (65C-P-1) is not operating from graphic Chemical.
- [3] **NOTIFY** SOM.
- [4] **IF** directed by SOM, **PERFORM** the following:
  - [4.1] **SHUT DOWN** feed to Surge Tank.
  - [4.2] **PLACE** main treatment train (MTT) in READY.
  - [4.3] **STOP** Polisher Regeneration.

**Possible Causes:**
1. Continuous operation of P1 (65C-P-1) pump.
2. TT-65C121 failure/malfunction/calibration.

**References:**
- Drawings: None.
- Documents: ETF-65C-001, Chemical Feed System Operation.
**92% ACID TK TAL-65C121**

**VD535144**

**DESCRIPTION:** 92% Acid Tank Temperature Alarm Low-65C121

**Setpoint:** 0°F

**Alarm Location:** TT-65C121

**Graphic:** Alarm Summary Screen

**Indications:** N/A

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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.

**Immediate Actions:**

1. [1] **ADD** pump heat to tank, as follows:
2. [2] **CONFIRM** 65C-005 is OPEN.
3. [3] **RUN** pump P1 (65C-P-1) until TT65C121 is above 10°F.
4. [4] **IF** NO temperature increase after two hours, **CONTACT** SOM.

**Possible Causes:**

1. TT-65C121 failure/calibration.

**References:**

- **Drawings:** None.
- **Documents:** None.
92% ACID TK LAHX-65C101
VD535146

DESCRIPTION: 92% Acid Tank Level Alarm High Composite-65C101
Setpoint: 87%
Alarm Location: LIT-65C101 / LS-65C105
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 work activities or procedures.

Immediate Actions:
[1] STOP off-load from tanker truck.

Possible Causes:
1. Overfilling 92% acid tank.
2. LIT-65C101 failure/calibration.
3. LS-65C105 failure/calibration.

References:
Drawings: None.
Documents: ETF-ERP-85B-003, Emergency Spill or Release at ETF.
DESCRIPTION: 92% Acid Tank Level Alarm Low
Setpoint: 8%
Alarm Location: LIT-65C101
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 work activities or procedures.

Immediate Actions:

[1] CHECK for leaks in system.

Supplemental Actions:

[2] NOTIFY SOM that chemical (92% acid) needs to be ordered.

Possible Causes:

1. 92% acid tank low level.
2. LIT-65C101 failure/calibration.
3. Leak in system.

References:

Drawings: None.
Documents: None.
92% ACID TK LALL-65C101
VD535149

DESCRIPTION: 92% Acid Tank Level Alarm Low Low
Setpoint: 5%
Alarm Location: LIT-65C101
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 work activities or procedures.

Automatic Actions:
1. 92% acid tank pump P1 (65C-P-1) STOPS.
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CONFIRM pump P1 (65C-P-1) STOPPED.
[2] CHECK tank level below 5%.

Supplemental Actions:
[4] NOTIFY SOM that chemical (92% acid) needs to be ordered.

Possible Causes:
1. 92% acid tank low-low level.
2. LIT-65C101 failure/calibration.
3. Leaks in system.

References:
Drawings: None.
Documents: None.
92% ACID SUMP LAH-20B007
VD535151

DESCRIPTION: 92% Acid Sump Level Alarm High
Setpoint: 1 inch
Alarm Location: LS-20B007
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 work activities or procedures.

Immediate Actions:
[1] INSPECT 92% acid tank and associated equipment for leakage.
[2] IF leakage is present, NOTIFY SOM.
[3] DON PPE (butyl or PVC gloves, apron, and face shield).
[4] SAMPLE 92% acid tank sump for pH.
[5] IF pH is 5.0 to 8.5, PUMP water to ground.
[6] IF pH is 0 to 5.0 or 8.5 to 14, CONTACT SOM for instructions.

Possible Causes:
1. Rain water accumulation.
2. Leak in tank or associated equipment.
3. LS-20B007 failure/calibration.

References:
Drawings: None.
Documents: None.
92% ACID TK PUMP ALARM
VD53586

DESCRIPTION: 92% Acid Tank Pump Alarm
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 work activities or procedures.

Automatic Actions:
1. If the CHEM FEED OPERATIONS PERMISIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CHECK pump circuit breaker per ETF-65C-001 (MCC-3).
[2] IF breaker is tripped, DETERMINE cause AND RESET breaker.
[3] WHEN power is available, RESTART pump (one time) per ETF-65C-001.

Possible Causes:
1. Pump failure, P1 (65C-P-1).
2. Power failure.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
92% ACID PMP RDY FOR RESTRT
VD51213

DESCRIPTION: The 92% Acid Pump is Ready for Restart

Setpoint: High Temperature Alarm and High High Temperature Alarm have cleared

Alarm Location: TT-65C121

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 work activities or procedures.

Immediate Actions:

[1] IF P1 (65C-P-1) pump is required for operation, SELECT High Temp Cutoff 92% acid Pump RESET from graphic CHEMFEED_SPS.

Possible Causes:

1. High Temperature Alarm and High High Temperature Alarm have cleared. This will allow the high temperature pump cutoff to be reset to start the pump.

References:

Drawings: None.
Documents: None.
**4% ACID MAKEUP FALX2-65C104**  
**VD535175**

**DESCRIPTION:** 4% Acid Makeup Flow Alarm Low Composite-2  
**Setpoint:** 16 gpm  
**Alarm Location:** FT-65C104 & 4% Acid Tank Makeup Start Command  
**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 work activities or procedures.

**Automatic Actions:**

1. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

**Immediate Actions:**

[1] **CHECK** FT-65C103, 92% Acid flow.  
[2] **IF** less than 0.4 gpm, **ADJUST** valve 65C-006.  
[3] **ISOLATE** AOV-65C010 and AOV-65C052 **AND** **CHECK** their operation to make sure they are fully open.  
[5] **CONFIRM** valves 65C-009 and 65C-011 OPEN.  

(Continued on Next Page)
DESCRIPTION: 4% Acid Makeup Flow Alarm Low Composite-2
Setpoint: 16 gpm
Alarm Location: FT-65C104 & 4% Acid Tank Makeup Start Command
Graphic: Alarm Summary Screen
Indications: N/A

(Continued)

Possible Causes:

1. Low or no 92% acid flow through AOV-65C010 and valve 65C-006; the MCS can interrupt and restart water flow to maintain pace with low acid flow.
2. Failure of AOV-65C052 OR AOV-65C010 to open.
3. Valves 65C-086 OR 65C-006 are plugged, shut or not properly adjusted.
4. Verification system not operating properly.
5. FT-65C103 or FT-65C104 failure.

References:

Drawings: None.
Documents: ETF-60H-001, Verification System Operation.
4% ACID TK TAH-65C122
VD51207

DESCRIPTION: 4% Acid Tank Temperature Alarm High
Setpoint: 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51209)
Alarm Location: TT-65C122
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 work activities or procedures.

Immediate Actions:

[1] DETERMINE validity of high temperature on graphic Chemical.
[2] DETERMINE status of 4% acid pump, P3(65C-P-3), from graphic Chemical.
[3] NOTIFY SOM.
[4] IF 65C-P-3 pump is operating, DETERMINE if alternate methods of ETF operation can reduce the time this pump is operating. If the temperature increases to the HI-HI alarm temperature, the 4% acid pump cutoff will shut down P3(65C-P-3) pump.
[5] CONFIRM 4% acid concentration is 3.5% to 4.5%.

Possible Causes:

1. Continuous use of 65C-P-3 heats the acid.
2. Chemical concentration is too strong.
3. TT-65C122 failure/calibration.

References:

Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
### 4% ACID TK TAHH-65C122 VD51208

**DESCRIPTION:** 4% Acid Tank Temperature Alarm High High

**Setpoint:** 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51210)

**Alarm Location:** TT-65C122

**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 work activities or procedures.

### Automatic Actions:

1. V010 (AOV65C010) closes due to the setting of the pump cutoff. The valve cannot be opened until both the HI HI and HI temperature alarms clear and the cutoff reset has been activated.
2. P3 (65C-P-3) pump stops running due to the setting of the pump cutoff. The pump cannot be started until both the HI HI and HI temperature alarms clear and the cutoff reset has been activated.
3. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

### Immediate Actions:

[1] **DETERMINE** validity of high temperature on graphic Chemical.
[2] **CONFIRM** 4% acid pump, 65C-P-3, is not operating and AOV-65C010 is closed from graphic Chemical.
[3] **NOTIFY** SOM.
[4] **CONFIRM** 4% acid concentration is 3.5% to 4.5%.
[5] **IF** directed by SOM, **PERFORM** the following:
   [5.1] **SHUT DOWN** feed to Surge Tank.
   [5.2] **PLACE** MTT in Ready.
   [5.3] **STOP** Polisher Regeneration.

*(Continued on Next Page)*
4% Acid Tank Temperature Alarm High High

Setpoint: 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51210)

Alarm Location: TT-65C122

Graphic: Alarm Summary Screen

Indications: N/A

Possible Causes:

1. Continuous operation of 65C-P-3 pump.
2. Chemical concentration is too strong.
3. TT-65C122 failure/malfunction/calibration.

References:

Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
**DESCRIPTION:** 4% Acid Tank Level High High  
**Setpoint:** 96%  
**Alarm Location:** LIT-65C111  
**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 work activities or procedures.

**Automatic Actions:**
1. Stops 92% Acid Pump P1 (65C-P-1).
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

**Immediate Actions:**
[1] **CONFIRM** pump P1 (65C-P-1) STOPPED.
[2] **CHECK** AOV-65C010 and AOV-65C052 CLOSED.

**Possible Causes:**
1. AOV-65C010 or AOV-65C052 failed to close.
2. LIT-65C111 failure/calibration.

**References:**
Drawings: None.
Documents: None.
**4% Acid Tank Level Alarm High**

**Setpoint:** 93%

**Alarm Location:** LIT-65C111

**Graphic:** Alarm Summary Screen

**Indications:** N/A

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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. Close V010 (AOV65C010) and V052 (AOV65C052).

---

**Immediate Actions:**

[1] **CHECK** AOV-65C010 and AOV-65C052 CLOSED.

---

**Possible Causes:**

1. AOV-65C010 or AOV-65C052 failed to close.
2. LIT-65C111 failure/calibration.

---

**References:**

**Drawings:** None.

**Documents:** None.
### 4% ACID TK LAL-65C111 VD535154

**DESCRIPTION:** 4% Acid Tank Level Alarm Low-65C111  
**Setpoint:** 5%  
**Alarm Location:** LIT-65C111  
**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 work activities or procedures.

**Automatic Actions:**
1. 4% acid tank pump P3 (65C-P-3) STOPS on low level cutout.  
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

**Immediate Actions:**

1. **CONFIRM** pump P3 (65C-P-3) STOPPED.  
2. **CHECK** 4% acid tank level below 5%.  
3. **CHECK** for leaks in system.

**Possible Causes:**

1. Leaks in system  
2. AOV-65C010 or AOV-65C052 failure.  
3. 92% Acid tank pump failure, P1 (65C-P-1).  
4. LIT-65C111 failure/calibration.

**References:**  
**Drawings:** None.  
**Documents:** None.
4% ACID TK PUMP ALARM
VD53593

DESCRIPTION: 4% Acid Tank Pump Alarm
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 work activities or procedures.

Automatic Actions:
1. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CHECK pump circuit breaker per ETF-65C-001 (MCC-1).
[2] IF breaker is tripped, DETERMINE cause AND RESET breaker.
[3] WHEN power is available, RESTART pump (one time) per ETF-65C-001.

Possible Causes:
1. Pump failure, 65C-P-3.
2. Power failure.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
**DESCRIPTION:** The 4% Acid Pump is Ready for Restart
**Setpoint:** High Temperature Alarm and High High Temperature Alarm have cleared
**Alarm Location:** TT-65C122
**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 work activities or procedures.

**Immediate Actions:**

[1] IF P3 (65C-P-3) pump is required for operation, SELECT High Temp Cutoff 4% Acid Pump RESET from graphic CHEMFC SETPTS.

**Possible Causes:**

1. High Temperature Alarm and High High Temperature Alarm have cleared. This will allow the high temperature pump cutoff to be reset to start the pump.

**References:**

**Drawings:** None.
**Documents:** None.
50% NAOH TK TAH-65C221
VD51301

DESCRIPTION: 50% NaOH Tank Temperature Alarm High
Setpoint: 110 to 139°F range (see ETF-65C-001 for current setpoint of VA51305)
Alarm Location: TT-65C221
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 work activities or procedures.

Immediate Actions:
[1] **DETERMINE** validity of high temperature on graphic Chemical.
[2] **DETERMINE** status of P2 (65C-P-2) from graphic Chemical.
[3] **CONFIRM** tank heater is OFF.
[4] **NOTIFY** SOM.
[5] **IF** P2 (65C-P-2) pump is operating, **DETERMINE** if alternate methods of ETF operation can reduce the time this pump is operating. **IF** the temperature increases to the HI-HI alarm temperature, the 50% NaOH pump cutoff will shut down P2 (65C-P-2) pump.

Possible Causes:
1. Continuous use of 65C-P-2 heats the NaOH.
2. Tank heater system control failed on, 65C-E-2.
3. TT-65C221 failure/malfunction/calibration.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
50% NAOH TK TAHH-65C221  
VD51303

DESCRIPTION: 50% NaOH Tank Temperature Alarm High High  
Setpoint: 110 to 140°F range (see ETF-65C-001 for current setpoint of VA51306)  
Alarm Location: TT-65C221  
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 work activities or procedures.

Automatic Actions:

1. P2 (65C-P-2) pump stops running due to the setting of the pump cutoff. The pump cannot be started until both the HI HI and HI temperature alarms clear.
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:

[1] DETERMINE validity of high temperature on graphic Chemical.
[2] CONFIRM P2 (65C-P-2) is not operating from graphic Chemical.
[3] CONFIRM tank heater is OFF.
[4] NOTIFY SOM.
[5] IF directed by SOM, PERFORM the following:
   [5.1] SHUT DOWN feed to Surge Tank.
   [5.2] PLACE MTT in READY.
   [5.3] STOP Polisher Regeneration.

Possible Causes:

1. Continuous operation of 65C-P-2 pump.
3. TT-65C221 failure/calibration.

References:

Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
50% NAOH TK TAL-65C221
VD535161

DESCRIPTION: 50% NaOH Tank Temperature Alarm Low
Setpoint: 70°F
Alarm Location: TT-65C221
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 work activities or procedures.

Immediate Actions:

[1] ADD pump heat to tank, as follows:
[2] CONFIRM 65C-028 is OPEN.
[3] RUN pump P2 (65C-P-2) for two hours.
[4] CONFIRM tank heater system is ON for 65C-TK-2 (MDP-2 #15).
[5] IF breaker is tripped, DETERMINE cause AND RESET breaker.

Possible Causes:

1. Tank heater system control failed off, 65C-E-2.
2. Heater breaker failure, MDP-2 #15, or thermal overload at JB65C-E2-01.
4. TT-65C221 failure/calibration.

References:

Drawings: None.
Documents: None.
50% NAOH TK LAHX-65C201
VD535164

DESCRIPTION: 50% NaOH Tank Level Alarm High Composite
Setpoint: 85%
Alarm Location: LIT-65C201 / LS-65C204
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 work activities or procedures.

Immediate Actions:

[1] STOP off-load from tanker truck.

Possible Causes:

1. Overfilling 50% NaOH tank.
2. LIT-65C201 failure/calibration.
3. LS-65C204 failure/calibration.

References:

Drawings: None.
Documents: ETF-ERP-85B-003, Emergency Spill or Release at ETF.
### 50% NAOH TK LAL-65C201
**VD535165**

**DESCRIPTION:** 50% NaOH Tank Level Alarm Low-65C201

**Setpoint:** 12%

**Alarm Location:** LIT-65C201

**Graphic:** Alarm Summary Screen

**Indications:** N/A

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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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**Immediate Actions:**

1. [1] **CHECK** for leaks in system.
2. [2] **NOTIFY** SOM that 50% NaOH needs to be ordered.

---

**Possible Causes:**

1. 50% NaOH tank has low level.
2. LIT-65C201 failure/calibration.
3. Leak in system.

---

**References:**

**Drawings:** None.

**Documents:** None.
50% NAOH Tank Level Alarm Low Low
VD535166

DESCRIPTION: 50% NaOH Tank Level Alarm Low Low
Setpoint: 6%
Alarm Location: LIT-65C201
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 work activities or procedures.

Automatic Actions:
1. 50% NaOH tank pump P2 (65C-P-2) STOPS.
2. If the CHEM FEED OPERATION PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CONFIRM pump P2 (65C-P-2) STOPPED.
NOTE- Tank heating element is at the 6% level. The decision to turn off the heater element if level falls below that is determined by the SOM.
[2] CHECK tank level below 6%.
[4] NOTIFY SOM that 50% NaOH needs reordering.

Possible Causes:
1. 50% NaOH tank has low-low level.
2. Leaks in system.
3. LIT-65C201 failure/calibration.

References:
Drawings: None
Documents: None.
DESCRIPTION: 50% NaOH Tank Sump Level Alarm High
Setpoint: 1 inch
Alarm Location: LS-20B008
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 work activities or procedures.

Immediate Actions:
[1] INSPECT 50% NaOH tank and associated equipment for leakage.
[2] IF leakage is present, NOTIFY CRO AND SOM.
[3] DON PPE (butyl or PVC gloves, apron, and face shield).
[4] SAMPLE 50% NaOH tank sump for pH.
[5] IF pH is 5.0 to 8.5, PUMP water to ground.
[6] IF pH is 0 to 5.0 or 8.5 to 14, CONTACT SOM for instructions.

Possible Causes:
1. Rain water accumulation.
2. Leak in 50% NaOH tank or associated equipment.
3. LS-20B008 failure/calibration.

References:
Drawings: None.
Documents: None.
**50% NAOH TK PUMP ALARM**
**VD535100**

**DESCRIPTION:** 50% NaOH Tank Pump Alarm

**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 work activities or procedures.

---

**Automatic Actions:**

1. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

---

**Immediate Actions:**

[1] CHECK pump circuit breaker per ETF-65C-001 (MCC-3).

[2] IF breaker is tripped, DETERMINE cause AND RESET breaker.

[3] WHEN power is available, RESTART pump (one time) per ETF-65C-001.

---

**Possible Causes:**

1. Pump failure, 65C-P-2.

2. Power failure.

---

**References:**

**Drawings:** None.

**Documents:** ETF-65C-001, Chemical Feed System Operation.
**50% NAOH PMP RDY FOR RESTRT VD51314**

**DESCRIPTION:** The 50% NaOH Pump is Ready for Restart

**Setpoint:** High Temperature Alarm and High High Temperature Alarm have cleared

**Alarm Location:** TT-65C221

**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 work activities or procedures.

**Immediate Actions:**

1. **[1]** If P2 (65C-P-2) pump is required for operation, select High Temp Cutoff 50% NaOH Pump RESET from graphic CHEMFD SETPTS.

**Possible Causes:**

1. High Temperature Alarm and High High Temperature Alarm have cleared. This will allow the high temperature pump cutoff to be reset to start the pump.

**References:**

- **Drawings:** None.
- **Documents:** None.
50% NAOH TK HEATER ALARM
VD535142

DESCRIPTION: 50% NaOH Tank Heater Alarm
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 work activities or procedures.

Immediate Actions:

[2] IF breaker is tripped, DETERMINE cause AND RESET breaker.
[4] PRESS overload reset button at JB65C-E2-01 one time only.

Possible Causes:

2. Heater breaker failure.
4. Fuse burned out in JB65C-E2-01.

References:

Drawings: None.
Documents: None.
Chemical Feed System

4% NAOH MAKEUP FALX1-65C104
VD535174

DESCRIPTION: 4% NaOH Makeup Flow Alarm Low Composite-1
Setpoint: 16 gpm
Alarm Location: FT-65C104 and 4% NaOH Tank Makeup Start Command
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 work activities or procedures.

Automatic Actions:
1. If the CHEM FEED OPERATION PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CHECK FT65C203, 50% NaOH flow:
[3] ISOLATE V030 (AOV65C030) and V051 (AOV65C051) AND CHECK their operation to make sure they fully open.
[5] CONFIRM valves 65C-009 and 65C-011 OPEN.

(Continued on Next Page)
4% NAOH MAKEUP FALX1-65C104
VD535174

DESCRIPTION: 4% NaOH Makeup Flow Alarm Low Composite-1
Setpoint: 16 gpm
Alarm Location: FT-65C104 and 4% NaOH Tank Makeup Start Command
Graphic: Alarm Summary Screen
Indications: N/A

(Continued)

Possible Causes:

1. Blocked 50% NaOH flow will cause the tank makeup to fail to complete; this will prevent future tank makeups and allow tank to be depleted.
2. Failure of AOV-65C030 or AOV-65C051 to open.
3. Valves 65C-087 or 65C-029 are plugged, shut or not properly adjusted.
4. Verification system not operating properly.
5. FT-65C104 failure.

References:

Drawings: None.
Documents: ETF-60H-001, Verification System Operation.
**4% NAOH TK TAH-65C222**
**VD51304**

**DESCRIPTION:** 4% NaOH Tank Temperature Alarm High

**Setpoint:** 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51307)

**Alarm Location:** TT-65C222

**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 work activities or procedures.

**Immediate Actions:**

1. **DETERMINE** validity of high temperature on graphic Chemical.
2. **DETERMINE** status of 4% NaOH pump P4 (65C-P-4) from graphic Chemical.
3. **NOTIFY** SOM.
4. **IF** P4 (65C-P-4) pump is operating, **DETERMINE** if alternate methods of ETF operation can reduce the time this pump is operating. If the temperature increases to the HI-HI alarm temperature, the 4% NaOH pump cutoff will shut down P4 (65C-P-4) pump.
5. **CONFIRM** 4% NaOH concentration is 3.5% to 4.5%.

**Possible Causes:**

1. Continuous use of 65C-P-4 heats the NaOH.
2. Chemical concentration is too strong.
3. Instrument failure/calibration of TT-65C222 or TI-65C222.

**References:**

- **Drawings:** None.
- **Documents:** ETF-65C-001, Chemical Feed System Operation.
**Chemical Feed System**

### 4% NAOH TK TAHH-65C222
**VD51305**

**DESCRIPTION:** 4% NaOH Tank Temperature Alarm High High

**Setpoint:** 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51308)

**Alarm Location:** TT-65C222

**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 work activities or procedures.

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**Automatic Actions:**

1. V030 (AOV65C030) closes due to the setting of the pump cutoff. The valve cannot be opened until both the HI HI and HI temperature alarms clear.

2. P4 (65C-P-4) pump stops running due to the setting of the pump cutoff. The pump cannot be started until both the HI HI and HI temperature alarms clear.

3. If the CHEM FEED OPERATION PERMISSIVE is not on, the Chemical Feed system will shut down.

---

**Immediate Actions:**

[1] **DETERMINE** validity of high temperature on graphic Chemical.

[2] **CONFIRM** 4% NaOH pump is not operating and AOV-65C030 is closed from graphic Chemical.

[3] **NOTIFY** SOM.

[4] **CONFIRM** 4% NaOH concentration is 3.5% to 4.5%.

[5] **IF** directed by SOM, **PERFORM** the following:

[5.1] **SHUT DOWN** feed to Surge Tank.

[5.2] **PLACE** MTT in Ready.

[5.3] **STOP** Polisher Regeneration.

*(Continued on Next Page)*
4% NaOH TK TAHH-65C222
VD51305

DESCRIPTION: 4% NaOH Tank Temperature Alarm High High
Setpoint: 110 to 135°F range (see ETF-65C-001 for current setpoint of VA51308)
Alarm Location: TT-65C222
Graphic: Alarm Summary Screen
Indications: N/A

Possible Causes:
1. Continuous operation of 65C-P-4 pump.
2. Chemical concentration is too strong.
3. TT-65C222 failure/malfunction/calibration.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
4% NaOH Tank Level High High
VD535497

DESCRIPTION: 4% NaOH Tank Level High High
Setpoint: 98%
Alarm Location: LIT-65C211
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 work activities or procedures.

Automatic Actions:
1. 50% NaOH tank pump P2 (65C-P-2) STOPS.
2. If the CHEM FEED OPERATIONS PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CONFIRM pump P2 (65C-P-2) STOPPED.
[2] CHECK V030 (AOV65C030) and V051 (AOV65C051) CLOSED.

Possible Causes:
1. AOV-65C030 or AOV-65C051 failed to close.
2. LIT-65C211 failure/calibration.

References:
Drawings: None.
Documents: None.
4% NAOH TK LAH-65C211
VD535168

DESCRIPTION: 4% NaOH Tank Level Alarm High
Setpoint: 95%
Alarm Location: LIT-65C211
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 work activities or procedures.

Automatic Actions:
1. V030 (AOV65C030) and V051 (AOV65C051) close.

Immediate Actions:
[1] CHECK V030 (AOV65C030) and V051 (AOV65C051) CLOSED.

Possible Causes:
1. AOV-65C030 or AOV-65C051 fail to close.
2. LIT-65C211 failure/calibration.

References:
Drawings: None.
Documents: None.
4% NAOH TK LAL-65C211
VD535170

DESCRIPTION: 4% NaOH Tank Level Alarm Low
Setpoint: 20%
Alarm Location: LIT-65C211
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 work activities or procedures.

Automatic Actions:
1. 4% NaOH tank pump P4 (65C-P-4) STOPS on low level cutout.
2. If the CHEM FEED OPERATION PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CONFIRM pump P4 (65C-P-4) STOPPED.
[2] CHECK 4% NaOH tank level below 20%.
[4] CONFIRM valves 65C-050 and 65C-033 CLOSED.

Possible Causes:
1. Leaks in system
2. AOV-65C030 or AOV-65C051 failure.
3. 50% NaOH tank pump, 65C-P-2, failure.
4. LIT-65C211 failure/calibration.

References:
Drawings: None.
Documents: None.
4% NAOH TK PUMP ALARM
VD535107

DESCRIPTION: 4% NaOH Tank Pump Alarm
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 work activities or procedures.

Automatic Actions:
1. If the CHEM FEED OPERATION PERMISSIVE is not on, the Chemical Feed system will shut down.

Immediate Actions:
[1] CHECK pump circuit breaker per ETF-65C-001 (MCC-1).
[2] IF breaker is tripped, DETERMINE cause AND RESET breaker.
[3] WHEN power is available, RESTART pump (one time) per ETF-65C-001.

Possible Causes:
1. Pump failure, 65C-P-4.
2. Power failure.

References:
Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.
4% NAOH PMP RDY FOR RESTR RT VD51315

DESCRIPTION: The 4% NaOH Pump is Ready for Restart
Setpoint: High Temperature Alarm and High High Temperature Alarm have cleared
Alarm Location: TT-65C222
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 work activities or procedures.

Immediate Actions:

[1] IF P4 (65C-P-4) pump is required for operation, SELECT High Temp Cutoff 4% NaOH Pump RESET from Graphic CHEMFD SETPTS.

Possible Causes:

1. High Temperature Alarm and High High Temperature Alarm have cleared. This will allow the high temperature pump cutoff to be reset to start the pump.

References:
Drawings: None.
Documents: None.
CHEM MAKEUP BERM LAH-20B016
LS20B016

DESCRIPTION: Chemical Makeup Berm Level Alarm High-20B016
Setpoint: 1 inch
Alarm Location: LS-20B016
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 work activities or procedures.

Automatic Actions:
1. Stops Chemical feed pumps P1 (65C-P-1), pump P2 (65C-P-2), pump P3 (65C-P-3), and pump P4 (65C-P-4) and closes Chemical feed valves V010 (AOV65C010), V051 (AOV65C051), V030 (AOV65C030), and V052 (AOV65C052) when equipment is in AUTO or MANUAL operation.
2. The Operation Mode and Operation Permissive are reset.

Immediate Actions:
[1] CONFIRM, on graphic Chemical, the following equipment, switches, and operational status:
   - Pump P1 (65C-P-1): OFF
   - Pump 65C-P-3: OFF
   - Pump 65C-P-2: OFF
   - Pump 65C-P-4: OFF
   - AOV-65C010: CLOSED
   - AOV-65C051: CLOSED
   - AOV-65C030: CLOSED
   - AOV-65C052: CLOSED
   - Operation Permissive Hand Switch: OFF
   - Operation Mode: OFF.

(Continued on Next Page)
DESCRIPTION: Chemical Makeup Berm Level Alarm High-20B016
Setpoint: 1 inch
Alarm Location: LS-20B016
Graphic: Alarm Summary Screen
Indications: N/A

Immediate Actions (Cont.):

[2] SHUT OFF LERF to Surge transfer per ETF-60M-003.
[3] INSPECT 4% acid and 4% NaOH tanks and associated equipment for leakage.
[4] IF leakage is present, PERFORM the following:
   [4.1] NOTIFY CRO AND SOM.
   [4.2] SHUT DOWN MTT per ETF-60-002.
   [4.3] CLEAN UP leakage per appropriate spill/clean-up procedure.
[5] IF leakage is not present or alarm has cleared after cleanup, PERFORM the following:
   [5.1] NOTIFY CRO.
   [5.2] GO TO response for 4% CHEM BERM LAH RESET REQ'D VD535120.

Possible Causes:
1. LS-20B016 failure/calibration.
2. Leak in 4% acid or 4% NaOH tanks or associated equipment.

References:
Drawings: None.
Documents: ETF-60M-003, LERF to ETF Transfers.
4% CHEM BERM LAH RESET REQ’D
VD535120

DESCRIPTION: Operator activation of LAH-20B016 Reset is required before Chem. Feed pumps (P1 (65C-P-1), 65C-P-2, 65C-P-3, and 65C-P-4) can be restarted

Setpoint: 1 inch
Alarm Location: LS-20B016
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 work activities or procedures.

Immediate Actions:

[1] IF Chemical Feed operation is desired and the Chem Berm Area is free from leaks, PERFORM the following:

[1.1] SELECT “LAH-20B016 RESET” from graphic Chemical.
[1.2] RESTART Chemical Feed System per ETF-65C-001.

Possible Causes:

1. LAH-20B016 has CLEARED.
2. LS-20B016 failure/calibration.

References:

Drawings: None.
Documents: ETF-65C-001, Chemical Feed System Operation.