Cooling Water System

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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<th>Rev-Mod</th>
<th>Release Date</th>
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<td>A-1</td>
<td>08/17/2017</td>
<td>Inconsequential Change</td>
<td>Pg. 4, Immediate Actions: [4] changed from &quot;.&quot; to &quot;:&quot;</td>
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<tr>
<td>A-0</td>
<td>10/20/2015</td>
<td>Conversion to WRPS Format</td>
<td>New Procedure, Supersedes ETF-PRO-AR-51396 (ARP-95C-001)</td>
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Cooling Water System

Alarm

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RECORDS

No records are generated during the performance of this procedure.
Cooling Water System

COOLING H₂O OPERATION FAILURE

Description: Cooling H₂O Operation 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 work activities or procedures.

Automatic Actions:
2. ETF processes shut down.

Immediate Actions:
[1] ENSURE Cooling Water System has shut down.
[2] ENSURE MTT/STT has shut down.
[3] CHECK low level alarm, LAL-95C101 is not displayed on alarm screen.
[4] CONFIRM electrical power is available.
[5] CHECK cooling water pump breaker, MCC-2, 95C-P-1, is not tripped.
[6] IF breaker is tripped, RESET OR TROUBLESHOOT breaker.

Possible Causes:
1. Compressed air not available.
2. Misaligned valves.
4. Improper pressure settings on AOV control air or loading air.
5. Polisher system bypassed.
6. Improper pressure setting on AOV control air (85 to 95 psig) or loading air (75 to 85 psig).

References:
Drawings: None
Documents: ETF-95C-001, Cooling Water System Operation
COOLING H2O TOWER LEVEL LO (LAL-95C101)

Description: Cooling H2O Tower Level Lo
Setpoint: 12.5”
Alarm Location: LS-95C101
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. Cooling water pumps shut down.
2. ETF processes shut down.

Immediate Actions:
[2] ENSURE MTT/STT has shut down.
[3] ENSURE valve 95C-101 is CLOSED.
[4] ENSURE the following valves are OPEN:
   • 95C-060
   • 95C-020.
[5] IF alarm was due to lack of raw water to cooling tower, START Cooling Water System per ETF-95C-001 when water is available.
[6] IF alarm was due to level switches or SOV failure, RETURN Cooling Water System to service per ETF-95C-001 after repair.

Possible Causes:
1. Drain valve 95C-101 is OPEN.
2. Raw water supply is not available.
3. Level switch LS-95C101 malfunction.
4. Level switch LS-95C102 malfunction
5. Solenoid operated valve SOV-95C102 malfunction.

References:
Drawings: None
Documents: None
## COOLING H20 PRESSURE LO 95C012

**Description:** Cooling H2O pressure Lo
**Setpoint:** 70 PSIG
**Alarm Location:** PT-95C012
**Graphic:** Alarm Summary Screen
**Indications:** N/A

### Immediate Actions:

1. **ENSURE** instrument root valve 95C-004 is OPEN.
2. **OBSERVE** pump 95C-9-1 for noise and vibration.
3. **INSPECT** system for leakage.
4. **THROTTLE** the following valves to increase line pressure:
   - 95C-062
   - 95C-030
   - 95C-031.
5. **IF** any cooling water flow has been altered or initial valve line up was changed to support maintenance work, **BALANCE** system per ETF-95C-001.

### Possible Causes:

1. Instrument root valve 95C-004 is closed.
2. Cooling water pump 95C-P-1 has unusual noise or vibration.
4. Cooling water flow is out of balance.

### References:

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H₂O PUMP 95C-P1-A

**Description:** Cooling H₂O 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 work activities or procedures.

**Automatic Actions:**
2. ETF processes shut down.

**Immediate Actions:**
2. [2] ENSURE MTT/STT has shut down.
3. [3] CONFIRM electrical power is available.
5. [5] IF breaker is tripped, RESET OR TROUBLESHOOT breaker.

**Possible Causes:**
1. Loss of electrical power.
2. Cooling water pump, 95C-P-1 breaker on MCC-2 tripped.
3. Cooling water pump, 95C-P-1 failure.

**References:**
- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
**Cooling Water System**

**COOLING H₂O TOWER FAN A**

**95C-E1A-A**

**Description:** Cooling H₂O Tower Fan

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

**Alarm Location:** Logic Generated alarm

**Graphic:** Alarm Summary Screen

**Indications:** N/A

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**Immediate Actions:**

1. **CONFIRM** fan A is OFF.
2. **CONFIRM** electrical power is available.
3. **ON** MCC-3, **CHECK** fan A breaker 95C-F-1A.
4. **IF** breaker is tripped, **RESET OR TROUBLESHOOT** breaker.
5. **RESTART** fan per ETF-95C-001.

---

**Possible Causes:**

1. Loss of electrical power.
2. Cooling tower fan A breaker 95C-F-1A on MCC-3 tripped.

---

**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H$_2$O TOWER FAN B  
95C-E1B-A

**Description:** Cooling H$_2$O Tower Fan B  
**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:**

1. **CONFIRM** fan B is OFF.
2. **CONFIRM** electrical power is available.
3. **ON** MCC-3, **CHECK** fan B breaker 95C-F-1B.
4. **IF** breaker is tripped, **RESET OR TROUBLESHOOT** breaker.
5. **RESTART** fan per ETF-95C-001.

**Possible Causes:**

1. Loss of electrical power.
2. Cooling tower fan B breaker 95C-F-1B on MCC-3 tripped.
3. Cooling tower fan B failure.

**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H₂O TOWER HEATER A
95C-E2A-A

**Description:** Cooling H₂O Tower Heater A

**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:**

1. **CONFIRM** electrical power is available.
2. **ON** MCC-4, **CHECK** heater A breaker 95C-E-2A.
3. **IF** breaker is tripped, **RESET OR TROUBLESHOOT** breaker.
4. **RESTART** heater per ETF-95C-001.

**Possible Causes:**

1. Loss of electrical power.
2. Cooling water heater A breaker 95C-E-2A on MCC-4 tripped.
3. Cooling tower heater A failure.

**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H₂O TOWER HEATER A
95C-E2B-A

Description: Cooling H₂O Tower Heater B
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:
[1] CONFIRM electrical power is available.
[2] ON MCC-3, CHECK heater B breaker 95C-E2B.
[3] IF breaker is tripped, RESET OR TROUBLESHOOT breaker.

Possible Causes:
1. Loss of electrical power.
2. Cooling water heater breaker 95C-E-2A on MCC-3 tripped.
3. Cooling tower heater B failure.

References:
Drawings: None
Documents: ETF-95C-001, Cooling Water System Operation
COOLING H₂O TOWER HEATER SUMP HI TEMP

Description: Cooling H₂O Tower Sump Hi Temp
Setpoint: 81°F
Alarm Location: TSH-95C104
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] CONFIRM cooling water sump heaters OFF.
[2] CONFIRM both cooling water fans ON.
[3] CONFIRM raw water supply is available.
[4] IF raw water is not available, SHUT DOWN system per ETF-95C-001.
[5] IF condition persist, CONTACT Engineering for assistance in troubleshooting high temperature.

Possible Causes:
1. Cooling tower heaters are left ON.
2. Cooling water temperature switch as malfunctioned and is not activating cooling fans.
3. Raw water supply is not available.
4. Blow down rate is not properly adjusted.

References:
Drawings: None
Documents: ETF-95C-001, Cooling Water System Operation
COOLING H₂O TOWER HEATER SUMP LO TEMP

**Description:** Cooling H₂O Tower Sump Lo Temp

**Setpoint:** 40°F

**Alarm Location:** TSH-95C115

**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. **ENSURE** heaters are in AUTO per ETF-95C-001.
2. **CONFIRM** cooling water sump heater breakers has not tripped:
   - MCC-3, 95C-E-2B
   - MCC-4, 95C-E-2A.
3. **IF** breakers are tripped, **RESET OR TROUBLESHOOT** breaker.
4. **RESTART** heaters per ETF-95C-001.
5. **IF** temperature switch has malfunctioned:
   - [5.1] **MONITOR** temperature of cooling water sump every two hours with a hand held thermometer to ensure temperature does not fall below 35°F.
   - [5.2] **IF** temperature falls below 35°F, **NOTIFY** SOM.

**Possible Causes:**

1. Cooling tower heaters are left OFF.
2. Heater breakers 95C-E-2B on MCC-3 and 95C-E-2A on MCC-4 tripped.

**Possible Causes (Cont.):**

3. Cooling water temperature switch has malfunctioned and is not activating cooling heaters when temperature falls below setpoint.

**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H₂O BLOWDOWN PUMP FAIL (95C-P-2)

**Description:** Cooling H₂O Blowdown Pump Failure

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

**Alarm Location:** Logic generated alarm

**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. **CONFIRM** electrical power is available.
2. **ON** MCC-3, **CHECK** cooling water pump breaker 95C-P-2.
3. **IF** breaker is tripped, **RESET OR TROUBLESHOOT** breaker.
4. **RESTART** cooling water blowdown pump per ETF-95C-001.

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**Possible Causes:**

1. Loss of electrical power.
2. Cooling water pump breaker 95C-P-2 on MCC-3 tripped.
3. Cooling water pump 95C-P-2 failure.

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**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation
COOLING H2O BLOWDOWN PUMP NOT RUNNING (95C-P-2)

**Description:** Cooling H2O Blowdown Pump Not Running

**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:**

1. **CONFIRM** electrical power is available.
2. **ON** MCC-3, **CHECK** cooling water pump breaker 95C-P-2.
3. **IF** breaker is tripped, **RESET OR TROUBLESHOOT** breaker.
4. **RESTART** cooling water blowdown pump per ETF-95C-001.

**Possible Causes:**

1. Loss of electrical power.
2. Cooling water pump breaker 95C-P-2 on MCC-3 tripped.
3. Cooling water pump 95C-P-2 failure.

**References:**

- **Drawings:** None
- **Documents:** ETF-95C-001, Cooling Water System Operation