USQ # TF-18-1416-S, Rev 0

CHANGE HISTORY (≤ LAST 5 REV-MODS)

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<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
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<td>B-5</td>
<td>10/09/2018</td>
<td>Operations Request</td>
<td>Removed unneeded TSRs and PLNs and updated applicability.</td>
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<td>B-3</td>
<td>09/18/2017</td>
<td>Operations request</td>
<td>Updating table of contents which corrected referenced alarm on page 11. Corrected Alarm name on Page 7 to add &quot;ANNULUS&quot;.</td>
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<td>B-2</td>
<td>08/30/2017</td>
<td>Operations request</td>
<td>Added information regarding LCO 3.5 into the procedure.</td>
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<td>B-1</td>
<td>09/19/2016</td>
<td>Procedure Updates for MLA</td>
<td>Added two new alarms for AY-102 annulus level ENRAF</td>
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RECORDS

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

This alarm response procedure provides direction to Nuclear Chemical Operators for responding to alarms received at the Tank Monitor and Control System (TMACS) facility.

2.0 OPERATION

2.1 OPERATE Tank Monitor and Control System (TMACS) facility in accordance with procedure TO-040-035.

2.2 RESPOND to Tank Monitor and Control System (TMACS) facility alarms with procedure TO-040-035.

2.3 LEFT CLICK on sensor icons to review a trend of associated sensor data.

2.4 RIGHT CLICK on sensor icons AND SELECT “update reading” to re-poll sensors and obtain updated readings.
Tank Level High

Facility: TMACS

Sensor Type: Tank Level ENRAF  Setpoint: N/A
Source: Primary tank level ENRAF

Alarm Class: Environmental
Alarm Description: Waste Tank Level High

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Tank Level alarm limits vary by tank and are set by engineering.

Immediate Actions:

[2] IF alarm has activated on a receiving, sending, or interconnected tank for an active waste transfer, NOTIFY Transfer MBD Operator of alarm activation.
[5] REVIEW appropriate OSD for the tank waste normal maximum operating limit.
[6] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.

Supplemental Actions:


Possible Causes:

1. Waste transfer.
2. Intrusion into waste tank.
3. Instrument malfunction or failure.

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Tanks
          OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
          OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection And
          Single-Shell Tank Intrusion Detection
          RPP-16922, Environmental Specification Requirements
Facility: TMACS

Sensor Type: Tank Level ENRAF  Setpoint: N/A
Source: Primary tank level ENRAF
Alarm Class: Environmental
Alarm Description: Waste Tank Level High

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Tank Level alarm limits vary by tank and are set by engineering.

Immediate Actions:

[2] IF alarm has activated on a receiving, sending, or interconnected tank for an active waste transfer, NOTIFY Transfer MBD Operator of alarm activation.
[5] REVIEW appropriate OSD for the tank waste normal maximum operating limit.
[6] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.

Supplemental Actions:


Possible Causes:

1. Waste transfer.
2. Intrusion into waste tank.
3. Instrument malfunction or failure.

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Tanks
OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection And Single-Shell Tank Intrusion Detection
RPP-16922, Environmental Specification Requirements
Facility: TMACS

Sensor Type: Tank Level ENRAF   Setpoint: N/A

Source: Primary tank level ENRAF

Alarm Class: Environmental

Alarm Description: Waste 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.

- Tank Level alarm limits vary by tank and are set by engineering.

Immediate Actions:


[2] IF alarming tank is AY-101, AZ-101, or AZ-102 and level is below 64 inches REQUEST applicable field operator shut down annulus ventilation for that tank.

[3] IF alarming tank is in AN, AW, AY (except for AY-102), AZ, or SY farms and tank level is below 6 inches REQUEST applicable field operator shut down primary tank ventilation for that farm.

[4] IF alarming tank is in AP farm and level is below 12 inches, REQUEST applicable field operator shut down primary tank ventilation for AP farm.


[7] REVIEW appropriate OSD for the tank waste minimum level.

[8] IF tank is the sending tank for an active waste transfer, NOTIFY Transfer MBD Operator of alarm activation.

[9] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.


Supplemental Actions:


(Continued on Next Page)
Sensor Type: Tank Level ENRAF  Setpoint: N/A

Source: Primary tank level ENRAF

Possible Causes:
1. Waste transfer.
2. Tank leak.
3. Instrument malfunction or failure.

References:
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection And Single-Shell Tank Intrusion Detection
Facility: TMACS

Sensor Type: AY-102 annulus level ENRAF

Setpoint: 13.0”

Source: AY-102 annulus level ENRAF

Alarm Class: TSR/Environmental

Alarm Description: AY-102 annulus level High

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- AY-102 Level alarm limits alarm limit is set at 13” to protect the limits of LCO 3.5.
- Environmental notification is not required during active AY-102 waste retrieval operations.

Immediate Actions:

[3] CHECK level and alarm status of the other AY-102 annulus level ENRAF.
   [3.1] IF at least two of the annulus ENRAFs are in alarm THEN REQUEST Shift Manager notify environmental. (See note).
[5] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.
   [5.1] REQUEST Shift Manager evaluate TF-AOP-005 entry criteria and compliance with LCO 3.5. (LCO 3.5)
[6] Shift Manager INITIATE actions to reduce level in annulus (i.e., AY-102 annulus pumping).

Supplemental Actions:

[8] REQUEST engineering to analyze data to determine likely cause.

(Continued on Next Page)
T S R Compliance

TMACS Alarm Response

**RED**

**Sensor Type:** AY-102 annulus level  
**Setpoint:** 13.0”

**Source:** AY-102 annulus level ENRAF

(TANK ANNULUS LEVEL HIGH)

(Continued)

**Possible Causes:**
1. AY-102 Retrieval.
2. Increased leak rate into AY-102 annulus.
3. Instrument malfunction or failure.

**References:**
- **Drawings:** None
- **Documents:**
  - HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
  - OSD-T-151-00007, Operating Specifications for Double Shell Tanks
  - OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection and Single-Shell Tank Intrusion Detection
  - RPP-16922, Environmental Specification Requirements
Facility: TMACS

Sensor Type: AY-102 annulus level ENRAF

Setpoint: +0.25” of Current baseline level.

Source: AY-102 annulus level ENRAF

Alarm Class: Environmental

Alarm Description: AY-102 annulus level High

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Tank Level alarm limits vary depending on current baseline AY-102 annulus levels and are set by engineering.
- Environmental notification is not required during active AY-102 waste retrieval operations.

Immediate Actions:

[3] CHECK level and alarm status of the other AY-102 annulus level ENRAF.
[3.1] IF at least two of the annulus ENRAFs are in alarm THEN REQUEST Shift Manager notify environmental.
[5] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.
[5.1] REQUEST Shift Manager evaluate TF-AOP-005 entry criteria and compliance with LCO 3.5. (LCO 3.5)

Supplemental Actions:

[7] REQUEST engineering to analyze data to determine likely cause.
[8] REQUEST engineering re-baseline as appropriate.

(Continued on Next Page)
Sensor Type: AY-102 annulus level ENRAF  
Setpoint: +0.25” of Current baseline level.

Source: AY-102 annulus level ENRAF

Possible Causes:
1. AY-102 Retrieval.
2. Increased leak rate into AY-102 annulus.
3. Instrument malfunction or failure.

References:
Drawings: None
Documents: HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements  
OSD-T-151-00007, Operating Specifications for Double Shell Tanks  
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection and Single-Shell Tank Intrusion Detection  
RPP-16922, Environmental Specification Requirements
Facility: TMACS

Sensor Type: AY-102 annulus level ENRAF  
Setpoint: -0.50” of Current baseline level.

Source: AY-102 annulus level ENRAF

Alarm Class: Environmental

Alarm Description: AY-102 annulus 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.
- Tank Level alarm limits vary depending on current baseline AY-102 annulus levels and are set by engineering.
- Environmental notification is not required during active AY-102 waste retrieval operations.

Immediate Actions:

[3] CHECK level and alarm status of the other AY-102 annulus level ENRAF.
  [3.1] IF at least two of the annulus ENRAFs are in alarm THEN REQUEST Shift Manager notify environmental. (See note).
[5] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.
  [5.1] REQUEST Shift Manager notify environmental within 24 hours. (see note)

Supplemental Actions:

[7] REQUEST engineering to analyze data to determine likely cause.
[8] REQUEST engineering re-baseline as appropriate.

(Continued on Next Page)
Sensor Type: AY-102 annulus level ENRAF
Setpoint: -0.50” of Current baseline level.
Source: AY-102 annulus level ENRAF

Possible Causes:
1. Evaporation.
2. Leak from annulus into AY-102 Leak Detection Pit.
3. Instrument malfunction or failure.

References:
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Tanks
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection and Single-Shell Tank Intrusion Detection
Facility: TMACS

Sensor Type: Leak Detection ENRAF

Source: Tank Annulus ENRAF  Setpoint: 0.25"

Alarm Class: Environmental

Alarm Description: Waste Tank Annulus Leak Detected

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] **ACKNOWLEDGE** alarm.

[2] **IF** alarm is on the receiving tank or a sending tank for an active waste transfer (excluding AY-102), **REQUEST** transfer MBD Operator shut down transfer.

[3] **CHECK** level and alarm status of the related Annulus Leak Detectors for the same tank.


[5] **NOTIFY** Shift Manager of alarm, actions and findings.

[6] Shift Manager **PERFORM** the following:

[6.1] **IF** annulus leak detectors show increased level in the annulus.

[6.1.1] Shift Manager **EVALUATE** TF-AOP-005 entry criteria.

[6.1.2] Shift Manager **NOTIFY** maintenance to perform leak detection verification per 6-LDD-485.

[6.2] **IF** the alarming tank has an operating annulus ventilation train equipped with a leak detection CAM, **REQUEST** ER-1 operator check TFMCS for alarming annulus leak detection CAM.

[6.2.1] **IF** annulus leak detector CAM is alarming follow alarm response steps per ARP-T-041-00002.

(Continued on Next Page)
Facility: TMACS

Sensor Type: Leak Detection ENRAF

Source: Tank Annulus ENRAF

Setpoint: 0.25"

Supplemental Actions:

[8] Shift Manager NOTIFY Environmental On-Call per TF-REC-001.
[9] TMACS Operator EXIT this ARP actions

Possible Causes:

1. Waste leak from primary tank to annulus.
2. Condensate, rainwater, snowmelt or other water has entered the annulus from outside.
3. Instrument malfunction.
4. ENRAF has reset due to loss of power.

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection And Single-Shell Tank Intrusion Detection
TF-AOP-005, Response to Unexpected Tank Temperature or Flammable Gas Increase or Level Change
TF-AOP-020, Response to Placing Personnel and Equipment in a Safe Condition
TF-OPS-016, AY/AZ and 702-AZ Air Sample Filter Exchanges of Stack and Annulus Effluent Record Sampler CAM(s)
6-LDD-485, ENRAF Series 854 Annulus Leak Detection Gauges Calibration and Maintenance
TF-REC-001, Response to Environmental Condition
ARP-T-041-00002, Respond to Alarms at TFMCS HMI Stations
Facility: TMACS

Sensor Type: Temperature Sensor

Source: Any tank temperature sensor    Setpoint: N/A

Alarm Class: Environmental

Alarm Description: Temperature High

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

- Tank temperature alarm limits vary by tank and are set by engineering.

Immediate Actions:


[4] IF other temperature sensors are available near the alarming sensor, REVIEW nearby sensors to compare temperature change or trend differences.


[6] IF alarm is on the receiving tank or a sending tank for an active waste transfer, NOTIFY transfer MBD Operator of alarming sensor

[7] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.

[7.1] REQUEST Shift Manager evaluate TF-AOP-005 entry criteria.

Supplemental Actions:


Possible Causes:

1. Sensor temperature is more than high alarm limit.

2. Instrument malfunction

References:

Drawings: None

Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks

OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
Facility: TMACS

Sensor Type: Temperature Sensor

Source: Any tank temperature sensor

Setpoint: N/A

Alarm Class: Environmental

Alarm Description: Temperature Low

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Tank temperature alarm limits vary by tank and are set by engineering

Immediate Actions:

[1] ACKNOWLEDGE alarm
[4] IF other temperature sensors are available near the alarming sensor, REVIEW nearby sensors to compare temperature change or trend differences.
[6] NOTIFY Shift Manager and applicable Shift Operator of alarm, actions and findings.

Supplemental Actions:


Possible Causes:

1. Sensor temperature is less than low alarm limit.
2. Instrument malfunction

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
Facility: TMACS

Sensor Type: Panel Alarm

Source: AY/AZ MCS  
Setpoint: N/A

Alarm Class: Environmental

Alarm Description: Panel Alarm Received for 702-AZ Exhaust System

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

- After notification, 702-AZ alarm response actions are completed by the applicable field operator (ER-1 Operator or the Stationary Operating Engineer).

Immediate Actions:

[1] ACKNOWLEDGE alarm

[2] IF the alarm received is “AZ702 Building Vent Stack RAH/RAX”, REQUEST Stationary Operating Engineer respond to 702-AZ alarm locally.


[4] NOTIFY Shift Manager of received alarms and actions taken.

Supplemental Actions:


Possible Causes:

1. Alarm received from 702-AZ MCS.
2. Instrument malfunction.

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
Facility: TMACS

Sensor Type: TMACS Sensor

Source: Any TMACS Sensor Setpoint: N/A

Alarm Class: Facility Status

Alarm Description: TMACS has lost communication to a field sensor or instrument.

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

- Communication failure alarms (color: white) are removed from the alarm list when acknowledged. Bulk acknowledging of “white” alarms is acceptable.

- Periodic communication failure alarms considered to be “nuisance” alarms do not require a response per this ARP.

Immediate Actions:

[2] OBTAIN updated reading on sensor(s) to re-poll sensor, and attempt to re-initiate communication with device.
[3] DETERMINE if communication failure is isolated to one sensor, riser, farm, or area.
[4] NOTIFY Shift Manager of received alarms and actions taken.

Supplemental Actions:


Possible Causes:

1. Sensor, acromag, or modem power loss or failure.
2. Sensor is out of rated range.
3. Instrument malfunction

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks
Facility: TMACS

Sensor Type: Sensor

Source: Any tank Sensor  
Setpoint: N/A

Alarm Class: Environmental

Alarm Description: Sensor value has exceeded Rate Of Change limits.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Rate-Of-Change alarm limits vary by tank and are set by engineering.

Immediate Actions:

1. ACKNOWLEDGE alarm.
2. OBTAIN updated reading on alarming sensor.
3. REVIEW trend of alarming sensor for changes and anomalies.
4. IF alarming sensor is a temperature sensor and other temperature sensors are available near the alarming sensor, REVIEW nearby sensors to compare temperature change or trend differences.
5. REVIEW appropriate OSD for applicable waste level or temperature maximum/minimum limits and waste level or temperature change limits.
6. IF alarm is on the receiving tank or a sending tank for an active waste transfer, NOTIFY transfer MBD Operator of alarming sensor.
7. NOTIFY Shift Manager of received alarms and actions taken.

Supplemental Actions:

8. LOG alarm response actions taken.

Possible Causes:

1. Sensor value has exceeded Rate of Change limits.
2. Instrument malfunction

References:

Drawings: None
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
OSD-T-151-00013, Operating Specifications for Single-Shell Waste Storage Tanks