241-AW-271 Building Alarm Index

<table>
<thead>
<tr>
<th>Alarm Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 Hi Level Leak Detector Pit 04C (WSTA-WFA-134)</td>
<td>3</td>
</tr>
<tr>
<td>01 Hi Level Leak Detector Pit 04C (WSTA-WFA-134)</td>
<td>4</td>
</tr>
</tbody>
</table>

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-3</td>
<td>01/03/2019</td>
<td>WRPS-PER-2018-2904</td>
<td>Struck out immediate actions [5], [6], part of [8] and [9] supplemental action [10] possible causes 2 [5] IF directed by the Shift Manager/OE, PERFORM any/all of the following. [6] IF alarm clears, PROCEED to Step [11] [8] CHECK air inlet station opening for obstructions AND REMOVE. Added ENSURE AW-104 inlet station 12” isolation valve (AW104-VTP-V-204) is OPEN [9] OPEN isolated inlet station valves per procedure TO-060-107. [10] IF the above steps do not restore tank pressure to proper range, NOTIFY Shift Manager AND IF directed, PERFORM the following: OPEN 3” bypass line valve (AW104-VTP-V-210) on Tank 241-AW-104. CLOSE corresponding inlet filter station 12” butterfly valve (AW104-VTP-V-204) for tank 241-AW-104. OR Both Primary A and B Train exhaust fans were being operated for a job involving another tank. Added new immediate action with substeps 1. IF directed by the Shift Manager/OE, PERFORM any/all of the following: 1. MONITOR tank pressure on TFMCS. 2. ADJUST exhauster stack flow set point per TO-060-107. 3. REMOVE any ice buildup or obstructions from AW-104 inlet station. 4. REMOVE tape from valve pits.</td>
</tr>
</tbody>
</table>

| I-2     | 10/09/2018   | Operations request and TF Automation / DSA changes | Removed/Replaced references to LCO 3.5. Removed steps that CHECK magnahelic pressure gauge. |
| I-1     | 08/30/2017   | Operations request | Updated Immediate and supplemental actions for alarms and reference documents. |
| I-0     | 05/25/2016   | Periodic review | No changes identified |
| H-0     | 06/09/2014   | Periodic review | Add possible cause for HI Level LD Pit 04C and revise Setpoint. Add reference documents as identified. Add immediate actions to HI Pressure Tank 104 and delete possible cause. Add immediate actions to Low Pressure Tank 104. Remove Setpoint variance for Annulus Leak Detected Tank 104 for WSTA-LDA-154. |
Respond to Panel ANN-104 Alarms at 271-AW

02 ...............Hi Pressure Tank 104 (Low Vacuum) (WST-PAH-114)....................... 5
03 ...............Low Pressure Tank 104 (HI Vacuum) (WST-PAL-114).......................... 7
04 ...............Annulus Leak Detected Tank 104 (WSTA-LDA-154)............................. 9

Figure 1.......241-AW-271 Instrument Building Alarm Panel ANN-104...................... 11

RECORDS

No records are generated during the performance of this procedure.
Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 01

Source: AW04C-WSTA-WFT-134  Setpoint: 45 inches above pit floor

Alarm Class: Area Status

Alarm Description: Liquid level in the leak detection pit has increased to alarm setpoint.

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 status of following annunciators:
   - Panel ANN-104 alarm 04, ANNULUS LEAK DETECTED TANK 104 (WSTA-LDA-154).


Supplemental Actions:

[4] CHECK LOCAL DISPLAYS OF Annulus ENRAFs AW104-WSTA-LDT-151, AW104-WSTA-LDT-152, AW104-WSTA-LDT-153 for the following:
   - ENRAF local alarms (HA indication will be in display for an alarm condition)
   - ENRAF level readings.


[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.

(Continued on Next Page)
Respond to Panel ANN-104 Alarms at 271-AW

Panel: ANN-104  Alarm #: 01
Source: AW04C-WSTA-WFT-134  Setpoint: - 45 inches above pit floor

HI LEVEL LEAK DETECTOR PIT 04C (WSTA-WFA-134) 01

(Continued)

Possible Causes:
1. Condensate, rainwater, or snowmelt has accumulated in the pit.
2. A waste leak from the primary tank to the annulus and then from the annulus to the leak detection pit.
3. A dip tube in the pit is plugged or has a purge air problem.

References:

Documents: TO-040-590, Leak Detection Wells, Annulus Leak Detection Systems
OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
RPP-16922, Environmental Specification Requirements
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection and Single Shell Tank Intrusion Detection, Table 3-1
TF-AOP-005, Response to Unexpected Tank Temperature or Flammable Gas Increase or Level Change
Respond to Panel ANN-104 Alarms at 271-AW

Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 02

Source: AW04C-WST-PT-114  Setpoint: - 0.5 inches WG

Alarm Class: Technical Safety Requirement (TSR LCO 3.1 DST Primary Tank Ventilation Systems, and LCO 3.4. DST Induced Gas Release Event Flammable Gas Control).

Alarm Description: Tank 241-AW-104 vapor space has an increasing pressure (Low Vacuum).

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. Activates Audible Warning Alarm, "AW TANKS HI PRESSURE", to notify farm occupants of pressurization.

Immediate Actions:

[1] EVACUATE personnel from AW Farm to a protected or upwind area.
[3] CHECK AW Farm tank pressures on TFMCS.
[4] CHECK primary exhaust train is running AND IF exhauster has shut down, NOTIFY Shift Manager of alarms and actions.

Supplemental Actions:


(Continued on Next Page)
Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 02
Source: AW04C-WST-PT-114  Setpoint: - 0.5 inches WG

Possible Causes:

1. Loss of primary ventilation.
2. Hot waste entering tank during transfer raises the pressure through evaporation.
3. Open riser, open pit drain, and/or missing sealing media on pit cover block seams/penetrations, admits too much air.
4. Failure of pressure transmitter or pressure alarm switch.
5. Gas release event.
6. Plugged HEPA filters.
7. Failed closed exhaust damper duct valve.

References:

Drawings: H-14-020602.
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks
TF-AOP-021, Response to Tank Farm Ventilation Upset
TO-060-107, Operate AW Tank Farm Primary Ventilation System (VTP)
HNF-SD-WS-TSR-006, Tank Farms Technical Safety Requirements.
Respond to Panel ANN-104 Alarms at 271-AW

Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 03

Source: AW04C-WST-PT-114  Setpoint: - 3.5 inches WG

Alarm Class: Plant Stability

Alarm Description: Low Pressure (High Vacuum) Tank 241-AW-104.

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

- Loss of instrument/compressed air will cause the tank pressure charts to fail to the low pressure (high vacuum) position.

Immediate Actions:

[1] CHECK the status of the compressed air system and if compressed air system was down, RECOMMEND to Shift Manager response per TF-AOP-002.

[2] CHECK the status of the following annunciators:
   - Panels ANN-101 through ANN-103 and ANN-105, ANN-106 alarm 03, LOW PRESSURE TANK 10X, (HI VACUUM), (WST-PAL-11X).

[3] CHECK tank pressure strip chart recorder, located on alarm panel just below alarm windows, AW271-WST-PR-114 (red colored trace), in 271-AW.

[4] CHECK AW Farm tank pressures on TFMCS.

[5] IF directed by the Shift Manager/OE, PERFORM any/all of the following:
   [5.1] MONITOR tank pressure on TFMCS.
   [5.2] ADJUST exhauster stack flow set point per TO-060-107.
   [5.3] REMOVE any ice buildup or obstructions from AW-104 inlet station.
   [5.4] REMOVE tape from valve pits.

NOTE - The port controller should float freely. During a high vacuum condition the vacuum breaker should open.


[7] ENSURE AW-104 inlet station 12” isolation valve (AW104-VTP-V-204) is OPEN

(Continued on Next Page)
Respond to Panel ANN-104 Alarms at 271-AW

Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 03

Source: AW04C-WST-PT-114  Setpoint: -3.5 inches WG

Supplemental Actions:

[8] NOTIFY Shift Manager of actions and findings.

Possible Causes:

1. Obstruction of air inlet (i.e., foreign object across inlet screen, frost/ice buildup on inlet, filter dirty).
2. Primary exhaust fan remained ON after backup fan started, with or without an open riser.
3. Vacuum or flow rates out of adjustment.
4. Loss of air compressor.
5. Port controller binding.
6. Vacuum breaker is stuck shut.

References:

Drawings: H-14-020102 and H-14-020602.
Documents: OSD-T-151-00007, Operating Specifications for Double Shell Storage Tanks TO-060-107, Operate AW Tank Farm Primary Ventilation System (VTP) TF-AOP-002, Response to Loss of Compressed Air.
Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 04

Source: AW104-WSTA-LDT-151  Setpoint: 0.25 inches above the annulus bottom
AW104-WSTA-LDT-152
AW104-WSTA-LDT-153

Alarm Class: Environmental

Alarm Description: One or more of the three leak detectors in the tank 241-AW-104 annulus is in alarm status. This is a common alarm, annunciating when any one of the three leak detectors in the annulus reaches the setpoint.

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:
None.

Immediate Actions:
[2] IF a transfer is in progress into or out of 241-AW-104, REQUEST MBD Operator shut down transfer.
[3] CHECK LOCAL DISPLAYS OF Annulus ENRAFs AW104-WSTA-LDT-151, AW104-WSTA-LDT-152, AW104-WSTA-LDT-153 for the following:
   • ENRAF local alarms.(HA indication will be in display for an alarm condition)
   • ENRAF level readings.
   [5.1] IF annulus leak detectors show increased level in the annulus.
      [5.1.1] Shift Manager EVALUATE TF-AOP-005 entry criteria.
      [5.1.2] Shift Manager NOTIFY maintenance to perform leak detection verification per 6-LDD-485.

(Continued on Next Page)
Facility: 241-AW-271 Building

Panel: ANN-104  Alarm #: 04

Source: AW104-WSTA-LDT-151  Setpoint: 0.25 inches above the
AW104-WSTA-LDT-152  annulus bottom
AW104-WSTA-LDT-153

Supplemental Actions:


Possible Causes:

1. Waste leaking from primary tank to annulus.
2. Condensate, rainwater, snowmelt, or other water has entered the annulus from outside.
3. Time delay relay or control relay fails.
5. ENRAF performed a reset due to loss of power.

References:

Documents:  RPP-16922, Environmental Specification Requirements
OSD-T-151-00031, Operating Specifications for Tank Farm Leak Detection and Single
Shell Tank Intrusion Detection, Table 3-1
TF-AOP-005, Response to Unexpected Tank Temperature or Flammable Gas Increase or
Level Change
6-LDD-485, ENRAF Series 854 Annulus Leak Detection Gauges Calibration and
Maintenance.
Respond to Panel ANN-104 Alarms at 271-AW

Figure 1 – 241-AW-271 Instrument Building Alarm Panel ANN-104

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>HI LEVEL LEAK DETECTOR PIT 04C (WSTA-WFA-134)</td>
<td>02</td>
<td>HI PRESSURE TANK 104 (LOW VACUUM) (WST-PAH-114)</td>
<td>03</td>
</tr>
<tr>
<td>04</td>
<td>ANNULUS LEAK DETECTED TANK 104 (WSTA-LDA-154)</td>
<td>05</td>
<td></td>
<td>06</td>
</tr>
<tr>
<td>07</td>
<td></td>
<td>08</td>
<td></td>
<td>09</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Type: REFERENCE
Document No.: ARP-T-231-00104
Rev/Mod: I-3
Release Date: 01/03/2019
Page: 11 of 11