Respond to HVAC Alarms at 271-AP

Tank Farm Alarm Response Procedure

USQ # TF-17-0498-S, Rev. 1

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>
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<tbody>
<tr>
<td>H-5</td>
<td>10/03/2017</td>
<td>Operations request</td>
<td>Alarm on page 14 for LOW FLOW ANNULUS EXHCAM SAMPLE (VTA-FAL-912B) was deleted as no longer used.</td>
</tr>
<tr>
<td>H-4</td>
<td>04/25/2017</td>
<td>Change to TFC-PLN-167</td>
<td>Updated the White Label program statement in Special Instructions.</td>
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<tr>
<td>H-3</td>
<td>01/16/2017</td>
<td>Old exhaster removed in AP Farm</td>
<td>Removed alarms identified with old non-operating exhaster.</td>
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<tr>
<td>H-2</td>
<td>09/14/2016</td>
<td>New exhaster equipment installed in the field</td>
<td>Deleted responses to alarms associated with old primary exhaster. Old exhaster will be disconnected so alarms do not need response.</td>
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<tr>
<td>H-1</td>
<td>08/09/2016</td>
<td>Requested by the electrical group</td>
<td>Added White Label program statement.</td>
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HVAC Panel Alarm Index

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<td>White</td>
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<td>68</td>
<td>HI D/P Annl Intake Station B HEPA Filter (VTA-PDAH-265)</td>
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Change Type: REFERENCE
Document No.: ARP-T-271-HVAC
Rev/Mod: H-5
Release Date: 10/03/2017
Page: 1 of 23
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69 ............... HI D/P Annl Intake Station C HEPA Filter (VTA-PDAH-275) ............... White .......... 20
70 ............... HI D/P Annl Intake Station D HEPA Filter (VTA-PDAH-285) ............... White .......... 21

RECORDS

No records are generated during the performance of this procedure.

Special Instructions

Non-electrical worker accessing electrical enclosures must ensure the following:

- The enclosure must have a white label indicating that it has been evaluated.
- The work activity within the enclosure does not involve:
  - Reaching around or moving electrical equipment
  - Contacting electrical connectors/connections
  - By-passing protective shielding/barriers.

Stop and notify management if these conditions cannot be met, or if discrepancies exist (e.g. conflicting or missing labels, missing or damaged protective barriers).
Facility: 241-AP-271 Instrument Building

Panel: HVAC      Alarm #: 6

Source: AP241-VTP-LSHL-140      Setpoint: 21 inches

Alarm Class: Equipment Status

Alarm Description: High level primary exhaust seal pot

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] NOTIFY Shift Manager immediately of alarm.

[2] INVESTIGATE cause of high level in seal pot:
   [2.1] IF de-entrainers are being flushed, STOP flushing operation.
   [2.2] IF freezing conditions exist, CHECK status of heat trace.

[3] REPORT actions and findings to Shift Manager.

Possible Causes:

1. Seal pot plugged by ice or other substance.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 7

Source: AP241-VTP-LDE-141  Setpoint: Contact

Alarm Class: Plant Stability

Alarm Description: Leak detected primary exhaust seal pot pit

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] CHECK position of the sump pump ON/OFF switch (AP241-VTP-MS-101), located on exhaust pad, shielding wall adjacent to the motor control center (MCC) AP241-EDS-MCC-002.

[3] TURN sump pump ON/OFF switch (AP241-VTP-MS-101) to ON.

[4] IF possible, DETERMINE AND ELIMINATE source of liquid intrusion


Possible Causes:

1. Condensate, rainwater, or snowmelt has accumulated in the pit.
2. Sump pump is blocked, inoperable, or OFF.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC

Alarm #: 16

Source: AP241-VTP-LSHL-140

Setpoint: 5 inches

Alarm Class: Equipment Status

Alarm Description: Low level primary exhaust seal pot

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

- The addition of 10 gallons of water should clear the alarm.

Immediate Actions:

[1] NOTIFY Shift Manager and Health Physics Technician of alarm.


[3] FILL seal pot with water (up to a maximum of 20 gallons) until alarm clears.

Supplemental Actions:

[4] IF alarm does not clear, NOTIFY Shift Manager of actions and findings.

[5] IF Health Physics Technician reports a spread of contamination, NOTIFY Shift Manager of findings.

Possible Causes:

1. Evaporation not replenished by condensation.
2. Seal loop is leaking.
3. Seal pot is leaking.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 17

Source: AP271-VTP-LDXA-141  Setpoint: N/A

Alarm Class: Equipment Status

Alarm Description: Failed leak detection system in primary exhaust seal pot pit

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

- This alarm is activated when Panel HVAC alarm 7 LEAK DETECTED PRI EXH SEAL POT PIT (BTP-LDL-141) is inoperable.

Immediate Actions:

[1] CHECK status of the following annunciator:
   - HVAC Panel alarm #7 LEAK DETECTED PRI EXH SEAL POT PIT (BTP-LDL-141).


Possible Causes:

1. Instrument failure.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 23

Source: AP241-VTA-PDIS-761  Setpoint: 4.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P A train annulus exhaust HEPA filter

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 field reading for AP241-VTA-PDIS-761 is at or above 4.0 inches WG.

[2] CHECK status of the following annunciator:
   - Panel RM alarm #4, HI RAD ALARM ANNULUS EXH STACK (VTA-RAH-910B).


[4] IF directed to by Shift Manager, SWITCH fans per TO-060-341.

Possible Causes:

1. Filter has become plugged. An examination of historical data should show a gradual increase in the differential pressure over time.

2. Filter has become saturated with condensation. This is likely only if there is a problem with the heater.

References:


Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks TO-060-341, Operate the 241-AP Tank Farm Annulus Ventilation System HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Facility: 241-AP-271 Instrument Building

Panel: HVAC
Alarm #: 25

Source: AP241-VTA-PDS-760
AP241-VTA-PDS-860

Setpoint: 9.5 inches WG

Alarm Class: Environmental Impact

Alarm Description: Fan failure A & B train annulus exhaust

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- This alarm activates when the standby exhauster auto-starts, but is unable to maintain a vacuum greater than 9.5 inches WG at the fan inlet.

Immediate Actions:

1. CHECK status of the following annunciator:
   - Panel RM alarm #4, HI RAD ALARM ANNULUS EXH STACK (VTA-RAH-910B).

2. IF RM Panel alarm #4 is not in alarm, ATTEMPT to RE-START annulus exhaust system per TO-060-341.

3. IF both annulus exhausters are OFF and can not be immediately restarted, CHECK status of the following annunciators:
   - Panels ANN-101 through ANN-108, alarm #9, ANNULUS LEAK DETECTED TANK 10X (WSTA-LDA-12X).

4. NOTIFY Shift Manager of actions and findings.

5. RECOMMEND starting 30 day clock to meet OSD-T-151-00007 requirements.

Supplemental Actions:

6. REQUEST Shift Manager evaluate need to notify Environmental.

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

Panel: HVAC

Source: AP241-VTA-PDS-760
AP241-VTA-PDS-860

Alarm #: 25

Setpoint: 9.5 inches WG

Possible Causes:

1. Mechanical failure of the operating and standby fans.
2. Mechanical failure of the operating fan combined with a sticking inlet MOV on the standby system. Most likely in cold weather.
3. High radiation level detected by exhaust stack continuous air monitor, shutting down the annulus exhaust system by interlock.

References:

Documents: TO-060-341, Operate the 241-AP Tank Farm Annulus Ventilation System
OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 26

Source: AP241-VTA-LSHL-142  Setpoint: 21 inches

Alarm Class: Equipment Status

Alarm Description: High level annulus exhaust seal pot

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] NOTIFY Shift Manager immediately of alarm.
[2] INVESTIGATE cause of high level at the seal pot.
[3] IF freezing conditions exist, CHECK status of heat trace
[4] REPORT actions and findings to Shift Manager.

Possible Causes:

1. Seal pot plugged by ice or other substance.

References:

Documents: None
Respond to HVAC Alarms at 271-AP

Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 30

Source: AP296-VTA-FSL-922  Setpoint: 1.5 cfm

Alarm Class: Environmental Impact

Alarm Description: Low flow annulus exhaust record sample

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 field reading at record sampler is at or below 1.5 cfm.
[3] REQUEST Health Physics Technician to investigate the alarm and attempt to restore proper flow rate to the sampler per TF-OPS-005 as applicable.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. Mechanical failure of vacuum pump.
2. Failure of the flow indicator alarm switch (AP296-VYP-FSL-522).
3. Plugged rotameter, disconnected sample tubing, etc.
4. Flow regulator (AP296-VTP-FCV-523) is out of adjustment.

References:

Documents: TF-OPS-005, DST Daily CAM and Record Sampler Inspections
Facility: 241-AP-271 Instrument Building

Panel: HVAC

Source: AP241-VTA-PDIS-861

Alarm #: 33

Setpoint: 4.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P B train annulus exhaust HEPA filter

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 field reading for AP241-VTA-PDIS-861 is at or above 4.0 inches WG.

[2] CHECK status of the following annunciator:

- Panel RM alarm #4, HI RAD ALARM ANNULUS EXH STACK (VTA-RAH-910B).


[4] IF directed to by Shift Manager, SWITCH fans per TO-060-341.

Possible Causes:

1. Filter has become plugged. An examination of historical data should show a gradual increase in the differential pressure over time.

2. Filter has become saturated with condensation. This is likely only if there is a problem with the heater.

References:


Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks TO-060-341, Operate the 241-AP Tank Farm Annulus Ventilation System
Facility: 241-AP-271 Instrument Building

Panel: HVAC  
Alarm #: 36

Source: AP241-VTA-LSHL-142  
Setpoint: 5 inches

Alarm Class: Equipment Status

Alarm Description: Low level annulus exhaust seal pot

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

- The addition of 5-1/2 gallons of water should clear the alarm.

Immediate Actions:

[1] NOTIFY Shift Manager and Health Physics Technician of alarm.
[3] FILL seal pot with water (up to a maximum of 10 gallons) until alarm clears.

Supplemental Actions:

[4] IF alarm does not clear, NOTIFY Shift Manager of actions and findings.
[5] IF Health Physics Technician reports a spread of contamination, NOTIFY Shift Manager of findings.

Possible Causes:

1. Evaporation not replenished by condensation.
2. Seal loop is leaking.
3. Seal pot is leaking.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 57

Source: AP241-VTA-PDIS-254  Setpoint: 1.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station A pre-filter

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:

[3] IF field reading exceeds 1.0 inches WG on gauge AP241-VTA-PDIS-254,
   DETERMINE AND CORRECT as directed by Shift Manager, the cause of high
differential pressure across pre-filter.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. Inlet filters plugged or iced over. Historical data should show a gradual increase in the
differential pressure over time.
2. Inlet valves closed.
3. Inlet filter saturated with condensation. This is likely only if there is a problem with the heater.

References:

Documents:  None
Facility: 241-AP-271 Instrument Building

Panel: HVAC

Source: AP241-VTA-PDIS-264

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station B pre-filter

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:

[3] IF field reading exceeds 1.0 inches WG on gauge AP241-VTA-PDIS-264,
   DETERMINE AND CORRECT as directed by Shift Manager, the cause of high
differential pressure across pre-filter.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. Inlet filters plugged or iced over. Historical data should show a gradual increase in the
differential pressure over time.
2. Inlet valves closed.
3. Inlet filter saturated with condensation. This is likely only if there is a problem with the heater.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 59

Source: AP241-VTA-PDIS-274  Setpoint: 1.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station C pre-filter

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:


[3] IF field reading exceeds 1.0 inches WG on gauge AP241-VTA-PDIS-274,
DETERMINE AND CORRECT as directed by Shift Manager/OE, the cause of high
differential pressure across pre-filter.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. Inlet filters plugged or iced over. Historical data should show a gradual increase in the
differential pressure over time.

2. Inlet valves closed.

3. Inlet filter saturated with condensation. This is likely only if there is a problem with the
heater.

References:

Documents: None
Facility: 241-AP-271 Instrument Building

Panel: HVAC
Source: AP241-VTA-PDIS-284

Alarm #: 60
Setpoint: 1.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station D pre-filter

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:

[3] IF field reading exceeds 1.0 inches WG on gauge AP241-VTA-PDIS-284, DETERMINE AND CORRECT as directed by Shift Manager/OE, the cause of high differential pressure across pre-filter.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. Inlet filters plugged or iced over. Historical data should show a gradual increase in the differential pressure over time.
2. Inlet valves closed.
3. Inlet filter saturated with condensation. This is likely only if there is a problem with the heater.

References:

Documents: None
### Respond to HVAC Alarms at 271-AP

**Facility:** 241-AP-271 Instrument Building

**Panel:** HVAC  
**Alarm #:** 67

**Source:** AP241-VTA-PDIS-255  
**Setpoint:** 3.0 inches WG

**Alarm Class:** Plant Stability  
**Alarm Description:** High D/P annulus intake station A HEPA filter

**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. **READ** differential pressure of pre-filter from gauge AP241-VTA-PDIS-255.
2. **NOTIFY** Shift Manager of findings.
3. **IF** field reading exceeds 3.0 inches WG on gauge AP241-VTA-PDIS-255, **DETERMINE AND CORRECT** as directed by Shift Manager, the cause of high differential pressure across pre-filter.

#### Supplemental Actions:

4. **NOTIFY** Shift Manager of all actions and findings.

#### Possible Causes:

1. HEPA filter plugged. Historical data should show a gradual increase in the differential pressure over time.
2. HEPA filter saturated with condensation. This is likely only if there is a problem with the heater.

#### References:

**Drawings:**  H-2-90476 Sht. 4, H-2-90496 Sht. 3, H-2-90514 Sht. 2, H-2-90522, H-14-020203  
**Documents:**  OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
Facility: 241-AP-271 Instrument Building

Panel: HVAC

Source: AP241-VTA-PDIS-265

Alarm #: 68

Setpoint: 3.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station B HEPA filter

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. READ differential pressure of pre-filter from gauge AP241-VTA-PDIS-265.

2. NOTIFY Shift Manager of findings.

3. IF field reading exceeds 3.0 inches WG on gauge AP241-VTA-PDIS-265, DETERMINE AND CORRECT as directed by Shift Manager, the cause of high differential pressure across pre-filter.

Supplemental Actions:

4. NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. HEPA filter plugged. Historical data should show a gradual increase in the differential pressure over time.

2. HEPA filter saturated with condensation. This is likely only if there is a problem with the heater.

References:


Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
Facility: 241-AP-271 Instrument Building

Panel: HVAC  
Alarm #: 69

Source: AP241-VTA-PDIS-275  
Setpoint: 3.0 inches WG

Alarm Class: Plant Stability

Alarm Description: High D/P annulus intake station C HEPA filter

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:


[3] IF field reading exceeds 3.0 inches WG on gauge AP241-VTA-PDIS-275, DETERMINE AND CORRECT as directed by Shift Manager, the cause of high differential pressure across pre-filter.

Supplemental Actions:

[4] NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. HEPA filter plugged. Historical data should show a gradual increase in the differential pressure over time.

2. HEPA filter saturated with condensation. This is likely only if there is a problem with the heater.

References:

Drawings:  

Documents:  
OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
Respond to HVAC Alarms at 271-AP

Facility: 241-AP-271 Instrument Building

Panel: HVAC  Alarm #: 70

Source: AP241-VTA-PDIS-285  Setpoint: 3.0 inches WG

Alarm Class: Plant Stability
Alarm Description: High D/P annulus intake station D HEPA filter

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. READ differential pressure of pre-filter from gauge AP241-VTA-PDIS-285.
2. NOTIFY Shift Manager of findings.
3. IF field reading exceeds 3.0 inches WG on gauge AP241-VTA-PDIS-285, DETERMINE AND CORRECT as directed by the Shift Manager, the cause of high differential pressure across pre-filter.

Supplemental Actions:

4. NOTIFY Shift Manager of all actions and findings.

Possible Causes:

1. HEPA filter plugged. Historical data should show a gradual increase in the differential pressure over time.
2. HEPA filter saturated with condensation. This is likely only if there is a problem with the heater.

References:

Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
Figure 1 - 241-AP-271 Instrument Building HVAC Panel

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<th>Instrument Building HVAC Panel (LEFT SIDE)</th>
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**Figure 1 - 241-AP-271 Instrument Building HVAC Panel (Cont.)**

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<tr>
<td>6</td>
<td>HI LEVEL PRIMARY EXH SEAL POT (VTP-LAH-140)</td>
<td>7</td>
<td>LEAK DETECTED PRI EXH SEAL POT PIT (VTP-LDL-141)</td>
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<td>LOW LEVEL PRIMARY EXH SEAL POT (VTP-LAL-140)</td>
<td>18</td>
<td>FAILED LEAK DET SYS PRIMARY EXH SEAL POT PIT (VTP-LDXA-141)</td>
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<td>HI LEVEL ANNULUS EXH SEAL POT (VTA-LAH-142)</td>
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<td>HI D/P ANNUL INTAKE STATION A PRE FILTER (VTA-PDAH-254)</td>
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<td>HI D/P ANNUL INTAKE STATION B PRE FILTER (VTA-PDAH-264)</td>
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<td>HI D/P ANNUL INTAKE STATION A HEPA FILTER (VTA-PDAH-255)</td>
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<td>HI D/P ANNUL INTAKE STATION B HEPA FILTER (VTA-PDAH-265)</td>
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<td>HI D/P ANNUL INTAKE STATION D HEPA FILTER (VTA-PDAH-285)</td>
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*Respond to HVAC Alarms at 271-AP*