Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Tank Farm Alarm Response Procedure

USQ # TF-18-1976-S, Rev.0

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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).
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-RT-554.  
Tag: ANA-RAHH-554  
Message: Alarm

Setpoint: 300 dpm/ft³ Slow
7000 dpm/ft³ Fast
3000 CPM

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

Alarm Description: Continuous Air Monitor (CAM) Rad alarm.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- System interlock and alarm enabled 2 minutes after exhauster running

Automatic Actions:
1. Active primary exhaust train shuts down (if not in CAM bypass).
2. Red beacon (AN241-VTP-YA-550) for operating train illuminates.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
[2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:
[6] STOP CAM buzzer XA-354 on TFMCS.

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Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED
CAM
Hi-Hi Radiation

Panel: All TFMCS Stations
Source: AN241-VTP-RT-554. Setpoint: 300 dpm/ft³ Slow
Tag: ANA-RAHH-554 7000 dpm/ft³ Fast
Message: Alarm 3000 CPM

(Continued)

Possible Causes:

1. High radiation in primary exhaust air stream.
2. Setpoint on CAM is set too low and/or background radiation spikes have gone above the CAM alarm setpoint.
3. Breakthrough of primary and secondary HEPA filters.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
TF-AOP-021, Response to Tank Farm Ventilation Upset
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-PDI-357.
Tag: ANA-PDI-357  Setpoint: ≤ 0.2 in. H₂O
Message: Low Low

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

Alarm Description: Differential pressure across HEPA #1 is too low for continued operation.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- System interlock and alarm enabled 2 minutes after exhauster running

Automatic Actions:
1. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-357.
Tag: ANA-PDI-357
Message: Low Low

**RED**
HEPA Filter 1
Differential Pressure (Low Low)

Possible Causes:

5. The first stage HEPA filter has had a gross breakthrough due to a spray leak, high temperature, or high pressure condition.
6. Transmitter failure.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
TF-AOP-021, Response to Tank Farm Ventilation Upset
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-358.
Tag: ANA-PDI-358
Message: Low Low

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

Alarm Description: Differential pressure across HEPA #2 is too low for continued operation.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- System interlock and alarm enabled 2 minutes after exhauster running.

Automatic Actions:
1. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
  [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:

(Continued on Next Page)
Panel: All TFMCS Stations
Source: AN241-VTP-PDI-358.
Tag: ANA-PDI-358
Message: Low Low

RED

HEPA Filter 2
Differential Pressure
(Low Low)

(Continued)

Possible Causes:

1. The second stage HEPA filter has had a gross breakthrough due to a spray leak, high temperature, or high pressure condition.
2. Transmitter failure.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)  
            RPP-16922, Environmental Specification Requirements  
            TF-AOP-021, Response to Tank Farm Ventilation Upset  
            HNF-SD-WM- TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**RED**

Panel: All TFMCS Stations  
Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.  
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.  
Tag: ANA-PDI-251A through ANA-PDI-257A.  
ANA-PDI-251B through ANA-PDI-257B.  
Message: High High  
Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)  
Alarm Description: Tank vapor space pressure too high

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:**  
The 241-AN farm pressurization audible (hooter) alarm is initiated.

**Immediate Actions:**

1. **EVACUATE** personnel from AN Farm to a protected or upwind area.  
2. **CHECK** primary exhaust train is running.  
   2.1 **IF** exhauster has shut down, **NOTIFY** Shift Manager of alarms and actions **AND** **REQUEST** Shift Manager respond per TF-AOP-021.  
3. **IF** directed by Shift Manager/OE, **RESTART** Primary ventilation per TO-060-106.

**Supplemental Actions:**

4. **CONTINUE** to monitor system parameters **AND** **NOTIFY** Shift Manager of changing indications.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations  (# =Tank Number)

Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.

Tag: ANA-PDI-251A through ANA-PDI-257A.
ANA-PDI-251B through ANA-PDI-257B.

Message: High High

(Continued)

Possible Causes:

1. Both Primary A and B Train fans OFF.
2. Hot waste entering tank during transfer raises the pressure through evaporation (more likely with jetted transfers).
3. Dome intrusive work or open riser, open pit drain, and/or missing sealing media on pit cover block cracks/seams/penetrations, admits too much air.
4. Failure of pressure transmitter.
5. Gas release event if accompanied by level and temperature anomalies.
6. Plugged HEPA filters.
7. Failed closed exhaust damper duct valve.
8. HEPA filter(s) of active primary exhaust train plugged or saturated.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
            TF-AOP-021, Response to Tank Farm Ventilation Upset
            RPP-16922, Environmental Specification Requirements
            HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**RED**

**Tank # PDI Narrow**
(Object Error)

**Panel:** All TFMCS Stations

**Source:** AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.

**Setpoint:** N/A

**Tag:** ANA-PDI-251A through ANA-PDI-257A.
ANA-PDI-251B through ANA-PDI-257B.

**Message:** Object Error (OE)

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

**Alarm Description:** Tank vapor space pressure transmitter failed

**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:**

[1] **CHECK** primary exhaust train is running.

[1.1] **IF** exhauster has shut down, **NOTIFY** Shift Manager of alarms and actions **AND** **REQUEST** Shift Manager respond per TF-AOP-021.

[2] **IF** directed by Shift Manager/OE, **RESTART** Primary ventilation per TO-060-106.

**Supplemental Actions:**

[3] **CONTINUE** to monitor system parameters **AND** **NOTIFY** Shift Manager of changing indications.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**Panel:** All TFMCS Stations  (# =Tank Number)

**Source:** AN241-VTP-PDI-251A through AN241-VTP-PDI-257A. AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.

**Tag:** ANA-PDI-251A through ANA-PDI-257A. ANA-PDI-251B through ANA-PDI-257B.

**Message:** Object Error (OE)

**Setpoint:** N/A

**Tank # PDI Narrow**

(Object Error)

(Continued)

**Possible Causes:**

1. Failure of pressure transmitter.

**References:**

**Drawings:** H-14-020101

**Documents:** TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) TF-AOP-021, Response to Tank Farm Ventilation Upset RPP-16922, Environmental Specification Requirements HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Panel: All TFMCS Stations  
Source: AN241-VTP-RT-554.  
Tag: ANA-RAX-554  
Message: Alarm  

**Setpoint:** N/A  
**Alarm Class:** Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)  

**Alarm Description:** Continuous Air Monitor (CAM) indicates instrument failure.

**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:**

[1] **IF** TFMCS displays alarm “CAM Hi Hi Radiation”, **GO TO** CAM Hi-Hi Radiation alarm response.

[2] **NOTIFY** Shift Manager of alarms and actions **AND** **REQUEST** permission to perform one of the following:
- Switch to Standby Exhauster  
  **OR**  
- Continue to run existing exhauster  
  **OR**  
- Shutdown ventilation per TO-060-106.

[3] **IF** ventilation is shut down, **REQUEST** Shift Manager respond per TF-AOP-021.  
(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-RT-554.
Tag: ANA-RAX-554
Message: Alarm

Setpoint: N/A

Supplemental Actions:

[4] REQUEST HPT to investigate alarm per TF-OPS-005
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Possible Causes:

1. CAM failure.
2. Sampling head(s) disconnected.
3. Instrument malfunction.
4. Loss of power to CAM.
5. Setpoint out of adjustment.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) TF-OPS-005, DST Daily CAM and Record Air Sampler Inspections TF-AOP-021, Response to Tank Farm Ventilation Upset RPP-16922, Environmental Specification Requirements HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: (See Table 2)

Tag: N/A

Message: (See Table 2)

Setpoint: N/A

System Alarms (See Table 2)

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

Alarm Description: Various System Alarms

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:

Automatic actions vary depending on the System Alarm

Immediate Actions:

[2] RESPOND to alarm per Table 2.
[3] IF alarm clears, EXIT this ARP.

Supplemental Actions:

[5] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. Failed equipment of the exhauster system.
2. Loss of power to servers, controllers, power supplies etc.
3. Maintenance and PM.

References:

Drawings: None
Documents: HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: ABB Hardware or Software Alarm
Tag: N/A
Message: Varies

Alarm Class: Equipment Status

Alarm Description: An exhauster TFMCS alarm on the Hardware Alarm screen that is not addressed by any other alarm already in this procedure.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Exhauster TFMCS alarms not addressed in this ARP may occur on the System Hardware Alarm screen which are native to the ABB System (description cannot be changed) and will require evaluation by Engineering.

Automatic Actions:

Immediate Actions:

[2] IF alarm clears, EXIT this ARP.
[3] NOTIFY Shift Manager of alarms and actions AND REQUEST Shift Manager notify Engineering for assistance to evaluate and troubleshoot the malfunction.

Supplemental Actions:

[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. An event has occurred that has created a degraded condition that must be evaluated.

References:

Drawings: None
Documents: None
Panel: All TFMCS Stations
Source: AN241-VTP-PDI-357.
Tag: ANA-PDI-357
Message: High High
Setpoint: ≥ 5.8 in. H₂O

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

Alarm Description: Differential pressure across HEPA #1 is too high for continued operation.

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. Active primary exhaust train shuts down.

Immediate Actions:

[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:


Possible Causes:
1. The first stage HEPA filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.
2. The first stage HEPA filter has become saturated with condensation. This is likely only if there is a problem with the heater.
3. Transmitter failure.

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Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations  
Source: AN241-VTP-PDI-357.  
Tag: ANA-PDI-357  
Message: High High

**RED**

HEPA Filter 1  
Differential Pressure  
(High High)

Setpoint: ≥ 5.8 in. H₂O

(Continued)

References:

Drawings:  
- H-14-020101

Documents:  
- TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)  
- RPP-16922, Environmental Specification Requirements  
- TF-AOP-021, Response to Tank Farm Ventilation Upset  
- HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED

HEPA Filter 2
Differential Pressure
(High High)

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-358.
Tag: ANA-PDI-358
Message: High High
Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)
Alarm Description: Differential pressure across HEPA #2 is too high for continued operation.

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. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:

Possible Causes:
1. The second stage HEPA filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.
2. The second stage HEPA filter has become saturated with condensation. This is likely only if there is a problem with the heater.
3. Transmitter failure.

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Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-358.
Tag: ANA-PDI-358
Message: High High

Setpoint: ≥ 3.9 in. H₂O

RED

HEPA Filter 2
Differential Pressure
(High High)

(Continued)

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
RPP-16922, Environmental Specification Requirements
TF-AOP-021, Response to Tank Farm Ventilation Upset
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-LI-380.
Tag: ANA-LI-380
Message: Low Low

Setpoint: ≤ 20%

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

Alarm Description: Exhaust train seal pot level is too low for continued operation.

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. Active primary exhaust train shuts down.

Immediate Actions:

[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhaustor has not shut down, STOP exhaustor by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE;
   [5.1] REFILL seal pot per TO-060-106.
   [5.2] RESTART Primary ventilation per TO-060-106.

Supplemental Actions:

[7] INITIATE work order to troubleshoot and repair or replace degraded components.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED

Skid Seal Pot Level
(Low Low)

Setpoint: ≤ 20%

(Continued)

Possible Causes:

1. Evaporation not replenished by condensation.
2. Leaks in the seal pot and/or seal pot loop.
3. Instrument failure.

References:

Drawings: H-14-020101
Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks
TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
TF-AOP-021, Response to Tank Farm Ventilation Upset
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-LI-380.  
Tag: ANA-LI-380  
Message: High High  
Setpoint: ≥ 90%

Skid Seal Pot Level (High High)

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

Alarm Description: Exhaust train seal pot level is too high for continued operation.

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. Active primary exhaust train shuts down.

Immediate Actions:

[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
[2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.

Supplemental Actions:

[8] INITIATE work order to troubleshoot and repair or replace degraded components.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-LI-380.
Tag: ANA-LI-380
Message: High High

Setpoint: ≥ 90%

Possible Causes:
1. Seal pot system valves not aligned properly.
2. Obstruction or ice in seal pot piping.
3. Overfilled seal pot.
4. Instrument loop failure.
5. Seal pot level transmitter out of calibration.

References:
Drawings: H-14-020101
**Respond to A-Train Alarms at 241-AN VTP Exhaust Skid**

**Panel:** All TFMCS Stations

**Source:** AN241-VTP-HS-350

**Tag:** ANA-BKR-350_PCC

**Message:** Alarm

<table>
<thead>
<tr>
<th>Alarm Class</th>
<th>Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)</th>
</tr>
</thead>
</table>

**Alarm Description:** Hardwired exhauster emergency stop or TFMCS immediate stop has been activated.

**Setpoint:** N/A

**Panel:** RED

**Shunt Trip (Immediate Stop)**

**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. Active primary exhaust train shuts down.

**Immediate Actions:**

**NOTE** - This alarm will not be displayed on affected exhaust train due to immediate power loss to train DCS upon alarm activation. This alarm will be visible on TFMCS HMI’s or TFMCS of other primary exhauster, if it is powered up.

1. **EVACUATE** personnel from AN Farm to a protected or upwind area.

2. **ENSURE** primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.

   2.1 **IF** exhauster has not shut down, **STOP** exhauster by initiating a shutdown per TO-060-106.

3. **NOTIFY** Shift Manager of alarms and actions AND **REQUEST** Shift Manager respond per TF-AOP-021.

4. **STOP** waste disturbing activities to AN Farm.

5. **CONFIRM** main isolation inlet valve AN241-VTP-MOV-352 is closed.

6. **IF** directed by Shift Manager/OE, **RESTART** Primary ventilation per TO-060-106.

**Supplemental Actions:**

7. **CONTINUE** to monitor system parameters AND **NOTIFY** Shift Manager of changing indications.

8. **INITIATE** work order to troubleshoot and repair or replace degraded components.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-HS-350
Tag: ANA-BKR-350_PCC
Message: Alarm

Setpoint: N/A

Shunt Trip (Immediate Stop)

(Continued)

Possible Causes:
1. Immediate stop button on TFMCS pushed.
2. Emergency stop button on disconnect switch box pushed.

References:

Drawings: H-14-030101, Sht. 1
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
           TF-AOP-021, Response to Tank Farm Ventilation Upset
           RPP-16922, Environmental Specification Requirements
           HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-FI-551A.
Tag: ANA-FI-551A
Message: Low Low

Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)
Alarm Description: Low Airflow through exhaust stack too low for continued operation.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- System interlock and alarm enabled 2 minutes after exhauster running

Automatic Actions:
1. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
    [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] CHECK stack flow setpoints and adjust as necessary per TO-060-106.
[7] IF directed by Shift Manager/OE, PERFORM the following;
    [7.1] RESTART Primary ventilation per TO-060-106.
    [7.2] CHECK both inlet and outlet MOVs fully open during startup.
        • AN241-VTP-MOV-352 (Inlet) and AN241-VTP-MOV-361 (Outlet).

(Continued on Next Page)
Panel: All TFMCS Stations
Source: AN241-VTP-FI-551A.
Tag: ANA-FI-551A
Message: Low Low

RED
Actual Volumetric Flow Rate
(Low Low)

Supplemental Actions:
[8] CONTINUE to monitor system parameters AND NOTIFY Shift Manager of changing indications.
[9] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Stack flow setpoints set too low.
2. Incorrect system valving.
3. Failed inlet or outlet MOV.
4. VFD failure.
5. Transmitter failure.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
TF-AOP-021, Response to Tank Farm Ventilation Upset
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-FI-551A.
Tag: ANA-FI-551A
Message: High High

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

Alarm Description: Airflow through exhaust stack too high for continued operation.

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. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:
[6] CHECK stack flow setpoints and adjust as necessary per TO-060-106.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-FI-551A.
Tag: ANA-FI-551A
Message: High High

Possible Causes:
1. Stack flow setpoints set too high.
2. VFD failure.
3. Transmitter failure.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
           TF-AOP-021, Response to Tank Farm Ventilation Upset
           RPP-16922, Environmental Specification Requirements
           HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**Panel:** All TFMCS Stations  
(# = Tank Number)

**Source:** AN241-VTP-PDI-251A through  
AN241-VTP-PDI-257A.  
AN241-VTP-PDI-251B through  
AN241-VTP-PDI-257B.

**Tag:** ANA-PDI-251A through 257A  
ANA-PDI-251B through 257B

**Message:** Low Low

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

**Alarm Description:** Tank vapor space pressure too low for continued operation.

**Setpoint:** ≤ -5.5 in. H₂O

**Alarm Description:** Tank vapor space pressure too low for continued operation.

**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. Active primary exhaust train shuts down.

**Immediate Actions:**

[1] **EVACUATE** personnel from AN Farm to a protected or upwind area.

[2] **ENSURE** primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.

[2.1] **IF** exhauster has not shut down, **STOP** exhauster by initiating a shutdown per TO-060-106.

[2.2] **NOTIFY** Shift Manager of alarms and actions AND **REQUEST** Shift Manager respond per TF-AOP-021.

[2.3] **STOP** waste disturbing activities to AN Farm.

[3] **CHECK** TFMCS alarm display for other tank Low Low pressure alarms active.

[4] **CHECK** history of all tank pressure transmitters on TFMCS:

[4.1] **CLICK** on tank pressure readings on TFMCS screen “AN Tank Farm” to display pressure history graph.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.

Tag: ANA-PDI-251A through 257A
ANA-PDI-251B through 257B

Message: Low Low

RED
Tank # PDI Narrow
(Low Low)

Setpoint: ≤ -5.5 in. H₂O

Immediate Actions (Cont.):

NOTE - Port controller should float freely. During a high vacuum condition vacuum breaker should be open if air inlet is obstructed and should return to closed position when obstruction is removed.

[5] CHECK the air inlets for obstructions AND REMOVE as necessary.

[6] CHECK the port controller (See Table 1 for proper valve numbers) (AN10X-VTP-FCV-20X) for binding.

Supplemental Actions:

[7] IF directed by Shift Manager/OE, PERFORM the following;
[7.1] OPEN any isolated inlet station valves.
[7.2] RESTART primary exhaust system per TO-060-106.
[7.3] ADJUST tank vacuum by adjusting airflow of the inlet filters on 241-AN tanks.
[7.4] IF the above steps do not restore the tank pressure to the proper range, NOTIFY Shift Manager/OE.

[8] CONTINUE to monitor system parameters AND NOTIFY Shift Manager of changing indications.

[9] REPORT actions and findings to Shift Manager/OE.

[10] IF unable to correct the alarm condition, REQUEST the Shift Manager/OE to arrange for Vent and Balance to make the necessary adjustments.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED
Tank # PDI Narrow
(Low Low)

Panel: All TFMCS Stations

Source: AN241-VTP-PDI-251A through
AN241-VTP-PDI-257A.
AN241-VTP-PDI-251B through
AN241-VTP-PDI-257B.

Tag: ANA-PDI-251A through 257A
ANA-PDI-251B through 257B

Message: Low Low

Setpoint: ≤ -5.5 in. H₂O

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. Port controller binding.
5. Vacuum breaker is stuck shut.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
TF-AOP-021, Response to Tank Farm Ventilation Upset
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: Power Supply A
       Power Supply B

Tag: ANA-PWR-360A
     ANA-PWR-360B

Setpoint: N/A

Message: Alarm

Alarm Description: Power supply A or B fails.

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. Power supplies are configured with a voting module that automatically detects a loss from either power supply A or B. Upon failure, the backup power supply will automatically supply power to the system.

Immediate Actions:
[1] IF both power supplies fail and exhauster shuts down, PERFORM the following:
   [1.1] EVACUATE personnel from AN Farm to a protected or upwind area.
   [1.2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
          [1.2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[3] IF directed by Shift Manager, STOP waste disturbing activities to AN Farm.
[4] IF exhauster is still running and power supply indicates failure, NOTIFY Shift Manager/OE of status.

Supplemental Actions:
[6] INITIATE work order to troubleshoot and repair or replace degraded components.

(Continued on Next Page)
RED

Panel: All TFMCS Stations
Source: Power Supply A
        Power Supply B
Tag: ANA-PWR-360A
     ANA-PWR-360B
Message: Alarm

Setpoint: N/A

DCS Power Supply Failure

Possible Causes:
1. Fuse blown.
2. Bad Power Supply.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
          TF-AOP-021, Response to Tank Farm Ventilation Upset
          RPP-16922, Environmental Specification Requirements
Panel: All TFMCS Stations
Source: AN241-VTP-FCV-556.
Tag: ANA-FI-556
Message: Low Low

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

Alarm Description: Flow control valve indicates a very low CAM sample flow rate.

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

- CAM Sample Low Low flow alarm is disabled (hidden) until a vacuum pump has been running for 15 seconds

Automatic Actions:
A swap from the primary to standby vacuum pump occurs if both Record Sample Low Low and CAM Sample Low Low flow alarms annunciate. This automatic swap will occur only once without a reset of the system.

Immediate Actions:
[1] CHECK CAM sample flow rate on TFMCS.
[3] IF directed by Shift Manager/OE, CHECK CAM sample valves are aligned per applicable valving table in TO-060-106.
[4] IF directed by Shift Manager/OE, SWITCH operating exhauster train per TO-060-106.

Supplemental Actions:

(Continued on Next Page)
**Panel:** All TFMCS Stations

**Source:** AN241-VTP-FCV-556

**Tag:** ANA-FI-556

**Message:** Low Low

---

### Possible Causes:

1. CAM sample system valves not aligned properly.
2. Instrument failure.
3. CAM sample pump failure.
4. Control valve failure.

---

### References:

**Drawings:** H-14-020101

**Documents:**
- TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
- RPP-16922, Environmental Specification Requirements
- HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-FCV-556.
Tag: ANA-FI-556
Message: High
Setpoint: ≥ 2.13 SCFM

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

Alarm Description: Flow control valve indicates a high CAM sample flow rate

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:

[1] CHECK CAM sample flow rate on TFMCS.
[4] IF directed by Shift Manager/OE, CHECK CAM sample valves are aligned per applicable valving table in TO-060-106.
[5] IF directed by Shift Manager/OE, SWITCH operating exhauster train per TO-060-106.

Supplemental Actions:

[6] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. Instrument failure.
2. CAM sample pump problem.
3. Control valve failure.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) RPP-16922, Environmental Specification Requirements HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations  
Source: AN241-VTP-FCV-555.  
Tag: ANA-FI-555  
Message: Low Low  
Setpoint: $\leq 85\%$ Proportional Flow  

**Record Sample Flow (Low Low)**

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

**Alarm Description:** Flow control valve indicates a very low Record sample flow rate.

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

- Record Sample flow alarms are disabled (hidden) until VFD has been operating for 15 seconds.

**Automatic Actions:**

A swap from the primary to standby vacuum pump occurs if both Record Sample Low Low and CAM Sample Low Low flow alarms annunciate. This automatic swap will occur only once without a reset of the system.

**Immediate Actions:**

[1] **CHECK** Record sample flow rate on TFMCS.  
[2] **NOTIFY** Shift Manager of findings.  
[3] **IF** directed by Shift Manager/OE, **CHECK** Record Sample valves are aligned per applicable valving table in TO-060-106.  
[4] **IF** directed by Shift Manager/OE, **SWITCH** operating exhauster train per TO-060-106.

**Supplemental Actions:**

[5] **INITIATE** work order to troubleshoot and repair or replace degraded components.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-FCV-555
Tag: ANA-FI-555
Message: Low Low

RED
Record Sample Flow
(Low Low)

Setpoint: ≤ 85%
Proportional Flow

(Continued)

Possible Causes:

1. Record sample system valves not aligned properly.
2. Instrument failure.
3. Record sample pump failure.
4. Control valve failure.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-FCV-555
Tag: ANA-FI-555
Message: High

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

**Alarm Description:** Flow control valve indicates a high Record sample flow rate.

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

- Record Sample flow alarms are disabled (hidden) until VFD has been operating for 15 seconds.

**Automatic Actions:**

None

**Immediate Actions:**

[1] **CHECK** Record sample flow rate on TFMCS.
[2] **REQUEST** Shift Manager to notify Health Physics Technician to investigate problem.
[3] **NOTIFY** Shift Manager of findings.
[4] **IF** directed by Shift Manager/OE, **CHECK** Record Sample valves are aligned per applicable valving table in TO-060-106.
[5] **IF** directed by Shift Manager/OE, **SWITCH** operating exhauster train per TO-060-106.

**Supplemental Actions:**

[6] **INITIATE** work order to troubleshoot and repair or replace degraded components.

**Possible Causes:**

1. Instrument failure.
2. Sample pump problem.
3. Control valve failure (sticking).

**References:**

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
RPP-16922, Environmental Specification Requirements
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Panel: All TFMCS Stations
Source: AN241-VTP-XA-354.
Tag: ANA-XA-354
Message: N/A
Setpoint: N/A

Alarm Class: Equipment Status
Alarm Description: On a CAM, this alarm activates when the buzzer sounds for any of the CAM alarms on high radiation.

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:
Attainment of a CAM Radiation Alarm setpoint activates the red strobe.

Immediate Actions:
[1] IF CAM Hi-Hi Rad Alarm is also activated, RESPOND per “CAM Hi Hi radiation”.
[2] IF CAM Transmitter Failure Alarm is also activated, RESPOND per “CAM Transmitter Failure”.

Supplemental Actions:
[5] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. CAM activates on high radiation.
2. CAM transmitter failure.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-SIC-009.
Tag: ANA-EF-009-En
Message: Object Error (OE)

Exhauster Fan VFD Enable

Setpoint: N/A

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

Alarm Description: This alarm indicates that the VFD ENABLE signal is not responding.

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. Selected primary exhaust train fails to start.

Immediate Actions:
[1] NOTIFY Shift Manager/OE of alarm and findings.

Supplemental Actions:
[3] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. VFD failure.
2. Software fault.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-SIC-009
Tag: ANA-EF-009
Setpoint: N/A
Message: Object Error (OE)

Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)
Alarm Description: This alarm indicates that the VFD has an object error

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- VFD shuts down by object error which results in primary ventilation shutdown

Automatic Actions:
1. Active primary exhaust train shuts down.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected upwind area.
[2] IF exhauster is not shutdown, SHUTDOWN exhauster per TO-060-106.
[4] IF directed by Shift Manager, STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager, RESTART primary ventilation per TO-060-106

Supplemental Actions:

Possible Causes:
1. VFD failure.
2. Software fault.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
**Respond to A-Train Alarms at 241-AN VTP Exhaust Skid**

**Panel:** All TFMCS Stations

**Source:** AN241-VTP-PI-371.

**Tag:** ANA-PI-371

**Message:** Low Low

**Setpoint:** ≤ 3.0 psi

**Glycol Header Pressure (Low Low)**

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

**Alarm Description:** Glycol system pressure too low for continued operation of the glycol system.

---

**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. Glycol system shuts down (Heater and pump).

**Immediate Actions:**

1. **CHECK** glycol level and refill as needed, per TO-060-106.
2. **CHECK** valve line-up per TO-060-106 is correct.
3. **CHECK** glycol system for visible leaks.
4. **RESTART** glycol system per TO-060-106.
5. **NOTIFY** Shift Manager/OE of actions and findings.
6. **IF** Glycol Header Pressure (Low Low) alarm is still active **AND**
   - **IF** directed by Shift Manager/OE, **SWITCH** primary exhaust trains per TO-060-106.

**Supplemental Actions:**

7. **IF** valve line-up is correct and Low Low alarm is still active, **INITIATE** work order to troubleshoot and repair or replace degraded components as applicable.

**Possible Causes:**

1. Incorrect valve line-up.
2. Failing glycol pump.
3. Leaking glycol system components.
4. Low glycol tank level.
5. Faulty transmitter calibration.
6. Transmitter failure.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**Panel:** All TFMCS Stations
**Source:** AN241-VTP-PI-371.
**Tag:** ANA-PI-371
**Message:** Low Low

**Glycol Header Pressure**
*(Low Low)*

**Setpoint:** ≤ 3.0 psi

(Continued)

**References:**
- **Drawings:** H-14-020101
- **Documents:** TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
  HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations  
Source: AN241-VTP-PI-371.  
Tag: ANA-PI-371  
Message: Low

**RED**

<table>
<thead>
<tr>
<th>Glycol Header Pressure (Low)</th>
</tr>
</thead>
</table>

**Setpoint:** ≤ 5.0 psi

**Alarm Class:** Equipment Status

**Alarm Description:** Glycol system pressure low.

**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:**

1. **CHECK** glycol level and refill as needed, per TO-060-106.
2. **CHECK** valve line-up per TO-060-106 is correct.
3. **CHECK** glycol system for visible leaks.
4. **NOTIFY** Shift Manager/OE of actions and findings.
5. **IF** Glycol Header Pressure (Low) alarm is still active **AND**
   - **IF** directed by Shift Manager/OE, **SWITCH** primary exhaust trains per TO-060-106.

**Supplemental Actions:**

1. **IF** valve line-up is correct and Low pressure alarm is still active, **INITIATE** work order to troubleshoot and repair or replace degraded components.

**Possible Causes:**

1. Incorrect valve line-up.
2. Failing glycol pump.
3. Leaking glycol system components.
4. Low glycol tank level.
5. Faulty transmitter calibration.
6. Transmitter failure.

**References:**

- Drawings: H-14-020101
- Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PI-371.
Tag: ANA-PI-371
Message: High High

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

Alarm Description: Glycol system pressure too high for continued operation of the glycol system.

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. Glycol system shuts down (Heater and pump).

Immediate Actions:
[1] CHECK valve line-up per TO-060-106 is correct.
[4] IF Glycol Header Pressure (High High) pressure alarm is still active AND IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:
[5] IF valve line-up is correct and High High pressure alarm returns, INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Incorrect valve line-up.
2. Plugged glycol system components.
3. Transmitter failure.

References:
- Drawings: H-14-020101
- Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED

Glycol Tank Level (Low Low)

Panel: All TFMCS Stations
Source: AN241-VTP-LI-370.
Tag: ANA-LI-370
Setpoint: ≤ 20%
Message: Low Low

Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)
Alarm Description: Glycol tank level too low for continued operation of the glycol system

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. Glycol system shutdown (heater and pump).

Immediate Actions:
[1] CHECK glycol pump AN241-VTP-P-371 and associated heater AN241-VTP-HTR-372 are shut down.
[5] IF DIRECTED by Shift Manager/OE;
   [5.1] FILL glycol system to a safe level per TO-060-106.
   [5.2] RESTART glycol system per TO-060-106.
[6] IF Glycol Tank Level (Low Low) Alarm is still active AND
   IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:
[7] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Actual glycol level low.
2. Leaking glycol system.
3. Faulty transmitter calibration.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-LI-370.
Tag: ANA-LI-370
Message: Low Low

Setpoint: ≤ 20%

Glycol Tank Level
(Low Low)

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-LI-370.
Tag: ANA-LI-370
Message: High
Alarm Class: Equipment Status
Alarm Description: Glycol tank level too high.

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:

[1] CHECK glycol system valve line up per TO-060-106.
[2] CHECK if level is above 80% AND NOTIFY Shift Manager/OE of actions and findings.
[3] IF Glycol Tank Level (High) alarm is still active or returns AND IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:

[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. Actual glycol level high from overfilling.
2. Faulty transmitter calibration.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations  
Source: AN241-VTP-TI-373.  
Tag: ANA-TI-373  
Message: High High  
Setpoint: ≥ 209 °F

Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)  
Alarm Description: Glycol tank temperature too high for continued operation of the glycol system.

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. Glycol heater shutdown

Immediate Actions:  
[1] CHECK associated heater AN241-VTP-HTR-372 is shut down.  
[6] IF Glycol Heater Temperature (High) alarm is still active or returns,  

OR  
IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:  
[8] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:  
1. Electrical fault in heating system.  
2. Faulty transmitter calibration.

References:  
Drawings: H-14-020101  
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)  
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-TE-372. Glycol Heater Outlet Temperature
Tag: ANA-TI-372_TransFail
Message: Alarm

Alarm Class: Technical Safety Requirement (LCO 3.1, DST Primary Tank Ventilation Systems, LCO 3.4, DST Induced Gas Release Event Flammable Gas Control)
Alarm Description: Glycol tank temperature too high for continued operation of the glycol system.

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. Glycol heater shutdown

Immediate Actions:
[1] CHECK associated heater AN241-VTP-HTR-372 is shut down.
[6] IF Glycol Heater Outlet Temperature (High-High) alarm is still active or returns,
   OR
   IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:
[8] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Electrical fault in heating system.
2. Faulty transmitter calibration.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

RED

Inlet Temp-Heat Exch
Out Temp
(Low Temperature Differential)

Panel: All TFMCS Stations
Source: Temperature difference between AN241-VTP-TI-353 and TI-355 (TDI-007).
Tag: ANA-TDI-007
Message: Low Temperature Differential

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

Alarm Description: The differential temperature across the heat exchanger is too low.

NOTE - Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- Low heater differential temperature alarm not enabled until exhauster has ran for 20 minutes.

Automatic Actions:
None

Immediate Actions:
[1] CHECK glycol system is operating normally.
[2] CHECK the temperature difference on TFMCS screen, TDI-007, for operating exhauster is ≤ 16 ºF.

Supplemental Actions:
[5] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Glycol system malfunction
2. Faulty transmitter calibration.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-TI-355.
Tag: ANA-TI-355
Message: High High

Heat Exchanger Outlet Temperature
(High High)

Setpoint: ≥ 165 °F

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. Glycol heater shutdown

Immediate Actions:
[1] CHECK glycol heater AN241-VTP-HTR-372 has shut down.
[6] IF Heat Exchanger Outlet Temperature (High High) alarm is still active or returns,

**OR**

IF directed by Shift Manager/OE, SWITCH primary exhaust trains per TO-060-106.

Supplemental Actions:
[8] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Electrical fault in heating system.
2. Faulty transmitter calibration.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-TI-355.
Tag: ANA-TI-355
Message: High High

Remarks:
Setpoint: ≥ 165 °F

Heat Exchanger Outlet Temperature
(High High)

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-PDI-356.
Tag: ANA-PDI-356
Message: High

Alarm Description: Differential pressure across Pre-Filter is too high.

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:

[1] CHECK TFMCS alarm display for Pre-Filter differential pressure \( \geq 1.0 \text{ in. H}_2\text{O} \).
[3] IF directed by Shift Manager/OE, SWITCH to other primary exhaust train per TO-060-106.

Supplemental Actions:

[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. The Pre-Filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.
2. The Pre-Filter has become saturated with condensation. This is likely only if there is a problem with the heater.
3. Transmitter failure.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
HEPA Filter 1
Differential Pressure (High)

Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-357.
Tag: ANA-PDI-357

**Alarm Class:** Environmental Impact/Equipment Status
**Alarm Description:** Differential pressure across HEPA #1 is too high.

**Setpoint:** ≥ 4.0 in. H₂O

**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:**

1. **CHECK** TFMCS alarm display HEPA #1 high differential pressure is between 4.0 and 5.8 in. H₂O.

2. **NOTIFY** Shift Manager/OE of actions and findings.

3. **IF** directed by Shift Manager/OE, **SWITCH** to other primary exhaust train per TO-060-106.

**Supplemental Actions:**

4. **INITIATE** work order to troubleshoot and repair or replace degraded components.

**Possible Causes:**

1. The first (downstream) HEPA filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.

2. The first (downstream) HEPA filter has become saturated with condensation. This is likely only if there is a problem with the heater.

3. Transmitter failure.

**References:**

- Drawings: H-14-020101
- Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDI-358
Tag: ANA-PDI-358
Message: High:
Alarm Class: Environmental Impact/Equipment Status
Alarm Description: Differential pressure across HEPA #2 is too high.

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:
[1] CHECK TFMCS alarm display HEPA #1 high differential pressure is between 2.8 and 3.9 in. H₂O.
[1.1] IF HEPA #2 differential pressure (High) is ≥ 3.9 in. H₂O, RESPOND per HEPA Filter 2 Differential Pressure (High High) alarm.
[3] IF directed by Shift Manager/OE, SWITCH to other primary exhaust train per TO-060-106.

Supplemental Actions:
[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. The second (downstream) HEPA filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.
2. The second (downstream) HEPA filter has become saturated with condensation. This is likely only if there is a problem with the heater.
3. Transmitter failure.

References:
Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-LI-380.
Tag: ANA-LI-380
Message: Low

Alarm Class: Equipment Status

Alarm Description: Exhaust train seal pot level is too low.

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:

[1] CHECK operating exhauster seal pot level (AN241-VTP-LT-380) on TFMCS is between 20% and 30%.

[1.1] IF exhauster seal pot level is ≤ 20%, RESPOND per Skid Seal Pot Level (Low) alarm.


[4] IF directed by Shift Manager/OE;

[4.1] REFILL operating exhauster seal pot per TO-060-106.

[4.2] SWITCH to other primary exhaust train per TO-060-106.

Supplemental Actions:

[5] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:

1. Evaporation not replenished by condensation.
2. Leaks in the seal pot and/or seal pot loop.
3. Instrument failure.

References:

Drawings: H-14-020101
Documents: OSD-T-151-00007, Operating Specifications for the Double Shell Storage Tanks TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

DCS Cabinet Temperature (Low)

**RED**

Panel: All TFMCS Stations
Source: AN241-VTP-TI-110.
Tag: ANA-TI-110
Message: Low

**Setpoint:** ≤ 45 °F

**Alarm Class:** Equipment Status
**Alarm Description:** Controller enclosure senses Low temperature.

**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:**

1. **ACKNOWLEDGE** alarm.
2. **MONITOR** temperature inside controller enclosure.
   
   [2.1] **IF** temperature inside controller Enclosure drops below 45 °F, **SUPPLY** additional heating as necessary to keep temperatures above 45 °F.
3. **NOTIFY** Shift Manager/OE.

**Supplemental Actions:**

4. **INITIATE** work order to troubleshoot and repair or replace degraded components.

**Possible Causes:**

1. Low ambient temperature conditions.
2. Loss of cabinet heater.

**References:**

Drawings: H-14-020101
Documents: None
Panel: All TFMCS Stations
Source: AN241-VTP-TI-110
Tag: ANA-TI-110
Message: High
Alarm Class: Equipment Status
Alarm Description: Controller enclosure senses high temperature.

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:
[2.1] IF temperature inside controller enclosure exceeds 118 °F, SUPPLY additional cooling as necessary to keep temperatures below 118 °F.
[3] NOTIFY Shift Manager/OE.

Supplemental Actions:
[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. High ambient temperature conditions.
2. Loss of cooling/AC.

References:
Drawings: H-14-020101
Documents: None
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-TI-118.
Tag: ANA-TI-118
Message: Low

Alarm Class: Equipment Status
Alarm Description: I/O enclosure senses Low temperature.

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:
   [2.1] IF temperature inside I/O Enclosure drops below 20 °F, SUPPLY additional heating as necessary to keep temperatures above 20 °F.
[3] NOTIFY Shift Manager/OE.
[4] INITIATE work order to troubleshoot and repair or replace degraded components.

Possible Causes:
1. Low ambient temperature conditions.
2. Loss of cabinet heater.

References:
Drawings: H-14-020101
Documents: None
**Respond to A-Train Alarms at 241-AN VTP Exhaust Skid**

**Panel:** All TFMCS Stations

**Source:** AN241-VTP-TI-118.

**Tag:** ANA-TI-118

**Setpoint:** ≥ 135 °F

**Message:** High

**Alarm Class:** Equipment Status

**Alarm Description:** I/O enclosure senses High temperature.

**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:**

1. **ACKNOWLEDGE** alarm.
2. **MONITOR** temperature inside I/O enclosure.
   
   2.1 **IF** temperature inside I/O Enclosure exceeds 135 °F, **SUPPLY** additional cooling as necessary to keep temperatures below 135 °F.
3. **NOTIFY** Shift Manager/OE.

**Supplemental Actions:**

4. **INITIATE** work order to troubleshoot and repair or replace degraded components.

**Possible Causes:**

1. High ambient temperature conditions.
2. Loss of cooling/AC.

**References:**

- **Drawings:** H-14-020101
- **Documents:** None
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

**Panel:** All TFMCS Stations  
(# = Tank Number)

**Source:** AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.  
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.

**Tag:** ANA-PDI-251A through 257A  
ANA-PDI-251B through 257B

**Message:** Low  
**Alarm Class:** Equipment Status

**Alarm Description:** Tank vapor space pressure too low for continued operation.

**Setpoint:** ≤ -3.5 in. H₂O

**Tank # PDI Narrow (Low)**

**RED**

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:**

1. **CHECK** appropriate tank pressure on TFMCS is between -5.5 and -3.5 in. H₂O.
   
   1.1 **IF** tank pressure is ≤ -5.5 in. H₂O, **RESPOND** per “Tank # PDI Narrow (Low Low)” alarm.

2. **CHECK** TFMCS alarm display to determine if other tank low pressure alarms are active.

3. **CHECK** history of all tank pressure transmitters on TFMCS:
   
   3.1 **NAVIGATE** to “AN Farm - Tank Pressure Transmitters”.
   
   3.2 **CLICK** on tank pressure readings on TFMCS screen “AN Tank Farm” to display pressure history graph.
   
   3.3 **CLICK** on faceplate graph icon to display pressure graph.

4. **NOTIFY** Shift Manager/OE of actions and findings.

NOTE - Port controller should float freely. During a high vacuum condition vacuum breaker should be open if air inlet is obstructed and should return to closed position when obstruction is removed.

5. **CHECK** the air inlets for obstructions AND **REMOVE**.

6. **CHECK** the port controller (see Table 1 for proper valve numbers) (AN10X-VTP-FCV-20X) for binding.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations n

Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A. n
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B. n

Tag: ANA-PDI-251A through 257A n
ANA-PDI-251B through 257B n

Message: Low

Setpoint: \( \leq -3.5 \text{ in. H}_2\text{O} \)

Immediate Actions (Cont.):

[7] IF directed by Shift Manager/OE, PERFORM the following:

[7.1] OPEN any isolated inlet station valves.

[7.2] ADJUST tank vacuum by adjusting airflow of the inlet filters on 241-AN tanks.

[7.3] IF directed by Shift Manager, CHECK stack flow set points and adjust per TO-060-106.

[7.4] IF the above steps do not restore the tank pressure to the proper range, NOTIFY Shift Manager/OE.

Supplemental Actions:

[8] IF unable to correct the alarm condition, REQUEST the Shift Manager/OE to arrange for Vent and Balance to make the necessary adjustments.

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. Port controller binding.
5. Vacuum breaker is stuck shut.

References:

Drawings: H-14-020101
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Panel: All TFMCS Stations
Source: ABB Controller (PLC) card cannot communicate with a Field Device
Tag: N/A
Message: N/A
Alarm Class: Equipment Status
Alarm Description: Field Device is Not Reporting

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:
[1] ACKNOWLEDGE alarm AND IF alarm clears, EXIT this ARP.
[2] IF the equipment has the letters “OE” next to it, NOTIFY Shift Manager.

Supplemental Actions:
[3] INITIATE work order to troubleshoot/repair or replace degraded components.

Possible Causes:
1. Equipment Failure.
2. Equipment Disconnected.

References:
Drawings: None
Documents: None
Panel: All TFMCS Stations

Source: Automatic Crossover sequence

Tag: N/A

Setpoint: N/A

Message: Crossover - Failed

Alarm Class: Equipment Status

Alarm Description: Crossover sequence failed to stop the train to be shutdown

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:

[1] SHUTDOWN exhauster identified to be shutdown per TO-060-106.
[2] ACKNOWLEDGE alarm AND 
  IF alarm clears, EXIT this ARP.
[3] IF both exhausters continue to run, NOTIFY Shift Manager.

Supplemental Actions:

[4] INITIATE work order to troubleshoot/repair or replace degraded components.

Possible Causes:

1. Equipment in manual mode.
2. Shorted wiring.
3. Software.

References:

Drawings: None
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: Automatic Crossover sequence
Tag: N/A
Message: Crossover - Failed
Alarm Class: Equipment Status (ES)
Alarm Description: During crossover the train to be shutdown, shutdown prematurely

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:

[1] ENSURE exhauster identified to be shutdown is shutdown per TO-060-106.
[2] ACKNOWLEDGE alarm AND
     IF alarm clears, EXIT this ARP.
[3] IF both exhausters shut down, NOTIFY Shift Manager of alarms and actions.
[3.1] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
[3.2] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[3.3] REQUEST Shift Manager respond per TF-AOP-021.
[3.4] STOP waste disturbing activities to AN Farm.
[3.5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:

[5] INITIATE work order to troubleshoot/repair or replace degraded components

Possible Causes:

4. Equipment in manual mode.
5. Shorted wiring.
6. Software.

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: Automatic Crossover sequence
Tag: N/A
Message: Crossover - Failed
Setpoint: N/A

(Continued)

References:
- Drawings: None
- Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: Automatic Crossover sequence
Tag: N/A
Message: CROSSOVER - Failed
Alarm Class: Equipment Status (ES)
Alarm Description: During crossover the standby train failed to continue to run and original running train continues to run.

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:
[1] ENSURE exhauster that failed to continue to run is shutdown per TO-060-106.
[2] ACKNOWLEDGE alarm AND IF alarm clears, EXIT this ARP

Supplemental Actions:
[3] INITIATE work order to troubleshoot/repair or replace degraded components

Possible Causes:
1. Equipment in manual mode.
2. Shorted wiring
3. Software.

References:
Drawings: None
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: AN241-VTP-PDIT-357, AN241-VTP-PDIT-358, AN241-VTP-LIT-380, AN241-VTP-TE-551 or AN241-VTP-PDIT-551 transmitter failure

Setpoint: N/A

Tag: ANA-Transmitter-Fail

Message: Alarm

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

Alarm Description: HEPA filter, stack flow/temperature, or seal pot level transmitter failure

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. Active primary exhaust train shuts down.

Immediate Actions:

[1] EVACUATE personnel from AN Farm to a protected upwind area.
[2] IF exhauster is not shutdown, SHUTDOWN exhauster per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager, RESTART primary ventilation per TO-060-106.

Supplemental Actions:

[7] INVESTIGATE on the TFMCS which transmitter is failed, AN241-VTP-PDIT-357, AN241-VTP-PDIT-358, AN241-VTP-LIT-380, AN241-VTP-TE-551 or AN241-PDIT-551

Possible Causes:

1. Transmitter failed.
2. Loss of 24VDC to Transmitter (including fuse).

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: AN241-VTP-PDIT-357, AN241-VTP-PDIT-358, AN241-VTP-LIT-380, AN241-VTP-TE-551 or AN241-VTP-PDIT-551 transmitter failure
Setpoint: N/A
Tag: ANA-Transmitter-Fail
Message: Alarm

RED
Control Equipment or
Exh Stack Flow Failure
(Continued)

References:

Drawings:  H-14-020101
Documents:  TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
            TF-AOP-021, Response to Tank Farm Ventilation Upset
            RPP-16922, Environmental Specification Requirements
            HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements
**Respond to A-Train Alarms at 241-AN VTP Exhaust Skid**

**Panel:** All TFMCS Stations

**Source:** De-Entrainer valves out of alignment

**Tag:** ANA-DeEntNotOneSet

**Message:** Alarm

**Alarm Class:** Equipment Status

**Alarm Description:** De-Entrainer valves misaligned

**Setpoint:** N/A

**De-Entrainer not only one set**

### NOTE
- Alarm Response Procedures are not designed for, nor intended to be applied to, "expected" alarms generated by approved work activities or procedures.
- This is an expected alarm when both de-entrainers are in operation.

### Automatic Actions:

- None

### Immediate Actions:

1. [1] **INITIATE** exhauster shutdown sequence per TO-060-106.
2. [2] **ACKNOWLEDGE** alarm **AND**
   - IF alarm clears, **EXIT** this ARP.
3. [3] IF alarm is still active, **NOTIFY** Shift Manager of findings.

### Supplemental Actions:

4. [4] **ENSURE** valve alignment per TO-060-106.
5. [5] **INITIATE** work order to troubleshoot/repair or replace degraded components.

### Possible Causes:

1. Valve position sensor faulty.
2. Valve position sensor requires adjustment.
3. Loss of 24VDC to valve position sensor contacts.

### References:

- **Drawings:** None
- **Documents:** TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations

Source: ABB communication equipment

CI801 or the CI854 failure

Tag: ANA_HW_Failure

Message: Alarm

**Setpoint:** N/A

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

**Alarm Description:** I/O communication module failure

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. Active primary exhaust train shuts down.

**Immediate Actions:**

[1] **EVACUATE** personnel from AN Farm to a protected or upwind area.

[2] **ENSURE** primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.

[2.1] **IF** exhauster has not shut down, **STOP** exhauster by initiating a shutdown per TO-060-106.

[3] **ACKNOWLEDGE** alarm **AND**

**IF** alarm clears, **EXIT** this ARP.

[4] **IF** alarm is still active, **NOTIFY** Shift Manager of findings.

**Supplemental Actions:**

[5] **INITIATE** work order to troubleshoot/repair or replace degraded components.

**Possible Causes:**

1. Faulty ProfiBus communication cabling.

2. Faulty ProfiBus connections.

3. CI801 or the CI854 cards have failed.

**References:**

Drawings: None

Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)

HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements.
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Panel: All TFMCS Stations
Source: CI860 failure
Tag: ANA_FF_HWFail
Message: Alarm
Setpoint: N/A

Foundation Fieldbus Hardware Failure Detected

Alarm Description: Foundation Fieldbus hardware has failed

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. Active primary exhaust train shuts down
2. The 241-AN Farm pressurization audible (hooter) alarm is initiated.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

Supplemental Actions:
[6] INITIATE work order to troubleshoot/repair or replace degraded components.

Possible Causes:
1. Faulty CI860 card.
2. Loss of power to controller card.

References:
Drawings: None
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP) HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements.
Panel: All TFMCS Stations

Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A, AN241-VTP-PDI-251B through AN241-VTP-PDI-257B, AN241-VTP-PDI-251C through AN241-VTP-PDI-257C.

Setpoint: N/A

Tag: ANA_FF_HWFail
Message: Alarm


Alarm Description: All Foundation Field devices are not reporting

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

- Prior to shutting down the exhauster all of the PDIs will have an object error alarm. 30 seconds later the train will shut down and the tag will be ANA_FF_HWFail.

Automatic Actions:
1. Active primary exhaust train shuts down
2. The 241-AN Farm pressurization audible (hooter) alarm is initiated.

Immediate Actions:
[1] EVACUATE personnel from AN Farm to a protected or upwind area.
[2] ENSURE primary exhaust system is shut down by noting on remote TFMCS screen that stack flow drops to approximately 0 SCFM.
[2.1] IF exhauster has not shut down, STOP exhauster by initiating a shutdown per TO-060-106.
[4] STOP waste disturbing activities to AN Farm.
[5] IF directed by Shift Manager/OE, RESTART Primary ventilation per TO-060-106.

(Continued on Next Page)
Panel: All TFMCS Stations
Source: AN241-VTP-PDI-251A through AN241-VTP-PDI-257A.
AN241-VTP-PDI-251B through AN241-VTP-PDI-257B.
AN241-VTP-PDI-251C through AN241-VTP-PDI-257C.
Setpoint: N/A
Tag: ANA_FF_HWFail
Message: Alarm

Supplemental Actions:
[6] INITIATE work order to troubleshoot/repair or replace degraded components.

Possible Causes:
1. Foundation Fieldbus communication failed.
2. Loss of power to controller card.

References:
Drawings: None
Documents: TO-060-106, Operate AN Tank Farm Primary Ventilation System (VTP)
HNF-SD-WM-TSR-006, Tank Farms Technical Safety Requirements.
**Respond to A-Train Alarms at 241-AN VTP Exhaust Skid**

**Table 1 - Inlet Station Components**

<table>
<thead>
<tr>
<th>TANK</th>
<th>INLET FILTER STATION 12&quot; ISOLATION BUTTERFLY VALVE</th>
<th>3&quot; BYPASS LINE BALL VALVE</th>
<th>Port Controller Valve</th>
</tr>
</thead>
<tbody>
<tr>
<td>241-AN-101</td>
<td>AN101-VTP-V-201</td>
<td>AN101-VTP-V-261</td>
<td>AN101-VTP-FCV-201</td>
</tr>
<tr>
<td>241-AN-102</td>
<td>AN102-VTP-V-202</td>
<td>AN102-VTP-V-262</td>
<td>AN102-VTP-FCV-202</td>
</tr>
<tr>
<td>241-AN-103</td>
<td>AN103-VTP-V-203</td>
<td>AN103-VTP-V-263</td>
<td>AN103-VTP-FCV-203</td>
</tr>
<tr>
<td>241-AN-104</td>
<td>AN104-VTP-V-204</td>
<td>AN104-VTP-V-264</td>
<td>AN104-VTP-FCV-204</td>
</tr>
<tr>
<td>241-AN-105</td>
<td>AN105-VTP-V-205</td>
<td>AN105-VTP-V-265</td>
<td>AN105-VTP-FCV-205</td>
</tr>
<tr>
<td>241-AN-106</td>
<td>AN106-VTP-V-206</td>
<td>AN106-VTP-V-266</td>
<td>AN106-VTP-FCV-206</td>
</tr>
<tr>
<td>241-AN-107</td>
<td>AN107-VTP-V-207</td>
<td>AN106-VTP-V-267</td>
<td>AN106-VTP-FCV-207</td>
</tr>
</tbody>
</table>
Table 2 - System Alarm Table for ABB Services

<table>
<thead>
<tr>
<th>ALARM (Object Name)</th>
<th>CONDITION</th>
<th>MESSAGE</th>
<th>ALARM MEANING/ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various</td>
<td>Inoperative</td>
<td>Service Provider Not in Operational Status</td>
<td>MEANING: An ABB Service has shut down on either the Primary or Secondary Server. Since the Servers are redundant, failure of the Primary will shift control to the Secondary server. ACTION: CHECK the System Status Viewer to determine which Service has shut down AND CONTACT Engineering for direction. IF both Primary and Secondary services show Red X’s, the TFMCS is NOT operational, SHUT DOWN any transfers AND REQUEST Shift Manager contact Engineering for assistance.</td>
</tr>
<tr>
<td>Various TFMCS HMI, Server, or Controller Names</td>
<td>Network Connection</td>
<td>Primary Connection Lost</td>
<td>MEANING: The primary network connection to the device has been lost. NOTE - The secondary connection will take over automatically. ACTION: CHECK the Farm graphics where the affected device is located AND CONFIRM no red X’s are present.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Secondary Connection Lost</td>
<td>MEANING: The secondary network connection has been lost. NOTE - If the primary connection is active, it will take over automatically. ACTION: IF both the Primary and Secondary are lost, REQUEST Shift Manager contact Engineering for assistance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Network Connection Lost</td>
<td>MEANING: Both network connections to the device or Farm have been lost. NOTE - If red X’s are present, network connection has been lost to this device or Farm. ACTION: CHECK the Farm graphics to confirm no red X’s are present. IF red X’s are present, REQUEST Shift Manager contact Engineering for assistance.</td>
</tr>
</tbody>
</table>

(Continued on Next Page)
Respond to A-Train Alarms at 241-AN VTP Exhaust Skid

Table 2 - System Alarm Table for ABB Services (Cont.)

<table>
<thead>
<tr>
<th>ALARM (Object Name)</th>
<th>CONDITION</th>
<th>MESSAGE</th>
<th>ALARM MEANING/ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Various Controllers (PLCs) and ABB card names.</td>
<td>Channel Error</td>
<td>MEANING: An input or output field device has lost connection to the ABB card. ACTION: CHECK the Farm graphics to confirm no red X’s are present. IF red X’s are present, IDENTIFY the instrument that has lost connection AND REQUEST Shift Manager contact Engineering for assistance.</td>
<td></td>
</tr>
<tr>
<td>Various Controllers (PLCs) and ABB card names.</td>
<td>HW Error</td>
<td>UNDERFLOW</td>
<td>MEANING: An input field device is reporting less than the lower limit to the ABB card. The device may have been disconnected or turned off. ACTION: CHECK the Farm graphics to confirm no red X’s are present. IF red X’s are present, IDENTIFY the instrument that is reporting the Underflow AND REQUEST Shift Manager contact Engineering for assistance.</td>
</tr>
<tr>
<td>Various Controllers (PLCs) and ABB card names.</td>
<td>Overflow</td>
<td>MEANING: An input field device is reporting more than the upper limit to the ABB card due to an instrument malfunction. ACTION: CHECK the Farm graphics to confirm no red X’s are present. IF red X’s are present, IDENTIFY the instrument that is reporting the Overflow AND REQUEST Shift Manager contact Engineering for assistance.</td>
<td></td>
</tr>
</tbody>
</table>