Respond to POR127 Alarms at Portable Exhaust Skid

Tank Farm Alarm Response Procedure

Tank Farms

USQ # TF-17-1886-S, Rev 0

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
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<th>Release Date</th>
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<td>B-0</td>
<td>12/21/2017</td>
<td>Update to Current Field Conditions</td>
<td>Major Revision. Revised alarms to accurate priority levels. Generated new alarm sheets for alarms that were caused by shut down. Updated table for Priority 2 alarms. Clarified Interlock table.</td>
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<td>A-0</td>
<td>10/09/2017</td>
<td>New procedure</td>
<td>New procedure to support Portable Exhaust Skid POR127</td>
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This is a new revision. The First Time Use process as defined in TFC-OPS-OPER-C-13 can be used during the initial performance of this revision.

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RECORDS

No records are generated during the performance of this procedure.
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-RT-554

Setpoint: 300 dpm/ft³ (Slow)
           7000 dpm/ft³ (Fast)
           3000 CPM (Nominal)

CAM HI-HI RADIATION

Alarm Class: Environmental Impact

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.

Automatic Actions:

1. Portable exhauster shuts down (if not in CAM bypass).
2. Red beacon (POR127-VTP-YA-550) is illuminated.
3. White strobe (POR127-VTP-YA-554) is illuminated.
4. CAM alarm buzzer sounds.

Immediate Actions:

[1] EVACUATE personnel from Farm to a protected or upwind area AND/OR INSTRUCT personnel to take cover.

[2] CONFIRM portable exhaust system is shut down by noting on HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” or “Stop” button on the HMI Exhauster Process Details screen.


[4] PROVIDE Shift Manager of any other pertinent information (i.e., personnel status, wind direction, transfer status, visual indications).

[5] REQUEST Shift Manager/OE evaluate the need to enter an AOP and/or ERP.


(Continued on Next Sheet)
Possible Causes:

1. High radiation in portable 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-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements.
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-RT-554. Setpoint: N/A

Alarm Class: Environmental

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:
1. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[2] CONFIRM portable exhaust system is shut down by noting on HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.
[4] NOTIFY Retrieval OE and TMACS operator that POR127 exhauster has shut down.
[5] NOTIFY HPT.
[6] PROVIDE Shift Manager/OE of any other pertinent information (i.e., personnel status, wind direction, transfer status, visual indications).
[7] REQUEST Shift Manager/OE evaluate the need to enter an AOP and/or ERP.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-RT-554.  Setpoint: N/A

CAM INSTRUMENT FAILURE

(Continued)

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-14-108927
Documents:  TO-060-127, Operate POR127 Portable Exhaust Ventilation System
            TF-OPS-033, SST Daily CAM and Record Air Sampler Inspections
            RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-357  Setpoint: ≤ 0.2 in. WG

Alarm Class: Environmental Impact

Alarm Description: Differential pressure across 1st HEPA is too low for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.
[4] CHECK if CAM HI RADIATION alarm is active on HMI alarm page
   [4.1] IF CAM HI RADIATION alarm is active, RESPOND to CAM HI RADIATION alarm of this ARP before continuing.
[8] IF directed by Shift Manager/OE, COMPLETE exhauster shutdown per TO-060-127.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-357.  Setpoint: \( \leq 0.2 \) in. WG

1st HEPA FILTER
DP LO LO
(Continued)

Supplemental Actions:

[9]  IF exhauster was restarted, CONTINUE to monitor system parameters AND NOTIFY Shift Manager/OE of changing indications.

[10] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

Possible Causes:

1. The first 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-14-108927
Documents:  TO-060-127, Operate POR127 Portable Exhaust Ventilation System  RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-357.  Setpoint: ≥ 5.4 in. WG

Alarm Class: Environmental Impact
Alarm Description: Differential pressure across 1st HEPA is too high for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[8] IF exhauster was restarted, CONTINUE to monitor system parameters AND NOTIFY Shift Manager/OE of changing indications.
[9] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDI-357

**1st HEPA FILTER DP HI HI**

Setpoint: ≥ 5.4 in. WG

(Continued)

**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-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-357. Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: 1st HEPA filter differential pressure transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[2] CONFIRM portable exhaust system is shut down by noting on HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:

[7] IF exhauster was restarted, CONTINUE to monitor system parameters AND NOTIFY Shift Manager/OE of changing indications.
[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-357.  Setpoint: N/A

1st HEPA FILTER TRANSMITTER FAILURE

(Continued)

Possible Causes:

1. Instrument failure/improper calibration.
2. Improper valve line-up.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-2ndVTP-CP-110  
Source: POR127-VTP-PDIT-358  
Setpoint: ≤ 0.2 in. WG  

2nd HEPA FILTER  
DP LO LO

Alarm Class: Environmental Impact  
Alarm Description: Differential pressure across 2nd HEPA is too low for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[2] CONFIRM portable exhaust system is shut down by noting on HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.
[3] CHECK if CAM HI RADIATION alarm is active on HMI alarm page.
   [3.1] IF CAM HI RADIATION alarm is active, RESPOND to CAM HI RADIATION alarm of this ARP before continuing.
[7] PROVIDE Shift Manager/OE of any other pertinent information (i.e., personnel status, wind direction, transfer status, visual indications).
[8] REQUEST Shift Manager/OE evaluate the need to enter an AOP and/or ERP.

(Continued on Next Sheet)
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.
3. Improper valve lineup.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-358  
Setpoint: ≥ 3.7 in. WG

2nd HEPA FILTER DP HI HI

Alarm Class: Environmental Impact
Alarm Description: Differential pressure across 2nd HEPA is too high for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[8] IF exhauster was restarted, CONTINUE to monitor system parameters AND NOTIFY Shift Manager/OE of changing indications.
[9] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
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.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-358.  
Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: 2nd HEPA filter differential pressure transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[7] IF exhauster was restarted, CONTINUE to monitor system parameters AND NOTIFY Shift Manager/OE of changing indications.
[8] IF required to troubleshoot and repair or replace degraded components, INITIATE work order to troubleshoot and repair or replace degraded components.

(Continued on Next Sheet)
Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-358. Setpoint: N/A

2nd HEPA FILTER TRANSMITTER FAILURE

(Continued)

Possible Causes:
1. Instrument failure/improper calibration.
2. Improper valve line-up.

References:
Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

**Panel:** POR127-VTP-CP-110  
**Source:** POR127-VTP-PDIT-357  
POR127-VTP-PDIT-358  
**Setpoint:** ≥ 5.4 in. WG  

**1st and 2nd HEPA FILTERS**  
DP HI HI

**Alarm Class:** Environmental Impact  
**Alarm Description:** Differential pressure across 1st HEPA and 2nd HEPA is too high for safe 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. Portable exhauster shuts down.  
2. White strobe (POR127-VTP-YA-554) is illuminated.

**Immediate Actions:**  
[1] **ACKNOWLEDGE** alarm.  
[2] **CONFIRM** portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.  
[2.1] **IF** exhauster has not shut down, **STOP** exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.  
[3] **NOTIFY** Retrieval OE and TMACS operator that POR127 Portable Exhaust has shut down.  
[4] **CHECK** if CAM HI RADIATION alarm is active on HMI alarm page.  
[4.1] **IF** CAM HI RADIATION alarm is active, **RESPOND** to CAM HI RADIATION alarm of this ARP before continuing.  
[5] **NOTIFY** Shift Manager/OE of alarms and actions AND **REQUEST** Shift Manager/OE notify Environmental.  
[6] **REQUEST** HPT perform radiological survey of HEPA filter housing and general area.  
[7] **IF** directed by Shift Manager/OE, **RESTART** Portable ventilation per TO-060-127.  
[8] **IF** directed by Shift Manager/OE, **COMPLETE** exhauster shutdown per TO-060-127.

(Continued on Next Sheet)
Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-357
POR127-VTP-PDIT-358

1st and 2nd HEPA FILTERS
DP HI HI

Setpoint: ≥ 5.4 in. WG

Supplemental Actions:

[9] IF exhauster was restarted, CONTINUE to monitor system parameters AND
   NOTIFY Shift Manager/OE of changing indications.

[10] IF required to troubleshoot and repair or replace degraded components, INITIATE a
work order.

Possible Causes:

1. One or both of the downstream HEPA filters have become plugged. An examination of
   historical data should show a gradual increase in the dP over time.

2. One or both of the downstream HEPA filters have become saturated with condensation.
   This is likely only if there is a problem with the heater.

3. Transmitter failure.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
           RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-LT-380.

Setpoint: > 90%

Alarm Class: Environmental Impact

Alarm Description: Exhauster seal pot level is too high for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[8] IF freezing conditions exist, CHECK heat trace status.
[9] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-LT-380.  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-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-LT-380  Setpoint: ≤ 20%

Alarm Class: Environmental Impact

Alarm Description: Exhauster seal pot level is too low for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhauster system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.
[4] CHECK if CAM HI RADIATION alarm is active on HMI alarm page.
   [4.1] IF CAM HI RADIATION alarm is active, RESPOND to CAM HI RADIATION alarm of this ARP before continuing.
[8] IF directed by Shift Manager/OE, COMPLETE exhauster shutdown per TO-060-127.

Supplemental Actions:
[10] IF freezing conditions exist, CHECK heat trace status.
[11] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-LT-380
Setpoint: $\leq 20\%$

< 20% SEAL POT LEVEL
LO LO

(Continued)

Possible Causes:
1. Evaporation not replenished by condensation.
2. Leaks in seal pot and/or seal pot loop.
3. Improper valve line-up.

References:
Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-LT-380

Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: Exhauster seal pot level Transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:


[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.

[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.


Supplemental Actions:


[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-LT-380   Setpoint: N/A

SEAL POT TRANSMITTER FAILURE

(Continued)

Possible Causes:

1. Instrument has failed.
2. No power.

References:

Drawings:   H-14-108927
Documents:  TO-060-127, Operate POR127 Portable Exhaust Ventilation System
            RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP- SIC-009   Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: Exhauster seal pot level Transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTPYA-554) is illuminated.

Immediate Actions:


[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.

[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.


Supplemental Actions:


[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP- SIC-009    Setpoint: N/A

VFD FAILURE ALARM

(Continued)

Possible Causes:

1. VFD parameters have been modified.
2. VFD failed.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-FCV-556
Setpoint: $\leq 0.8$ SCFM
Alarm Class: Environmental Impact
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.

Automatic Actions:
1. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

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

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-FCV-556

CAM SAMPLE FLOW
LO LO

Setpoint: ≤ 0.8 SCFM

(Continued)

Possible Causes:
1. CAM sample system valves not aligned properly.
2. CAM sample pump failure.
3. Control valve failure.
4. Loaded CAM sample filter paper.
5. Condensate buildup in sample line.
6. Sample line heat trace failure.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-FCV-556  Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: CAM sample flow control 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[8] IF freezing conditions exist, CHECK heat trace status.
[9] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-FCV-556   Setpoint: N/A

CAM SAMPLE FCV FAILED

(Continued)

Possible Causes:

1. Improper valve line-up.
2. Control valve failure.
3. Condensate buildup in sample line.
4. Sample line heat trace failure.

References:

Drawings:    H-14-108927
Documents:   TO-060-127, Operate POR127 Portable Exhaust Ventilation System
             RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-FCV-555

Setpoint: <85% of proportional flow

Alarm Class: Environmental Impact

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.

Automatic Actions:
1. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:


[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.

[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.


Supplemental Actions:

[7] EVALUATE cause of record sample flow LO LO.

[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-FCV-555  Setpoint: <85% of proportional flow

<85% RECORD SAMPLE FLOW LO LO

(Continued)

Possible Causes:

1. CAM sample system valves not aligned properly.
2. CAM sample pump failure.
3. Control valve failure.
4. Loaded CAM sample filter paper.
5. Condensate buildup in sample line.
6. Sample line heat trace failure.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-FCV-555  Setpoint: N/A
Alarm Class: Environmental Impact
Alarm Description: Record sampler flow control valve 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

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

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110  
Source: POR127-VTP-FCV-555  
Setpoint: N/A

Possible Causes:

1. Improper valve line-up.
2. Control valve failure.
3. Condensate buildup in sample line.
4. Sample line heat trace failure.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System  
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PI-553 and POR127-VTP-PI-554

Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: Pumps POR127-VTP-P-564 or P-574 failed to maintain vacuum.

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

Automatic Actions:

1. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:

[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Panel: POR127-VTP-CP-110
Source: POR127-VTP-PI-553 and POR127-VTP-PI-554

**SAMPLE VACUUM PUMP FAILURE**

Setpoint: N/A

(Continued)

Possible Causes:

1. Improper valve line-up.
2. Vacuum Pump failed.
3. Water in sample line tubing.
4. Mechanical failure of pump.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDT-101, PDT-102, PDT-103, or PDT-104

Setpoint: ≥ 1.5 in. WG

Alarm Class: Environmental Impact

Alarm Description: Tank vapor space pressure too low (vacuum too high) for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:


[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.

[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.


Supplemental Actions:

[7] EVALUATE cause of high vacuum interlock per applicable tank.

[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDT-101, PDT-102, PDT-103, or PDT-104

**Setpoint:** ≥ 1.5 in. WG

HIGH VACUUM INTERLOCK
(See Source for applicable tanks)

(Continued)

Possible Causes:

1. Obstruction of air inlet.
2. Vacuum or flow rates out of adjustment.
3. Water in sensing line.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDT-101, PDT-102, PDT-103, or PDT-104

Setpoint: N/A

Alarm Class: Environmental Impact

Alarm Description: Tank transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:

[7] EVALUATE cause of transmitter failure per applicable tank.
[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110  
Source: POR127-VTP-PDT-101, PDT-102, PDT-103, or PDT-104  
Setpoint: N/A

TRANSMITTER FAILED  
(See Source for applicable tanks)

(Continued)

Possible Causes:
1. Instrument has failed.
2. No power.

References:
Drawings: H-14-108927  
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System  
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-551  
Setpoint: ≤ 650 ACFM  

Alarm Class: Environmental Impact

Alarm Description: Airflow through exhaust stack too low for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
2. [2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   2.1 [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
7. [7] EVALUATE cause of stack flow LO.
8. [8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110

Source: POR127-VTP-PDIT-551  
Setpoint: \( \leq 650 \text{ ACFM} \)

(Continued)

Possible Causes:

1. Stack flow setpoints too low
2. Incorrect system valving.
3. Failed inlet or outlet MOV.
4. VFD failure.
5. HEPA filter loading.
6. Demister loading.
7. Water in stack flow sensing lines.
8. Verbar instrument or tubing has been damaged.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-551 Setpoint: ≥ 2950 ACFM
Alarm Class: Environmental Impact
Alarm Description: Airflow through exhaust stack too high for safe 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
[2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

Supplemental Actions:
[7] EVALUATE cause of stack flow HI.
[8] IF required to troubleshoot and repair or replace degraded components, INITIATE a work order.

(Continued on Next Sheet)
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-551  Setpoint: ≥ 2950 ACFM

STACK FLOW HI

(Continued)

Possible Causes:

1. Stack flow setpoints too low
2. Verbar instrument or tubing has been damaged.
3. VFD failure.
4. Water in stack flow sensing lines.

References:

Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
Respond to POR127 Alarms at Portable Exhaust Skid

Panel: POR127-VTP-CP-110  
Source: POR127-VTP-PDIT-551  
Setpoint: N/A  
Alarm Class: Environmental Impact  
Alarm Description: Exhauster seal pot level transmitter 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. Portable exhauster shuts down.
2. White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:
[2] CONFIRM portable exhaust system is shut down by noting on remote HMI screen that stack flow drops to approximately 0 SCFM.
   [2.1] IF exhauster has not shut down, STOP exhauster by clicking on the “Shutdown Exhauster” button on the HMI Exhauster Process Details screen.

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

(Continued on Next Sheet)
Panel: POR127-VTP-CP-110
Source: POR127-VTP-PDIT-551  Setpoint: N/A

Possible Causes:
1. Instrument has failed.
2. No power.

References:
Drawings: H-14-108927
Documents: TO-060-127, Operate POR127 Portable Exhaust Ventilation System
RPP-16922, Environmental Specification Requirements
RESPONSE TO PRIORITY 2 ALARMS

Facility: AX-Farm
Panel: POR127-VTP-CP-110

Source: Various
Setpoint: See Table 1

Alarm Class: Priority 2
Alarm Description: See Table 1.

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. See White strobe (POR127-VTP-YA-554) is illuminated.

Immediate Actions:

[1] ACKNOWLEDGE Alarm AND
   IF alarm clears, EXIT this ARP.

[2] EVALUATE alarm using information provided from Table 1 for associated alarm.


[4] IF cause of alarm is known, PERFORM the following at direction of Shift Manager/OE:
   
   [4.1] RESET alarm.
   OR
   CORRECT cause as needed AND
   RESET alarm.
   
   [4.2] IF alarm clears, EXIT this ARP.

(Continued on Next Sheet)
Facility: AX Farm
Panel: POR127-VTP-CP-110
Source: Various

**Setpoint:** See Table 1

(Continued)

### Immediate Actions (Cont.):

[5] **REQUEST** Shift Manager/OE evaluate whether operations can continue.

[6] **IF** operations cannot continue, **PERFORM** the following:

   [6.1] **INITIATE** ventilation system shutdown.

   [6.2] **REQUEST** Shift Manager/OE notify Operations Manager.

### Supplemental Actions:

[7] **IF** operations can continue, **DOCUMENT** equipment fault and status in the following:

- Rounds Action Tracking List (RATL)
- OE Log Book.

### Possible Causes:

1. See Table 1.
2. Instrument failure.

### References:

- **Drawings:** None
- **Documents:** None
RESPONSE to Priority 2 Alarms

This flow chart graphically depicts response to Priority 2 alarms and may be used in lieu of the pages for Response to Priority 2 Alarms above. Response to alarms other than Priority 2 is detailed on individual pages as listed in the TOC. Step number(s) adjacent to chart components indicate procedure step(s) applicable to that component detailed in pages for Response to Priority 2 Alarms above. A legend is shown below.

**LEGEND:**
1. [IA] Immediate Actions
2. [SA] Supplemental Actions

**Figure 1 - Priority 2 Alarm Flow Chart**
### Table 1 - Priority 2 Alarms

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
</table>
| CAM SAMPLE FLOW LO      | Flow control valve indicates a low CAM sample flow rate| ≤ 0.85 SCFM | a. CAM sample system valves not aligned properly.  
b. CAM sample pump failure.  
c. Control valve failure.  |
| CAM SAMPLE FLOW HI      | Flow control valve indicates a high CAM sample flow rate| ≥ 2.4 SCFM | a. CAM sample pump problem.  
b. Control valve failure.  |
| CAM INSTRUMENT BYPASSED | CAM instrument bypass has been activated               | N/A      | a. CAM purposefully placed in bypass.      |

* Note - Instrument failure/Improper calibration is potential cause for all Priority 2 alarms.  
- Initial annunciation for ALL primary ventilation alarms come in as RED. IF alarm clears prior to Operator acknowledgement, alarm changes to YELLOW. When acknowledged by Operator and initiating signal clears, alarm changes to BLUE.
# Respond to POR127 Alarms at Portable Exhaust Skid

## Table 1 - Priority 2 Alarms (Cont.)

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 90% RECORD SAMPLE FLOW LO</td>
<td>Flow control valve indicates a low Record sample flow rate</td>
<td>( \leq 90% )</td>
<td>a. CAM sample system valves not aligned properly.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-FCV-555)</td>
<td></td>
<td>b. CAM sample pump failure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Control valve failure.</td>
</tr>
<tr>
<td>( \geq 115% ) RECORD SAMPLE FLOW HI</td>
<td>Flow control valve indicates a high Record sample flow rate</td>
<td>( \geq 115% ) Proportional Flow</td>
<td>a. Sample pump problem.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-FCV-555)</td>
<td></td>
<td>b. Control valve failure (sticking).</td>
</tr>
</tbody>
</table>

* Note - Instrument failure/Improper calibration is potential cause for all Priority 2 alarms.
- Initial annunciation for ALL primary ventilation alarms come in as RED. IF alarm clears prior to Operator acknowledgement, alarm changes to YELLOW. When acknowledged by Operator and initiating signal clears, alarm changes to BLUE.
### Table 1 - Priority 2 Alarms (Cont.)

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
</table>
| PRE-FILTER DP HI | Differential pressure across Pre-Filter is high | ≥ 1.4 in. WG | a. The Pre-Filter has become plugged. An examination of historical data should show a gradual increase in the dP over time.  
b. The Pre-Filter has become saturated with condensation. This is likely only if there is a problem with the heater.  
(POR127-VTP-PDIT-356) |
| 1st and 2nd HEPA FILTERS DP HI | Differential pressure across HEPA #1 and/or #2 is too high | ≥ 4.5 in. WG | a. One or both of the downstream HEPA filters have become plugged. An examination of historical data should show a gradual increase in the dP over time.  
b. One or both of the downstream HEPA filters have become saturated with condensation. This is likely only if there is a problem with the heater.  
c. Transmitter failure.  
(POR127-VTP-PDIT-357), (POR127-VTP-PDIT-358) |
| PRE-FILTER DP INSTRUMENT FAIL | Pre-filter differential pressure transmitter has failed | N/A | a. Instrument has failed.  
b. No power.  
(POR127-VTP-PDIT-356) |

* Note - Instrument failure/Improper calibration is potential cause for all Priority 2 alarms.  
- Initial annunciation for ALL primary ventilation alarms come in as RED. IF alarm clears prior to Operator acknowledgement, alarm changes to YELLOW. When acknowledged by Operator and initiating signal clears, alarm changes to BLUE.
## Table 1 - Priority 2 Alarms (Cont.)

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>AX-101/PDT-101 HIGH PRESSURE</td>
<td>Tank vapor space pressure too high (Loss of vacuum)</td>
<td>≥ -0.05 in. WG</td>
<td>a. Incorrect valve line-up.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-PDT-101)</td>
<td></td>
<td>b. Obstruction of line between tank and exhauster.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Vacuum or flow rates out of adjustment.</td>
</tr>
<tr>
<td>AX-102/PDT-102 HIGH PRESSURE</td>
<td>Tank vapor space pressure too high (Loss of vacuum)</td>
<td>≥ -0.05 in. WG</td>
<td>a. Incorrect valve line-up.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-PDT-102)</td>
<td></td>
<td>b. Obstruction of line between tank and exhauster.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Vacuum or flow rates out of adjustment.</td>
</tr>
<tr>
<td>AX-103/PDT-103 HIGH PRESSURE</td>
<td>Tank vapor space pressure too high (Loss of vacuum)</td>
<td>≥ -0.05 in. WG</td>
<td>a. Incorrect valve line-up.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-PDT-103)</td>
<td></td>
<td>b. Obstruction of line between tank and exhauster.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Vacuum or flow rates out of adjustment.</td>
</tr>
<tr>
<td>AX-104/PDT-104 HIGH PRESSURE</td>
<td>Tank vapor space pressure too high (Loss of vacuum)</td>
<td>≥ -0.05 in. WG</td>
<td>a. Incorrect valve line-up.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-PDT-104)</td>
<td></td>
<td>b. Obstruction of line between tank and exhauster.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Vacuum or flow rates out of adjustment.</td>
</tr>
</tbody>
</table>

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Table 1 - Priority 2 Alarms (Cont.)

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>STACK AIR TEMP HI</td>
<td>Heater temperature too high for safe operation of the heating system and HEPAs</td>
<td>≥ 160 °F</td>
<td>a. Fault in heating system</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-TE-551)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEATER AIR TEMP HI</td>
<td>Heater temperature approaching too high temperature for safe operation of the heating system and HEPAs</td>
<td>&gt; 155 °F</td>
<td>a. Fault in heating system</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-TI-355)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
</table>
| GLYCOL PUMP DISCHARGE PRESSURE LO LO | Glycol system pressure too low for safe operation of the glycol system             | ≤ 3.0 psi | a. Incorrect valve line-up.  
                                  | (POR127-VTP-PIT-371)                                                               |          | b. Leaking glycol system components.  
                                  |                                                                                   |          | c. Low glycol tank level.        |
| GLYCOL PUMP DISCHARGE PRESSURE LO   | Glycol system pressure low                                                         | ≤ 5.0 psi | a. Incorrect valve line-up.  
                                  | (POR127-VTP-PIT-371)                                                               |          | b. Leaking glycol system components.  
                                  |                                                                                   |          | c. Low glycol tank level.        |
| GLYCOL PUMP DISCHARGE PRESSURE HI HI| Glycol system pressure too high for safe operation of the glycol system            | ≥ 28.0 psi| a. Incorrect valve line-up.  
                                  | (POR127-VTP-PIT-371)                                                               |          | b. Plugged glycol system components.  |
| GLYCOL LEVEL LO LO                  | Glycol tank level too low for safe operation of the glycol system                   | ≤ 20%    | a. Actual glycol level low.  
                                  | (POR127-VTP-LT-370)                                                                |          | b. Leaking glycol system.         |
| GLYCOL LEVEL LO                     | Glycol tank level too low.                                                          | ≤ 40%    | a. Actual glycol level low.  
                                  | (POR127-VTP-LT-370)                                                                |          | b. Leaking glycol system.         |
| GLYCOL LEVEL HI                     | Glycol tank level too high                                                         | ≥ 80%    | a. Actual glycol level high from overfilling.  |
                                  | (POR127-VTP-LT-370)                                                                |          |                         |
| GLYCOL LEVEL TRANSMITTER FAILURE    | Glycol tank level transmitter has failed                                           | N/A      | a. Instrument has failed.  
                                  | (POR127-VTP-LI-370)                                                                |          | b. No power.                      |
| GLYCOL HEATER TEMP HI HI            | Glycol tank temperature too high for safe operation of the glycol system           | ≥ 209 ºF | a. Fault in heating system.  |
                                  | (POR127-VTP-TE-373)                                                                |          |                         |

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<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIRSTREAM TEMP HI HI</td>
<td>Glycol heater temperature too high for safe operation of the heating system and HEPAs</td>
<td>≥ 165 ºF</td>
<td>a. Fault in heating system.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-TE-355)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEATER DIFFERENTIAL</td>
<td>The differential temperature across the heat exchanger is too low</td>
<td>≤ 17 ºF</td>
<td>a. Glycol system malfunction.</td>
</tr>
<tr>
<td>TEMPERATURE LO</td>
<td>(Temp. difference between POR127-VTP-TE-353 and POR127-VTP-TE-360)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLYCOL PUMP DISCHARGE</td>
<td>Glycol system pressure is high</td>
<td>≥ 25.0 psig</td>
<td>a. Incorrect valve line-up.</td>
</tr>
<tr>
<td>PRESSURE HI</td>
<td>(POR127-VTP-PIT-371)</td>
<td></td>
<td>b. Plugged glycol system components.</td>
</tr>
<tr>
<td>GLYCOL PUMP PRESSURE</td>
<td>Glycol system pressure transmitter has failed</td>
<td>N/A</td>
<td>a. Instrument has failed.</td>
</tr>
<tr>
<td>TRANSMITTER FAILURE</td>
<td>(POR127-VTP-PIT-371)</td>
<td></td>
<td>b. No power.</td>
</tr>
</tbody>
</table>

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<th>ALARM DESCRIPTION</th>
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<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
</table>
| < 30% SEAL POT LEVEL LO    | Seal pot level is low                    | ≤ 30%    | a. Evaporation not replenished by condensation.  
b. Leaks in the seal pot and/or seal pot loop.  
c. Improper valve line-up.  |
|                            | (POR127-VTP-LT-380)                      |          |                         |
| > 80% SEAL POT LEVEL HI    | Exhauster seal pot level is too high     | ≥ 80%    | a. Seal pot system valves not aligned properly.  
b. Obstruction or ice in seal pot piping.  
c. Overfilled seal pot. |
|                            | (POR127-VTP-LT-380)                      |          |                         |
| HVAC EQUIPMENT FAILURE     | Exhauster PLC signals an internal failure |          | a. PLC Card off-line.  
b. PLC card error.  
c. PLC CPU failure.  
d. Failure of PDI-357, PDI-358, LI-380, DP-551 or TE-551. |
|                            | (POR127-VTP-YYC-350)                     | N/A      |                         |
| PLC CABINET TEMP LO        | PLC enclosure senses Low temperature     | ≤ 35 °F | a. Low ambient temperature conditions.  
b. Loss of cabinet heater.  |
|                            | (Humiscan POR127-VTP-TE-110)             |          |                         |
| PLC CABINET TEMP HI        | PLC enclosure senses high temperature    | ≥ 128 °F| a. High ambient temperature conditions.  
b. Loss of cooling/AC.  |
|                            | (Humiscan POR127-VTP-TE-110)             |          |                         |

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# Respond to POR127 Alarms at Portable Exhaust Skid

## Table 1 - Priority 2 Alarms (Cont.)

<table>
<thead>
<tr>
<th>ALARM TAG</th>
<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOT READY</strong></td>
<td>Exhauster fails to display ready for start-up</td>
<td>N/A</td>
<td>a. VFD not in RUN.</td>
</tr>
<tr>
<td></td>
<td>(Exhauster)</td>
<td></td>
<td>b. VFD failure, on automatic start-up sequence, an internal fault occurred in the VFD and it failed to receive a RUN signal in the start sequence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. Software fault.</td>
</tr>
<tr>
<td><strong>FAILED TO START</strong></td>
<td>Exhauster fails to start as intended</td>
<td>N/A</td>
<td>a. Inlet/Outlet valves failed to open on startup sequence.</td>
</tr>
<tr>
<td></td>
<td>(Exhauster)</td>
<td></td>
<td>b. On automatic start-up sequence, system flow failed to reach 90% of setpoint flow within one minute of receiving an OPEN signal from both the Inlet and Outlet valves.</td>
</tr>
<tr>
<td><strong>FAILED TO SHUTDOWN</strong></td>
<td>Exhauster fails to shut down as intended</td>
<td>N/A</td>
<td>a. Flow still detected, on shutdown of the exhauster, if the flow as measured by POR127-VTP-FI-551 does not drop below 0.1 scfm within 60 seconds of shutdown.</td>
</tr>
<tr>
<td></td>
<td>(POR127-VTP-YYC-350)</td>
<td></td>
<td>b. On shutdown sequence, an internal fault in the VFD occurs and it fails to receive a stop signal in the shutdown sequence.</td>
</tr>
<tr>
<td><strong>PLC FAILURE</strong></td>
<td>PLC has failed</td>
<td>N/A</td>
<td>a. PLC program fan speed controller has been modified or parameters changed.</td>
</tr>
</tbody>
</table>

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## Respond to POR127 Alarms at Portable Exhaust Skid

### Table 1 - Priority 2 Alarms (Cont.)

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<th>ALARM DESCRIPTION</th>
<th>SETPOINT</th>
<th>POTENTIAL ALARM CAUSE *</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOV-352 OUT OF REQUIRED POSITION</td>
<td>Inlet MOV out of position required for operation</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>MOV-352 MOTION FAILURE ALARM</td>
<td>Inlet MOV did not move as required</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>MOV-352 POSITION SENSOR FAILURE</td>
<td>Inlet MOV position sensor not functioning</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>MOV-361 OUT OF REQUIRED POSITION</td>
<td>Outlet MOV out of position required for operation</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>MOV-361 MOTION FAILURE ALARM</td>
<td>Outlet MOV did not move as required</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>MOV-361 POSITION SENSOR FAILURE</td>
<td>Outlet MOV position sensor not functioning</td>
<td>N/A</td>
<td>a. No additional causes (See * Note below).</td>
</tr>
<tr>
<td>GLYCOL HEATER TEMP HI HI</td>
<td>Glycol heater temperature too high for safe operation of the glycol system</td>
<td>≥ 225 °F</td>
<td>a. Fault in heating system.</td>
</tr>
</tbody>
</table>

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# Table 2 - Interlock Index

<table>
<thead>
<tr>
<th>Interlock Number</th>
<th>Description</th>
<th>System Shut down: Exhauster or Heater?</th>
<th>Setpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Exhauster Lo-Lo Flow, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \leq 650 ) ACFM</td>
</tr>
<tr>
<td>2</td>
<td>Exhauster Hi-Hi Flow, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \geq 2950 ) ACFM</td>
</tr>
<tr>
<td>3</td>
<td>HEPA Filter Lo-Lo DP, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \leq 0.2 ) in. WG</td>
</tr>
<tr>
<td>4</td>
<td>HEPA Filter Hi-Hi DP, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \geq 5.4 ) in. WG</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>( \geq 3.7 ) in. WG</td>
</tr>
<tr>
<td>5</td>
<td>Glycol Tank Hi-Hi Temp, Glycol Heater Shutdown</td>
<td>Heater</td>
<td>( \geq 209 ) °F</td>
</tr>
<tr>
<td>6</td>
<td>Glycol Sys Lo-Lo Press, Glycol System Shutdown</td>
<td>Heater</td>
<td>( \leq 3.0 ) PSI</td>
</tr>
<tr>
<td>7</td>
<td>Glycol Sys Hi-Hi Press, Glycol System Shutdown</td>
<td>Heater</td>
<td>( \geq 28.0 ) PSI</td>
</tr>
<tr>
<td>8</td>
<td>Stack Temp Hi</td>
<td>Heater</td>
<td>( \geq 160 ) °F</td>
</tr>
<tr>
<td>9</td>
<td>Glycol Tank Lo-Lo Level, Glycol System Shutdown</td>
<td>Heater</td>
<td>( \leq 20%)</td>
</tr>
<tr>
<td>10</td>
<td>EMS (Effluent Monitoring System) Fail, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>N/A</td>
</tr>
<tr>
<td>11</td>
<td>Record Sample Lo Lo Flow</td>
<td>Exhauster</td>
<td>( \leq 85% )</td>
</tr>
<tr>
<td></td>
<td>CAM Sample Lo Lo Flow</td>
<td>CAM Sample Lo Lo Flow</td>
<td>Exhauster &lt; 0.8 SCFM</td>
</tr>
<tr>
<td>12</td>
<td>HMI ESTOP (Emergency Stop Button)</td>
<td>Exhauster</td>
<td>N/A</td>
</tr>
<tr>
<td>13</td>
<td>Dual DST Xmtr Fail, Alarm Fail, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>N/A</td>
</tr>
<tr>
<td>14</td>
<td>Tank Vac. Hi, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \geq 1.5 ) in.WG</td>
</tr>
<tr>
<td>15</td>
<td>Seal Pot Hi-Hi Level, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \geq 90% )</td>
</tr>
<tr>
<td>16</td>
<td>Control Equipment Fail (HEPA 1 PDIT, HEPA 2 PDIT, Seal Pot LT, Glycol RTD), Portable Vent Shutdown</td>
<td>Exhauster/Heater</td>
<td>N/A</td>
</tr>
<tr>
<td>17</td>
<td>Seal Pot Lo-Lo Level, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>( \leq 20% )</td>
</tr>
<tr>
<td>18</td>
<td>Exhauster Flow Xmtr Fail, Portable Vent Shutdown</td>
<td>Exhauster</td>
<td>N/A</td>
</tr>
<tr>
<td>19</td>
<td>CAM Hi-Hi Radiation, Portable Vent Shutdown</td>
<td>CAM Slow Alarm</td>
<td>( \geq 300 ) dpm/ft³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAM Fast Alarm</td>
<td>( \geq 7000 ) dpm/ft³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Radiation, CAM NCPM Alarm</td>
<td>( \geq 3000 ) cpm</td>
</tr>
<tr>
<td>20</td>
<td>Glycol Heater Hi-Hi Temp, Glycol Heater Shutdown</td>
<td>Heater</td>
<td>( \geq 225 ) °F</td>
</tr>
</tbody>
</table>