USQ Not Required – ETF is a <Hazard Category 3 Radiological Facility

CHANGE HISTORY (≤ LAST 5 REV-MODS)

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<td>A-0</td>
<td>09/10/2015</td>
<td>Conversion to WRPS Format</td>
<td>New Procedure; Supersedes ETF-PRO-AR-52158 (ARP-45D-001)</td>
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Vessel Off Gas System

Alarm

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RECORDS

No records are generated during the performance of this procedure.
VESSEL OFF GAS COMM ALARM

Description: VESSEL OFF GAS (VOG) SYSTEM COMMON ALARM

Setpoint: Logic permissive(s) not met

Alarm Location: Logic generated alarm

Graphic: Alarm Summary Screen

Indications: N/A

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

- Vessel Off Gas System Common Alarms include:

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Automatic Actions:

1. Automatic actions are dependent on source alarm(s).
2. None for common alarm.

Immediate Actions:

[2] RESPOND to source alarm per appropriate section of this ARP.

Possible Causes:

1. Refer to appropriate alarm response(s).

References

Drawings: H-2-88993, H-2-89305
Documents: None
VESSEL OFF GAS SYSTEM FAIL

Description: VESSEL OFF GAS SYSTEM FAILURE
Setpoint: Logic permissive not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

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. MTT and STT systems go to SHUTDOWN.
2. VOG System goes to SHUTDOWN.
3. Dryer vent blower goes to SHUTDOWN.

Immediate Actions:
[1] IF VOG Blower A alarm exists, **RESPOND** per this ARP.
[2] IF VOG Blower B alarm exists, **RESPOND** per this ARP.
[3] IF VOG heater alarm exists, **RESPOND** per this ARP.
[4] CHECK VOG System is aligned for Auto operation per ETF-45D-001.
[5] CHECK HVAC system is in operation.
[6] ENSURE systems that shut down are placed in safe configuration.

Possible Causes:
1. Neither VOG blower is running in Operation mode.
2. Both VOG blowers not selected to Auto.
3. VOG blowers in alarm.
4. VOG filter heater is not in Auto.
5. Filter unit heater 45D-E1-A is in alarm.
6. HVAC system is not in operation.

(Continued on Next Page)
VESSEL OFF GAS SYSTEM FAIL

Description: VESSEL OFF GAS SYSTEM FAILURE
Setpoint: Logic permissive not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

References:

Drawings: None
Documents: ETF-45D-001, Vessel Off-Gas System Operation

(Continued)
VESSEL OFF GAS PALX 45D 001

Description: VESSEL OFF GAS SYSTEM INLET PRESSURE LO (PALX 45D 001)
Setpoint: -8.8 inches water gauge
Alarm Location: PIT-45D001
Graphic: Alarm Summary Screen
Indications: N/A

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] PLACE, on graphic VOG, pressure controller PIC-45D-001 in MANUAL.
[2] SLOWLY OPEN, on graphic VOG, pressure controller PIC-45D-001 until VOG inlet pressure, as read on graphic VOG, increases to -4 inches water gauge.

Possible Causes
1. Pressure controller PIC-45D-001 malfunction.
2. MTT and STT systems both in shutdown.

References
Drawings: None
Documents: None
VESSEL OFF GAS TAH 45D 106

Description: VOG HEATER OUTLET TEMP HI (TAH 45D 106)
Setpoint: 160°F
Alarm Location: TT-45D106
Graphic: Alarm Summary Screen
Indications: N/A

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:

[3] LOCALLY OPEN VOG heater disconnect at VOG heater control box,
OR
OPEN MDP-2, circuit 8, in electrical room if fire impedes access.
[5] IF temperature increases above 190°F, PERFORM the following:
[5.1] CLOSE 45D-036, VOG filter housing inlet isolation valve.
[5.2] CLOSE 45D-048, VOG filter housing outlet isolation valve.

Supplemental Actions:

Possible Causes:
1. Electric heater 45D-E-1 failed on

References:
Drawings: None
Documents: ETF-45D-001, Vessel Off-Gas System Operation
### VESSEL OFF GAS TAL 45D 106

**Description:** VOG CARBON ADSORBER OUTLET TEMP LO (TAL 45D 106)

**Setpoint:** 90°F or less for 30 minutes

**Alarm Location:** TT-45D106

**Graphic:** Alarm Summary Screen

**Indications:** N/A

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**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**, on graphic VOG, flow on FI-45D-005 is less than 500 cfm, **SELECT** the opposite VOG fan for operation per ETF-45D-001.

2. **IF**, on graphic VOG, flow on FI-45D-005 remains below 500 cfm with the opposite fan in operation, **CONTACT** SOM for further direction.

3. **CHECK** FS-45D-108 instrument root valve 45D-111 is OPEN.

**Possible Causes:**

1. VOG System low flow condition.
2. VOG heater low flow switch FS-45D-005 failed or out of calibration.
3. VOG heater low flow switch FS-45D-005 instrument root valve closed.

**References:**

- **Drawings:** None
- **Documents:** ETF-45D-001, Vessel Off-Gas System Operation
VESSEL OFF GAS TAH 45D 107

Description: VOG CARBON ADSORBER OUTLET TEMP HI (TAH 45D 107)
Setpoint: 190°F
Alarm Location: TT-45D107
Graphic: Alarm Summary Screen
Indications: N/A

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:

[3] LOCALLY OPEN VOG heater disconnect at VOG heater control box or at MDP-2, Circuit 8 in electrical room depending upon accessibility.
[5] IF temperature continues to increase, PERFORM the following:
   [5.1] CLOSE 45D-036, VOG filter housing inlet isolation valve.
   [5.2] CLOSE 45D-048, VOG filter housing outlet isolation valve.

Supplemental Actions:

[1] ASSESS VOG unit for damage.

Possible Causes:

1. Excessive heat of absorption reaction rate in charcoal filter, resulting in fire hazard.
2. Electric heater 45D-E-1 failed on.

References:

Drawings: None.
Documents: ETF-45D-001, Vessel Off-Gas System Operation
VESSEL OFF GAS 45D F1A A

Description: VOG BLOWER A (45D F1A A)
Setpoint: Logic permissive not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

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. VOG blower 45D-F-1A stops.
2. VOG blower 45D-F-1B starts if in AUTO.

Immediate Actions:
[1] CHECK breaker 45D-F-1A on MCC-3 is ON.

Possible Causes:
1. Breaker 45D-F-1A on MCC-3 off/tripped.
3. Control fuses blown in breaker 45D-F-1A on MCC-3.

References:
Drawings: None
Documents: None
VESSEL OFF GAS 45D F1B A

Description: VOG BLOWER B (45D F1B A)
Setpoint: Logic permissive not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

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. VOG blower 45D-F-1B stops.
2. VOG blower 45D-F-1A starts if in AUTO.

Immediate Actions:
[1] CHECK breaker 45D-F-1B on MCC-3 is ON.

Possible Causes:
1. Breaker 45D-F-1B on MCC-3 off/ tripped.
3. Control fuses blown on breaker 45D-F-1B on MCC-3.

References
Drawings: None
Documents: None
VESSEL OFF GAS 45D E1 A

Description: VESSEL OFF GAS (45D E1 A)
Setpoint: Logic permissive not met
Alarm Location: Logic generated alarm
Graphic: Alarm Summary Screen
Indications: N/A

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 VOG Blower 45D-F-1A or 45D-F-1B is not running, START 45D-F-1A or 45D-F-1B in MANUAL.


Possible Causes:

1. TSH-45D009 high heater temperature switch tripped.

References:

Drawings: None
Documents: None
VOG FLOW LOW ON FAN-A, AUTO SWAP TO FAN-B

DESCRIPTION: VOG FLOW LOW ON FAN-A, AUTO SWAP TO FAN-B (FSL45D005A)
Setpoint: 500 cfm
Alarm Location: FT-45D005
Graphic: Alarm Summary Screen
Indications: N/A

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. Stops the selected/operating Blower-A.
2. If backup Blower-B is in AUTO mode, selects and starts backup Blower-B.
3. When flow is reestablished, trips VOG FSL45D005A/B RESET REQUIRED alarm.
   OR
   If the backup Blower-B is in MANUAL mode:
   • VOG System fail alarm trips.
   • VOG System goes to SHUTDOWN.
   • Dryer vent blower goes to SHUTDOWN.
   • MTT and STT systems go to SHUTDOWN.

Immediate Actions:
[1] CHECK, on graphic VOG, VOG Blower B is running per ETF-45D-001.
[2] CHECK VOG filter unit dPs are within normal operating ranges per ETF-45D-001.
[4] ENSURE the dryer vent blower is operating.

Possible Causes:
1. Loss of VOG Blower A.
2. High VOG filter unit dP.
3. VOG header pressure controller, PIC-45D-001, malfunction.

(Continued on Next Page)
VOG FLOW LOW ON FAN-A, AUTO SWAP TO FAN-B

DESCRIPTION: VOG FLOW LOW ON FAN-A, AUTO SWAP TO FAN-B (FSL45D005A)
Setpoint: 500 cfm
Alarm Location: FT-45D005
Graphic: Alarm Summary Screen
Indications: N/A

References:
Drawings: None
Documents: ETF-45D-001, Vessel Off-Gas System Operation

(Continued)
VOG FLOW LOW ON FAN-B, AUTO SWAP TO FAN-A

Description: VOG FLOW LOW ON FAN-B, AUTO SWAP TO FAN-A (FSL45D005B)

Setpoint: 500 cfm

Alarm Location: FT-45D005

Graphic: Alarm Summary Screen

Indications: N/A

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. Stops the selected/operating Blower-B.
2. If backup Blower A is in AUTO mode, selects and starts backup Blower A.
3. When flow is reestablished, trips VOG FSL45D005A/B RESET REQUIRED alarm.
   OR
   If the backup Blower A is in MANUAL mode:
   • VOG system fail alarm trips.
   • VOG system goes to SHUTDOWN.
   • Dryer vent blower goes to SHUTDOWN.
   • MTT and STT systems go to SHUTDOWN.

Immediate Actions:
[1] CHECK, on graphic VOG, VOG Blower A is running per ETF-45D-001.
[2] CHECK VOG filter unit dPs are within normal operating ranges per ETF-45D-001.
[4] ENSURE dryer vent blower is operating.

Possible Causes:
1. Loss of VOG Blower B.
2. High VOG filter unit dP.
3. VOG header pressure controller, PIC-45D-001, malfunction.

References:
Drawings: None
Documents: ETF-45D-001, Vessel Off-Gas System Operation
VOG FSL45D005A_B RESET REQUIRED

DESCRIPTION: VOG FSL45D005A_B RESET REQUIRED (FSL45D005R)
Setpoint: > 500 cfm AND associated alarms (FSL45D00A or FSL45D00B) are not reset
Alarm Location: FT-45D005
Graphic: Alarm Summary Screen
Indications: N/A

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] DETERMINE, on ALARM SUMMARY, the VOG blower that shut down causing low flow.

[2] GO TO the individual alarm response listed below for specific instructions for alarm identified.

<table>
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<th>Possible Causes:</th>
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<td>1. Loss of VOG Blower A or Blower B.</td>
</tr>
<tr>
<td>2. High VOG filter unit dP.</td>
</tr>
<tr>
<td>3. VOG header pressure controller, PIC-45D-001, malfunction.</td>
</tr>
</tbody>
</table>

References:
Drawings: None
Documents: None