Operate 242-A Vessel Vent System

Tank Farm Plant Operating Procedure 242-A Evaporator

USQ # GCX-2

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-6</td>
<td>12/18/2018</td>
<td>WRPS-PER-2018-1622</td>
<td>Change from Reference to Continuous use</td>
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<tr>
<td>N-5</td>
<td>02/26/2018</td>
<td>Operations request</td>
<td>Add new step 5.1.2 “ENSURE Valve 3-1, located on the third floor of the Condenser Room, is Throttled OPEN”</td>
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<td>N-4</td>
<td>02/14/2018</td>
<td>Operations request</td>
<td>Section 4.3 296-A-22 (242-A Vessel Vent System) table: PM# ID number changed from EE-000941 to EE-201505</td>
</tr>
<tr>
<td>N-3</td>
<td>09/19/2016</td>
<td>Operations request – The 242-A vessel vent alpha CAM is not required. Operations does not need to check its PMs to start the fan. There is an ECN in progress to remove it.</td>
<td>Page 4 Field Prep Table removed the following: FSL-VV-2 Beta Loop Flow Alarm Switch (ENV) EE-000615 FSL-VV-1 Alpha CAM Flow Alarm Switch (ENV) EE-000619 PI-VV-1 Alpha CAM Vacuum Gauge (ENV) EE-001421</td>
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<td>N-2</td>
<td>05/26/2016</td>
<td>Add graphic and remove reference to the interlock.</td>
<td>Change step 5.2.3 from “ENSURE Vessel vent heater has been shut down by interlock #44” to “ENSURE Vessel vent heater TDCI-HC11 (G20/5) has shut down”</td>
</tr>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

To provide instructions for operating the 242-A Evaporator Vessel Vent System.

1.2 Scope

This procedure applies to the 242-A Evaporator Vessel Vent System, its associated equipment, and instrumentation.

2.0 INFORMATION

None

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

3.1.1 Work in radiological areas will be performed using a Radiological Work Permit following review by Radiological Control per the ALARA Work Planning procedure TFC-ESHQ-RP_RWP-C-03, (ALARA Work Planning)

3.2 Environmental Compliance

3.2.1 To ensure reporting requirements are met, all unplanned outages of the vessel vent exhaust ventilation system to include the exhaust monitoring systems, must be immediately reported to the appropriate Shift Office and Environmental per TF-REC-001.

3.2.2 Operation of the vessel vent exhauster without the exhaust monitoring systems should be minimized and not occur until the appropriate Shift Office and Environmental are notified per TF-REC-001.

3.2.3 Shutdown of the vessel vent exhaust system in co-junction with K-1 ventilation exhaust system for periods of time greater than or equal to 24 hours requires the implementation of ALARACT 29.1 controls (TFC-ESHQ-ENV-STD-06).
4.0 PREREQUISITES

4.1 Special Tools, Equipment, and Supplies

4.1.1 The following supplies may be needed to perform this procedure.
- Handle for dampers ZS-RC5-1 or ZS-FCS-2.

4.2 Performance Documents

The following documents may be needed to perform the procedure:
- TO-600-020, Perform 242-A Evaporator System Status Check and Pre-Start Operations
- TO-600-130, Operate 242-A-81 Raw Water Strainer System
- TO-620-200, Vessel Vent Ammonia Monitor
- TF-AOP-EVAP-009, Response to Process Upset
- TF-OPS-005, DST Daily CAM and Record Sampler Inspections.
4.3 **Field Preparation**

The following conditions must be met before this procedure may commence.

4.3.1 **IF** performing a Vessel Vent System start-up after a greater than 30 day shutdown, **VERIFY** the following pressure gauges and stack flow instruments have been calibrated within their required periodicity and HEPA filters have been challenge (aerosol) tested within the last 365 days in accordance with RPP-16922, Section 2.

<table>
<thead>
<tr>
<th>Equipment ID</th>
<th>PM Id</th>
<th>(√ or OS) If Calibrations/Tests are current or Out of Service/Specifications¹</th>
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<tbody>
<tr>
<td>FSL-VV-3 Stack Record Sampler LP Flow Alarm Switch (ENV)</td>
<td>EE-000607</td>
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<tr>
<td>FSL-VV-2 Beta Loop Flow Alarm Switch (ENV)</td>
<td>EE-000615</td>
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<tr>
<td>RIAS-VV-2 Stack CAM Beta/Gamma Annual Functional Test (ENV)</td>
<td>EE-201505</td>
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<tr>
<td>FL-VV-1 Exhaust Record Sampler Flow Meter (ENV)</td>
<td>EE-000707</td>
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<tr>
<td>PI-VV-3 Record Sampler Vacuum Gauge (ENV)</td>
<td>EE-001423</td>
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<tr>
<td>Record Sampler Functional Test (ENV)</td>
<td>EE-001389</td>
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<tr>
<td>TE-HC1-1 VV Heater Inlet Temp Indicator (ENV)</td>
<td>EE-106093</td>
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<td>TE-FC5-1 VV Heater Temp Indicator (ENV)</td>
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<td>PDI-F5-1A FC5-1 Dp Indicator (ENV)</td>
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<td>VV Inlet Filter FC-7 Annual Test (ENV)</td>
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<td>VV Exhaust Filter FC-5-1 HEPA Filter Annual Aerosol (ENV)</td>
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<td>296-A-22, 242-A Vessel Vent Stack Air Flow Test (ENV)</td>
<td>EE-002321</td>
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<td>Vessel Vent Stack Beta/Gamma CAM Annual Calibration (ENV)</td>
<td>EE-002494</td>
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<td>Stack Monitor System Functional Test (ENV)</td>
<td>EE-002487</td>
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<tr>
<td>PDI-DUC1-1A DUC 1 Dp Indicator (ENV)</td>
<td>EE-001881</td>
<td></td>
</tr>
</tbody>
</table>

**Special Instructions¹** With the exception of aerosol testing of filters (using a work package), do not start exhauster until all required Calibrations/Tests are current.
5.0 PROCEDURE

5.1 Start Up Vessel Vent System

5.1.1 **ENSURE** Vessel Vent Stack Radiation Monitoring System has been started up.

5.1.2 **ENSURE** Valve 3-1, located on the third floor of the Condenser Room, is Throttled OPEN.

5.1.3 **CHECK** Vessel Vent Seal Pot, located on level 2C of the Condenser Room, shows at least 3/4 full on Vessel Vent Seal Pot level gauge LG-SP-1, located on the outside of the Seal Pot.

5.1.4 **IF** Vessel Vent Seal Pot is not at least 3/4 full, **PERFORM** the following actions to fill Seal Pot.

5.1.4.1 **OPEN** Raw Water valve 2C-1, located on level 2C of Condenser Room.

5.1.4.2 **OBSERVE** level gauge LG-SP-1 for change in Seal Pot level.

5.1.4.3 **WHEN** Vessel Vent Seal Pot reaches ¾ full, **CLOSE** Raw Water valve 2C-1.

5.1.5 **CHECK** ZS-FC5-2 VES Vent 2nd HEPA Outlet Damper (F21) status is OPEN to verify that Outlet Ventilation Damper HV-FC5-2 is OPEN.

5.1.6 **CHECK** ZS-FC5-1 VES (F21) Vent 1st HEPA Inlet Damper status is OPEN to verify that Inlet Ventilation Damper valve HV-FC5-1 is OPEN.

**NOTE** - Handles have been removed from the following dampers.

5.1.7 **IF** either ZS-FC5-2 OR ZS-FC5-1 status is not OPEN, **REQUEST** Backside Operator go to Vessel Vent in the Condenser Room AND **OPEN** the damper.

5.1.8 **CHECK** YS-EXC3RL (F20) VES Vent Exh Fan Remote/Local status is REMOTE to verify EX-C-1 LOCAL/REMOTE switch, located on Vessel Vent Panel in Condenser Room, is in the REMOTE position.

5.1.9 **IF** YS-EXC3RL status is LOCAL, **REQUEST** Backside Operator go to Vessel Vent Panel in Condenser Room AND **PLACE** HS-EXC-3 LOCAL/REMOTE switch in REMOTE.
5.1 Start Up Vessel Vent System (Cont.)

5.1.10 **PERFORM** the following actions to start up Vessel Vent Exhaust Fan EX-C-1:

5.1.10.1 **SELECT** EX-C-1 (G20/6, F20) VV EXHAUSTR.

5.1.10.2 **START** the EX-C-1 fan.

5.1.10.3 **CHECK** that EX-C-1 status is CF-ON.

5.1.10.4 **CHECK** that FI-AS-5 (G20/F20) VESSEL VENT EXHAUST FLOW is indicating a consistent flow of 500 to 750 cfm.

   a. **IF** FI-AS-5 is not indicating a consistent flow of 500 to 750 cfm, **ADJUST** Valve 3-1, located on the third floor of the Condenser Room.

5.1.11 **AS** directed by Shift Manager, **NOTIFY** HPT to perform TF-OPS-005 checks.

**Start up the Vessel Vent Heater**

**NOTE** - Vessel Vent Heater ΔT can be monitored on MCS current trend #23 while controller is in manual.

- Heater output of 47 to 55% in MANUAL will yield the desired ΔT of 50 °F.

5.1.12 **PERFORM** the following actions to start up the Vessel Vent Heater in MANUAL Mode:

5.1.12.1 **SET** TDIC-HC11 (G20/5, F20) VES VENT HEATER DELTA T CONTROLR to MANUAL and output to 50.

5.1.12.2 **MONITOR** current trend #23 for TDIC-HC11 ΔT **AND** adjust accordingly to obtain 50 °F (45 to 55 °F) ΔT.

5.1.13 **AFTER** Heater temperature is stable, **PLACE** the Vessel Vent Heater in AUTO Mode as follows:

5.1.13.1 **SET** TDIC-HC11 (G20/5, F20) VES VENT HEATER DELTA T CONTROLR to AUTO and SETPOINT of 50.

5.1.14 **IF** directed by the Shift Manager or Engineering, **START** the Vessel Vent Ammonia Monitor per TO-620-200.

5.1.15 **NOTIFY** Shift Manager that Vessel Vent system is in service.
5.2 Shut Down Vessel Vent System

NOTE - Pressure fluctuations occurring from shutting down the EX-C-1 Exhauster could also result in the Weight Factor instrumentation reading Low-Low, which will shut down the PB-1 Recirculation Pump, and possibly lead to an automatic Pot Dump 8 minutes after the shutdown.

- The Vessel Vent System is normally running when the Evaporator is in operation. Shutting down the vessel vent system during operation will cause a process upset.

5.2.1 IF the Ammonia Monitor is operating, PLACE the Vessel Vent Ammonia Monitor in STANDBY MODE per TO-620-200.

5.2.2 PERFORM the following actions to shut down Vessel Vent Exhaust Fan EX-C-1:

5.2.2.1 CHECK YS-EXC3RL (F20) VES VENT EXH FAN REMOTE/LOCAL status is REMOTE.

5.2.2.2 IF YS-EXC3RL status is LOCAL, REQUEST the Backside Operator go to Vessel Vent Panel in Condenser Room AND PLACE HS-EXC-3 LOCAL/REMOTE switch in REMOTE.

5.2.2.3 SELECT EX-C-1 (G20/6, F20) VESSEL VENT EXHAUST FAN.

5.2.2.4 SHUT DOWN the EX-C-1 fan.

5.2.2.5 CHECK that EX-C-1 status is CF-OFF.

5.2.2.6 IF PB-1 (G12/6, F5) RECIRC PUMP shuts down while the EX-C-1 Exhauster is being shut down, ACTIVATE the PB-1 Shut Down Bypass to prevent an automatic Pot Dump:

5.2.2.7 SET PB1-BYPAS (G12/8, F5) PB-1 SHUT DOWN BYPASS to BYP ON.

5.2.2.8 IF directed by Shift Manager, CLOSE Valve 3-1.

5.2.2.9 NOTIFY Shift Manager of Vessel Vent Shutdown status.

5.2.2.10 IF directed by Shift Manager, GO TO TF-AOP-EVAP-009, Response to Process Upset.
5.2 Shut Down Vessel Vent System (Cont.)

5.2.3 ENSURE Vessel Vent Heater TDIC-HC11 (G20/5) has shut down.

5.2.4 IF the Vessel Vent Heater did not shut down automatically, PERFORM the following actions:

5.2.4.1 SET TDIC-HC11 (G20/5, F20) VESSEL VENT HEATER DELTA P to MANUAL and output to 0 to shut down the Vessel Vent Heater.

5.2.4.2 NOTIFY Shift Manager.

5.2.5 NOTIFY Shift Manager that the Vessel Vent System has been shut down.

NOTE - Notification must be made to the facility Environmental Compliance, within 12 hours, if the vessel vent exhauster shuts down for more than 4 hours. Environmental Compliance notification of state regulators within 24 hours may be required.

5.2.6 IF Vessel Vent System shutdown lasts for more than 4 hours, NOTIFY Environmental Compliance, within 12 hours, that stack is shutdown.

5.2.7 IF requested by Shift Manager, DIRECT HPT to shut down the Vessel Vent Radiation Monitoring System.

5.3 Records

No records are generated during the performance of this procedure.