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1.0 Purpose

The purpose of this document is to define the general procedures for Benzene Waste control equipment, and to provide guidance to the Production Unit Trainers for the development of unit specific benzene waste control equipment normal operating procedures (NOPs).

Procedures created or modified to meet the requirements of this Policy should be created in accordance with the guidelines in PS 4.0 Operating Procedures - Policy, and PS 4.0.1 Operating Procedures - Practice.

2.0 Scope

2.1 Regulatory Driver

The Consent Decree requires the establishment of normal operating procedures for benzene waste control equipment and annual training for personnel who operate benzene waste control equipment. The general and unit specific operating procedures in conjunction with the annual training requirement must be developed in order to accomplish a sustainable and robust Benzene Waste NESHAP program.

2.2 Benzene Waste Control Equipment

2.2.1 Carbon Canisters

2.2.2 Conservation Vents

2.2.3 Dry Weather Sumps

2.2.4 Flares

2.2.5 Thermal Oxidizers and Catalytic Oxidation Units

2.2.6 Oily Water Separators

2.2.7 Above Ground Oily Water Separators (NESHAP Drums)

3.0 Procedure

3.1 General Procedures and Developmental Guidance

The information listed in this section should be used by the Production Unit Trainers as guidance for developing detailed unit specific NOPs. A level 2 NOP (NOP2) or higher is required to meet the requirements of this Policy, and the procedures must incorporate all the requirements listed within this section as a minimum. In addition, annual refresher training for personnel who operate Benzene Waste Control Equipment must be developed and implemented.

The unit specific procedure must provide the following:

3.1.1 Description:

The unit specific NOPs should provide the basic function of the Benzene Waste Control Equipment and other pertinent information. For example, the description of Carbon Canisters should include information on the sources vented to each canister, the color change associated with each temperature range, and safety awareness.

3.1.2 Support Information:

The NOPs must include all support information defined in the procedures below, or identify where this information is stored.

3.1.3 Responsibilities / Procedures:

NOPs must supplement the responsibilities/procedures listed below with unit specific detail.

3.2 <u>Retention Requirements</u>

All documents, information and data required by this procedure must be retained for a minimum of 10 years or the life of the Consent Decree - whichever is longer. At that time and prior to destroying any of this information, the environmental department must be contacted to determine if the date has been extended. The types of records and documents that must be maintained include inspection records, training records, pride records, and associated preventative maintenance records.

3.3 <u>Carbon Canisters</u>

3.3.1 Description:

Carbon Canisters are vapor adsorbers used to eliminate hydrocarbons released from vents attached to waste management units.

3.3.2 Support Information:

3.3.2.1 P&ID drawing number(s) of the carbon canister(s) in which the unit is responsible for;

3.3.2.2 Preventative Maintenance plans/requirements for equipment vital to the operations of carbon canister(s).

3.3.3 Unit Operator Responsibilities:

3.3.3.1 On a daily basis a facility operator must visually inspect the exterior of the carbon canister for any discoloration of the heat sensitive paint. The color will change from a pink to purple to white color as the heat increases. If a hot spot is suspected, the operator will immediately notify his supervisor verbally. The visual inspections are to be documented in PRIDE along with the results and corrective actions taken.

3.3.3.2 In the event that MPC's carbon canister monitoring and change out contractor notifies unit operations of a suspected hot spot, a facility operator must immediately take the canister out of service.

3.3.3.3 In the event that MPC's carbon canister contractor notifies unit operation of a significant benzene breakthrough, the unit must initiate "HSSE PR-14 Isolation Policy" in preparation for the required change-out.

3.3.3.3.1 Prior to the contractor commencing the carbon canister change-out, the contractor will connect a temporary carbon canister to the bypass line to prevent the uncontrolled release of vapors during change-out.

3.3.3.3.2 The unit operator will then close the upstream and downstream canister block valves and open the canister bypass block valve to the temporary canister.

3.3.3.3.3 During the change-out process, an operator must witness the certified contractor adding 40 gallons of water to the carbon canister; this is done to reduce the possibility of overheating. (Approximately 9" in the bottom of the canister).

3.3.3.3.4 Once operations receives notification from the contractor that the change- out has been completed the following action must be performed:

3.3.3.3.4.1 First, Unit operators open the upstream and downstream carbon canister block valves and carseal (or chain and lock) closed the canister bypass block valves.

3.3.3.3.4.2 Next, Unit operators must verify that the bypass valve is closed and the carseal has been installed.

3.3.3.3.4.3 The contractor will then disconnect the temporary carbon canister.

3.3.3.3.4.4 Finally, Unit operators must inform the unit supervisor that the media change-out is complete.

3.4 Conservation Vents

3.4.1 Description:

Sewer Conservation Vents reduce the amount of vapor released to atmosphere by maintaining sewer pressure within a prescribed tolerance. The sewer conservation vent valves are dual plate type valves with position indicators.

3.4.2 Support Information:

3.4.2.1 P&ID drawing number(s) for the sewer conservation vents in which the unit is responsible for;

3.4.2.2 Preventative Maintenance plans/requirements for equipment vital to the operations of sewer conservation vents;

3.4.2.3 Procedure for resetting conservation vent valve indicator.

3.4.3 Unit Responsibilities:

The unit operator must monitor the conservation vents on the process sewers for detectable leaks on a weekly basis. In the event that sewer system pressure exceeds the allowable pressure, the air inlet plate closes and the pipe-away plate open allowing vapor to be vented to the atmosphere. It is the responsibility of unit operations to manually reset the conservation vent valve indicator and to document the time and date of the reset in the KMS system before the end of the shift. The KMS report should also document any conditions which may have contributed to the sewer overpressure, for example high rainfall or condensate going to sewers drains.

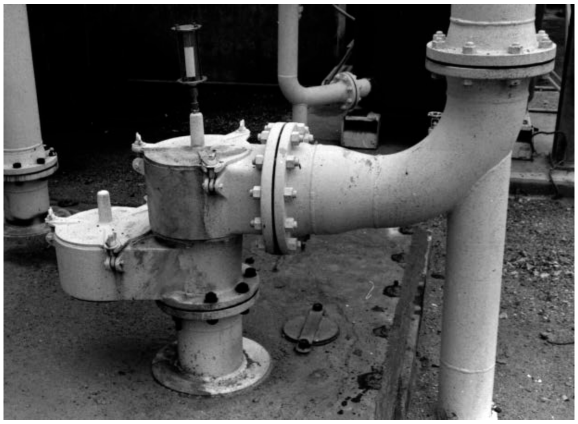

Figure 1 Sewer Conservation Vent

3.5 Dry Weather Sumps

3.5.1 Description:

Dry Weather Sumps (DWS) act as the intermediary between the Oily Water Separators (OWS) and the process water header. The DWS receives water from the OWS and then water is piped into the process water header from the DWS. Vapors from DWSs are vented to carbon canisters.

3.5.2 Support Information:

3.5.2.1 P&ID drawing number(s) of the DWS(s) which the unit is responsible for.

3.5.2.2 Preventative Maintenance plans/requirements for the pumps and level controllers

3.5.2.3 A DWS quarterly clean-out to mitigate sludge growth and to ensure proper operations of the DWS—records of this clean out must be maintained and readily accessible for review.

A requirement of the sixth (6th) amendment of the Consent Decree is to install and maintain specific equipment on the DWSs (shown in Attachment A). Each Unit's procedures must reflect the installation, operations, and maintenance of this equipment.

3.5.3 General Operating Guidelines:

The DWS operating procedure should include the following as a minimum:

3.5.3.1 Sump level Control

Each DWS should be equipped with the following:

3.5.3.1.1 Two pumps: one normal capacity and one large capacity pump (some may only be equipped with one pump).

3.5.3.1.2 Two level transmitters: One guided wave radar level transmitter and a magnetostrictive level transmitter. The operator has the option of selecting which level transmitter to use for level control.

3.5.3.1.3 A flow loop measuring total liquid flow from the pump discharge.

3.5.3.1.4 Flow loop on the pump minimum flow bypass line.

3.5.3.1.5 The flow loop measuring total flow from the sump controls the

VFD through a level controller and the setpoint for the flow controller is provided by the sump level controller.

3.5.3.1.6 A pressure loop measuring header pressure.

3.5.3.2 Initial Start-Up

3.5.3.2.1 The normal capacity pump is used for normal level control of the sump level. The normal capacity pump is designed to run continuously with the pump speed controlled by the cascaded level loop via the VFD controller.

3.5.3.2.2 The initial start-up of the normal capacity pump commences once the board operator selects one out of the two level transmitters to use as the input for the level controller. A deviation alarm informs the DCS operator if the two level inputs differ by more than 5%.

3.5.3.2.3 The normal capacity pump starts once the sump level rises to the setpoint level.

3.5.3.2.4 The speed of the pump is determined by the cascade loop. The level controller's set point is 50% and the flow controller's set point is determined by the output of the level controller. The flow controller's output controls the speed of the normal capacity pump. The normal capacity pump will continue to run indefinitely, provided that set point and normal operations are maintained.

3.5.3.3 Normal Operation

The Dry Weather Sump is in normal operation when the normal capacity pump has finished the initial start up, adequate flow has been established, and proper level is being maintained. The normal capacity pump will continue to operate in this mode indefinitely.

3.5.3.4 Abnormal Operation

3.5.3.4.1 Loss of Flow: while in normal operations, if flow at either the process water header flow loop or the pump minimum flow bypass loop falls below the established low flow set points and stays below these set points for an extended time, the normal capacity pump will shut down.

3.5.3.4.2 High Level in Sump: if the level in the sump rises and the normal capacity pump cannot maintain set point the high level alarm will sound once the level reaches the high level alarm setpoint. Once the level increases to the high-high level setpoint, the High-High level alarm sounds in DCS, the large capacity pump starts, and the normal capacity pump stops. The high capacity pump will continue to run until the sump level falls to the Low-Low level alarm set point. At this point the Low-Low level alarm sounds on the DCS and the large capacity pump turns off.

3.5.3.5 DWS Monitoring and Troubleshooting

3.5.3.5.1 Unit operators are responsible for collecting water samples from their DWS at least once per day and having it analyzed by the Laboratory for Benzene. Operations are responsible for monitoring the results and making adjustments as necessary. A high benzene result is a possible indication that the OWS may not be functioning correctly, or that there are high benzene wastes being sent to the sewers. Each unit should have an NOL established in their COLT table for their DWS benzene, and a procedure developed for troubleshooting and reducing high benzene in their dry weather sump.

3.6 Flares

3.6.1 Description:

Flares limit the release of benzene vapors to the atmosphere by thermal incineration.

3.6.2 Support Information:

3.6.2.1 The P&ID drawing number(s) for the flare(s) in which the unit is responsible for;

3.6.2.2 Type of device(s) used to monitor the pilot flame(s);

3.6.2.3 The name and location of the appropriate operating procedure(s) for restoring pilot;

3.6.2.4 Flare operating permit.

3.6.3 Responsibilities:

According to 40 CFR 60.18.C.2: Flares shall be operated with a pilot flame present at all times. The presence of a flare pilot flame shall be monitored, by operations, using a thermocouple or any other equivalent device to detect the presence of a flame. In the event that a pilot flame is not present, operations should follow the appropriate operating procedure(s) to restore the pilot flame and make a KMS detailing the pilot outage event.

3.7 Thermal Oxidizers and Catalytic Oxidation Units

3.7.1 Description:

Similar to flares, thermal oxidizers and catalytic oxidation units limit the release of benzene vapors to the atmosphere by thermal incineration. The critical operating parameters for these devices are the combustion temperature and gas residence time within the firebox of the unit. The combustion temperature should be monitored such that the temperature does not fall below the design operating temperature. The flow to the unit should not exceed the design flow to ensure the minimum residence time is achieved at all times.

3.7.2 Support Information:

3.7.2.1 The P&ID drawing number(s) for the thermal destruction unit(s) which the unit is responsible for;

3.7.2.2 Type of device(s) used to monitor the temperature and flow;

3.7.2.3 The name and location of the appropriate operating procedure(s) for restoring combustion temperature, and/or reducing flow to within normal operating limits;

3.7.2.4 Start-up, shut down and troubleshooting procedures;

3.7.2.5 Operating permit for thermal destruction device.

3.7.3 Responsibilities:

In the event that the combustion temperature falls below the design operation temperature, operations should follow the appropriate operating procedure(s) to restore combustion temperature as soon as possible to the design NOL.

If the thermal destruction unit(s) is to be taken out of service for maintenance or other reasons, unit operations must develop an alternate plan for management of waste gases in a BWON controlled fashion (e.g. activated carbon).

3.8 Oily Water Separators

3.8.1 Description:

Unit Oily Water Separators (OWS) operate on the principle of Stokes' law. The primary function of an OWS is to separate commingled oil and water influent from the below ground sewer. The separated oil is sent to oil slop, and the water flows into the Dry Weather Sump (DWS). The OWS and DWS operate in conjunction to prevent hydrocarbons from entering non-BWON controlled OSBL sewers. Vapors from OWS are vented to carbon canisters or flares.

3.8.2 Support Information:

3.8.2.1 The P&ID drawing number(s) of the OWS(s) which the unit is responsible for.

3.8.2.2 An OWS clean-out requirement; this should be done to mitigate sludge accumulations and to ensure proper operations of the OWS—records of this clean out must be maintained and readily accessible for review.

Operations is responsible for checking and adjusting the oil skimmers to suit the flow conditions from the unit in order to ensure free oil does not enter the DWS. It is suggested that this is performed twice per shift. An indication that the skimmer needs adjustment is the presence of free oil in the DWS and/or a high benzene concentration detected in the DWS daily benzene sample (refer to DWS Monitoring and Troubleshooting).

3.8.3 General Procedure:

This general procedure should only be used as guidance.

3.8.3.1 Open the hatch located directly above the oil skimmer.

3.8.3.2 Perform visual inspection on the oil skimmer: determine if adjustment is necessary.

3.8.3.3 If adjustment is not necessary close the hatch immediately and tighten.

3.8.3.4 If adjustment is necessary use the pull chains (located directly above the hatch) to either increase or decrease the height of the oil skimmer.

3.8.3.5 Once adjustment is complete, close hatch immediately and tighten.

3.8.3.6 Repeat this procedure as needed to ensure optimal skimming.

3.9 NESHAP Drums (Above Ground Oily Water Separators)

3.9.1 Description:

Similar to below grade Unit Separators, above ground oil water separators (commonly referred to as NESHAP drums) also operate on the principle of Stokes' law. The primary function of the NESHAP drum is to separate commingled oil and water influent from process wastewater streams. NESHAP drums are typically much larger than unit separators, and process much higher flows directly from the process. They also have fixed internal weirs for oil water separation. The separated oil is sent to slop, and the water phase is either pumped directly to the process wastewater header, or to the process wastewater header via the unit OWS/DWS system. Vapors from OWS are vented to carbon canisters or flares.

3.9.2 Support Information:

3.9.2.1 The P&ID drawing number(s) of the NESHAP drum which the unit is responsible for.

3.9.2.2 Established operating conditions for the NESHAP Drum.

3.9.2.3 Operations is responsible for checking and adjusting the operation of the NESHAP drum to ensure free oil does not reach the process wastewater header or the OWS/DWS system. Unit operators are responsible for collecting water samples from their NESHAP drum at least once per day and having it analyzed by the Laboratory for Benzene. Operations are responsible for monitoring the results and making adjustments as necessary. A high benzene result is a possible indication that the NESHAP drum or the upstream process is not operating as intended. Each unit should have a and NOL established in their COLT Table for their NESHAP drum effluent benzene, and a procedure developed for troubleshooting and reducing high benzene in the effluent of their NESHAP drum.

4.0 Definitions

4.1 None

5.0 References

5.1 None

6.0 Attachments

6.1 Attachment A: Dry Weather Sump Reliability Project Scope

7.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original Issue.	M.K. Alberts	M.J. Berlinger	03-Jun-11	03-Jun-11
1	Reformatted as MPC GBR Procedure	M.K. Alberts	B. Contractor	28-Sep-14	28-Sep-14

Attachment A

Dry Weather Sump Reliability Project Scope

Appendix P:

Dry Weather Sump Reliability Project Scope

Unit	Existing Pump/Level Control	Pump Project Modification Details	Level Control Modification Details
ULC East	1 Progressing Cavity Pump	Add one centrifugal pump, operate in parallel with progressing cavity pump	Upgrade to Radar
ULC West	1 Progressing Cavity Pump	No pump change	Upgrade to Radar
RHU East	2 Progressing Cavity Pumps	Second progressing cavity pump operates as a spare	Upgrade to Radar
RHU West	2 Progressing Cavity Pumps	Second progressing cavity pump operates as a spare	Upgrade to Radar
CFHU	1 Progressing Cavity Pump	No pump change	Upgrade to Radar
DDU	1 Progressing Cavity Pump	No pump change	Upgrade to Radar
PS 3A	2 Centrifugals	No pump change	Upgrade to Radar
PS 3B	2 Progressing Cavity Pumps	Replace one progressing cavity pump with a centrifugal	Upgrade to Radar
PS 3B Proto	1 Progressing Cavity Pump	Add one centrifugal pump	Upgrade to Radar
FCU 3 South	2 Progressing Cavity Pumps	Replace one progressing cavity pump with a centrifugal	Upgrade to Radar
FCU 3 North	1 Centrifugal pump	Replace the centrifugal with another centrifugal	Upgrade to radar
AU2	1 Progressing Cavity Pump, radar level	No changes	No changes
ARU	1 Progressing Cavity Pump	Add 1 centrifugal to operate in parallel with progressing cavity pump	Upgrade Radar
UU4	1 Progressing Cavity Pump	Add 1 centrifugal to operate in parallel with progressing cavity pump	Upgrade Radar
Env Facility LS 1	2 Progressing Cavity Pumps	No pump modifications	Upgrade to Radar
Env Facility LS 3	2 Progressing Cavity Pumps	No pump modifications	Upgrade to Radar

UU3 East	1 Progressing Cavity Pump	No pump modifications	Upgrade to Radar
UU3 West	1 Progressing Cavity Pump	No pump modifications	Upgrade to Radar
RDU	1 Progressing Cavity Pump	No pump modifications	Upgrade to Radar
Coker	1 Centrifugal pump	Add 2nd centrifugal pump	Upgrade to Radar
FCU 1	1 Centrifugal pump, Radar level	No changes	No changes
OMCC	No dry weather sump	NA	NA