

DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION  
ACTIVITY REPORT: Scheduled Inspection

A404351139

FACILITY: Dow Silicones Corporation		SRN / ID: A4043
LOCATION: 3901 S Saginaw Rd, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Jennifer Kraut , Air Specialist		ACTIVITY DATE: 10/17/2019
STAFF: Gina McCann	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MEGASITE
SUBJECT: FGSITEBLOWER and FGSITESCUBBERS		
RESOLVED COMPLAINTS:		

Inspection Date: 10/17/2019

Inspection Started: 8:30

Inspection Ended: 12:00

DOW Silicones/EGLE-AQD staff present during the inspection:

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Jennifer Kraut (Air Specialist, DOW Silicones)
- Matt Miner (THROX building Engineer, DOW Silicones)
- Jackie Urbanek (Analyzer Technician, DOW Silicones)

Records reviewed as part of the inspection were:

- ROP Annual report for 2018
- ROP Semi-Annual report for reporting period 1/1/2019-6/30/2019

**FGSITESCUBBERS**

Site-wide water scrubber system. FGSITESCUBBERS will remove HCl and chlorosilanes from the FGSITEBLOWER consolidated vent system prior to discharge to atmosphere when the site wide Thermal Oxidizer system is not operating properly. The most recent PTI for this emission unit is 91-07E.

Special Condition (SC) I.1. restricts the plant to 7.1 pound per hour (pph) of benzene when EUTHROX is not operating and the site wide water scrubber system is serving as the back-up control device. SC III.1. restricts operation of the FGSITESCUBBERS unless the plant has an approved Benzene Emissions Management and Monitoring Plan (BEMMP) for demonstrating compliance with the emission limit for FGSITESCUBBERS.

The most recent BEMMP was received on February 16, 2018. To demonstrate compliance with the benzene limit, two online gas chromatography (GSs), one on the dry vent stream and one on the wet vent stream, continuously measure the feed compositions. Additionally, a flow meter was installed on both vent lines to measure flow (pph and/or scfm) while venting to FGSITESCUBBERS. The GCs grab a vent sample approximately every 30 minutes. Once analysis is completed, the results are loaded on to the network. Using the benzene concentration in conjunction with the average hourly flow rate an hourly benzene emission rate is determined. On a monthly basis, the data is compiled, and the benzene flow rates are checked for compliance. Since the site scrubbers do not control for benzene it is assumed 100% of the benzene entering the scrubbers is lost to atmosphere. The BEMMP places corrective action if the plant reaches the benzene rate of 6.8 pph at any time while venting to FGSITESCUBBERS.

During the inspection, we viewed the benzene emission rates. The plant provided hourly benzene concentrations for both the wet and dry vents for the time period January 1, 2017 through October 19, 2019. The total max benzene concentration, during this time period, was 0.60 pph.

SC III.3. restricts SV2703-011 from bypassing EUTHROX, unless SV2703-011 is routed to the control equipment specified in EU2703-03 and the control equipment is installed, maintained, and operated in a satisfactory manner. On February 14<sup>th</sup>, 2019 I inspected EU2703-03 and the associated SV2403-011. EU2703-03 consists of vent compressor 22790 and vent condenser 22795. Vent compressor 22790 and vent condenser 22795 were not vented to in 2018. The plant has installed an interlock to vent to the THROX instead, under permit exemption R285(2)(f). However, in order to use exemption R285(2)(f), the

plant must be able to comply with the exclusion from exemption R278(4), which says the exemptions in R336.1280 to R336.1291 apply to the requirement to obtain a permit to install only and do not exempt any source from complying with any other applicable requirement or existing permit limitation.

According to Mr. Miner, if SV2703-011 is diverted from EUTHROX it is prevented from going to FGSITESCUBBERS. Ms. Kraut stated, EU2703-011 will “bottle up” emissions since they cannot route back to the control equipment specified in EU2703-03. At the time of the inspection for EU2703-03, AQD staff accepted the use of R285(d) for the installation of locking out the vent compressor 22790 and vent condenser 22795. In lieu of discovering the conflicting permit condition listed under FGSITESCUBBERS, SC III.3. the Division will be sending a notice of non-compliance.

SC III.4. restricts SV303-050 from bypassing EUTHROX, unless SV303-050 is routed to the control equipment specified in EU303-06 and the control equipment is installed, maintained, and operated in a satisfactory manner. EU303-06 lists condensers (1637, 3458, 3475, 1623, 1645, 3303, 3307) and a carbon drum as the control equipment. During the inspection on May 8, 2019, it appeared EU303-06 had the capability to vent to the control devices listed and EU303-06 also utilized those controls. It appears SC III.4 is being met.

SC III.5. requires that proper operation of the site wide water scrubbers includes the total scrubber water flow rate to meet the minimum flow rate specified in the MAP. The most recent MAP is dated February 14, 2018, which requires the liquid rate flow to each section, when handling emissions, to be greater than 50 gallons per minute (gpm) and greater than 40 gpm when in standby. Mr. Miner explained the plant typically operates one tower, either east (23709) or west (23710), at a time, though they can operate both towers simultaneously. Each tower has a city (fresh) water flow and a sump (recycle) water flow, which will equal 100 gpm when operated properly. SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to keep, in a satisfactory manner, continuous records of scrubber flow rates for the site wide water scrubbers. I reviewed liquid flow rates for both the east and west towers for the time period January 1<sup>st</sup>, 2017 through October 19<sup>th</sup>, 2019. During this period of time, either the west or east tower was operating properly when emissions were vented to them.

SC VI.1. requires the plant to install, calibrate, maintain and operate in a satisfactory manner a device to monitor the water flow rates for the site wide water scrubbers on a continuous basis, whenever the vents comprising FGSITEBLOWER are not routed to the THROX. The plant provided calibration records for the flow transmitter for the last two years. At the time of the inspection, the plant was meeting this requirement.

SC VI.3. requires the plant to keep, in a satisfactory manner, records demonstrating that the BEMMP is being implemented and maintained as required by SC III.1. The BEMMP requires the Process Stream Analysis (PSA) shop to conduct verifications of the calibration for the GCs. Calibration checks are scheduled on a monthly basis. During the inspection I was provided with two years worth of calibration records. Ms. Jackie Urbanek, Analyzer Technician, provided an overview of how she calibrates the GCs and the data verification process. The plant appears to be meeting this requirement.

SC VII.1. through VII.3 are related to compliance reporting as required under the ROP program. See Compliance Reporting section of this report.

### **Compliance Reporting**

*No deviations were reported for the time period January 1, 2018 through December 31, 2018 or for the time period January 1, 2019 through June 30, 2019.*

### **FGSITEBLOWER**

Site vent consolidation and blower system that collects vapor streams from numerous emission units and vents throughout the facility and routes them to either the on-site thermal oxidizer with heat recovery (EUTHROX) or to a site-wide water scrubber system. There are two parts to the site vent consolidation and blower system: a dry vent header system for water reactive vents and wet vent header system for vents that can contain water. The most recent PTI for this emission unit is PTI No. 91-07E.

- Site wide thermal oxidizer system (THROX) or site-wide water scrubber system.

SC IV.1 restricts operating the emission units in FGSITEBLOWER unless they are routed to EUTHROX or the site wide water scrubbers. When EUTHROX is operating properly, any emission vents at Midland Plant that are part of FGSITEBLOWER, which is routed to EUTHROX, and that have air pollution control equipment in addition to EUTHROX, shall have the ability to bypass the additional air pollution control equipment or operate the additional air pollution control equipment with parameters at levels or ranges outside of the specified parametric ranges or levels in their individual ROP tables. When EUTHROX is not operating or is not operating properly as defined in the MAP, any emission vents at Midland Plant that are part of FGSITEBLOWER and that have air pollution control equipment in addition to EUTHROX shall be handled as described in the MAP. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to record the time and duration of each bypass episode wherein the vents comprising FGSITEBLOWER are not routed to EUTHROX. I reviewed records from January 1<sup>st</sup>, 2017 through October 16, 2019. At the time of the inspection the plant was meeting this requirement.

SC VII.1. through VII.3 are related to compliance reporting as required under the ROP program. See Compliance Reporting section of this report.

**Compliance Reporting**

*No deviations were reported for the time period January 1, 2018 through December 31, 2018 or for the time period January 1, 2019 through June 30, 2019.*

NAME Maria R. McCann DATE 10/31/2019 SUPERVISOR C. Hare