

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

A404351377

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: 11/07/2019
STAFF: Gina McCann	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU502-04 EU502-09 and EU502-11		
RESOLVED COMPLAINTS:		

Inspection Date: 11/7/2019

Inspection Started: 8:30

Inspection Ended: 14:30

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

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Jennifer Kraut (Air Specialist, DOW)
- Brandon Bishop (EHS Specialist, DOW)
- Alex Wright (Production Engineer for 502, DOW)
- Maria Allen (Production Engineer for 515 Building, DOW)

Records reviewed as part of the inspection were:

- ROP Annual Report for 2018 (1/1/2018-12/31/2018)
- 1st Semi-Annual Report for 2019 (1/1/2019-6/30/2019)

EU502-04

This emission unit contains container maintenance and wash area for the High Volume Silanes production facility. It prepares rail cars, tank trucks, isotainers, vacuum trucks, and dempsters for required reoccurring Department of Transportation inspections or for other maintenance. There is a nitrogen purge for some containers. This is intended to remove all volatiles from the container. Emissions from nitrogen purging are exhausted to the facility's thermal oxidizer (THROX). The most recent PTI for this emission unit is PTI No. 18-18.

Special Condition (SC) II.1. restricts the hourly rate of total SiO₂ equivalents loading to EUTHROX to 40 pounds per hour (pph). SC VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to keep a record of the maximum total SiO₂ equivalents loading to EUTHROX from EU502-04 on a one-hour basis. A worst case scenario demonstration was provided during the inspection. The worst case assumes all Si atoms sent to FGTHROX are converted to SiO₂. The total uncontrolled SiO₂ from Q8-6011 rail car would be 31.01 pph and the total uncontrolled SiO₂ emissions from Q1-2333 rail car would be 4.15 pph, for a combined, uncontrolled, total of 39.31 pph.

SC I.1. restricts VOC emissions to 300 pounds per hour (pph) and SC I.2. restricts methylated siloxanes to 300 pph, based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to shall calculate the VOC emission rate and methylated siloxanes emission rate from EU502-04 monthly, for the preceding 12 month rolling time period. For the 12-month rolling time period ending September 30, 2019, the plant emitted 12.35 pph of VOCs and 0.26 pph of methylated siloxanes.

SC II.2. restricts the total SiO₂ equivalents loading to EUTHROX to 6400 pph, based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.4. is the associated monitoring and recordkeeping requirement that requires the plant to calculate the total SiO₂ equivalents loading to EUTHROX monthly, for the preceding 12-month rolling time period, using the equations in Appendix 7. For the 12-month rolling time period ending September 2019 SiO₂ equivalent loading to EUTHROX was 3,080 pph.

SC IV.1. restricts operation of nitrogen purging exhausted to EUTHROX, unless EUTHROX is installed, maintained, and operated in a satisfactory manner. Satisfactory operation of EUTHROX includes complying with the requirements of FGTHROX. FGTHROX was last inspected on November 11, 2017. The inspection indicated FGTHROX was operating satisfactorily.

SC I.1 and SC I.2 restricts VOC and Methylated siloxanes emissions, respectively, to 300 pounds per year (lb/yr). SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to calculate the VOC emission rate and methylated siloxanes emission rate from EU502-04 monthly, for the preceding 12-month rolling time period. Emissions records are in the table below.

SC VI.5. requires the plant to keep a current description of each activity carried out in EU502-04 and the base calculation for that activity. This is the default calculation, basis, for the emissions calculation. The description will include the size, type, and number of containers and the raw material and amount of that raw material that is used to calculate emissions to show compliance with the emission limits in the emission table. The plant provided emissions master models with the description of the activity, which included the type/size of container, the number of containers and the emission amount associated with that. Mr. Wright explained that the bulk move crew enters container name, number, material name and location venting from on a sheet. The production engineer will enter this into the emissions reporting database (ERD), and emissions masters calculates the emissions based off this information. At the time of the inspection the plant appeared to be meeting this condition.

SC VI.6. requires the plant to keep monthly records of all activities carried out in EU502-04 that emit air contaminants, including the number of containers washed and the composition of materials involved. The plant shall cross-reference these records with the activity-specific description required by EU502-04 SC VI.5 in a manner that demonstrates compliance with the emission limits in SC I.1 through I.39. I reviewed records for the 12-month rolling time period ending September 30, 2019. The table below compares emissions to their corresponding emission limits.

Pollutant	Limit	Emissions for 12-month rolling time period ending September 2019
1. VOC	300 lb/yr	12.35 pph
2. Methylated siloxanes	300 lb/yr	0.26 pph
3. Benzene (CAS Number 71-43-2)	1 lb/yr	0.104 pph
4. Biphenyl (CAS Number 92-52-4)	0.2 lb/yr	0.049 pph
5. Methylallyl chloride (CAS number 563-47-3)	0.4 lb/yr	0.178 pph
Emission limits for TACs with a screening level based on a 24-hour averaging time		
27. Each Category 6 TAC	0.610 lb/hr	0.039 pph
28. Each Category 7 TAC	6.10 lb/hr	0.039 pph

Pollutant	Limit	Emissions for 12-month rolling time period ending September 2019
Emission limits for TACs with a screening level based on an annual averaging time		
33. Each Category 4 TAC	0.376 lb/yr	0.178 pph
34. Each Category 5 TAC	3.76 lb/yr	0.105 pph

SC VI.7 requires the plant to maintain record in VI.8 for TACs processed in EU502-04 for which the AQD has neither established a screening level nor identified which emission limits in SC I.1. through I.39 apply to the TAC. The plant sent a request on November 5, 2018 to emit 1-Hexene(CAS # 592-41-6), which contained the required recordkeeping from SC VI.8 and VII.1. The response sent on December 3, 2019 approved the request based on the demonstration, the emissions would meet the Rule 226(a) Category requirements. During the inspection DSC staff discussed that in August 2019, the plant was asked to stop venting to THROX because there were operational challenges occurring. At this time the 502 plant discovered they were purging a material that had not been approved. The material (CAS # 27490-70-6) was from the 2703 building. I have asked for a demonstration to determine if the AQD would have approved if appropriately notified. The demonstration will be submitted by 1/24/2020.

SC VI.9. requires the plant to keep records of nitrogen purging activities for each calendar month, noting all occasions when nitrogen purging was interrupted because EUTHROX was not installed, maintained, and operated in a satisfactory manner. I reviewed records from January 2019 through October 2019. Interruption of nitrogen purging activities when EUTHROX was not installed, maintained, and operated in a satisfactory manner, correspond with times previously received regarding EUTHROX. The plant appears to be in compliance with this requirement.

Compliance Reporting

First Semi-Annual ROP deviation report for 2019 5/14/2019

- (10 minutes), 6/21/2019 (11 minutes), 6/21/2019 (5 minutes) Container maintenance operations continued after vents were diverted away from FGTHROX. Corrective Action: A project is under way to automatically and immediately stop all container maintenance purges when the dry vent diverts from FGTHROX. This new system should be operational by November 1, 2019. During the inspection I verified the project had been completed.
- One chemical does not appear in the Rolling 12-Month Emissions Reports for July 2018, September 2018, and December 2018. In addition, these Rolling 12-Month Emissions reports do not provide total emissions for methylated siloxanes to validate compliance with the annual emissions limit for the methylated siloxanes category. Corrective Action: The Environmental Reporting Database was updated to include a functionality to provide a report of emissions for only methylated siloxanes to provide confirmation of compliance with the 12-month rolling average. A spreadsheet was created to record emissions of chemicals that are subject to rolling 12-month average limits, but that were too small to document within the computerized system as being emitted during the 12-month time period. The spreadsheet will supplement the 12-month rolling time period report generated by the computerized system.

EU502-09

This is a chlorosilane waste tank 25403 for phenyl supply chain located in the 502 tank farm. The most recent PTI for this emission unit is PTI No. 91-14.

SC III.1. restricts the plant from loading any tank truck or railcar from EU502-09 unless the THROX or the vapor balance system is installed, maintained, and operated in a satisfactory manner. During the inspection, we discussed the operators' procedure for loading a tank truck or railcar. At the time of the inspection it seemed that the plant was meeting this requirement.

SC IV.1. restricts operation of EU502-09 unless the emissions are routed to FGTHROX or FGSITESCRUBBERS and the control device (FGTHROX or FGSITESCRUBBERS) is installed, maintained, and operated in a satisfactory manner. FGTHROX was last inspected on November 11, 2017. The inspection indicated FGTHROX was operating satisfactorily. FGSITESCRUBBERS was last inspected on October 17, 2019 and appeared to be operating satisfactorily.

Compliance Reporting

No deviations were reported for the time period January 1, 2019 through June 30, 2019.

EU502-11

This emission unit is a chlorosilane waste tank 256 in the 2502 tank farm, with nominal capacity of 20,000 gallons. The tank receives liquid waste from various emission units at the facility and can be unloaded to either tank trucks or railcars. The tank typically vents to the site thermal oxidizer (THROX). In the event the THROX is offline, the tank vents to one of the parallel site scrubbers. If both the THROX and the site scrubbers are unavailable, the tank vents to one of the 337 tower scrubbers. The most recent PTI for this emission unit is PTI No. 132-15.

SC I.1. restricts VOC emissions to 1.9 ton per year (tpy), based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.4 is the associated monitoring and recordkeeping requirement that requires the plant to calculate the VOC emission rate from EU502-11 monthly, for the preceding 12-month rolling time period. For the 12-month rolling time period ending September 2019, VOC emissions were 50.84 pounds.

SC III.1. restricts operation unless the plant only transfers the 3295 vessel and column bottoms stream from 311 building to EU502 11 when emissions from the transfer are being exhausted to the THROX and the THROX is installed, maintained, and operated in a satisfactory manner. FGTHROX was not reviewed during this inspection. The last inspection on November 8, 2017 indicates FGTHROX was in compliance with its permit conditions, indicating that it was installed, maintained and operated in a satisfactory manner.

SC IV.1. restricts operation of EU502-11 unless all emissions are vented to one of the emission control devices listed below and the emission control device is installed, maintained, and operated in a satisfactory manner. SC VI.2. is the associated recordkeeping that requires the plant to keep a monthly record of the time periods when emissions from EU502-11 are vented to each emission control device listed in SC IV.1. I reviewed records for the 12-month rolling time period ending September 2019. Emissions were routed to one of the control devices listed during operation. Each control, the THROX, site scrubbers and 337 scrubbers had been inspected within the last two years and were determined to be installed, maintained and operating properly at the time of their inspection. The plant was in compliance with this requirement at the time of this inspection.

SC IV.2. restricts the plant from transferring material from EU502-11 to DV15G railcar station or to DVST-61 trailer station unless the transfer is vapor balanced and the vapor balance equipment is installed, maintained, and operated in a satisfactory manner. During the inspection we viewed the transfer area and discussed the vapor balance lock system that is in place. The plant was meeting this requirement at the time of the inspection.

SC VI.3. requires the plant to keep a monthly record of the identity and source of waste streams transferred to EU502 11. For the 3295 vessel and column bottoms stream from 311 building, the record shall also include the date and time during which the stream was transferred to EU502-11. I reviewed records from August 2018 through September 2019. Monthly records of the identity and source of waste

streams transferred to EU502-11 was maintained. The plant does not receive column bottoms stream from 311 building. They wanted the flexibility to be able to, thus the reason for permitting this way.

Compliance Reporting

No deviations were reported for the time period January 1, 2019 through June 30, 2019.

NAME Wina R. McCann DATE 12/20/19 SUPERVISOR C. Kane