

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

A404352179

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|--|-------------------------------|---------------------------|
| 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: 01/16/2020 |
| STAFF: Gina McCann                       | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MEGASITE    |
| SUBJECT: Eu601-01 and EU604-08           |                               |                           |
| RESOLVED COMPLAINTS:                     |                               |                           |

Inspection Date: 1/16/2020  
Inspection Started: 8:30  
Inspection Ended: 15:00

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

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Chukuemeka, Oje (EGLE-AQD, Permit Engineer)
- Jennifer Kraut (Air Specialist, DOW MiOps)
- DJ Droste (EHS Specialist, DOW MiOps, 604 support)
- Brandon Bishop (EHS Specialist, DOW MiOps, 601 support)
- Kevin Srebinski (Process Engineer, 604 Process)
- Daniel Timer (Process Engineer, 601-01 Process)
- David Frketic (Process Engineer, 601-01 Process)

Records reviewed as part of the inspection were:

- ROP Semiannual report for reporting period 1/1/2019-6/30-2019
- 40 CFR Part 64 CAM excursion/exceedance report for 1/1/2019-6/30-2019
- 40 CFR Part 63 Subpart FFFF report for reporting period 1/1/2019-6/30-2019

#### EU601-01

Alkoxylation process including kettle, condensers, storage tanks, distillation columns, drum off station equipment, scrubbers, and other related equipment. Includes filler handling and loading for alkoxylation manufacturing. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF. EU601-01 is a CAM subject emission unit subject to the requirements of 40 CFR Part 64. The most recent PTI for this emission unit is PTI No. 534-77G. The pollution control devices for this unit are as follows:

- Venturi scrubber 24683 This is a CAM subject device for VOC and Methyl Chloride.
- Emergency vent scrubber 5309. This is a CAM subject device for VOC and Methyl Chloride.
- Filters (1-5382, 2-5382, 3-538, and 4-5382)
- FGTHROX

At the time of the inspection the plant appeared to be in compliance with applicable state and federal regulations.

Special condition (S.C.) I.1. restricts VOC emissions to 19.0 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 keep records as required to demonstrate compliance with the emission limits of this table. Emission totals shall be calculated using the method described in Appendix 7, Section 7.11. A monthly summary of these emissions shall be made available to the AQD upon request. Within 30 days, following the end of each calendar month, the applicant shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals of this table. I reviewed emissions records for the 12-month rolling time period ending November 2019. VOC emissions were 0.27 tpy.

S.C. I.8. restricts HCl emissions to 0.36 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 keep records as required to demonstrate compliance with the emission limits of this table. Emission totals shall be calculated using the method described in Appendix 7, Section 7.11. A monthly summary of these emissions shall be made available to the AQD upon request. Within 30 days, following the end of each calendar month, the applicant shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals of this table. I reviewed emissions records for the 12-month rolling time period ending November 2019. HCl is sent to 311 building where it is recovered. HCl emissions were 0.00 tpy.

S.C. III.1. requires the upper liquid flow rate of scrubber 24683 to be at least 8 gallons per minute and the lower liquid flow rate of scrubber 24683 to be at least 3 gallons per minute. Scrubber 24683 is a CAM subject device for VOC and Methyl Chloride, therefore deviating from these parameters is an excursion and upon detecting an excursion of the liquid flow rates limits, the permittee shall restore operation of scrubber 24683 to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. SC VI.1. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the scrubber liquid flow rate of scrubber 24683. During the inspection the upper liquid flow rate was 10.0 gallons per minute (gpm) with a secure process alarm (SPA) set at 8.5 gpm. The lower liquid flow rate was 7.0 gpm and the SPA was 3.5 gpm. The plant also is controlled by FGTHROX to meet MON MACT, 40 CFR Part 63 Subpart FFFF, requirements. I reviewed liquid flow rates from January 1, 2019 through January 15, 2020. When emissions were routed to it, scrubber 24683 operated in a satisfactory manner.

S.C. III.2. requires the liquid flow rate of scrubber 5309 to be at least 18.0 gallons per minute during startup, shutdown, or emergency shutdown episodes. Scrubber 5309 is a CAM subject device for VOC and Methyl Chloride, therefore deviating from these parameters is an excursion and upon detecting an excursion of the liquid flow rates limits, the permittee shall restore operation of scrubber 5309 to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. S.C. VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the scrubber liquid flow rate of scrubber 5309 at least once during an emergency shutdown episode, during a startup, or during a normal shutdown. During the inspection the liquid flow rate of scrubber 5309 was 27.1 gpm with a SPA set at 18.0 gpm. Scrubber 5309 has not been used in an emergency for the past three years. This scrubber is brought online as a backup when scrubber 24683 has maintenance being performed.

S.C. III.3. restricts operating the MeViDES production operation for more than 5610 hours per year, annually, based on a 12-month rolling time period as determined at the end of each calendar month. S.C. VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to log the hours of operation of the methylvinyl-diethoxysilane (MeViDES) production operations. The plant no longer produces this material.

S.C. IV.1. restricts operation of EU601-02 unless scrubber 24683 is installed, maintained, and operated in a satisfactory manner, and unless backup scrubber 5309 is maintained and, when necessary, operated in a satisfactory manner. EU601-02 also utilizes FGTHROX as a Group 1 control device per the MON MACT. This condition should be revised in the PTI to allow for control by FGTHROX. After this inspection, internal conversations were had regarding compliance with this condition. The plant is not in compliance with this condition. However, a violation notice will not be sent, because the facility is undergoing a site wide look at permits and will be re-permitting this plant as part of that. FGTHROX has a >99% control efficiency and emissions appear to be effectively controlled by it.

S.C. IV.2. Restricts operation of the startup/shutdown/emergency shutdown scrubber vent (601-005) unless scrubber 5309 is installed, maintained, and operated in a satisfactory manner. During the inspection we viewed the location of scrubber 5309. Maintenance is performed annually.

S.C. IV.4. requires the plant to equip and maintain scrubbers 24683 and 5309 with a liquid flow indication device. The plant was in compliance with this condition at the time of the inspection.

S.C. IV.4. requires the plant to calibrate the liquid flow indicator for scrubbers 24683 and 5309 in a satisfactory manner. Flow transmitter 32270-FT, associated with scrubber 24683, was last calibrated on

June 3, 2019 and the flow transmitter for scrubber 5309 was last calibrated on December 5, 2019. At the time of the inspection the plant was in compliance with this condition.

S.C. VI.5 requires the plant to maintain records of normal startups, shutdowns, and emergency shutdowns including the dates on which these episodes occurred and their duration. I reviewed these records while visiting the plant. At the time of the inspection the plant was in compliance with this condition.

S.C. VI.6. requires the plant to conduct a daily visible emissions check of vents SV601-020 and SV601-021 during routine operating conditions. This condition references filters 1-5382 and 3-5382 vent to SV601-020 and filters 2-5382 and 4-5382 vent to SV601-021 as potential emission points. During the inspection we viewed this area. The plant no longer utilizes this equipment to re-work material. It has not proven to be as efficient as their current re-work methodology. The plant conducts inspections during routine operating conditions.

S.C. VI. 7 through VI. 10 are recordkeeping requirements for each of the CAM subject devices. See compliance reporting section for discussion.

#### Compliance Reporting

*I reviewed the ROP Semiannual report, 40 CFR Part 64 CAM excursion/exceedance report and 40 CFR Part 63 Subpart FFFF report for reporting period 1/1/2019-6/30/2019. One deviation was identified for this emission unit.*

*4/24/2019 The 5309 scrubber bubbled over during maintenance purging of lines previously containing anhydrous hydrochloric acid. Both lines had been emptied as much as possible before the purges began, so any excess emissions from this event would have been very small.*

#### *Reason for deviation:*

*Investigation revealed evidence of a buildup within the scrubber inlet line. During the maintenance purges, it is likely that this buildup caused the flow of nitrogen into the scrubber to be faster than expected, resulting in the scrubber bubbling over. The scrubber is not equipped with instrumentation to identify potential buildup or other flow restrictions within the inlet line.*

#### *Corrective Action:*

*The nitrogen purges were reduced to lower flow rates and this issue was resolved at the time of the event. A project is evaluating options for instrumentation on the inlet line to proactively identify conditions which would indicate a buildup within the line. Planned maintenance is also being evaluated to more frequently clean the scrubber to remove material buildup.*

#### EU604-08

Fluoro Cyclics Process. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF. EU604-08 is a CAM subject emission unit subject to the requirements of 40 CFR Part 64. The most recent PTI for this emission unit is PTI No. 466-73E. The pollution control devices for this unit are as follows:

- Freon-cooled condenser (7791). This is a CAM subject device for VOC.
- Spray tower scrubber (22753)
- Service water condenser (22713). This is a CAM subject device for VOC.
- Vent vapor equalization during railcar unloading operations when not venting to atmosphere through condenser 7791

S.C. I.2. limits VOC emissions to less than 11.8 tpy, based on a 12-month rolling time period as determined at the end of each calendar month. S.C. VI.4. is the associated monitoring and recordkeeping requirement that requires the plant to demonstrate compliance with the emission limits specified in this table. Emission totals shall be calculated using the method described in Appendix 7, Section 7.12. A monthly summary of these emissions shall be made available to the AQD upon request. Within 30 days following the end of each calendar month, the permittee shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals specified in this table. I reviewed emissions data for the 12-month rolling time period ending November 2019. VOC emissions for this time period were 0.34 tpy.

S.C. III.1. requires the condensate temperature from condenser 7791 to be below 40.6F, during operations if venting to the atmosphere. S.C. VI.1. is the associated recordkeeping requirement that requires the plant to monitor and record, during railcar unloading, the condensate temperature of Freon-cooled condenser 7791. During the inspection the plant said the vent (14592) to atmosphere is always closed. I was able to view that during the inspection and verify it through records. I reviewed the records for the condensate temperature from condenser 7791 from January 2019 through January 2020. At the time of the inspection the plant was in compliance with this requirement.

S.C. III.2. requires the liquid flow rate of the spray tower scrubber (22753) to be at least 3.0 gpm. S.C. VI.2. is the associated recordkeeping requirement that requires the plant to monitor and record, on a per shift basis, the spray tower scrubber (22753) liquid flow rate. I reviewed records of the liquid flow rate for the spray tower scrubber (22753) for the time period January 2019 through December 2019. The plant records flow in pounds per hour. From August 5, 2019 through August 17, 2019 the scrubber was below 3.0 gpm, however the process was shutdown for a planned maintenance. During the inspection the flow was 2524 pounds per hour. At the time of the inspection the plant was in compliance with this condition.

S.C. III.3. requires the temperature of the service water return temperature for condenser 22713 to be below 105F or 40.56C. S.C. VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record the temperature of the service water condenser (22713). During the inspection the service water condenser temperature was 20.81C. I reviewed records of the service water return temperature for condenser 22713 for the time period January 2019 through January 2020. At the time of the inspection the plant was in compliance with this condition.

S.C. III.4. restricts unloading operations from Emission Group EU604-08 which vent to atmosphere unless the freon-cooled condenser (7791) is installed and operating properly. S.C. IV.1. requires the temperature probe of condenser 7791 also be maintained. The plant provides routine maintenance to this unit and calibrates the temperature probe.

S.C. III.5. restricts operation of the Emission Group EU604-08 unless the spray tower scrubber (22753) is installed and operating properly. S.C. IV. 2. Requires the flow transmitter of scrubber 22753 also be maintained. The plant provides routine maintenance to this unit and calibrates the flow transmitter on a scheduled frequency. At the time of the inspection the plant was in compliance with this condition.

S.C. V.1. requires within 360 days or ROP reissuance, the permittee shall verify VOC and hydrogen chloride emission rates from EU604-08. Testing is scheduled for February 11 ad 12, 2020.

S.C. VI.5. requires the plant to maintain a record of all railcar unloading operations. At a minimum, this record shall include the date, time and duration of all railcar unloading operations. I reviewed this during the inspection and the plant appeared to be in compliance with this condition.

S.C. VI. 6 through VI. 9 are recordkeeping requirements for each of the CAM subject devices. See compliance reporting section for discussion.

**Compliance Reporting**

*I reviewed the ROP Semiannual report, 40 CFR Part 64 CAM excursion/exceedance report and 40 CFR Part 63 Subpart FFFF report for reporting period 1/1/2019-6/30/2019. No deviations were identified for this emission unit.*

NAME Shirley R. McCann DATE 2/5/20 SUPERVISOR C. Hale