DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection

A404370559

FACILITY: Dow Silicones Corporation		**SRN / ID:** A4043
LOCATION: 3901 S Saginaw Rd, MIDLAND		**DISTRICT:** Bay City
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Jim Alger , Midland Area State Air Permitting Specialist		**ACTIVITY DATE:** 01/17/2024
STAFF: Adam Shaffer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: Partial compliance evaluation of EU2703-01 and EU2703-1.		
RESOLVED COMPLAINTS:		

A partial compliance evaluation (PCE) consisting of an onsite inspection and records review was conducted by Air Quality Division (AQD) staff Adam Shaffer (AS) of the Dow Silicones Corporation (DSC) site located in Midland, MI. Applicable records were requested on January 3, 2024, to verify compliance with Renewable Operating Permit (ROP) No. MI-ROP -A4043-2019b and Permit to Install (PTI) No. 26-14B, specifically for emission units (EU) 2703-01 and EU2703-17. Through these two emission units, select records were requested and reviewed for flexible groups (FG)THROX, FGSITEBLOWER and FGMONMACT. An in-person inspection to verify onsite compliance was later completed on January 17, 2024.

Facility Description

DSC is a chemical processing facility. The facility is a mega-site and is a major source of hazardous air pollutants (HAPs), nitrous oxides (NOx), particulate matter (PM) and volatile organic compounds (VOCs). Additionally, the site is subject to various federal regulations and the site is operating under an EPA Civil Order No. 19-11880.

Offsite Compliance Review

DSC is required to submit semi-annual and annual compliance reports per Part A General Conditions 19-23 of MI-ROP-A4043-2019b. Previous reports were reviewed for select time periods. One deviation was noted for the 2703 building where the THROX malfunctioned and emissions from the building would have been diverted to the site scrubbers as a backup. The site scrubbers, however, have not demonstrated a 98% removal efficiency of OHAPs. DSC followed the startup, shutdown, malfunction (SSM) provisions. The deviation lasted one minute. As stated, DSC is currently in the process of installing the TOX as a backup thermal treatment unit to meet Group 1 control requirements. Several other deviations were noted that could be related to EU2703-01 and EU2703-17, however, after further review would not constitute a violation.

Based on the timing of the inspection, DSC has not submitted at this time their State and Local Emissions Inventory System (SLEIS) Report for 2023. After the company submits their 2023 SLEIS Report, select portions shall be reviewed and any errors noted addressed.

Compliance Evaluation

A request was sent to Mr. Jim Alger, Midland Area State Air Permitting Specialist, of DSC on January 3, 2024, for records required by ROP No. MI-ROP-A4043-2019b, specifically for EU2703-01, EU2703-17, FGTHROX, FGSITEBLOWER and FGMONMACT. The onsite inspection was completed on January 17, 2024. AQD staff AS arrived at the facility at 8:44am. Weather conditions at the time were cloudy skies, winds to the northeast at 10-20 mph and temperatures in the single digit's degrees Fahrenheit. Upon arrival AS met with Mr. Alger and several other company staff to initially go over records and later completed a

tour of the site, specifically of EU2703-01 and EU2703-17. Site specific questions were answered by company staff at the time of the inspection / following the inspection.

As mentioned above DSC is a chemical processing facility. During the inspection, various components pertaining to EU2703-01 and EU2703-17 were reviewed and discussed at length with company staff.

ROP No. MI-ROP-A4043-2019b / PTI No. 26-14B

EU2703-01

This emission unit is for a hydrosillylation and alkoxylation process. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF and to the equipment leak provisions of 40 CFR Part 63, Subpart UU.

Onsite Observations

At the time of the inspection, EU2703-01 was in operation. Per Special Condition (SC) III.1, the permittee shall not operate EU2703-01 when exhausting to the condensers (9214 and 9228) unless the coolant return temperature of the condensers (9214 and 9228) is -10°C or less. Coolant return temperature records for condensers 9214 and 9228 were reviewed for select time periods at the time of the inspection. Based on the records reviewed, there appeared to be no instances when EU2703-01 was operating, venting to the condensers (9214 and 9228) and the coolant return temperature was not at -10°C or colder.

Per SC III.2, except for while manufacturing a compound that emits methallyl chloride, the permittee shall not operate EU2703-01 unless the liquid flow rate of the spray tower scrubber (9208) is 6 gallons per minute or more. Liquid flow rate records for the spray tower scrubber were reviewed for select time periods at the time of the inspection. Based on the records reviewed, there appeared to be no instances when EU2703-01 was operating, not manufacturing a compound that emits methallyl chloride, and the liquid flow rates of the spray tower scrubber (9208) was not 6 gallons per minute or more. It was noted by DSC staff and discussed onsite that at times on November 28-30, 2023, the above requirements were not met, however, the unit was venting to the FGTHROX, which is acceptable.

Per SC III.3, in the event of venting to the PP S/D scrubber (9163), the permittee shall not operate EU2703-01 unless the liquid flow rate of the PP S/D scrubber (9163) is 6 gallons per minute or more. Liquid flow rates records for the PP S/D scrubber (9163) were reviewed for select time periods at the time of the inspection. One instance was noted that after further review was determined to have been a user error. Updated records were provided that appeared to show satisfactory operation. Based on the records reviewed, no issues were noted and it appears DSC is meeting the requirements for this special condition.

Per SC III.4, the permittee shall not operate EU2703-01 while manufacturing a compound that emits methallyl chloride unless one of the conditions further described in this special condition is met. It was determined during the course of the inspection that primarily, DSC vents emissions to the THROX to be controlled. Records were reviewed for select time periods of carbon drum scale records with additional follow up on select instances. Based on the records reviewed and responses from DSC staff, no issues were identified.

Per SC III.5, the permittee shall not operate EU2703-01 when exhausting to FGTHROX unless FGTHROX is installed, maintained, and operated in a satisfactory manner. Select

time periods were reviewed to verify compliance with this condition. After further review, it appears that during the time periods reviewed, there were no instances where EU2703-01 was being only controlled by the THROX and the THROX was not operating properly.

Per SC IV.1, the permittee shall not operate EU2703-01 unless the condensers (9214 and 9228) are installed, maintained, and operated in a satisfactory manner which includes meeting the requirements of SC III.1. As previously discussed, coolant return temperature records of the condensers (9214 and 9228) were reviewed onsite for select time periods. As mentioned above it appears that DSC is operating the unit in a satisfactory manner and meeting the requirements of this condition.

Per SC IV.2, except while manufacturing a compound that emits methallyl chloride, the permittee shall not operate EU2703-01 unless the spray tower scrubber (9208) is installed, maintained, and operated in a satisfactory manner which includes meeting the requirements of SC III.2. As mentioned above it appears that DSC is operating the unit in a satisfactory manner and meeting the requirements of this condition.

Per SC IV.3, in the event of venting to the PP S/D scrubber (9163), the permittee shall not operate EU2703-01 unless the PP S/D scrubber (9163) is installed, maintained, and operated in a satisfactory manner which includes meeting the requirements of SC III.3. As mentioned above it appears that DSC is operating the unit in a satisfactory manner and meeting the requirements of this condition.

Per SC IV.4, while manufacturing a compound that emits methallyl chloride, the permittee shall not operate EU2703-01 unless FGTHROX or the activated carbon drums (23228 and 23229) is / are installed, maintained, and operated in a satisfactory manner which includes meeting the requirements of SC III.4. As mentioned above it appears that DSC is operating the unit in a satisfactory manner and meeting the requirements of this condition.

Per SC IV.5, the permittee shall not operate EU2703-01 unless FGTHROX is installed, maintained, and operated in a satisfactory manner which includes meeting the requirements of SC III.5. As mentioned above it appears that DSC is operating the unit in a satisfactory manner and meeting the requirements of this condition.

Per SC IV.6-8, the permittee shall equip condensers (9214 and 9228), scrubbers (9208 and 9163), and activated carbon drums (23228 and 23229) with the applicable indicators and / or scales and calibrate / maintain in a satisfactory manner. Indicators for applicable units were noted to be installed during the course of the inspection. The following readings were taken for each unit.

Condenser 9214: -20.8°F

Condenser 9228: -20.8°F

Scrubber 9208: 7.8 gal/min

Scrubber 9163: 8.0 gal/min

Carbon drum 23228: 25.4 lbs

Carbon drum 23339: 6.1 lbs

The condenser and scrubber monitors are calibrated on a four-year cycle and the carbon drum scales are calibrated on a yearly basis. Dates for the last two calibrations for each monitor / scale were provided. After further review, no issues were noted.

Seven stacks are listed as associated with this emission unit. Any stacks listed for units such as the THROX were not reviewed during the course of the site inspection. Though the dimensions were not measured for the remaining stacks, based on the observations made at the time of the inspection and speaking with company staff, the dimensions appear to be consistent with what is listed in MI-ROP-A4043-2019b.

Records Review

This emission unit is subject to a VOC emission limit of 3.19 pounds per hour (pph) which does not include fugitive emissions. Additionally, this emission unit is subject to a methallyl chloride emission limit of 0.025 pph which does not include fugitive emissions. Per SC V.1, the AQD may request for DSC to verify the VOC and / or methyl chloride emission rates from EU2703-01. Based on the records reviewed and observations made, no request to verify emission rates shall be made at this time.

This emission unit is subject to a second VOC emission limit of 2.58 tons per year (tpy) per a 12-month rolling time period which does not include fugitive emissions. Records were requested and reviewed for select time periods. For November 2023, 5.36 lbs of VOCs were reported emitted. As of November 2023, 39.67 lbs of VOCs were reported emitted per a 12-month rolling time period, which is well within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

Per SC VI.2, the permittee shall monitor and record, on a continuous basis, the coolant return temperature of the condensers (9214 and 9228), the liquid flow rate of the scrubbers (9208 and 9163), and the weight of each activated carbon tote (23228 and 23229). Records were reviewed while onsite with specifics of the records reviewed discussed further above. After further review, DSC appears to be adequately monitoring and recording applicable records.

Per SC VI.3, DSC shall keep track of monthly / 12-month rolling time period VOC emission records. Records were requested and provided for select time periods. After further review, DSC appears to be keeping track of VOC emission records.

Per SC VI.4, the permittee shall keep, in a satisfactory manner, records of the date and time of each use of PP S/D scrubber (9163). Records were requested and reviewed onsite for select time periods. After further review, the records reviewed appear acceptable.

Per SC VI.5, the permittee shall keep, in a satisfactory manner, records of the date and time a compound that emits methallyl chloride is manufactured. Records were requested and provided for select time periods. After further review, the records provided appear acceptable.

EU2703-17

This emission unit is for the 9025C dedicated waste tank in 2703 building.

Onsite Observations

The emission unit EU2703-17 was observed during the course of the inspection, however, no loading of a tank truck occurred during that time period.

Per SC III.1, the permittee shall not operate EU2703-17 unless one of the following specifics further described in this special condition is true. During the inspection, it was determined the emission unit primarily vents to the THROX. Records were reviewed for select time periods of scrubber water flow rates. Based on the records reviewed, and observations made at the time of the inspection, DSC appears to be meeting the requirements of the special condition.

Per SC III.2, the permittee shall not load any tank truck from EU2703-17 unless the vapor balance system is installed, maintained, and operated in a satisfactory manner. It was verified by company staff there are procedures in place to make sure the vapor balance system is installed and operating properly during a loadout. Additionally, DSC staff stated there had been no issues regarding the vapor balance system during select time periods reviewed.

Per SC IV.1, the permittee shall not operate EU2703-17 unless the scrubbers (either scrubber 9390 A or B) or FGTHROX are installed, maintained, and operated properly which includes meeting the applicable requirements of SC III.1. Based on records reviewed and responses from DSC staff, it appears that DSC is meeting the requirements of the condition.

Per SC IV.2, the permittee shall equip and maintain scrubbers 9390 A and B with a total scrubber water flow rate indicator. Additionally, the permittee shall calibrate the indicator in a satisfactory manner. During the course of the inspection, a water flow indicator was noted for the scrubbers. The following reading was taken at the time of the inspection.

Scrubber 9390 A / B – 9 gallon / min

Additionally, the scrubber monitors are on a four-year calibration cycle. The most recent calibrations were on 04/15/23 and 06/29/17. No further action is necessary at this time.

Three stacks are listed as associated with this emission unit. Any stacks listed for units such as the THROX were not reviewed during the course of the site inspection. Though the dimensions were not measured for the remaining stacks, based on the observations made at the time of the inspection, the dimensions appear to be consistent with what is listed in MI-ROP-A4043-2019b.

Records Review

This emission unit is subject to a VOC emission limit of 0.18 tpy per a 12-month rolling time period which does not include fugitive emissions from the emission unit. Records were requested and provided for select time periods. For the month of November 2023, 0.58 lbs were reported emitted. As of November 2023, 52.13 lbs (approximately 0.026 tons) of VOCs were reported per a 12-month rolling time period which is well within the permitted limit. Previous 12-month rolling time periods reviewed also appeared to be within the permitted limit.

Per SC VI.2, the permittee shall monitor and record the total scrubber water flow rate for the scrubber in use of scrubbers 9390 A or B. Records were reviewed while onsite with

specifics of the records reviewed discussed further above. After further review, DSC appears to be adequately monitoring and recording applicable records.

Per SC VI.3, DSC shall keep track of monthly / 12-month rolling time period VOC emission records. Records were requested and provided for select time periods. After further review, DSC appears to be keeping track of VOC emission records.

FGSITEBLOWER

This flexible group is for the 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 vent and wet vent header system for vents that can contain water.

It should be noted that only portions of this flexible group were reviewed in order to verify that EU2703-01 and EU2703-17 are in compliance with FGSITEBLOWER.

Per SC IV.1, the permittee shall not operate the emission units in FGSITEBLOWER unless they are routed to EUTHROX or the site wide water scrubbers except as further described in this condition, and the control device is installed, maintained, and operated in a satisfactory manner in accordance with the sites MAP. Dates of any events where emissions from FGSITEBLOWERS being sent to EUTHROX / site wide scrubbers when EUTHROX / site wide scrubbers were not in operation were requested for select time periods. It was verified by company staff there were no reported incidents during the time periods reviewed. This appears acceptable.

Per SC VI.1, the permittee shall record the time and duration of each bypass episode wherein the vents comprising FGSITEBLOWER are not routed to EUTHROX. Records were requested and provided for select time periods. Based on responses from DSC staff there were no instances during select time periods reviewed when the FGSITEBLOWER emissions were routed from THROX while emissions from EU2703-01 and EU2703-17 were trying to vent to THROX. After further review this appears acceptable.

FGTHROX

This flexible group is for the site wide thermal oxidizer system. The THROX will remove VOC, HAPs, PM10, hydrogen chloride, and other toxic air contaminants from the FGSITEBLOWER consolidated vent system prior to discharge to atmosphere. This flexible group is subject to the requirements of 40 CFR Part 63, Subpart FFFF. FGTHROX is a CAM subject emission unit subject to the requirements of 40 CFR Part 64.

It should be noted that only portions of this flexible group were reviewed in order to verify that EU2703-01 and EU2703-17 are in compliance with FGTHROX.

Per SC IV.1, the permittee shall not route process vents to EUTHROX unless the burner, quencher, absorber, and two 2-stage ionizing wet scrubbers (IWS) in series are installed, maintained, and operated in a satisfactory manner. Satisfactory operation includes various criteria that are then listed in this condition. It was verified by company staff during the select time periods reviewed that there were no instances when emissions were being controlled by the THROX when it wasn't operating properly. During instances when the THROX was not operating properly, emissions would have been routed to the site

scrubbers or local control as discussed above which were noted to be operating properly during the time periods reviewed.

FGMONMACT

This flexible group applies to miscellaneous organic chemical manufacturing process units (MCPU) that are located at, or are part of, a major source and meet the criteria specific in 40 CFR Part 63 Subpart FFFF (NESHAP Subpart FFFF).

It should be noted that only portions of this flexible group were reviewed in order to verify that EU2703-01 and EU2703-17 are in compliance with FGMONMACT. The two emission units are associated with the following MCPU's:

EU2703-01: MCPU-014, 050, and 070

EU2703-17: MCPU-54

DSC staff stated that for EU2703-01, MCPU-050 is a Group 2 for continuous process vents. For each continuous process vent, if it is not classified as a Group 1 then the facility must determine the total resource effectiveness (TRE) index value. DSC provided the TRE values that showed MCPU-050 would be classified as Group 2. Total emissions for 2022 and 2023 for MCPU-014 and MCPU-070 indicated each are also Group 2 (total uncontrolled HAP emissions less than 10,000 lbs per year limit). DSC staff stated that MCPU-054 would be exempt (not Group 1 or Group 2). It is noted that both emission units (EU2703-01 and EU2703-17) are connected to the THROX for control. After further review, it appears that DSC is in compliance with the NESHAP Subpart FFFF specifically for EU2703-01 and EU2703-17.

FGRULE290

This flexible group is for any emission unit that emits air contaminants and is exempt from the requirements of Rule 201 per Rule 290. A list of all Rule 290 exempt emission units for Building 2703 were requested. A total of seven exempt emission units were identified and monthly emission records for select time periods were requested and reviewed to verify compliance. After further review, the records provided appear to indicate the several identified emission units in Building 2703 are exempt per Rule 290.

Conclusion

Based on the observations made and records reviewed, DSC appears to be in compliance with MI-ROP-A4043-2019b / PTI No. 26-14B, specifically the portions related to EU2703-01 and EU2703-17.

NAME John J. Hill DATE 02/26/24 SUPERVISOR C. Hare