

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

A404347740

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: 02/06/2019
STAFF: Gina McCann	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU322-06, EU322-11, FG322-01 and FGRULE290 unit EU322-05		
RESOLVED COMPLAINTS:		

Inspection Date: 2/6/2019

Inspection Started: 8:30

Inspection Ended: 12:30

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

- Gina McCann (MDEQ-AQD, Senior Environmental Quality Analyst)
- Jennifer Kraut (Air Specialist, DOW Silicones)
- Brandon Bishop (Environmental Specialist, DOW MiOps)
- Matt Ludwick, (Production Engineer, 322 Building, DOW Silicones)

Records reviewed as part of the inspection were:

- ROP Annual report for 2017
- ROP Semiannual report for reporting period 1/1/2018-6/30/2018
- 40 CFR Part 64 CAM excursion/exceedance report for 1/1/2018-6/30/2018
- 40 CFR Part 63 Subpart FFFF report for reporting period 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018
- Test results from 3/23/2012 and 7/13/2012 testing of unit FG322-01

The Renewable Operating Permit renewal, MI-ROP-A4043-2019, was issued during the writing of this inspection report.

EU322-06

Siloxane catalyst process. EU322-06 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. 308-94.

- Controlled by condensers (4507, 7623). These devices are CAM subject units for VOC.

Special Condition (SC) III.1 restricts the exhaust gas temperature of condenser 7623 to <30F. An excursion of the exhaust gas temperature is the exceedance of the operational parameter limit or acceptable range defined in this condition or demonstrated during testing. This condenser is connected to EU322-03. See discussion below for further details.

SC III.2. restricts the coolant exit temperature of condenser 4507 to <50F. An excursion of the coolant exit temperature is the exceedance of the operational parameter limit or acceptable range defined in this condition or demonstrated during testing. During the inspection the coolant exit temperature was -2.5F. The unit was not in operation during the inspection. The feed rate was reflective of the process not being in production.

SC III.3. restricts operation of the process unless the condensers (4507, 7623) are installed and operating properly. During the inspection the DOW staff stated this condition was inaccurate and that the intent, as stated in the PTI application, was to operate either condenser 4507 or 7623. Further records review of the PTI application file produced a cover letter from DOW Corning, received on August 25th, 1995, that states, "Emissions are being updated to reflect the strip process being operated with or without the vacuum system." One condenser is pre- vacuum system and one condenser is post vacuum system. It appears from conversation with permit engineers and research of the permit evaluation that it is plausible that either condenser could operate, however it is not clearly reflected in the PTI. DOW should revise this condition to reflect actual operations at the plant.

SC III.4 requires the plant to equip and maintain the condenser 7623 with an exhaust gas temperature indicator and condenser 4507 with an exit coolant temperature indicator. SC III.5 requires the plant to calibrate the temperature indicator for condensers 7623 and 4507 in a satisfactory manner. During the inspection we viewed condenser 4507 via camera from the control room, to maintain safety due to inclement weather. It appeared condenser 4507 was installed and its last calibrations for the coolant exit temperature instrument were performed on 11/30/2017 and 12/24/2013. SC VI.1 is the related recordkeeping requirement for the plant to record the exhaust gas temperature from condenser no. 7623, "on a continuous basis", which is defined as an instantaneous data point recorded at least once every 15 minutes. Condenser 7623 is not connected to EU322-06. Per the discussion above, this device was not audited during this inspection.

SC VI.2 requires the plant to record the coolant exit temperature for condenser 4507 every shift. I reviewed data from January 1st, 2018 through January 29th, 2019. During this time period, the graph indicated two occasions the coolant exit temperature, for condenser 4507, exceeded 50C. A deviation was reported for March 23, 2018 through March 30, 2018. See the compliance reporting section below for an explanation of this event. The second occasion indicated on the graph, July 9, 2018 through July 15, 2018, the process was not active. I viewed the steam output for the process and it was at 0% input.

SC VI.4 requires the plant to calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the VOC, 12-month rolling time period emission limit, 3.3 tpy. I reviewed emissions data for the 12-month rolling time period ending December 2018. VOC emissions were 44.27 pound (lbs.) or 0.022 ton per year (tpy).

SC VI.5, VI.6 and VI.7 are CAM requirements. The compliance reporting section below references deviations and/or actions taken to mitigate deviations. The plant appeared to be in compliance with the conditions referencing condenser 4507. Compliance for condenser 7623 was not determined, see discussion above.

Compliance Reporting

I reviewed the 2017 Annual and 2018 First Semiannual ROP deviation reports. For the reporting period January 1, 2018 through June 30, 2018, the plant reported a CAM excursion on condenser 4507. The exit coolant temperature of condenser 4507 exceeded the required 50C for 17 minutes. The coolant system had been drained for maintenance and refilled just prior to this event. All high points in the system were degassed and the exit coolant temperature was verified as normal before beginning the batch. As the batch began and the kettle heated, the coolant temperature increased drastically, exceeding 50F. After troubleshooting, it was determined that the coolant supply became vapor locked after the initial degassing process. The unit was then degassed again, and the process subsequently started.

EU322-11

Methylvinylchlorosilane crude distillation process. This emission unit is subject to the requirements of 40 CFR part 63, Subpart FFFF. EU322-11 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. 338-99B.

- Condenser (6384). This device is a CAM subject unit for VOC.

During the inspection we discussed the addition of scrubber 22452, shared with FG322-01 and its vent (vent no. SV322-04). The scrubber was installed in series after condenser 6384. Scrubber 22452 was installed under Rule 285 as additional control. According to an email from J. Kraut, dated February 8, 2019, the vent from this scrubber does not comply with the stack requirements in the permit. Currently, the permit requires the vent (SV322-05) to meet the following: maximum exhaust diameter (inches): 1.0, minimum height above ground (feet): 80. The vent associated with the scrubber (SV322-04) has the following dimensions: stack diameter (inches): 3, stack height (feet): 67. Therefore, vent no. SV322-04 does not meet the maximum diameter and minimum height requirements in the permit. As a result, a Title V deviation will be reported, and corrective action will be implemented. Corrective action will consist of one of the following two options: 1) Submit an air permit to install application to the DEQ, Air Quality Division to revise the stack height, diameter and orientation requirements, or 2) Modify the stack height and diameter of vent no. SV322-04 so that it complies with the requirements of the permit.

SC III.1. restricts the coolant exit temperature of the condenser (6384) to <-15C. An excursion of the coolant exit temperature is the exceedance of the operational parameter limit or acceptable range defined in this condition or demonstrated during testing. During the inspection the coolant exit temperature was -31.1C at 11:46 a.m. Mr. Ludwick explained that the interlock control set point was -15C, which if triggered would start a series of shutting down valves to prevent a deviation. SC VI.1. is the related recordkeeping requirement for the plant to record the coolant exit temperature of condenser no. 6384 "on a continuous basis", which is defined as an instantaneous data point recorded at least once every 15 minutes. I reviewed data from January 1st, 2018 through January 29th, 2019. The graph indicates one occasion that appears to be an exceedance of the -15C requirement. However, during this time period the plant was performing maintenance on this process unit and it was not in operation. I confirmed that the vent flow was locked out to the scrubber and to atmosphere.

SC III.2. restricts operation of EU322-11 unless the chilled condenser (6384) is installed and operating properly. Proper operation is determined by maintaining the coolant exit temperature of condenser 6384 to <-15C. I reviewed data from January 1, 2018 through January 29th, 2019 and the chilled condenser (6384) appeared to operate properly during this time period.

SC III.3. requires the plant to equip and maintain the chilled condenser 6384 with an exhaust temperature device. SC III.4. requires the plant to calibrate the temperature indicator for the condenser 6384 in a satisfactory manner. During the inspection we viewed these devices via camera from the control room to maintain safety due to inclement weather. It appeared the devices were installed. I reviewed maintenance records for condenser 6384 and the last two calibrations were 9/28/2006 and 3/29/2016. The lapse in calibrations was due to a change in maintenance schedules. The plant changed their calibration schedule to every (4) four years and this device had somehow gotten skipped due to software changes. In a follow up email to J. Kraut, dated February 16, 2019, the plant provided calibration records. The data indicated the temperature monitoring device on chilled condenser 6384 did not need to be recalibrated despite the 10-year gap in calibrations. Since the equipment had retained its precision during the extended laps in calibrations, it appears to meet the satisfactory manner portion of this condition.

SC VI.2 requires the plant to maintain emissions totals for the 12-month rolling time period within 30 days following the end of each calendar month. The plant is required to calculate the emissions using the method in Appendix 7, Section 7.9. We briefly discussed the vent calculations in the appendix. During the initial permitting of this process these basic chemical assumptions were used to determine emission factors. Since initial permitting the plant now uses emission factor generating software, Emissions Master. Emissions Master is a nationally accepted program for determining emission factors. Emissions Master is more precise than the conservative assumptions made in Appendix 7, therefore appears to be acceptable to use. The emission factor was last updated in April 2017. I reviewed VOC emissions data for the 12-month rolling time period ending December 31, 2018. VOC emissions were 2277.64 lbs. or 1.14 tpy. VOCs are limited to 14 tpy for this unit.

SC VI.5, VI.6 and VI.7 are CAM requirements. The compliance reporting section below references deviations and/or actions taken to mitigate deviations. The plant appeared to be in compliance for CAM conditions referencing condenser 6384.

MI-ROP-A4043-2019, SC V. requires the plant to verify the VOC emission rates from FG322-01 and the VOC and xylene emission rates from EU322-04 within 120 of ROP reissuance, or June 20, 2019. The most recent test for FG322-01 and EU322-04 were July 13, 2012 and March 23, 2012, respectively. FG322-01 has a VOC limit of 65.11 pound per hour (pph) and test results were 23.502 pph. EU322-04 has a xylene limit of 2.6 pph and test results were 0.0020 pph.

Compliance Reporting

I reviewed the 2017 Annual ROP report. Five (5) deviations were reported pursuant to the MON MACT (40 CFR Part 63 Subpart FFFF) for the EU322-MON group. One of the five deviations were for EU322-03, which was not a part of this inspection.

- 1) During an EHS audit under Michigan Audit Immunity Statute. RCRA tank and container inspection forms were being used to demonstrate compliance with the MON Waste Water Management Unit (WMU) inspection requirements. Corrective action was to implement MACT waste management unit inspection forms in addition to the RCRA inspection forms. The*

facility explained the choice of wording on the RCRA form was not consistent with the MON requirements. Wording was updated to align with the MON MACT requirements.

- 2) During an EHS audit under Michigan Audit Immunity Statute, for various dates, it was identified that several Group 1 waste water streams were shipped to offsite locations for disposal without the required notifications to the offsite disposal facility and required certification to the EPA by the offsite disposal facility. NOCS reports also did not properly identify the offsite disposal locations. Corrective action certifications were submitted to the EPA for all offsite disposal facilities that Midland currently sends Group 1 waste water to. The NOCS reports for that affected Group 1 wastewater streams have been updated to identify the proper offsite disposal facility locations.*
- 3) Operators missed the weekly LDAR visual inspection of one pump during the week of 1/08/2017-1/14/2017. Based on the inspection log, inspections were completed on 1/06/2017 and 1/15/2017. Corrective action was a review with operators to ensure weekly inspections are completed and documented. A weekly check of the inspection log has been implemented to make sure inspections are not missed. No leaks were discovered during the inspection before or after this missed inspection.*
- 4) Missing LDAR weekly visual inspection checklists for November. Checklists are kept on a clipboard and then set aside when completed for the environmental technician to file. The November checklists were completed, set aside, and then accidentally thrown away. The environmental technician verifies on a weekly basis that the checklists are completed. Based on this verification, there were no leaks reported for the first three weeks of November. Corrective action included changing the process of the environmental technician filing the checklists. The operators are now responsible to file the checklists in the control room once they are complete.*

FGRULE290

- EU322-05
MeVi siloxane process exempt from R201 permitting via R290.
Associated control device is FGTHROX.

According to SC III.2.a. of FGRULE290 an air cleaning device for volatile organic compounds shall be installed, maintained, and operated in accordance with the manufacturer's specifications. EU322-05 has two operating scenarios depending on the product it is producing. Products subject to the MON, 40 CFR Part 63 Subpart FFFF, are vented through condenser and FGTHROX in parallel and then atmosphere. When EU322-05 is not producing MON subject products it will vent to condenser no. 19673 and then to atmosphere.

As part of the records request, I viewed the gas outlet temperature for the time period January 1st, 2018 through January 29th, 2019. Temperature was maintained to below 50C for this time period, with three (3) instances of apparent exceedances. For the time periods of March 20, 2018 through March 30, 2018 and July 9, 2018 through July 15, 2018, the process was down for coolant media replacement. For the time period December 2, 2018 through December 8, 2018 the process was down for internal inspection of HX-19673.

VOC emissions from this process unit are exempt from permitting through compliance with R290. As part of the records request, exemption summaries were provided. Based on R290, emissions that are classified as non-carcinogenic VOCs or non-carcinogenic air contaminants with an initial threshold screening level (ITSL) $\geq 2.0 \mu\text{g}/\text{m}^3$, controlled, and are limited to less than or equal to 500 pounds per month (lbs/month).

I reviewed emissions records from January 2018 through December 2018. Emissions were below the R290 limit and constituents appeared to be aligned categorically with R290.

FG322-01

This flexible group incorporates all three-individual vinyl chlorosilane production processes and associated scrubber to allow for operational flexibility. The VOC emission limits are for the combination

of all three processes as measured coming out of FG322-01 at stack/vent SV322-004. Scrubber 22452 is used to control emissions from EU322-01, EU322-02, and EU322-04. This flexible group is subject to the requirements of 40 CFR Part 63, Subpart FFFF. FG322-01 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. 242-07.

- Controlled by scrubber 22452. This is a CAM subject device for VOC and xylene.
- Condenser 6379 on EU322-01 only. This is a CAM subject device for VOC and xylene.

SC III.1 restricts the exit coolant temperature of condenser 6379, associated only with EU322-01, to 5C. SC VI.1. is the related recordkeeping requirement for the plant to record the coolant exit temperature of condenser 6379. I reviewed coolant exit temperature for the time period January 1, 2018 through January 29, 2019. Coolant exit temperature was within the appropriate range during times the process was operating.

SC III.2 requires the plant to maintain the liquid flow rate of scrubber 22452 to 10.0 gallons per minute (gpm) or more. SC VI.2 is the related monitoring and recordkeeping requirement for the plant to record the liquid flow rate of scrubber 22452. I reviewed the liquid flow rate of scrubber 22452 for the time period January 1, 2018 through January 29, 2019. During times of operation the liquid flow rate of scrubber 22452 was maintained above 10.0 gpm.

SC VI.3 requires the plant to maintain emissions totals for the 12-month rolling time period within 30 days following the end of each calendar month. I reviewed VOC emissions data for the 12-month rolling time period ending December 31, 2018. VOC emissions were 33.34 tpy. VOCs are limited to 86.6 tpy for this unit.

SC VI.4, VI.5, VI.6 and VI.7 are CAM requirements. The compliance reporting section below references deviations and/or actions taken to mitigate deviations. The plant appeared to be in compliance with the conditions for both scrubber 22452 and condenser 6379.

Compliance Reporting

I reviewed the 2017 Annual ROP report and the First Semi-Annual ROP Certification Report for the reporting period January 1st, 2018- June 30th, 2018. Five (5) deviations were reported pursuant to the MON MACT (40 CFR Part 63 Subpart FFFF) for the EU322-MON group. One of the five deviations were for EU322-03, which was not a part of this inspection.

1) During an EHS audit under Michigan Audit Immunity Statute. RCRA tank and container inspection forms were being used to demonstrate compliance with the MON Waste Water Management Unit (WMU) inspection requirements. Corrective action was to implement MACT waste management unit inspection forms in addition to the RCRA inspection forms. The facility explained the choice of wording on the RCRA form was not consistent with the MON requirements. Wording was updated to align with the MON MACT requirements.

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NAME *Wanda R. McA*

DATE *3/1/19*

SUPERVISOR *C. Hine*