

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

A404347546

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: 01/10/2019
STAFF: Gina McCann	COMPLIANCE STATUS:	SOURCE CLASS: MEGASITE
SUBJECT: EU324-01, EU324-08 & EU324-18		
RESOLVED COMPLAINTS:		

Inspection Date: 1/10/2019

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)
- Lori Hoevermeyer, (Operation Regulatory Support, North America, DOW MiOps)
- Alex Bray, (Production Engineer for 324 Building, DOW Silicones)
- Jeremy Vanever, (Production Engineer for 324 Building, DOW Silicones)

Records reviewed as part of the inspection were:

- ROP Annual report for 2017
- ROP Semi-Annual 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

EU324-01

4820 batch kettle process producing silane and siloxane products. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF. EU324-01 is CAM subject emission unit subject to the requirements of 40 CFR Part 64. The most recent PTI for this emission unit is PTI No. 15-13.

- Controlled by service water condenser 4818 and chilled condensers 4804 and 4807. The chilled condensers alternate in operation. These devices are CAM subject units for VOC.

Special Condition (SC) III.1 restricts EU324-01 from venting through the chilled condenser, 4804, to atmosphere unless the coolant exit temperature of the condenser is -8C or less. The unit was not in production at the time of the inspection.

SC III.2 restricts EU324-01 from venting through the chilled condenser, 4807, to atmosphere unless the coolant exit temperature of the condenser is -8C or less. The unit was not in production at the time of the inspection.

SC III.3 restricts EU324-01 from venting through the service water condenser, 4818, to atmosphere unless the coolant exit temperature of the condenser is 40C or less. The unit was not in production at the time of the inspection. 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. Upon detecting an excursion of the coolant exit temperature limit, the permittee shall restore operation of service water condenser 4818. The unit was not in production at the time of the inspection. See compliance reporting section of this report for discussion on CAM excursions.

SC III.5 requires the building to calibrate the temperature indicators for condensers 4804, 4807, and 4818. The temperature indicators were last calibrated on 7/5/2016 and 9/26/2012 for condenser 4818. Condensers 4808/4807 were last calibrated on 3/16/2017 and 6/4/2013.

SC IV.1 restricts the plant from conducting vacuum stripping in EU324-01 unless the chilled condensers 4804 and 4807, which alternate in operation, are installed, maintained, and operated in a satisfactory manner. During the inspection, the production engineers, were able to show no vacuum being pulled on the kettle when coolant exit temperature, for the DTJ condensers 4804/4807, exceeded the required -8C temperature.

SC IV.2 restricts operation of EU324-01 unless service water condenser 4818 is installed, maintained, and operated in a satisfactory manner. As part of the records review, I requested the last two maintenance dates and associated activities. On 6/29/2015 the service water flowmeter was repaired and on 2/2/2016 the water flow transmitter was repaired.

SC IV.3 requires the building to maintain service water condenser 4818 and chilled condensers 4804 and 4807 with condenser coolant exit temperature indicators. It appears this requirement was being met at the time of the inspection.

SC VI.2 requires monitoring and recordkeeping of the coolant exit temperatures for chilled condensers 4804 and 4807 and service water condenser 4818 on a continuous basis. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. I reviewed coolant exit temperatures for chilled condensers 4804 and 4807 and service water condenser 4818 from January 1, 2018 through December 31, 2018. One peak above the required 40C was identified, for service water condenser 4818, on 2/21/2018. This was an instantaneous reading and the 15-minute continuous record was below the required 40C. We viewed an apparent exceedance for chilled condensers 4804 and 4807 on 5/28/2018. The process was not in operation and the engineers were able to show that no vacuum was being pulled on the associated kettle.

SC VI.3 requires the VOC emission rate from EU324-01 to be calculated monthly, for the preceding 12-month rolling time period. SC I.1 restricts VOC emissions to below 4.61 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. VOC emissions for the 12-month rolling time period ending November 2018 were 0.025 tpy.

SC VI.4 requires upon detection of an excursion or exceedance, for service water condenser 4818 and chilled condensers 4804 and 4807, the building shall restore operation of the pollutant-specific emission unit to its normal or usual manner of operation as expeditiously as practicable. No excursions or monitor downtime were reported for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018.

SC VI.5 requires monitoring, in a continuous operation, at all times that the pollutant-specified emissions unit is operating, service water condenser 4818 and chilled condensers 4804 and 4807. Data recorded during monitoring malfunctions cannot be used to comply with the continuous monitoring condition. No excursions or monitor downtime were reported for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018.

Compliance Reporting

I reviewed CAM excursion/exceedance summary reports as well as monitor downtime incident summary report for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018. No excursions or monitor downtime was reported for this unit during the time period reviewed.

I reviewed the MON report, 40 CFR Part 63 Subpart FFFF report, for the reporting period 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018. There were three deviations noted.

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) During a self-audit it was identified that sections of several NOCS reports were found with minor instance of incorrect information. In all cases, the facilities were operating as required. No excess emissions occurred. Corrective action included, identifying a tank correctly as a storage tank instead of a WMU, certain wastewater streams were not specifically identified, and certain wastewater streams were not associated with the appropriate waste management unit.

I also reviewed the ROP Annual report for 2017 and the ROP Semi-Annual report for reporting period 1/1/2018-6/30/2018, there were no additional deviations reported for this unit during this reporting period.

EU324-08

5617 batch kettle process producing silane and siloxane products. EU324-08 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. 14-13.

- **Controlled by service water condenser 5618 and chilled condensers 4804 and 4807. The chilled condensers alternated in operation. These devices are CAM subject units for VOCs.**

SC III.1 restricts EU324-08 from venting through the chilled condenser, 4804, to atmosphere unless the coolant exit temperature of the condenser is -8C or less. The unit was not in production at the time of the inspection.

SC III.2 restricts EU324-08 from venting through the chilled condenser, 4807, to atmosphere unless the coolant exit temperature of the condenser is -8C or less. The unit was not in production at the time of the inspection. The unit was not in production at the time of the inspection. Due to low production demand, this unit was not in production at the time of the inspection.

SC III.3 restricts EU324-08 from venting through the service water condenser, 5618, to atmosphere unless the coolant exit temperature of the condenser is 40C or less. The unit was not in production at the time of the inspection. 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. Upon detecting an excursion of the coolant exit temperature limit, the permittee shall restore operation of service water condenser 5618. The unit was not in production at the time of the inspection. See compliance reporting section of this report for discussion on CAM excursions.

SC IV.1 restricts the plant from conducting vacuum stripping in EU324-08 unless the chilled condensers 4804 and 4807, which alternate in operation, are installed, maintained, and operated in a satisfactory manner. During the inspection, the production engineers, were able to show no vacuum being pulled on the kettle when the coolant exit temperature, for the DTJ condensers 4804/4807, exceeded the required -8C temperature.

SC IV.2 restricts operation of EU324-08 unless service water condenser 5618 is installed, maintained, and operated in a satisfactory manner. As part of the records review, I requested the last two maintenance dates and associated activities. On 1/17/2017 the heat exchanger was replaced and on 12/14/2016 an internal inspection of the heat exchanger was performed.

SC IV.3 requires the building to equip and maintain service water condenser 5618 and chilled condensers 4804 and 4807 with condenser coolant exit temperature indicators. I viewed these units during the inspection and it appears this requirement is being met.

SC IV.4 requires the plant to calibrate the temperature indicator for condensers 5618, 4804, and 4807 in a satisfactory manner. As part of the records review, I requested the last two calibrations for each temperature indicator for condensers 5618, 4804, and 4807. Condenser 5618 was last calibrated on 12/19/2018 and 3/2/2015. Condensers 4804 and 4807 were last calibrated on 3/16/2017 and 6/4/2013.

SC VI.2 requires monitoring and recordkeeping of the coolant exit temperatures for chilled condensers 4804 and 4807 and service water condenser 5618 on a continuous basis. For the purpose of this

condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. I reviewed coolant exit temperatures for chilled condensers 4804 and 4807 and service water condenser 5618 from January 1, 2018 through December 31, 2018. One peak above the required 40C was identified, for service water condenser 5618, on 4/14/2018. This was an instantaneous reading and the 15-minute continuous record was below the required 40C. We viewed an apparent exceedance for chilled condensers 4804 and 4807 on 5/28/2018. The process was not in operation and the engineers were able to show that no vacuum was being pulled on the associated kettle.

SC VI.3 requires the VOC emission rate from EU324-08 to be calculated monthly, for the preceding 12-month rolling time period. SC I.1 restricts VOC emissions to below 4.71 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. VOC emissions for the 12-month rolling time period ending November 2018 were 0.025 tpy.

SC VI.4 requires upon detection of an excursion or exceedance, for service water condenser 5618 and chilled condensers 4804 and 4807, the building shall restore operation of the pollutant-specific emissions unit to its normal or usual manner of operation as expeditiously as practicable. No excursions or monitor downtime were reported for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018.

SC VI.5 requires monitoring, in a continuous operation, at all times that the pollutant-specified emissions unit it is operating, service water condenser 5618 and chilled condensers 4804 and 4807. Data recorded during monitoring malfunctions cannot be used to comply with the continuous monitoring condition. No excursions or monitor downtime were reported for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018.

Compliance Reporting

I reviewed CAM excursion/exceedance summary reports as well as monitor downtime incident summary report for the reporting periods 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018. No excursions or monitor downtime was reported for this unit during the time period reviewed.

I also reviewed the ROP Annual report for 2017 and the ROP Semi-Annual report for reporting period 1/1/2018-6/30/2018, no deviations were reported for this unit during this reporting period.

EU324-18

25156 batch kettle in 324 building, consisting of a reactor, heat exchanger, and a receiver. Emissions are controlled by a service water cooled condenser and two parallel chilled condensers. The most recent PTI for this emission unit is PTI 19-14A.

- Controlled by service water cooled condenser (25159) vents to SV324-054 or operates in series with the chilled condenser pair (4804/4807).
- Controlled by chilled condenser pair (4804/4807) that vents to SV324-048. The condensers operate in parallel, but only one at a time, sharing a common coolant line and temperature monitor.

SC III.1 restricts the operation of the 25156 batch kettle unless the service water condenser 25159 coolant temperature is 37C or less. At the time of the inspection, service water condenser 25159 was 20.9C.

SC III.2 restricts the plant from operating the 25156 kettle, except when producing 204 fluid, unless the chilled condenser 4804/4807 coolant temperature is -8C or less. At the time of the inspection, condenser 4804 was -28.4C.

SC IV.1 limits the operation of 25156 batch kettle unless the service water condenser 25159 is installed, maintained, and operated in a satisfactory manner. As part of the records review, I requested the last two maintenance dates and associated activities for service water condenser 25159. On 7/23/2015 the vent flowmeter was troubleshooted and on 10/15/2018 the water flow transmitter was calibrated.

SC IV.2 requires the service water condenser 25159 to be equipped with, and maintain, a coolant temperature indicator. I viewed this unit during the inspection and it appears this requirement is being met.

SC IV.3 restricts the operation of 25156 kettle, except when producing 204 fluid, unless the chilled condenser 4804/4807 is installed, maintained, and operated in a satisfactory manner. The plant does not typically produce fluid 204. They maintain the ability to, however the production engineers operate under

the assumption that all requirements are to be met regardless of the fluid being produced. Condensers 4804 and 4807 were last calibrated on 3/16/2017 and 6/4/2013.

SC IV.4 building to equip and maintain chilled condensers 4804 and 4807 with condenser coolant exit temperature indicators. I viewed these units during the inspection and it appears this requirement is being met.

SC VI.1 requires monitoring and recordkeeping of the coolant exit temperatures for service water condenser 25159 on a continuous basis. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. I reviewed coolant exit temperatures from January 1, 2018 through December 31, 2018. Coolant temperature for service water condenser 25159 was below the 37C during times of production with the exception of an exceedance on 6/6/2018, which was reported in the ROP Semi-Annual report for the reporting period 1/1/2018-6/30/2018. See below for compliance reporting discussion.

SC VI.2 requires the plant to monitor and record, the chilled condenser 4804/4807 coolant temperature on a continuous basis, while the 25156 batch kettle is in operation, except when producing 204 fluid. "On a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The plant does not typically produce fluid 204. They maintain the ability to, however the production engineers operate under the assumption that all requirements are to be met regardless of the fluid being produced.

I reviewed coolant exit temperatures for chilled condensers 4804 and 4807 from January 1, 2018 through December 31, 2018. We viewed an apparent exceedance for chilled condensers 4804 and 4807 on 5/28/2018. The process was not in operation and the engineers were able to show that no vacuum was being pulled on the associated kettle.

SC VI.4 requires the VOC emission rate from EU324-18 to be calculated monthly, for the preceding 12-month rolling time period. SC I.1 restricts VOC emissions to below 20.0 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. VOC emissions for the 12-month rolling time period ending November 2018 were 7.45 tpy.

Compliance Reporting

I reviewed the ROP Annual report for 2017 and the ROP Semi-Annual report for reporting period 1/1/2018-6/30/2018, the following deviations were reported during these time periods.

On 1/1/2018, through a self-assessment, vent no. SV324-008 was identified to have a rain cap. This did not meet the requirement in PTI 19-14A, VIII.1, to discharge unobstructed. The corrective action was to re-permit the process. According to the permit engineer's evaluation for PTI 19-14B, SV324-008 serves a process that can be operated as an emission unit exempt from the PTI requirement under Rule 290 (R 336.1290). SV324-008 was removed from the permit conditions. There were no emission changes or other equipment changes involved in PTI 19-14B. The proposed change does not have any effect on regulation or rule applicability for the rest of the equipment covered by the PTI. PTI 19-14B was approved on 9/18/2018 as a subsequent revision.

On 6/6/2018 a high pressure condensate valve had an unknown leak, causing the process heat exchanger to become hot. The incident lasted approximately 13 minutes. This caused rinse material to be inadvertently heated during a cold rinse of the process. When the material was recycled to the kettle, it flashed into the vent, overwhelming the condenser. The malfunctioning valve was repaired. The heat exchanger temperature was given increased visibility on the process control screens to mitigate a future reoccurrence.

FGRULE290

- EU324-09
4810 process exempt from R201 permitting via R290.
Associated control device is 4811 condenser.

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. Production engineers stated the service water return temperature was their critical environmental monitoring point for this emission unit. The service water return temperature is maintained at less than 40C. During the

inspection, associated Kettle 4810 was in operation. We viewed the operator screen at approximately 11:49 and the service water temperature for condenser 4811 was 22.01C. As part of the records request, I viewed service water temperature data for the time period January 1, 2018 through January 1, 2019. Temperature was maintained to below 40C for this time period.

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) $\geq 2.0 \mu\text{g}/\text{m}^3$ and are controlled, are limited to less than or equal to 500 pounds per month (lbs/month).

I reviewed emissions records from December 2017 through November 2018. Emissions were below the R290 limit and constituents appeared to be aligned categorically with R290.

- **EU324-13**
5609 process exempt from R201 permitting via R290. Associated control devices are condenser HX-5609 and scrubber 25169.

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. Production engineers stated the service water return temperature and the flow on the scrubber were their critical environmental monitoring points for this emission unit. We observed this unit during the inspection. At 11:38 the local flow meter read 13.63 gallons per minute (gpm). We viewed the operator screen at approximately 11:49 and scrubber flow was 13.6 gpm and condenser HX-5609 was -28.6C. Scrubber flow is maintained greater than 13 gpm.

As part of the records request, I viewed service water temperature data for the time period January 1, 2018 through January 1, 2019. Temperature trends appeared to maintain below -20C. On 2-18-18 a data spike was noted and process engineers provided that the vents were closed during this period.

As part of the records request, I viewed scrubber flow data for the time period January 1, 2018 through January 1, 2019. Flow trends appeared to maintain a minimum of 13.0 gpm.

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 ITSL $\geq 2.0 \mu\text{g}/\text{m}^3$ and are controlled, are limited to less than or equal to 500 lbs/month. This process unit emits benzene as well as ethylbenzene which are carcinogens. According to R290, carcinogens with an IRSL $\geq 0.04 \mu\text{g}/\text{m}^3$ and are controlled, are limited to less than or equal to 10 lbs/month.

I reviewed emissions records from December 2017 through November 2018. Emissions were below the R290 limit and constituents appeared to be aligned categorically with R290.

Compliance Reporting

I reviewed the MON report, 40 CFR Part 63 Subpart FFFF report, for the reporting period 1/1/2017-12/31/2017 and 1/1/2018-6/30/2018. There were three deviations noted.

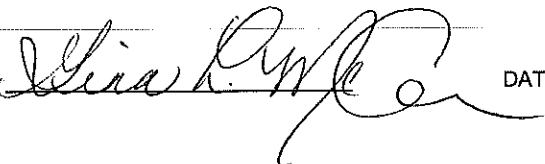
1) During an EHS audit under Michigan Audit Immunity Statute. RCRA tank and container inspection forms were being used to demonstrate compliance with the MON Waste Water Management Unit (WMU) inspection requirements. Corrective action was to implement MACT waste management unit inspection forms in addition 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. I also reviewed the ROP Annual report for 2017 and the ROP Semi-Annual report for reporting period 1/1/2018-6/30/2018, there were no additional deviations reported for this unit during this reporting period.

3) During a self-audit it was identified that sections of several NOCS reports were found with minor instance of incorrect information. In all cases, the facilities were operating as required. No excess emissions occurred. Corrective action included, identifying a tank correctly as a storage tank instead of a WMU, certain wastewater streams were not specifically identified, and certain wastewater streams were not associated with the appropriate waste management unit.

NAME



DATE

1-24-19

SUPERVISOR

