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

A404358172

FACILITY: Dow Silicones Corporation		**SRN / ID:** A4043
LOCATION: 3901 S Saginaw Rd, MIDLAND		**DISTRICT:** Bay City
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Amanda Karapas , Air Specialist		**ACTIVITY DATE:** 05/05/2021
STAFF: Gina McCann	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: EU324-01 and EU324-08		
RESOLVED COMPLAINTS:		

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

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Amanda Karapas (Air Specialist, DOW Silicones)
- Conner Kneip (Production Engineer for 324 Building, DOW Silicones)
- Lexi Helminski (Production Engineer for 324 Building, DOW Silicones)
- Jennifer Kraut (Air Specialist, DOW Silicones)
- Brandon Bishop (Environmental Specialist, DOW MiOps)

Records reviewed as part of the inspection were:

- ROP Annual report for 2020
- 40 CFR Part 64 CAM excursion/exceedance report for 7/01/2020-12/31/2020

At the time of the inspection both units were in compliance with the conditions of MI-ROP-A4043-2019.

EU324-01

4820 batch kettle process producing silane and siloxane products. This emission unit it 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. Table 1 shows the operating parameters of the control devices 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. Chilled condensers 4804 and 4807 alternate in operation. This 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. Table 1 shows the operating parameters of the control devices at the time of the

inspection. We also viewed the condenser in line and the local readout for it was 24.44C.

Table 1				
Condenser #	**Process/Operational Restriction**	**Coolant Exit Temperature**	**Time of Observation**	**Alarm Setpoint**
4804	**< -8C (17.6F)**	**-28C**	**9:22**	**-8.00C**
4807	**< -8C (17.6F)**	**Not in operation**		
4818	**< 40C (104F)**	**24.54C**	**9:34**	**35C**

SC VI.2 is the associated 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 defines 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, 2020 through May 5, 2021. Condensers 4804/4807 showed an apparent high temperature exceedance for the timeframe June 2, 2020 through July 3, 2020. Process engineers identified this as the coolant system was down for building wide maintenance. Additionally, an apparent high temperature exceedance was identified for the timeframe February 10, 2021 through February 15, 2021, which correlates to the coolant system compressor down for troubleshooting. I was able to verify that during times when the coolant exit temperatures were out of range, the process was not in operation.

SC III.5 requires the building to calibrate the temperature indicators for condensers 4804, 4807, and 4818. The temperature indicators were last calibrated on 3/9/2020 and 7/5/2016 for condenser 4818 (TT-1158). Condensers 4804 and 4807 coolant return temperature transmitters were last calibrated on 3/15/2021 and 3/16/2017.

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

3/19/2019 the heat exchanger internal RBI evaluation was performed and on 1/30/2018 there was an external vessel inspection.

SC IV.3 requires the building to maintain service water condenser 4818 and chilled condensers 4804 and 4807 with condenser coolant exit temperature indicators. During the inspection we were able to physically view where the temperature transmitters were placed on the units. It appears this requirement was being met at the time of the inspection.

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 March 2021 were 0.017 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 s unit to its normal or usual manner of operation as expeditiously as practicable. No excursions or monitor downtime were reported for the reporting periods 1/1/2020 through 12/31/2020.

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 1/1/2020 through 12/31/2020.

Compliance Reporting

I reviewed CAM excursion/exceedance summary reports as well as monitor downtime incident summary report for the reporting period 7/01/2020-12/31/2020. No excursions or monitor downtime was reported for this unit during the time period reviewed.

I also reviewed the ROP Annual report for 2020 and the ROP Semi-Annual report for reporting period 1/1/2020 through 12/31/2020, there were no 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 alternate 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. Table 2 shows the operating parameters of the control devices at the time of the

inspection.

Table 2				
Condenser #	**Process/Operational Restriction**	**Coolant Exit Temperature**	**Time of Observation**	**Alarm Setpoint**
4804	**< -8C (17.6F)**	**-28C**	**9:22**	**-8.00C**
4807	**< -8C (17.6F)**	**Not in operation**		
5618	**< 40C (104F)**	**24.25C**	**10:01**	**35C**

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 condenser was not in operation at the time of the inspection, instead condenser 4804 was.

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. 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. Table 2 shows the operating parameters of the control devices at the time of the inspection.

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 7/10/2021 water flow transmitter to heat exchanger had troubleshooting performed and on 9/19/2020 it was cleaned and replaced.

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. During the inspection we were able to physically view where the temperature transmitters were placed on the units. It appears this requirement was being met at the time of the inspection.

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 (TT-1157) was last calibrated on 12/6/2018 and 3/2/2015. Condensers 4804 and 4807 coolant return temperature transmitters were last calibrated on 3/15/2021 and 3/16/2017.

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 defines 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, 2020 through May 5, 2021. Condenser 5618 operated below 40C throughout this time period. Condensers 4804/4807 showed an apparent high temperature exceedance for the timeframe June 2, 2020 through July 3, 2020. Process engineers identified this as the coolant system was down for building wide maintenance. Additionally, an apparent high temperature exceedance was identified for the timeframe February 10, 2021 through February 15, 2021, which correlates to the coolant system compressor down for troubleshooting.

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 March 2021 were 0.016 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 period 1/1/2020-12/31/2020.

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 1/1/2020-12/31/2020.

Compliance Reporting

I reviewed CAM excursion/exceedance summary reports as well as monitor downtime incident summary report for the reporting period 7/01/2020-12/31/2020. No excursions or monitor downtime was reported for this unit during the time period reviewed.

I also reviewed the ROP Annual report for 2020 and the ROP Semi-Annual report for reporting period 1/1/2020 through 12/31/2020, there were no deviations reported for this unit during this reporting period.

NAME _____ DATE 6/4/2021 SUPERVISOR _____