

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

A404347372

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: 12/20/2018
STAFF: Gina McCann	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU212-01, EU212-03, EU212-05 and EU212-12		
RESOLVED COMPLAINTS:		

Inspection Date: 12/20/2018

Inspection Start: 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)
- Steve Warner (Production Engineer, 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
- Permit evaluation for PTI 108-18 and PTI 104-14A

EU212-01

- Controlled by chilled condenser 6060

This is a batch reaction process consisting of the 6054 batch kettle (agitated, jacketed kettle), a heater, a receiver, and a service water cooled heat exchanger located in 212 building. This unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF.

The most recent PTI for this emission unit is PTI No. 63-14A.

Special condition (SC) I.1. restricts VOC emissions to 0.88 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.3 requires the monthly and 12-month rolling time period records of the VOC emission rate from EU212-01 to be maintained. I reviewed the VOC emission rates for the 12-month rolling time period ending October 2018, emissions were 0.25 tpy.

SC III.1 restricts operation of EU212-01 unless the chilled condenser 6060 coolant temperature is 10 degrees Celsius or less. During the inspection, I observed the temperature at 2.0 degrees Celsius at 11:43 A.M. An audio and visual alarm is set to activate if the temperature reaches 9.00 degrees Celsius.

Calibration of the chilled condenser 6060 occurs on an annual basis. The last calibrations were on January 29, 2018, January 26, 2017 and February 15, 2016. SC IV.1 requires the chilled condenser 6060 to be installed, maintained, and operated in a satisfactory manner, except as allowed by SC IV.2.

SC IV.2. allows venting of EU212-01 through SV212-018, while bypassing chilled condenser 6060, for drum off of final products. Drum off can be determined when the level of the tank is viewed as lowering and SV212-007 is closed, which is indicated by turning red on the operators' screens.

SC VI.1. requires the plant to monitor and record, the chilled condenser 6060 coolant temperature on a continuous basis, at least once every 15 minutes, while EU212-01 is venting to it. I reviewed glycol temperature of chilled condenser 6060 from November 30, 2018 through December 20, 2018 at 9:43 A.M. The temperature was below the required 10 degrees Celsius during this time frame.

Compliance Reporting

No deviations were reported during the reporting periods, January 1, 2017 through December 31, 2017 or January 1, 2018 through June 30, 2018. No deviations were reported pursuant to the requirements of 40 CFR Part 63, Subpart FFFF.

EU212-03

No pollution control equipment.

This is a cold blend mixing process in 6019 Kettle with product drum-off at DV212DO. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF.

SC I.1 restricts VOC emission to 4.0 tpy based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.2. requires the VOC emission rate to be calculated monthly, for the preceding 12-month rolling time period. I reviewed VOC emissions for the 12-month time period ending October 2018. VOC emissions were 1.09 tpy.

SC III.1 restricts the period of time that the manway for 6019 Kettle is open during production operations to a maximum of 1.0 hour per day on an annual average. The lid of the Kettle has a sensor that is activated whenever the connection is broken between the lid and the Kettle. Every minute it is open is equal to 0.01667 of an hour. The timer starts as soon as the lid is opened and an alarm sounds at 30 minutes. The operator can acknowledge the alarm and it will sound every 15 minutes until lid closes. A secure process alarm (SPA) is in place, which is a timed manway alarm that operators cannot override.

The annual average shall be based on a rolling 12-month time period as determined at the end of each calendar month. SC VI.4 requires this log to be recorded. Based on the rolling 12-month time period November 1, 2017 through October 31, 2018, the average hours open were 0.27 hours.

SC III.2 restricts the period of time that the manway of 6019 Kettle is open during production operations to a maximum of 3.0 hours during any calendar day. SC VI.3 requires this log to be recorded. I reviewed hours the manway was open from November 1, 2017 through October 31, 2018. On November 7th, 27th and 28th, the manway of 6019 Kettle exceeded the allowed 3.0 hours during any calendar day restriction. Semiannual and Annual ROP reporting for 2017 identified the exceedances on November 7th and November 27th. A deviation was not reported for the exceedance on November 28th, 2017. The building was not counting manway open time during drum off which lasted 7.52 hours. Per an email dated 1/7/19 from Jennifer Kraut, this has since been corrected and the building is now including any time the manway is open unless the kettle is empty and clean of material.

I reviewed the permit eval form and it appears the actual production time (mixing/blending of product) is a separate step from drum-off and including time the manway is open during drum-off is the more conservative approach.

Compliance Reporting

I reviewed the ROP Annual report for 2017. Three deviations were identified for EU212-03. The dates of occurrence were October 8th, November 7th and November 27th of 2017. The "manway open/closed" sensor was not operating properly. Process alarms indicated the manway was open, but operators confirmed after each alarm incident that it was actually shut. The "manway open/closed" sensor was loose. This is a potential cause for the malfunction. In addition, excessive gum buildup on the manway lid may have been a contributing cause.

Corrective action was to properly secure the sensor. Gum buildup was removed, and procedures were revised to provide for more frequent inspection and removal of buildup. The run sheet was updated to include a procedure for adding c-clamps to each side of the kettle to secure the manway lid. Operators were trained on the use of c-clamps.

The three-hour exceedance was not reported for November 28th, 2017, in the 2017 Annual ROP deviation report.

No deviations were reported pursuant to the requirements of 40 CFR Part 63, Subpart FFFF.

EU212-05

No pollution control equipment.

This is a cold blend mixing process in 6009 Gum Kettle with product drum-off. The most recent PTI for this emission unit is PTI No. 108-18. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF.

SC I.1 restricts VOC emissions to 7.15 tpy, based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.2 requires the VOC emission rate from EU212-05 to be calculated, for the preceding 12-month rolling time period. I reviewed the 12-month rolling time period ending October 2018 and VOC emissions were 0.26 tpy.

SC I.2 restricts ethylbenzene emission to 0.5 tpy based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.3 requires the ethylbenzene emission rate from EU212-05 to be calculated, for the preceding 12-month rolling time period. I reviewed the 12-month rolling time period ending October 2018 and ethylbenzene emissions were 0.016 tpy.

Compliance Reporting

A deviation was reported for EU212-05, which occurred February and April, 2017. This unit was determined to be exempt from permitting under R201 and was utilizing R290 as compliance. During the two months, above, the emission unit exceeded R290 limits. Uncontrolled emissions of carcinogenic air contaminants with initial risk screening levels greater than or equal to 0.04 microgram per cubic meter exceeded 20 pounds per month for two months. Several batches of product that has carcinogenic air contaminant emissions were produced due a supply issues at an overseas plant. The product was not typically manufactured in EU212-01. Corrective action included implementing a weekly review of monthly emissions-to-date, as well as a schedule review in attempt to include future expected emission to compare to monthly limits. After the April event, a daily check of emissions month-to-date compared to monthly limits was implemented. The facility also permitted the equipment under PTI 108-18, which will mitigate future potential issues that may arise due to swings in production schedule.

EU212-12

Controlled by chilled condenser HX20407

This is a batch reaction process consisting of the 20400 batch kettle (an agitated, jacketed kettle), a trap, a receiver, and two service water cooled heat exchangers located in 212 building. This emission unit is subject to the requirements of 40 CFR Part 63, Subpart FFFF. The most recent PTI for this emission unit is PTI 48-14B.

SC I.1 restricts VOC emissions to 4.05 tpy based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.3 requires the monthly and 12-month rolling time period records of the VOC emission rate be recorded and available to the Department upon request. I reviewed VOC emission rates for the 12-month rolling time period ending October 2018. VOC emission rates were 2.29 tpy.

SC III.1. restricts the chilled condenser HX20407 coolant temperature to 10 degrees Celsius or less, when EU212-12 is venting to it. I viewed the glycol temperature at 2.2 degrees Celsius during the inspection. An audio and visual alarm is set to activate if the temperature reaches 9.00 degrees Celsius.

SC VI.1. requires the plant to monitor and record, the chilled condenser HX20407 coolant temperature on a continuous basis, at least once every 15 minutes, while EU212-12 is venting to it. I reviewed glycol temperature of chilled condenser HX20407 from November 30, 2018 through December 20, 2018 at 12:37 P.M. The temperature was below the required 10 degrees Celsius during this time frame.

Calibration of the chilled condenser HX20407 occurs on an annual basis. The last calibrations were on January 29, 2018, January 26, 2017 and February 15, 2016. SC IV.1 requires the chilled condenser HX20407 to be installed, maintained, and operated in a satisfactory manner, except as allowed by SC IV.2 and IV.3.

SC IV.2 allows the plant to vent EU212-12 through SV212-003, while bypassing chilled condenser HX20407, for up to three hours per day. SC VI.4. requires the plant tom keep daily records of the time that EU212-12 vents through SV212-003. I reviewed records for November 1, 2017 through October 31, 2018. EU212-12 did not vent through SV212-003 for more than three hours per day.

Compliance Reporting

No deviations were reported during the reporting periods, January 1, 2017 through December 31, 2017 or January 1, 2018 through June 30, 2018. No deviations were reported pursuant to the requirements of 40 CFR Part 63, Subpart FFFF.

NAME *Wanda R. Kline*

DATE *1-9-19*

SUPERVISOR *C. Gore*