

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

A404361829

<b>FACILITY:</b> Dow Silicones Corporation		<b>SRN / ID:</b> A4043
<b>LOCATION:</b> 3901 S Saginaw Rd, MIDLAND		<b>DISTRICT:</b> Bay City
<b>CITY:</b> MIDLAND		<b>COUNTY:</b> MIDLAND
<b>CONTACT:</b> Amanda Karapas , Air Specialist		<b>ACTIVITY DATE:</b> 02/11/2022
<b>STAFF:</b> Gina McCann	<b>COMPLIANCE STATUS:</b> Compliance	<b>SOURCE CLASS:</b> MEGASITE
<b>SUBJECT:</b> EU109-02 and EU109-04		
<b>RESOLVED COMPLAINTS:</b>		

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

- Gina McCann (EGLE-AQD, Senior Environmental Quality Analyst)
- Adam Shaffer (EGLE-AQD, Environmental Quality Analyst)
- Amanda Karpas (Dow-Air Specialist)
- Steve Rausch (Dow-Resins Plant Production Coordinator)
- Amy Chang (Dow-Environmental Specialist Trainee)
- Allison Melvin (303 bldg Production Engineer)-filling in for Kevin Torres and Taylor Byndon.

Records reviewed as part of the inspection were:

- ROP Annual report for 2020
- 40 CFR Part 63 Subpart FFFF, MON MACT periodic report for 2020.

**This inspection consisted of two emission units, EU109-02 and EU109-04. Both were in compliance with their associated permits at the time of the inspection.**

**EU109-02**

**This emission unit is a mixing process in 2207 Kettle with product. Emissions are vented through scrubber 2214 and condenser 24472 as well as other vents. 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. The most recent PTI for this emission unit is PTI No. 174-20. Condenser 24472 is shared with EU109-04.**

**VOC emissions from EU109-02 are restricted to 1.47 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. Special condition (SC) VI.5. is the associated monitoring and recordkeeping requirement that requires the plant to calculate the VOC emission rate from EU109-02 monthly, for the preceding 12-month rolling time period. VOC emissions for the 12-month rolling time period ending December 2021 were 0.75 tpy. The emissions were calculated starting from August 1, 2021, which is the date for the affective change submitted in the ROP minor modification.**

**Hydrocarbons C7-C9 (CAS No. 68920-06-9) emissions are restricted to 0.70 tpy based on a 12-month rolling time period as determined at the end of each calendar month. Special condition (SC) VI.6 is the associated monitoring and recordkeeping requirement that requires the plant to calculate the Hydrocarbons C7-C9 (CAS No. 68920-06-9) emission rate from EU109-02 monthly, for the preceding 12-month rolling time period.**

**Hydrocarbons C7-C9 (CAS No. 68920-06-9) emissions for the 12-month rolling time period ending December 2021 were 0.04 tpy. The emissions were calculated starting from August 1, 2021, which is the date for the affective change submitted in the ROP minor modification.**

Emissions are controlled by condenser 24472. SC III.1. restricts operation of EU109-02 unless the exit coolant temperature of condenser 24472 is at a maximum of 10°C or less. SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the exit coolant temperature of condenser 24472 with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. I reviewed exit coolant temperature records for condenser 24472 for the time period January 1, 2021 through February 1, 2022. The condenser 24472 (temperature transmitter (TT) 2069) operated below 10°C or less during this time period, with the exception of September 23, 2021. The process was empty and not running during the period the condenser temperature was high. During the inspection the condenser temperature was 4.6°C with a local readout of 3.39 °C.

Emissions are controlled by condenser 24472. SC III.2. restricts operation of EU109-02 unless the liquid flow rate of condenser 24472 is at a minimum of 3 gallons per minute. SC VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the liquid flow rate of condenser 24472 with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. I reviewed records the liquid flow rates of condenser 24472 for the time period January 1, 2021 through February 1, 2022. The condenser 24472 (flow transmitter (FT) 5012) operated at a minimum of 3 gpm or more during this time period, with the exception of September 23, 2021. The process was empty and not running during the period the condenser low was low. During the inspection the condenser flow was 5.6 gpm with a local readout of 4.53. The SPA (secure process alarm) was set at 4 gpm.

Emissions are also controlled by scrubber 2214. SC III.3. restricts operation of EU109-02 when vents are directed to scrubber 2214 unless the liquid flow rate of scrubber 2214 is at a minimum of 2.75 gallons per minute (gpm). The process only needs to vent to the scrubber when processing the product 4-2830. During other times, vents are not routed to the scrubber. SC VI.4. is the associated monitoring and recordkeeping requirement the requires the plant, when venting to scrubber 2214, to monitor and record, on a continuous basis, the scrubber 2214 liquid flow rate with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. I reviewed liquid flow records for scrubber 2214 for the time period January 1, 2021 through February 1, 2022. When vents were directed to the scrubber, it operated in a satisfactory manner. Kettle 2207, associated with the product that requires the use of this scrubber, was not processing at the time of the inspection. No flow obtained.

SC IV.2. requires the plant to calibrate the exit coolant temperature indicator of condenser 24472 (equipment ID 102644273) in a satisfactory manner. SC IV.3. requires the plant to calibrate the liquid flow indicator of condenser 24472 (equipment ID 102647480) in a satisfactory manner. Below are the last two calibrations for each of these devices.

Basic fin. date	Equipment	Description	Description7
08/08/2016	102647480	TITLE V TRANS FLOW FOR 24472 COND	CALIBRATE (ENV 00021)
09/28/2020	102647480	TITLE V TRANS FLOW FOR 24472 COND	48M,IC (4 YR)
Basic fin. date	Equipment	Description	Description7
06/29/2017	102644273	TITLE V TT EPTCX/J2-5MV/4-20MA/12-	CALIBRATE (ENV 00007)
04/15/2021	102644273	TITLE V TT EPTCX/J2-5MV/4-20MA/12-	48M,CALIBRATE (ENV 00007)
Basic fin. date	Equipment	Description	Description7
03/30/2017	102647445	TITLE V TRANSMITTER FLOW D/P	CALIBRATE (ENV 00021)
03/28/2021	102647445	TITLE V TRANSMITTER FLOW D/P	48M,CALIBRATE (ENV 00021)
Basic fin. date	Equipment	Description	Description7
06/28/2016	102657500	TITLE V TRANS FLOW / 2267 SCRUBBER	CALIBRATE (ENV 00021)
06/28/2020	102657500	TITLE V TRANS FLOW / 2267 SCRUBBER	48M,CALIBRATE (ENV 00021)

#### **EU109-04**

The 2262 process produces silane products. Emissions are controlled by scrubber 2267 and condenser 24472. This emission unit is subject to the requirements of 40 CFR Part 63, Subparts FFFF and to the equipment leak provisions of 40 CFR Part 63, Subpart UU. The most recent PTI for this emission unit is PTI No. 156-20.

SC I.1. restricts VOC emissions to 2.35 tpy. SC VI.4. is the associated monitoring and record keeping requirement that requires the plant to calculate the VOC emission rate from EU109-04 monthly, for the preceding 12-month rolling time period. VOC emissions for the 12-month rolling time period ending December 2021 were 0.46 tpy. The emissions were calculated starting from October 18, 2021, which is the date for the affective change submitted in the ROP minor modification.

Emissions are controlled by condenser 24472. EU109-04 shares this condenser with EU109-02. SC III.1. restricts operation of EU109-04 unless the exit coolant temperature of condenser 24472 is at a maximum of 10°C or less. SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the exit coolant temperature of condenser 24472 with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. I reviewed exit coolant temperature records for condenser 24472 for the time period January 1, 2021 through February 1, 2022. The condenser 24472 operated below 10°C or less during this time period, with the exception of September 23, 2021. The process was empty and not running during the period the condenser temperature was high. During the inspection the condenser temperature was 4.6° C with a local readout of 3.39 °C.

Emissions are controlled by condenser 24472, shared with EU109-02. SC III.2. restricts operation of EU109-04 unless the liquid flow rate of condenser 24472 is at a minimum of 3 gallons per minute. SC VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the liquid flow rate of condenser 24472 with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all

measured data values during each period. I reviewed records the liquid flow rates of condenser 24472 for the time period January 1, 2021 through February 1, 2022. During the inspection the condenser flow was 5.6 gpm with a local readout of 4.53. The SPA was set at 4 gpm.

Emissions are also controlled by scrubber 2267 (FT2224). SC III.3. restricts operation of EU109-04 unless the liquid flow rate of scrubber 2267 is at a minimum of 2.75 gpm. SC VI.3. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the liquid flow rate of scrubber 2267 with instrumentation acceptable to the AQD. For the purpose of this condition, "on a continuous basis" is defined as an instantaneous data point recorded at least once every 15 minutes. The permittee may record block average values for 15 minute or shorter periods calculated from all measured data values during each period. I reviewed records the liquid flow rates of scrubber 2267 for the time period January 1, 2021 through February 1, 2022. The scrubber flow operated above 2.75 gpm when emissions were directed to the scrubber. During the inspection the flow of scrubber 2267 was 9.7 gpm with a SPA set at 3.0 gpm. No local readout was available.

SC IV.2. requires the plant to calibrate the exit coolant temperature indicator of condenser 24472 (equipment ID 102644273) in a satisfactory manner. SC IV.3. requires the plant to calibrate each liquid flow indicator of condenser 24472 (equipment ID 102647480) and scrubber 2267 (equipment ID 102657500) in a satisfactory manner. Below are the last two calibrations for each of these devices.

Basic fin. date	Equipment	Description	Description7
08/08/2016	102647480	TITLE V TRANS FLOW FOR 24472 COND	CALIBRATE (ENV 00021)
09/28/2020	102647480	TITLE V TRANS FLOW FOR 24472 COND	48M,IC (4 YR)
Basic fin. date	Equipment	Description	Description7
06/29/2017	102644273	TITLE V TT EPTCX/J2-5MV/4-20MA/12-	CALIBRATE (ENV 00007)
04/15/2021	102644273	TITLE V TT EPTCX/J2-5MV/4-20MA/12-	48M,CALIBRATE (ENV 00007)
Basic fin. date	Equipment	Description	Description7
03/30/2017	102647445	TITLE V TRANSMITTER FLOW D/P	CALIBRATE (ENV 00021)
03/28/2021	102647445	TITLE V TRANSMITTER FLOW D/P	48M,CALIBRATE (ENV 00021)
Basic fin. date	Equipment	Description	Description7
06/28/2016	102657500	TITLE V TRANS FLOW / 2267 SCRUBBER	CALIBRATE (ENV 00021)
06/28/2020	102657500	TITLE V TRANS FLOW / 2267 SCRUBBER	48M,CALIBRATE (ENV 00021)

**40 CFR Part 63 Subpart FFFF, MON MACT**

During the inspection I asked how each of these units complies with the MON. The following is the response:

Standard batch tracking is performed for all Group 2 vent streams. The process is monitored under LDAR. 109 building has several Group 1 wastewater PODs. The WW is treated using the RCRA treatment option. Also, the wastewater is managed using the fixed roof option for wastewater tanks, tightly closed caps for the individual drain systems and closed lids/submerged fill for containers.

**Compliance Reporting**

**Each of the two emission units have identified R336.1201 deviations. They previously operated as R336.1290 exempt units. However, each unit contains trace amounts of ethylene oxide, which has an initial risk screening level (IRSL) less than available to use the permit exemption R336.1290. The resolution was to permit the emission units. Each unit was issued a permit and the ROP modification was received as described in the above text.**

1. Group or Source Wide ID General Conditions	2. Table/Condition No. GC No. 43 (Rule 201)	3. Date(s) of Occurrence 1/1/2021 – 6/30/2021	4. Previously reported? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, Date 9/13/2019, 3/13/2020, 9/15/2020 & 3/12/2021	5. Duration of Deviation See below
6. Method Used to Determine Compliance Status (if different from method specified in RO Permit) EH&S Audit			7. Description of Deviation Multiple Rule 290 emission units located at 100 Block and 2504, 2505, 2602, 321 & 501 buildings were found to contain a material that is not eligible for Rule 290 (R 336.1290).	
8. Reason for Deviation and Description of Corrective Action Taken Reason for deviation: During the course of negotiations regarding the Consent Decree with the Environmental Protection Agency (EPA), Dow Silicones conducted a compliance review and audit at the Facility ("Audit"); the Audit determined that these emission units contain trace amounts of, and therefore may emit, ethylene oxide (EO). The initial risk screening level (IRSL) for EO is less than 0.04 ug/m <sup>3</sup> , so Rule 290 is not available. The presence of EO was not previously recognized.  Corrective Action: In accordance with the schedule outlined in the January 24 <sup>th</sup> , 2020 Consent Decree (CD) between the EPA and Dow Silicones Corporation (DSC), DSC either exempted affected emission units under Rule 291 or submitted an air Permit to Install (PTI) application to EGLE's Air Quality Division by November 30 <sup>th</sup> , 2020. For those emission units remaining that aren't subject to the requirements of the CD, Dow silicones will either pursue an exemption under Rule 291 or submit an air PTI application to the agency. Because Dow Silicones believes EO is present in trace amounts, emissions are expected to be minimal.				

NAME 

DATE 3/7/2022

SUPERVISOR 