

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

A404367807

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| FACILITY: Dow Silicones Corporation | | SRN / ID: A4043 |
| LOCATION: 3901 S Saginaw Rd, MIDLAND | | DISTRICT: Bay City |
| CITY: MIDLAND | | COUNTY: MIDLAND |
| CONTACT: Jim Alger , Midland Area State Air Permitting Specialist | | ACTIVITY DATE: 06/15/2023 |
| STAFF: Adam Shaffer | COMPLIANCE STATUS: Compliance | SOURCE CLASS: MEGASITE |
| SUBJECT: Partial Compliance Evaluation of FG432BOILERS, EUBOILER12, EUBOILER13 and EUBOILER14. | | |
| RESOLVED COMPLAINTS: | | |

A partial compliance evaluation (PCE) consisting of an onsite inspection and records review was conducted by Air Quality Division (AQD) staff Adam Shaffer (AS) of the Dow Silicones Corporation (DSC) site located in Midland, MI. Applicable records were requested on June 6, 2023, to verify compliance with Renewable Operating Permit (ROP) No. MI-ROP-A4043-2019b, specifically emission units (EU)BOILER12, EUBOILER13, EUBOILER14 and flexible group (FG)432BOILERS. Through these, select records were requested and reviewed through FGBOILERMACT-NG. An in-person inspection to verify compliance was later completed on June 15, 2023.

Facility Description

DSC is a chemical processing facility. The facility is a mega-site and is a major source of hazardous air pollutants (HAPs), nitrox oxides (NOx), particulate matter (PM) and volatile organic compounds (VOCs). Additionally, the site is subject to various federal regulations and the site is operating under an EPA Civil Order No. 19-11880.

Offsite Compliance Review

DSC is required to submit semi-annual and annual compliance reports per Part A General Conditions 19-23 of MI-ROP-A4043-2019b. Previous reports were reviewed for select time periods. In the last annual compliance report submitted for 2022, one deviation was noted for FG432BOILERS and was described as the boilers not having a device operating in a satisfactory manner to collect and monitor the NOx emissions on a continuous basis. DSC went on to describe the deviation as either the CEMS failed its daily calibration or had issues that prevented the CEMS from functioning properly. The cause of the CEMS issues included sample pump failure, low calibration gas pressure, and CEMS communication failure. Each occurrence, DSC would follow up on and corrective actions included any necessary repairs and rerunning calibration checks to ensure that things are working properly. After speaking with AQD Technical Programs Unit (TPU) staff, no further action is necessary at this time.

A second deviation was noted for FG432BOILERS when DSC failed to install, calibrate, maintain, and operated a device to monitor and record NOx emissions on a continuous basis for EUBOILER12. The deviation occurred on March 21, 2022, and the daily calibration did not occur due to an empty oxygen span gas cylinder. The boiler was operated normally during the downtime period and there were no excess NOx emissions expected to have occurred. A new cylinder was installed, and calibration checks were rerun with passing results. After further review, no further action is necessary at this time.

Based on the timing of the inspection, the 2022 Michigan Air Emissions Reporting System (MAERS) Report was reviewed. Upon review it appears DSC uses "Emission Master" software when determining emissions for each product. DSC uses MAERS emission factors

for natural gas used. Additionally, fugitive emissions such as from LDAR monitoring and emissions from spills are added in as well. Upon initial review of the MAERS Report, discrepancies were noted between the emissions reported and the records provided for several recent inspections. In a follow up phone conversation on April 24, 2023, it was concluded that the discrepancies were from DSC reporting both process emissions and fugitive emissions together. Data was reviewed for several emission units inspected. Minor errors were noted, however, after further review the 2022 MAERS Report appears acceptable. Additionally, at this time the supporting documentation is acceptable, though it was stated to DSC staff moving forward that more specific supporting documentation to better understand how DSC came to the amount of emissions reported per each unit will be required. It should be pointed out that during the review of the 2022 MAERS Report, emission units and the flexible group associated with this inspection were not reviewed but will be reviewed during the next reporting season.

Compliance Evaluation

A request was sent to Mr. Jim Alger, Midland Area State Air Permitting Specialist, of DSC on June 6, 2023, for records required by ROP No. MI-ROP-A4043-2019a (now MI-ROP-A4043-2019b), specifically for EUBOILER12, EUBOILER13, EUBOILER14, FG432BOILERS and FGBOILERMACT-NG. The onsite inspection was later completed on June 15, 2023.

AQD staff AS arrived at the facility at 8:04am. Weather conditions at the time were cloudy skies, temperatures in the high 50's degrees Fahrenheit, and winds to the east at 0-5 mph. Upon arrival AS met with Mr. Adler and several other company staff to initially go over records and later was provided a tour of the site, specifically of EUBOILER12, EUBOILER13 and EUBOILER14. Follow up records were provided by Ms. Becky Meyerholt, Senior Environmental Specialist, and site-specific questions were answered by company staff at the time of the inspection.

As mentioned above DSC is a chemical processing facility. During the inspection, the components of EUBOILER12, EUBOILER13, EUBOILER14, FG432BOILERS and FGBOILERMACT-NG were reviewed and discussed at length with company staff.

ROP No. MI-ROP-A4043-2019b

EUBOILER12, EUBOILER13 and EUBOILER14

These three emission units are each for a 103 MMBTU/hr natural gas fired boiler with low-NOx burners.

FG432BOILERS

This flexible group is for three natural gas-fired boilers, EUBOILER12, EUBOILER13, and EUBOILER14; each rated at 103 MMBTU/hr with low-NOx burners. This flexible group is also subject to the requirements of 40 CFR Part 63, Subpart A (General Provisions) and Subpart DDDDD (National Emission Standards for Hazardous Air Pollutants: Industrial, Commercial and Institutional Boilers and Process Heaters – Major Sources). Emission units associated with this flexible group are EUBOILER12, EUBOILER13 and EUBOILER14.

Onsite Observations

The three boilers were observed during the course of the inspection with DSC stating that all three boilers were not in operation at that time. Boiler plates were noted for each boiler and a minor discrepancy was observed in the boiler size (101.760 MMBtu/hr) versus the boiler size (103 MMBtu/hr) noted in the ROP. Temperature and natural gas monitors were noted for each boiler.

Per Special Condition (SC) III.1, the permittee shall not operate FG432BOILERS unless a plan that describes how emissions will be minimized during startup(s), shutdown(s) and malfunction(s) has been approved by the AQD District Supervisor. It was verified by DSC staff that the most recent plan dated February 5, 2010, is still being followed.

Per SC IV.1, the permittee shall equip and maintain each boiler included in FG432BOILERS with a low-NOx burner. At the time of the inspection, it appeared the main operator that would know the location of the burners was addressing another issue and was not available to show where the burners are located. It was verified following the inspection that a low NOx burner is built into the burners for each boiler. This appears acceptable.

Three stacks are listed in association with this flexible group and were observed during the course of the site inspection. Though the dimensions were not measured they appeared to be consistent with what is listed in MI-ROP-A4043-2019b.

Records Review

This flexible group is subject to a NOx emission limit of 0.041 lb/MMBTU based on a 24-hour rolling average as determined each hour. Records were requested and provided for select time periods. Based on the records reviewed, it appears that DSC is meeting this emission limit.

This flexible group is also subject to a CO emission limit of 81.2 tons per year (tpy) per a 12-month rolling time period. Records were requested and reviewed for select time periods. For the month of April 2023, 44.98 lbs of CO was reported emitted. As of April 2023, 479.89 (approximately 0.239 tons) of CO emissions were reported emitted per a 12-month rolling time period which is well within the emission limit. Previous 12-month rolling time periods reviewed also appeared to be within the applicable emission limit.

Per SC VI.1, the permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the fuel usage for each of the three boilers included in FG432BOILERS on a continuous basis. As stated above, a fuel usage monitor was observed for all three boilers at the time of the inspection. DSC staff stated that each of the monitors were most recently calibrated on 12/19/22 and 03/01/23. At the time of the inspection, two of the three monitors had initially appeared to be reporting fuel usage, however, all three boilers were stated by DSC staff to be down. DSC looked further into the potential issue following the inspection and it was determined that typical operation of each boiler is around 100,000 SCFH. Numbers that would have been noted during the inspection were 50-100 SCFH which DSC staff stated is essentially 0 in comparison and would indicate the boilers weren't operating. After further review this appears acceptable.

Per SC VI.2, the permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record the NOx emissions for each of the three boilers included in FG432BOILERS on a continuous basis and according to the procedures specified further in this condition. It was stated following the inspection that the low-NOx burner is built into each of the burners for each boiler. This appears acceptable.

Additionally, the CEMS was observed during the course of the inspection and appeared to be operating properly. Annual RATAs are completed for each NOx burner with the most recent one completed in May 2023, and there had appeared to be no issues during testing. Records of NOx emissions were requested and provided as well as reviewed during the inspection. Based on the records reviewed, DSC appears to be adequately recording NOx emission records.

Per SC VI.3, the permittee shall keep various records further explained in this special condition. Various documents were provided prior to the inspection with additional documents reviewed during and provided following the inspection. Based on the records reviewed and speaking with company staff, it appears that DSC is meeting the applicable record requirements pertaining to this special condition.

Per SC VI.4, the permittee shall keep track of monthly / 12-month rolling time period average fuel use records and the annual capacity factor for each boiler included in FG432BOILERS. Records were requested and provided for select time periods. It was concluded that the records appear acceptable at this time.

Per SC VI.5, the permittee shall keep track of 24-hour rolling average NOx emission records. Records were requested and provided for select time periods. Based on the records provided, DSC appears to be keeping track of applicable records.

Per SC VI.6, the permittee shall keep monthly / 12-month rolling CO emission records. Records were requested and reviewed for select time periods. Based on the records reviewed, DSC appears to be keeping track of applicable records.

Per SC VI.7, the permittee shall keep annual records of the normal operating range for each boiler associated with FG432BOILERS. DSC staff stated this would be the natural gas records that were provided. After further review, the records provided appear acceptable.

FGBOILERMACT-NG

Requirements for existing Gas 1 (Natural gas only) for existing boilers and process heaters at major sources of hazardous air pollutants per 40 CFR Part 63, Subpart DDDDD. These existing boilers or process heaters must comply with this subpart no later than January 31, 2016, except as provided in 40 CFR 63.6(i).

Emission units EUBOILER12, EUBOILER13, and EUBOILER14 are included in this flexible group.

Records Review

It was stated by DSC staff that the three boilers being inspected only burn natural gas. Based on comments by company staff and review of the National Emissions for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (NESHAP Subpart DDDDD), it appears that each of the three boilers is required to complete a tune up every five years. This would appear to be due to the boilers being installed with an O2 trim system and per 40 CFR 63.7540(10) / 63.7540(12) of the NESHAP Subpart DDDDD. The most recent tune ups were completed in 2018 and the next scheduled tune ups are to be completed this year (2023). Records of the 2018 tune ups were requested and provided. This appears to be the first required tune up to be completed for the boilers due to the most recent changes of the NESHAP Subpart DDDDD. The

energy assessments were completed on January 26, 2016. A Notification of Compliance was submitted in 2016 and included the three boilers. Maintenance records for the three boilers were provided and additional records were reviewed onsite. The three boilers were observed during the course of the inspection and were each installed with a CEMS, and a natural gas flow meter as mentioned above. After further review, DSC appears to be in compliance with the NESHAP Subpart DDDDD.

Conclusion

Based on the observations made and records reviewed, DSC appears to be in compliance with MI-ROP-A4043-2019b, specifically the portions related to EUBOILER12, EUBOILER13, EUBOILER14 and FG432BOILERS.

NAME Adam J. Smith

DATE 07/13/23

SUPERVISOR C. Hase