

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

A404362579

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: 04/08/2022
STAFF: Gina McCann	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU2703-03		
RESOLVED COMPLAINTS:		

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

- Gina McCann (EGLE-AQD, Environmental Quality Specialist)
- Adam Shaffer (EGLE-AQD, Environmental Quality Analyst)
- Amanda Karpas (Dow-Air Specialist)
- Brandon Bishop (Plant Production Coordinator)
- Mark Sitek (2703-03 Production Engineer)

This inspection consisted of one emission unit (EU), EU2703-03. This EU was recently issued PTI 920-84C on November 16, 2021 and subsequently a ROP R336.1216(2) modification was received on December 15, 2021. The last time this EU was inspected, a violation notice was issued for installing control equipment under exemption R285(2)(f) that didn't first meet the R336.1278(4) exclusion from exemption. The re-permitting of this EU resolves this VN issued December 4, 2019.

EU2703-03 process feeds trichlorosilane and allyl chloride continuously into a reactor. The crude product from the reactor is loaded into an intermediate receiver before being fed to a distillation train. The product flows from the distillation train to the product tanks. Excess reactants are fed back to the reactor.

EU2703-03 was originally venting to compressor 22790 and condenser 22795, along with either scrubber 9390 A or B. However, vent compressor 22790 and condenser 22795 have been interlocked out and therefore all emissions are vented to the Throx when in operation, with the option of venting to scrubber 9390 A or B. The removal of the dual stage compressor and the condenser were equipment changes in the recent permit update. In addition to removal of this equipment, the permit application updated emission calculation from the Consent Decree with U.S. EPA.

At the time of the inspection this emission unit was in compliance with the associated permit conditions discussed below.

Emissions are controlled by venturi scrubber 9390 A and B (scrubbers alternate in operation and act as backup for one another) or to FGTHROX. Special condition (SC) III.1 restricts operation of EU2703-03 unless one of the following is true, either EU2703-03 emissions are exhausted to 9390 A or B scrubber and the water flow rate for the scrubber in use is 6.0 gallons per minute or greater, or EU2703 03 emissions are exhausted to FGTHROX and FGTHROX is installed, maintained, and operated in a satisfactory manner as provided in the Special Conditions for

FGTHROX. SC VI.2. is the associated monitoring and recordkeeping requirement that requires the plant to monitor and record, on a continuous basis, the total scrubber water flow rate for the scrubber in use of scrubbers 9390 A and 9390 B with instrumentation acceptable to the AQD District Supervisor. For the purposes 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 water flow rates, for the scrubber in use, for the time period of May 1, 2021 through April 7, 2022. Water scrubber flow rates are monitored view flow transmitter (FT) 1615. One flow transmitter is installed for both scrubbers and the record is for total flow.

In the records review, there appeared to be a time period when the scrubber flow was below 6 gpm in January 2022. We verified that the process was not in operation through PI data and the excel logic sheet. The remaining water flow rates were above 6 gpm when process emissions were vented to them.

We also discussed the operating scenarios when venting to FGTHROX. If FGTHROX temperature goes below 1800°F, FGTHROX automatically locks out EU2703-03 from venting to it. In this scenarios, EU2703-03 initiates shutdown procedures.

At the time of the inspection EU2703-03 was not in production, because their product tanks were full, and they were waiting for their customers to draw the tank down. Since the EU was not in operation we did not observe a scrubber flow value. However, we did view the control room screens and were able to see the secure process alarm (SPA) was set a 7.00 gallons per minute (gpm).

SC IV.2 requires the plant to calibrate the total scrubber water flow rate indicator in a satisfactory manner acceptable to the AQD District Supervisor. Calibrations are performed on a 48 month cycle. Below is a screen shot of calibration records.

Functional Location	Notification	MntPlan	MntItem	System status	Total actual costs	Type	MAT Description
H541-2703__9190__9390-1615-FT	10016053939	1316768	1466863	CLSD PCNF PRT NMAT PRC ...	441.19	2010	C00 [CLPR-04] 48M,CA
H541-2703__9190__9390-1615-FT	10011586417			CLSD NMAT PRC SETC	0.00	2010	C00 CALIBRATE
H541-2703__9190__9390-1615-FT	10012916625				613.20	2020	R07 Verify FT1615 is re
H541-2703__9190__9390-1615-FT	10013228932				137.94	2020	R07 Verify FV1615 is w
H541-2703__9190__9390-1615-FT	10012786100				146.96	2010	C00 CALIBRATE
H541-2703__9190__9390-1615-FT	10012948340				1,177.09	2020	R07 Need valve repair
H541-2703__9190__9390-1615-FT	10012795960				123.78	2010	C00 CALIBRATE

SC III.2 restricts loading the allyl chloride storage tank unless a vapor-tight connection between the allyl chloride storage tank and the loading vessel is established and maintained whenever allyl chloride is being loaded. During the inspection we discussed how this was verified. In the field prior to transfer, the plant will pressure up nitrogen in the lines and do a leak check. This is part of the standard operating procedures (SOP) for operators prior to hooking up to tank. Once the nitrogen is in the line the operator will place a soapy water mixture on the connection to verify there is no leaks. Each new connection is always checked like this. If a leak is found, then maintenance is called.

Special condition (SC) I.1. restricts VOC emission to 6.7 ton per year (tpy) based on a 12-month rolling time period as determined at the end of each calendar month. SC VI.3 is the associated

monitoring and recordkeeping requirement that requires the plant to calculate and keep, in a satisfactory manner, records of monthly and 12-month rolling time period VOC emissions for EU2703 03 using production records, operating records, and/or other data acceptable to the AQD District Supervisor. VOC emissions for the 12-month rolling time period ending February 2022 were 0.72 tpy.

At the time of the inspection the EU2703-03 was in compliance with the permit conditions described above.

NAME 

DATE 4/15/2022

SUPERVISOR 