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

A404336205

FACILITY: Dow Corning - Midland Plant		**SRN / ID:** A4043
LOCATION: 3901 S Saginaw Rd, MIDLAND		**DISTRICT:** Saginaw Bay
CITY: MIDLAND		**COUNTY:** MIDLAND
CONTACT: Mike Gruber , Air & Water Team Leader		**ACTIVITY DATE:** 08/26/2016
STAFF: Kathy Brewer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: EU303-07		
RESOLVED COMPLAINTS:		

Participants
Mike Gruber, Mi Ops Silicone Plant Air & Water Team Leader
Laura Lindgren, Mi Ops Silicone Plant, Environmental Specialist
Kathy Brewer, MDEQ AQD Saginaw Bay EQA

DESCRIPTION
The EU303-07 emission unit is a batch polymer & resin process including reactors, vacuum pumps, receivers, condensers, scrubber, and related equipment. The VOCs stripped from the process are collected for closed loop recycle or scrapped for incineration off-site. Emissions are vented to the site wide THROX the majority of the time. The process can also emit to the site wide scrubbers.

The emission unit is subject to the requirements of 40 CFR Part 63, subparts A, and FFFF (MON). condensers (1602, 1634, 1635, 3420, 3458) are CAM subject devices (40 CFR Part 64) for VOCs. Dow Corning staff operate under the most recent PTI requirements as the PTI contains the monitoring and operating conditions that would be specified in any updated CAM plan.

The PTI for this emission unit on August 26, 2016 was PTI No. 281-96A. Subsequent to the August inspection, the EU303-07 emission unit was spilt into two PTIs No. 146-16 and No. 147-16.

The batch manufacturing process consists of an agitated, jacketed kettle, water trap, receiver, and service water condenser. Typical production includes loading the kettle, heating and mixing raw materials and removing solvent prior to cooling, filtering, and packaging the finished product. Production can also include the use of a vacuum pump which vents through a glycol condenser. Solvent cleanouts may be used between batches depending on their compatibility.

The compliance evaluation included a tour of the process including reactors, condensers, venture scrubber No.23370, metering devices, on site records, and AQD Saginaw Bay District file review. Information reviewed during the inspection indicated that the EU303-07 emission unit was in compliance with the requirements contained in the ROP and PTI.

ATTACHMENTS
VOC 12 month rolling averages summary for August 2015 to July 2016
VOC 12 month rolling average values used to calculate July 2016 VOC 12 month average
Parametric monitoring records February and July 2015, February' 2016, August 19 -25, 2016:
-Condensers 1602, 1634, 1635, 1637, 3420, 3458; Vent to Throx status

File Review
2015 Title V Annual deviation report
2016 Title V Semi Annual deviation report Jan 1 to Jun 30, 2016
EU303-07 CAM plan submitted with ROP application on A1-001 form
2015 CAM summary for Jan1 to Dec 31, 2015
2016 CAM summary for Jan 1 to Jun 30, 2016
PTI application and MDEQ EvalForm No. 146-16
PTI application and EvalFormNo. 147-16
Parametric monitoring records for Feb & July 2015, Feb 2016, Aug 19 -26, 2016
MON NOCs 11/2/2015 + 9/16/2016 NOCRS
EMISSION LIMITS

Pollutant	12-month rolling time period ending on calendar month	Pounds VOC per year	Limit 30 Ton per Year
VOC	Aug 2015	122.7	0.06
VOC	Oct 2015	298.2	0.15
VOC	Feb 2016	298.2	0.15
VOC	July 2016	233.6	0.12

The VOCs emitted vary dependent upon products produced. EU303-07 is currently able to produce up to 13 different products. 14 VOCs are generated by production of the various products.

MATERIAL LIMITS
There are no material limits for the process in the ROP.

PROCESS/OPERATIONAL RESTRICTIONS
The permit requires that if the exhaust gas temperature of condenser No. 1637 or No. 3458 exceeds 50 F (10 C), the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. Exceeding this parameter is an excursion. (40 CFR 64.6(c)(2), R 336.1213(3))

Based on calculations the condensers are adequate to condense the majority of the condensable emissions in the vent stream if the condensers operate with an exhaust temperature at less than or equal to 50F/10C. Onsite records reviewed indicate the facility monitored and maintained the exhaust gas temperature less than or equal to 50F/10C except as noted below. At all times when the exhaust temperatures were above 50F/10C, the process exhaust was vented to the site wide thermal oxidizer (Throx)

Date	No. 1637 Exhaust Temp (Celsius)	Dates >10C	No.3458 Exhaust Temp (Celsius)	Dates >10C	CAM requirement	Venting to Throx
FEB 1 -7, 2015	>-13, <16	2/1-6/2015	>-10, <0		Yes	Yes
JULY 1-7, 2015	>-8, <20	7/1-7/2015	>-9, <26	7/3-7/2015	Yes	Yes
FEB 23-29, 2016	>-2, <18	2/23,26-27,29/2016	>-11, <8		Yes	Yes
Aug 19 - 25 2016	>-10, <24	8/21-25/2016	>-2, <12.4	8/24/2016	Yes	Yes

The permit requires that if the exhaust gas temperature of condenser No. 1634 or No. 1635 exceeds 95°F (35C), the permittee shall implement corrective action and maintain a record of action taken to prevent recurrence. Exceeding this parameter is an excursion.

Date	No. 1634 Exhaust Temp (Celsius)	No. 1635 Exhaust Temp (Celsius)	Dates >35C	CAM requirement*	Venting to Throx
FEB 1 -7, 2015	>0, <21	>-8, <11		Yes	Yes
JULY 1-7, 2015	>15, <23	>-1, <6		Yes	Yes
FEB 23-29, 2016	>11, <19	>1, <13		Yes	Yes

Aug 19 - 25 2016	>11, <24	>27, <38	8/19	Yes	Yes

*The CAM plan on record contains an exhaust gas temperature of <50F.

I reviewed the on site records for condenser No. 1634 and No. 1635. Onsite records reviewed indicate the facility monitored and maintained the exhaust gas temperature less than or equal to 35 C at all times recorded except for No. 1635 on August 19, 2016 for 18 hours. The building vents were being sent to Throx for all times reviewed.

The permit requires that if the coolant flow rate of condenser No. 1602 and No. 3420 is less than 20 gallons per minute, respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. Exceeding this parameter is an excursion. (40 CFR 64.6(c)(2), R 336.1213(3))

Date	No. 1602 flow rate GPM	No. 3420 flow rate GPM	CAM requirement	Dates < 20 GPM	Venting to Throx
FEB 1 -7, 2015	>50, <56	>56, <63	Yes		Yes
JULY 1-7, 2015	>45, <51	>59, <61	Yes		Yes
FEB 23-29, 2016	>52, <57	>61, <67	Yes		Yes
Aug 19 - 25 2016	>50, <54	>59, <64	Yes		Yes

Based on manufactures information, the condensers need at least 20 GPM flow rate to operate properly. The coolant flow rate affects the heat transfer rate of the condenser. When operating properly, the inlet condenser flow rate will be equal to or greater than 20 gpm. The flow rate is continuously monitored. The flow meters are connected to a data acquisition system. The meters are calibrated on a regular schedule. A flow requirement for the condensers was not included in PTI No. 146-16 or PTI No. 147-16.

I reviewed the on site records for condenser No. 1602 and No. 3420. Onsite records reviewed indicate the facility monitored and maintained the coolant flow rate equal to or greater than 20 GPM. The permit requires that if the coolant exit temperature of condenser No. 1602 and No. 3420 exceeds 85 degrees F (29.5 C), respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. Exceeding this parameter is an excursion. (40 CFR 64.6(c)(2), R 336.1213(3))

Date	No.1602 Exhaust Temp (Celsius)	No.3420 Exhaust Temp (Celsius)	Dates >29.5 C	CAM requirement	Venting to Throx
FEB 1 -7, 2015	>17, <28	>15, <26		Yes	Yes
JULY 1-7, 2015	>24, <29.3	>24, <29		Yes	Yes
FEB 23-29, 2016	>20, <26	>20, <29		Yes	Yes
Aug 19-25, 2016	>25, <27	>25, <30	8/23, 8/29	Yes	Yes

I reviewed the on site records for condenser No. 1602 and No. 3420. Onsite records reviewed indicate the facility monitored and maintained the coolant exit temperature less than or equal to 85 F (29.5 C) except for No. 3420 on August 23 and 26, 2016 for a total of 90 minutes. The PTI 147-16 was issued on November 15, 2016 with a 35 C coolant exit temperature operating requirement.
Since August of 2014, the venture scrubber #1673 has operated for 32 hours and has been removed. The venture scrubber #23370 has operated 197 hours. Both products that use the scrubbers have been discontinued with the last product batch in July 2016. According to site records, the 23370 scrubber was not operating during February 2015, July 2015, and February 2016. The #23370 scrubber was not operating during the inspection.

DESIGN/EQUIPMENT PARAMETERS
The condensers appear to be installed, maintained, & operated in a satisfactory manner. The 23370 scrubber was off during the inspection and the 1673 scrubber has been removed. During the inspection I recorded the following instantaneous observations

Glycol condenser 3458	Temperature (Celsius)	-4.6	10
Vent condenser 1634	Temperature (Celsius)	18.8	29.4
Vent Condenser 1637	Temperature (Celsius)	2.5	10
Vent condensers 1602 & 3420	Flow indicators	Flow present	

TESTING/SAMPLING
The ROP contains no testing or sampling requirements but does require that testing related records shall be maintained on file for a period of five years.

MONITORING/RECORDKEEPING
Permittee is required to monitor and record, on a continuous basis, the exhaust gas temperature of condensers No. 1634, No. 1635, No. 1637 and 3458. Records review indicate that the condenser exit gas temperature is continuously monitored. The temperature transducers are connected to a data acquisition system. The temperature transducers are calibrated on a regular schedule. Attached are example records from February 2015, July 2015, February 2016, and Aug 19 - 26, 2016.

For several time periods the values do not change as frequently as expected. Dow Corning environmental staff explained that data compression is used for the site Process Information (PI) data management. The values recorded only change when the change is outside of a range established for the parameter. If the range is one degree Celsius, any temperature variation within one degree of the previous recorded value will be recorded as the previous value.

The permittee is required to monitor and record, on a per shift basis, the liquid flow rate of venture scrubbers #1673 and # 23370. Since August of 2014, the venture scrubber #1673 has operated for 32 hours and has been removed. The venture scrubber #23370 has operated 197 hours. Both products that use the scrubbers have been discontinued with the last product batch in July 2016. According to site records, the 23370 scrubber was not operating during February 2015, July 2015, and February 2016. After a review of the CAM plan and the process, this requirement was determined to not be a requirement under 40 CFR 64.6 (CAM)

The permittee is required to maintain batch production records and other records sufficient to demonstrate compliance with the emission limits specified in SC I.1. The process emissions are based on production data emission factors using Emission Master software. The VOCs emitted are dependent upon products produced. EU303-07 is currently able to produce up to thirteen different products. Fourteen different VOCs are generated by production of the various products.

Records showed the following VOC emissions for the periods reviewed below.

Rolling 12 month period ending	VOCs (lbs)
Aug 2015	122.7
Oct 2015	298.2
Feb 2016	298.2
July 2016	233.6

REPORTING
Title V Annual and Semi annual deviation reports have been received. CAM excursion/exceedance summary reports and CAM monitoring downtime reports were submitted. Per the 2015 Title V deviation report and CAM summary report, on September 21 and 22, 2015, the exhaust gas temperature limit on the condenser was exceeded for a total of 37 and 33 minutes respectively. No emission limit exceedances were reported. The glycol supply line control valve was changed to auto and the glycol return temperature set point was reduced by -15C. The EU303-07 VOC lb/hr emission rate was 2.8 lbs/hr for the period of condenser temperature excursion on September 21, 2016, and 0.34 lb/hr on September 22, 2016 according to correspondence received on December 15, 2016. EU303-07 permit 281-96A does not have a lb/hr VOC limit.

The NOCS for the 40 CFR Part 63 Subpart FFFF (MON) was received on November 2, 2015. The NOCS contained a list of miscellaneous organic chemical manufacturing process units (MCPU) and an engineering assessment for Building 303 including Condensers No.1602 and No.3420. The NOCSR update received on September 9,2016 contains the 303 Building operating scenario andn Group 1 equipment listings, including devices associated with EU303-07.

STACK/VENTS

The stack information below was confirmed during the inspection

Stack & Vent ID	Description	Maximum Exhaust Dimensions (inches)	Minimum Height Above Ground (feet)	Comment
1. SV303-016		2[2]	42[2]	This stack will be regulated under R290. Sept. 2010 PTI Eval showed all TACs below screening levels
2. SV303-017		2[2]	42[2]	This stack will be regulated under R290. Sept. 2010 Eval showed all TACs below screening levels
3. SV303-019	1600 batch kettle through condenser DV1602	2	36	R 336.1225; Will be included in EU303-15
4. SV303-046	1600 batch kettle through condenser DV1637	2[2]	43[2]	R 336.122; Will be included in EU303-15
5. SV303-001	1656 catch tank vent to atmosphere	6[1]	40[1]	R 336.1225; Will be included in EU303-15

NAME Kathy O'Rourke DATE 12-16-2016 SUPERVISOR C. Hare