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

B421246352

FACILITY: DOW CORNING CORP		**SRN / ID:** B4212
LOCATION: 1635 N GLEANER RD, HEMLOCK		**DISTRICT:** Saginaw Bay
CITY: HEMLOCK		**COUNTY:** SAGINAW
CONTACT: Michelle Kendall , Environmental Specialist		**ACTIVITY DATE:** 09/27/2018
STAFF: Kathy Brewer	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MINOR
SUBJECT: Compliance inspection for PTI 110-11A and R290 Recent audit notification found some pollutants had no calcs but potential to emit still below allowed limits. PM on baghouse performed but records from 2015-2017 not available		
RESOLVED COMPLAINTS:		

PTI 110-11A was issued to Dow Silicones Corporation HIMS on September 9, 2013.
The inspection included viewing process areas for emission units in PTI 110-11A and rule 290 permit exempt emission units, review of on-site documents, and review of AQD files. Michelle Kendall and Jennifer Kraut accompanied me during the inspection. Additional DSC HIMS staff provided an overview of the site operations and air regulatory related information.

PTI 96-83 for the silica bed hopper dust collector is listed as a current PTI for the facility but should be voided. PTI 110-11A includes Operating, Equipment, and Monitoring/Recordkeeping requirements for the equipment in 93-83.

The site was in compliance with requirements at the time of the inspection. However, two compliance issues had recently been discovered by the facility and corrected prior to the date of the inspection.

1. R290 records: On September 13, 2018 the facility submitted a letter to the MDEQ that notified the MDEQ of R290 calculation errors discovered on March 1, 2018 during a Voluntary Environmental Audit. The site now records required R290 emission information and has generated historical emission rates for the subject processes since January 2018. Review of processes confirm that the processes w/o calcs either are physically unable to operate at rates to exceed R290 or have production practices that limit the potential to emit below R290 levels of 500 or 1000lbs/month.
2. Maintenance records of control device filter differential pressure checks for 2015, 2016 and 2017 were not kept. The filters were checked and changed as needed. The facility has reinstituted the control device filter differential pressure checks into the preventative maintenance standard operating procedures.

The site's production focus is finishing materials rather than bulk material production. The production processes include filtration, formulation, and fabrication. Products include medical grade gels, lubricants, 2-part base products, tubing, and extrusion parts. They receive raw materials via truck.

Emissions are generated by material transfer from hopper to mixer, the mixer is followed by a heat exchanger and condensers. Emissions from processes that need ammonia controlled are exhausted to the ammonia scrubber.

Emission Unit ID	Emission Unit Description (Process Equipment & Control Devices)	Flexible Group ID
EUMIXER2556	**Process mixer used for making silicone fluid or silicone elastomer products. The mixer is controlled by a primary (2564) and secondary (2568) condenser. The exhaust is vented to atmosphere through SVM1-111 when producing High Consistency Rubbers (HCRs). When producing Liquid Silicone Rubbers (LSRs), the exhaust stream is vented to a common control device, a two stage vertical packed bed scrubber system.**	**FGM1MIXERS**
EUMIXER1290	**Process mixer used for making silicone fluid or silicone elastomer products. The mixer is controlled by a primary (1291) and secondary (1461) condenser. The exhaust is vented to atmosphere through SVM1-101 when producing High Consistency Rubbers (HCRs). When producing Liquid Silicone**	**FGM1MIXERS**

	Rubbers (LSRs), the exhaust stream is vented to a common control device, a two stage vertical packed bed scrubber system.	

The PTI special conditions applicable to the above emission units are contained in the requirements for FG1MIXERS

Flexible Group ID	Flexible Group Description	Associated Emission Unit IDs
FGM1MIXERS	**Two independent mixers used for making silicone fluid or silicone elastomer products. The mixers each have their own primary and secondary condensers for control. The exhaust from each mixer is vented to atmosphere when producing High Consistency Rubbers (HCRs). When producing Liquid Silicone Rubbers (LSRs), the two mixers share a two stage vertical packed bed scrubber system for control, which exhausts though stack SVM1-133. The process includes a silica hopper that is used by both mixers and is controlled by a dust bin vent filter, exhausting though stack SVM1-125.**	**EUMIXER2556, EUMIXER1290**

Both mixers can make non-ammonia products. LSR has all vents exhausted through SVM1-133 (ammonia scrubber). HCRS has the option to vent non ammoinia product emissions to SVM1-135 (previously SVM1-101)

The processes operates fairly consistently throughout year.

POLLUTION CONTROL EQUIPMENT: Condensers, two stage vertical packed bed scrubber system, dust "bi vent" filter

I. EMISSION LIMITS

Pollutant	Limit	Time Period/ Operating Scenario	Equipment	Testing / Monitoring Method	Underlying Applicable Requirements
1.hexamethyldisiloxane	**43.5 tpy**	**12-month rolling time period as determined at the end of each calendar month**	**FGM1MIXERS**	**SC VI.4**	**R 336.1205(3), R 336.1225**

The facility is compliant with this limit based on records review.

II. MATERIAL LIMITS: NA

III. PROCESS/OPERATIONAL RESTRICTIONS

1. The permittee shall not operate FGM1MIXERS unless a malfunction abatement plan (MAP) as described i Rule 911(2), for the control devices associated with FGM1MIXERS, has been submitted no less than 30 days prior to start-up of the packed bed scrubber system, and is implemented and maintained. The MAI shall, at a minimum, specify the following: ***(R 336.1225, R 336.1331, R 336.1910, R 336.1911)***

MAP submitted July 16, 2012.
The site performs:
Bin Vent annual check & filter change
Diff Pressure calibration (see notes under SC VI.5)
Condenser temp calibration on all four condensers

Scrubber dP daily, weekly piping check
6 month packing

operating ranges
Condensers 5-15 celsius
pH 3-17
flow 10gpm

A process shutdown will occur if the monitoring information indicates that the control device operating parameter are out of established ranges.

IV. DESIGN/EQUIPMENT PARAMETERS

1. The permittee shall not operate either mixer in FGM1MIXERS unless the associated condensers are installed maintained, and operated in a satisfactory manner, pursuant to manufacturer's specifications. Satisfactor operation of the condensers includes: **(R 336.1224, R 336.1225, R 336.1910)**
   a.) Maintaining the coolant exit temperature of each condenser at 20 degrees Celsius or less.
   b.) Regular inspection and cleaning of the internals of each condenser in accordance with the MAP.

2. The permittee shall not operate either mixer in FGM1MIXERS while producing Liquid Silicone Rubber (LSR unless the two stage vertical packed bed scrubber system is installed, maintained, and operated in a satisfactory manner, pursuant to manufacturer's specifications. Satisfactory operation of the scrubber systen includes: **(R 336.1224, R 336.1225, R 336.1910)**
   a.) Maintaining the pH in the scrubbing liquid between less than 7.0.
   b.) Maintaining the liquid flow rate according to the manufacturer's specifications.

A summary of attached control device monitoring data and readings taken during the inspection is below. All were compliant with Special Conditions in the PTI.

Date	Approximate Maximum Condenser 1461 Temperature (limit <20 Celsius)	Approximate Maximum Condenser 1291 Temperature (limit <20 Celsius)	Approximate Maximum Scrubber pH (limit <7)	Approximate Minimum Scrubber flow (Limit of 10 gpm minimum in MAP)
Mar 10, 2018	7.5	11	2.5	14.6
Jan 10, 2018	7.5	10.8	7.5	10.9
Nov 10, 2017	8.2	11.5	3	13
Aug 10, 2017	7	3.7	3.7	18
Sept 27, 2018	4.8	4.4	2.4	15

3. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor the pH and liquid flow rate of the packed bed wet scrubber system for FGM1MIXERS on a continuous basis, during operation of either of the mixers. **(R 336.1224, R 336.1225, R 336.1910)**

4. The permittee shall install, calibrate, maintain and operate in a satisfactory manner, devices to monitor the coolant exit temperature for each of the condensers for FGM1MIXERS on a continuous basis, during operation of the associated mixer. **(R 336.1224, R 336.1225, R 336.1910)**

   Condenser 1461 calibration reviewed.
   Use test sheet. If out of range they follow up with verification that instrumentation range is accurate fo application and/or replace instrument.

Aug 9, 2018 calibration for 1461 calibration data sheet reviewed. One out of range. Maintenance note tha terminal connections were tightened and recalibrated to w/in range.

5. The permittee shall not operate the silica hopper for FGM1MIXERS unless the dust bin vent filter is installed maintained, and operated in a satisfactory manner, pursuant to manufacturer's specifications which shall b described in the preventative maintenance plan, as required by SC III.1. Satisfactory operation include maintaining the differential pressure according to manufacturer specifications. **(R 336.1224, R 336.1225 R 336.1910)**

6. The permittee shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor th differential pressure of the dust bin vent filter during use of the silica hopper. The device shall sound an alarn if the differential pressure exceeds the manufacturer specifications. **(R 336.1224, R 336.1225, R 336.1910)**

A review of on site 2015, 2016, 2017 and May 2018 maintenance and calibration records found :
pH & flow calibration conducted annually
Bin Vent annual check & filter change conducted
Fabric filter check/change had been performed
dP check records performed in Aug 2018 , not performed for 2015, 2016, 2017 (see VI.5)
Inquiry by DSC staff determined that filter checks had occurred
The site has reinstituted the dP Preventative Maintenance from the MAP into SAP
Scrubber flow meter calibrations and pH meter calibrations are performed every 6 months

During the inspection the bin vent filter dP reading of 1.2" H2O was observed
Condenser temp calibration on DV1461 condenser was performed (attached)

V. TESTING/SAMPLING
Records shall be maintained on file for a period of five years. **(R 336.1201(3)): NA**

VI. MONITORING/RECORDKEEPING
Records shall be maintained on file for a period of five years. **(R 336.1201(3))**

1. The permittee shall monitor and record the pH level and the liquid flow rate of the packed bed wet scrubbe system for FGM1MIXERS once during each batch while producing LSR. **(R 336.1224, R 336.1225, R 336.1910)**

2. The permittee shall record the coolant exit temperature of the condensers for the associated mixer once durin each batch. **(R 336.1224, R 336.1225, R 336.1910)**

Records requested and attached showed the facility monitored control devices and maintained record per permi requirements.

3. The permittee shall complete all required calculations in a format acceptable to the AQD District Supervisor b the last day of the calendar month, for the previous calendar month, unless otherwise specified in an monitoring/recordkeeping special condition. **(R 336.1224, R 336.1225, R 336.1910)**

4. The permittee shall keep, in a satisfactory manner, monthly and 12-month rolling time period, as determined a the end of each calendar month, records of hexamethyldisiloxane emissions from FGM1MIXERS, as require by SC I.1. The permittee shall keep all records on file at the facility and make them available to the Departmen upon request. **(R 336.1224, R 336.1225, R 336.1910)**

On site records were reviewed including ERD monthly emissions from each mixer for the January 2018 recorde emissions. Below is a summary of attached 12 month rolling records. A more detailed January 201 calculation inputs is also attached.

Pollutant/LIMIT	Time Period/ Operating Scenario	Aug 2017Monthly (TPY)	Nov 2017 Monthly (TPY)	Jan 2018 Monthly (TPY)	Mar 2018 Monthly (TPY)

1.hexamethyldisiloxane 43.5 TPY	12-month rolling time period as determined at the end of each calendar month	1.25	1.49	1.48	1.52

5. The permittee shall maintain a log of all maintenance activities conducted according to the preventative maintenance plan required pursuant to SC III.1. The permittee shall keep this log on file at the facility and make it available to the Department upon request. **(R 336.1224, R 336.1225, R 336.1910, R 336.1911)**

Copies of example maintenance records for filter inspections, bin vent dP calibration, pH probe calibration, scrubber flow calibration, and condenser temperature monitor calibrations are attached. Maintenance records of control device filter differential pressure checks for 2015, 2016 and 2017 were not kept. 2018 records showed control device filter differential pressure checks were conducted and records were maintained. The filters were checked and changed as needed. The facility has reinstituted the control device filter differential pressure checks into the preventative maintenance standard operating procedures.

6. The permittee shall record the date and time that the alarm sounds for the dust bin vent filter along with any corrective actions taken. The permittee shall keep all records on file at the facility and make them available to the Department upon request.

Copies of example records of Alarms for bin vent filter several dates in 2017-2018 (#1348 switch number) are attached. Record for Aug 16, 2018 showed alarm test. On attached graphs, "Off = not alarming, On = in alarm mode.

VII. REPORTING

1. Within 30 days after installation of stacks SVM1-101, SVM1-111, and SVM1-133, the permittee or the authorized agent pursuant to Rule 204, shall notify the AQD District Supervisor, in writing, of the completion of the activity. **(R 336.1201(7)(a))**

VIII. STACK/VENT RESTRICTIONS

The exhaust gases from the stacks listed in the table below shall be discharged unobstructed vertically upwards to the ambient air unless otherwise noted:

Stack & Vent ID (Description)	Maximum Exhaust Diameter/Dimensions (inches)	Minimum Height Above Ground (feet)	Underlying Applicable Requirements
1. SVM1-125[a] Filter on 500 silica hopper	NA	35[1]	R 336.1225
2. SVM1-133[a] Ammonia scrubber vent BOTH HCR & LSR vent to scrubber	NA	56.5[1,b]	R 336.1225
3. SVM1-101[a] Non ammonia containing post mix vent now SVM1-135 HCR only	NA	56.5[1,b]	R 336.1225
3. SVM1-111[a] Pre ammonia scrubber vent . Was vent 111 on DV2556. Currently electronically	NA	56.5[1,b]	R 336.1225

disconnected so cannot be used/opened (2013)			

[a] This stack is not required to be discharged unobstructed vertically upwards
[b] This stack height requirement applies on and after November 8, 2013

IX. OTHER REQUIREMENTS: NA

RULE 290: Noncompliant for records but corrected

On September 13, 2018 the facility submitted a letter to the MDEQ that notified the MDEQ of R290 calculation errors discovered on March 1, 2018 during a Voluntary Environmental Audit. A review of production materials found the site had not been calculating all air contaminants that R290 requires to meet the exemption. Calculations are based on production and/or process and activities. Historically actual calculations were only maintained for processes that have the potential to exceed R290 values.

The site now records required R290 emission information and has generated historical emission rates for the subject processes since January 2018. The information reviewed has not shown any emissions would be above the amount allowed per R290. Emissions will now be calculated on all processes. Compliance with the exemption requirements will be validated on a monthly basis through reasonable inquiry. A PTI application will not be required for these emissions as long as they continue to meet the R290 exemption requirements.

The facility provided the attached list of up to date Rule 290 emission units. There are 18 listed.

On site review of monthly calculations for R290 exempt emission units confirmed the historical emissions were low relative to allowed emissions. Review of several processes confirmed that the processes w/o calcs either are physically unable to operate at rates to exceed R290 or have production practices that limit the potential to emit below R290 levels.

Example R290 review included :

Pressure Sensitive Adhesives (EGM1-01)
PSA has Controlled emissions. The site now uses Emission Master calculations. They had previously used best engineering assumptions. This is one of the Rule 290 EUs where the Audit determined some chemicals were not being tracked.

Silica handling system (EGM1-06)
Silica records show 170,000 lbs silica is loaded per month on average
R290 exemption from 2001 has calcs based on 2,000,000 silica loading with emissions of 1.25 lbs. The emission calculation for silica also includes the silo and 3 hoppers. One hopper (DV1821) emissions are included in PTI 110-11A so actual R290 emissions are lower.

R290 emission records are attached for :
Pressure Sensitive Adhesives (EGM1-01) for December 2016 – November 2017, April 2017 – March 2018, and August 2017 – July 2018

706 Mixer 300 gallon tank (EGM1-05) August 2017 – July 2018

The highest month of emissions was 295.1 pounds in August 2017 on EGM1-01, below the R290 allowed emissions of 500 pounds.

NAME _____ DATE 11/16/2018 SUPERVISOR _____