

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

A404324225

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: 01/29/2014
STAFF: Jennifer Lang	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: Scheduled Inspection - EU321-01, EU322-03, EU322-06 & EU322-11		
RESOLVED COMPLAINTS:		

Inspection date: 1/29/14  
Inspection started: 10:20 am  
Inspection ended: 12:50 pm

Dow Corning and MDEQ-AQD staff present during the inspection.

Jenny Lang (MDEQ-AQD, Environment Engineer Specialist)  
Steve Moser (Dow Corning, Assistant General Council)  
Mike Gruber (Dow Corning, Air & Water Team Leader)  
Chris Caswell (Dow Corning, Air Quality Engineer)

### EU321-01

Compliance Status: Compliance

Items noted during the inspection.

- EU321-01 covers the 40x resin process including reactors, distillation, storage tanks, condensers, scrubbers, separators and related equipment. This process is equipped with the following air pollution control equipment: condenser (24623), venturi scrubber (11472). Venturi scrubber no. 11472 precedes the "polish scrubber" (scrubber nos. 7170 and 4776 in series). The "polish scrubber" was installed under AQD Rule 285 to comply with the MON (40 CFR Part 63, Subpart FFFF). According to Randy Engblade (Dow Corning, Manufacturing Engineer, 321 Building), scrubber no. 11472 vents to the site-wide THROX, and condenser no. 24623 vents directly to atmosphere. In the event the THROX goes down, the "polish scrubber" and a newly installed carbon control system will control emissions prior to discharge to the atmosphere under the MON. MON stack testing for the "polish scrubber" and carbon control system are currently planned for the end of February beginning of March 2014. I did not inspect FGTHROX, FGSITSCRUBBERS, or FGSITEBLOWER (flexible groups associated with EU321-01) during my inspection as I previously inspected them on 11/13/13 and found them to be in compliance with air quality rules and regulations. The process was operational at the time of my inspection.
- Air Permit to Install (PTI) No. 174-12 covers EU321-01. This permit was issued on 2/27/13. ROP modification application no. 201300048 was received by the MDEQ-AQD on 3/7/13. This application covers the addition of PTI 174-12 to ROP No. MI-ROP-A4043-2008 (hereinafter "ROP"). To date, the PTI has not been rolled into the ROP. It was also determined during the inspection that ROP modification application nos. 201100011 and 201200019 can be void as items discussed in these applications were presumably covered in PTI No. 174-12 (which was issued after these applications were submitted). As a result, Dow Corning agreed to submit an email request to void the applications.
- Condition no. VI.1 of table EU321-01 of PTI 174-12 states, Dow Corning (hereinafter "DC") shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant return temperature of condenser no. 24623. Condition no. III.1 of the same table in the PTI states, if the coolant return temperature of condenser 24623 exceeds 40 degrees C, the permittee shall implement correction action and maintain a record of action taken to prevent reoccurrence. At 11:52 am, I observed the following operational parameter data for condenser no. 24623 in the control room for EU321-01 at 321Building. Randy Engblade, DC Manufacturing Engineer, provided the data.

1 of 12

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 24623 coolant return temperature	20.53 degrees C (instantaneous)	Hi - Hi ≥ 55 degrees C Hi ≥ 30 degrees C Lo ≤ -5 degrees C Lo - Lo ≤ -5 degrees C

\*\*Alarm set points are based on instantaneous values.

Reactor no. 24622 vents to condenser no. 24623. Reactor no. 24622 was in a reaction step during the inspection.

- Condition no. VI.2 of table EU321-01 of PTI 174-12 states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the liquid flow rate of scrubber no. 11472. Condition no. III.2 of the same table in the PTI states, if the liquid flow rate of scrubber no. 11472 is less than 3.0 gallons per minute, the permittee shall implement correction action and maintain a record of action taken to prevent reoccurrence. At 11:55 am, I observed the following operational parameter data for scrubber no. 11472 in the control room for EU321-01 at 321Building. Randy Englade, DC Manufacturing Engineer, provided the data.

Operational Parameter	Observed Value	Alarm Set Point**
Scrubber 11472 liquid flow rate	3.8 gpm (instantaneous)	Lo ≤ 3 gpm Lo - Lo ≤ 2 gpm

\*\*Alarm set points are based on instantaneous values.

HCl tank 4755 vents to scrubber no. 11472.

- Condition no. VI.3 of table EU321-01 of PTI 174-12 states, DC shall maintain a record of the date, time, and duration of every low flow alarm (i.e., scrubber flow is less than 3 gallons per minute), as well as actions taken to restore proper flow for venturi scrubber no. 11472. During the inspection, I asked for these records for last quarter 2013 (i.e., October – December 2013). On 2/3/14, I received the requested information. According to information provided by DC (see attached), there were no low flow alarms during the fourth quarter of 2013 while the process was operating. DC also reported that no data are available for the period 10/7/13 1:20 pm through 10/8/13 11:20 am because the building lost power, but no processes were operating at this time.
- Condition no. VI.4 of table EU321-01 of PTI 174-12 states, DC shall maintain a record of the date, time, and duration of every high temperature alarm (i.e., coolant return temperature exceeds 40 degrees C), as well as actions taken to restore proper temperature for condenser no. 24623. During the inspection, I asked for these records for last quarter 2013 (i.e., October – December 2013). On 2/3/14, I received the requested information. According to information provided by DC (see attached), there were no high temperature alarms during the fourth quarter of 2013 while the process was operating. No data are available for the period 10/7/13 1:20 pm through 10/8/13 11:20 am because the building lost power, but no processes were operating at this time.
- Condition no. VI.5 of table EU321-01 of PTI 174-12 states, within 30 days following the end of each calendar month, permittee shall calculate and record emissions from the process for the previous month to demonstrate compliance with the 12-month rolling time period emission limit specified in condition no. I.2. Condition no. I.2 of the same table in the PTI limits VOC emissions from EU321-01 to 3.4 tpy. During the inspection, I asked for the 12-month rolling total VOC emissions through December 2013. On 2/3/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC emissions through December 2013 for EU321-01 were 0.75 tpy.
- Condition no. VII.1 of table EU321-01 of PTI 174-12 states, each semiannual report of deviations shall include summary information on the number, duration and cause of CAM excursions and/or exceedances and the corrective actions taken. Condition no. VII.2 of the same table states each semiannual report of deviations shall include summary information on the number, duration and cause (including unknown cause, if applicable) for CAM monitor downtime incidents (other than monitor downtime associated with zero and span or other daily calibration checks, if applicable). According to the latest ROP deviation report received

2 of 12

on 9/16/13 for reporting period 1/1/13 through 6/30/13, there were no CAM excursions and/or exceedances or monitor downtime incidents for EU321-01.

**EU322-03**

Compliance Status: Compliance

Items noted during the inspection.

1. EU322-03 covers the silizane manufacturing process. This process is equipped with the following air pollution control equipment: condensers (6391, 6392, 7604, 7605, & 7623).
2. Condition no. VI.1 of table EU322-03 of ROP No. MI-ROP-A4043-2008 (hereinafter "ROP") states, DC shall monitor and record the following, on a continuous basis (i.e., at least once every 15-minutes):
  - The outlet temperature for condenser nos. 6391 and 6392.
  - The process gas outlet temperature from condenser no. 7623.

Condition nos. III.1 and 2 of the same table in the ROP specifies the following operational parameter limits for each of the aforementioned condensers.

- The coolant outlet temperature for condenser nos. 6391 and 6392 shall not exceed 30 degrees F (-1.11 degrees C).
- The process gas outlet temperature from condenser no. 7623 shall not exceed 30 degrees F (-1.11 degrees C).

At 12:11 pm, I observed the following operational parameter data for condenser nos. 6391 and 6392 in the control room for EU322-03 at Building 322. Ryan Shuman, DC Manufacturing Engineer, provided the data. There was no load on the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 6391 coolant (glycol) outlet temperature	-39.7 degrees C (instantaneous)	Hi ≥ -5 degrees C (23 degrees F)
Condenser 6392 coolant (glycol) outlet temperature	-45.1 degrees C (instantaneous)	Hi ≥ -5 degrees C (23 degrees F)

\*\*Alarm set points are based on instantaneous values.

At 12:14 pm, I observed the following operational parameter data for condenser no. 7623 in the control room for EU322-03 at Building 322. Ryan Shuman, DC Manufacturing Engineer, provided the data. There was no load on the condenser at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 7623 process gas outlet temperature	-23.4 degrees C (instantaneous)	Hi ≥ -5 degrees C (23 degrees F)

\*\*Alarm set point based on instantaneous values.

3. Condition no. VI.2 of table EU322-03 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the exit temperature for condenser nos. 7604 and 7605. Condition no. III.3 of the same table in the ROP states, the coolant exit temperature for condenser nos. 7604 and 7605 shall not exceed 40 degrees F (4.44 degrees C).

At 12:16 pm, I observed the following operational parameter data for condenser nos. 7604 and 7605 in the control room for EU322-03 at Building 322. Ryan Shuman, DC Manufacturing Engineer, provided the data. There was no load on the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
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3 of 12

Condenser 7604 coolant (glycol) outlet temperature	-14.8 degrees C (instantaneous)	Hi ≥ -4 degrees C (24.8 degrees F)
Condenser 7605 coolant (glycol) outlet temperature	-15 degrees C (instantaneous)	Hi ≥ -4 degrees C (24.8 degrees F)

\*\*Alarm set point based on instantaneous values.

4. Condition no. VI.3 of table EU322-03 of the ROP states, in part, DC shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals specified in table EU322-03. Condition nos. I.2, 4 and 6 of the same table in the ROP limits emissions to the following (based on a 12-month rolling time period):

- VOC: 0.8 tpy
- Hexane: 0.1 tpy
- Ammonia: 179.3 tpy

During the inspection, I asked for the 12-month rolling total VOC, hexane and ammonia emissions through December 2013. On 2/3/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC, hexane and ammonia emissions were as follows through December 2013.

- VOC: 0.33 tpy
- Hexane: 0.03 tpy
- Ammonia: 96.5 tpy

**EU322-06**

Compliance Status: Compliance

Items noted during the inspection.

1. EU356-03 covers the siloxane catalyst process. This process is equipped with the following air pollution control equipment: condensers (4507 & 7623). Condenser no. 7623 is also covered in EU322-03.
2. Condition no. VI.1 of table EU322-06 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the exhaust gas temperature from condenser no. 7623. Condition no. III.1 of the same table in the ROP states, if the exhaust gas temperature of condenser 7623 exceeds 30 degrees F, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. Observations concerning the operation of this condenser were noted in item no. 2 above for EU322-03.
3. Condition no. VI.2 of table EU322-06 of the ROP states, DC shall monitor and record, on a per shift basis, the coolant exit temperature from condenser no. 4507. Condition no. III.2 of the same table in the ROP states, if the coolant exit temperature of condenser 4507 exceeds 50 degrees F, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence.

At 12:21 pm, I observed the following operational parameter data for condenser no. 4507 in the control room for EU322-06 at Building 322. Ryan Shuman, DC Manufacturing Engineer, provided the data. Kettle 20806 vents to this condenser and, it was running at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point
Condenser 4507 coolant exit temperature	11.3 F (instantaneous)	Hi ≥ 40 degrees F (instantaneous)

4. Condition no. VI.3 of table EU322-06 of the ROP states, a written record of the amount of material processed shall be kept on file and made available to the AQD upon request. I did not request a copy of this information during my inspection as it's confidential, and it's my assumption that this information is included in the 12-month rolling time period emission calculations discussed in item no. 5 below. It should also be noted that there is no limit on the amount of material processed in the ROP for EU322-06.

4 of 12

5. Condition no. VI.4 of table EU322-06 of the ROP states, within 30 days following the end of each calendar month, permittee shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission limits specified in the table. Condition no. I.2 of the same table in the ROP limits VOC emissions from EU322-06 to 3.3 tpy. During the inspection, I asked for the 12-month rolling total VOC emissions through December 2013. On 2/3/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC emissions through December 2013 were 1.12 tpy.
6. Condition no. VII.4 of table EU322-06 of the ROP states, each semiannual report of deviations shall include summary information on the number, duration and cause of CAM excursions and/or exceedances and the corrective actions taken. Condition no. VII.5 of the same table states, each semiannual report of deviations shall include summary information on the number, duration and cause (including unknown cause, if applicable) for CAM monitor downtime incidents (other than monitor downtime associated with zero and span or other daily calibration checks, if applicable). According to the latest ROP deviation report received on 9/16/13 for reporting period 1/1/13 through 6/30/13, there were no CAM excursions and/or exceedances or monitor downtime incidents for EU322-06.

**EU322-11**

Compliance Status: Compliance

Items noted during the inspection.

1. EU322-11 covers the methylvinylchlorosilane crude distillation process. This process is equipped with the following air pollution control equipment: condenser (6384).
2. Condition no. VI.1 of table EU322-11 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant exit temperature of condenser no. 6384. Condition no. III.1 of the same table in the ROP states, the coolant exit temperature of condenser 6384 shall not exceed -15 degrees C.

At 12:23 pm, I observed the following operational parameter data for condenser no. 6384 in the control room for EU322-11 at Building 322. Ryan Shuman, DC Manufacturing Engineer, provided the data. There was no load on the condenser at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 6384 coolant (glycol) exit temperature	-28.9 degrees C (instantaneous)	Hi - Hi ≥ -15 degrees C Hi ≥ -17 degrees C

\*\*Alarm set point based on instantaneous values.

It should be noted that condition no. IX.2 in the same table of the ROP, states DC shall equip and maintain condenser 6384 with an "exhaust" temperature device. I believe this condition is in error and should be a "coolant exit" temperature device as this is what DC is required to monitor and record for condenser 6384.

3. Condition no. VI.2 of table EU322-11 of the ROP states, in part, DC shall calculate and record emissions from the process for the previous calendar month to demonstrate compliance with the 12-month rolling time period emission totals specified in table EU322-11. Condition no. I.2 of the same table in the ROP limits VOC emissions to 14 tpy, based on a 12-month rolling time period as determine at the end of each calendar month.

During the inspection, I asked for the 12-month rolling total VOC emissions through December 2013. On 2/3/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC emissions through December 2013 were 0.46 tpy.

**Condition no. VII.4 of table EU322-11 of the ROP states, each semiannual report of deviations shall include summary information on the number, duration and cause of**

5 of 12

CAM excursions and/or exceedances and the corrective actions taken. Condition no. VII.5 of the same table states, each semiannual report of deviations shall include summary information on the number, duration and cause (including unknown cause, if applicable) for CAM monitor downtime incidents (other than monitor downtime associated with zero and span or other daily calibration checks, if applicable). According to the latest ROP deviation report received on 9/16/13 for reporting period 1/1/13 through 6/30/13, there were no CAM excursions and/or exceedances or monitor downtime incidents for EU322-11.

NAME Jerry Steig

DATE 2/4/14

SUPERVISOR C. Hare

6 of 12

**Lang, Jennifer (DEQ)**

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**From:** steve.moser@dowcorning.com  
**Sent:** Monday, February 03, 2014 3:48 PM  
**To:** Lang, Jennifer (DEQ)  
**Cc:** mike.gruber@dowcorning.com  
**Attachments:** Midland\_FCE\_2014\_Followup to Jan 29 Inspection.pdf

Jennifer,

Attached is the information you requested during your inspection this week. Please note that, for ease of reference, we have included the requested emissions data for all emission units on the same page (DC 006074). Please let me know if you have any questions. See you later this week.

Stephen V. Moser  
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Date: February 3, 2014

To: Jennifer Lang, P.E.  
Environmental Engineer Specialist  
MDEQ - Air Quality Division

**Permit Administrative Matters**

- 1. You have asked whether DEQ can void Dow Corning's ROP modification application no. 201200146, which requested that PTI 138-12 be rolled into the Midland Site ROP.*

Dow Corning's answer to the above question is "yes." Subsequent to the approval of permit to install 138-12, a more recent permit to install, PTI 84-08A, has been secured and its permit conditions are to be rolled into the Midland Site ROP.

- 2. You have asked whether DEQ can void ROP modification #201200019, which was an Administrative Amendment request.*

The DEQ may void this since a new permit to install, PTI 174-12, has been secured that does not require Dow Corning to record the information covered by the ROP modification.

- 3. You have asked whether DEQ can void ROP modification #201100011, a minor modification.*

The DEQ may void this since a new permit to install, PTI 174-12, has been secured that does not require Dow Corning to record the information covered by the ROP modification.

**Follow-up Information Requested During January 29, 2014 Inspection**

- 4. EU356-02 & EU356-03: Explanation of average flow rates reported for scrubbers 24401 and 24344 during December 2013. Why were a number of daily average flow rates less than 2500 lbs/hr?*

The average flow rates were less than 2,500 lb/hr because the scrubbers are required to operate only when a railcar is loaded or unloaded. On the days that the average flow was low, railcars were either not loaded, or were loaded for only a portion of the day.

In addition, it should be noted that the rail station scrubbers contain programming that automatically turns on the water to 8 gpm (4,000 lb/hr) before allowing anything to vent to

9 of 12

the scrubber. There is also a process interlock that closes the gas inlet valve to the scrubber if the 15-second water flow drops below 5 gpm (2,500 lb/hr). When the scrubber is no longer needed, the programming automatically stops the water flow.

5. *Table relating to certain Emission Units (EUs) venting to scrubbers and carbon control during MON test:*

Emission units (EUs) venting to scrubbers and carbon control during MON test. These EUs were listed in section 1.b of test plan.	Is this EU covered by a PTI, the ROP, or is it exempt? Please provide the PTI No., EU/FG ID or exemption as appropriate.	Is this EU subject to the MON?
EU321-17	Covered by ROP & Rule 290	No
EU321-05	Covered by ROP & Rule 290	No
EU321-01	Covered by ROP & Permit to Install 174-12	No
EU321-06	Covered by ROP & Rule 290	No
EU321-016	Covered by ROP & Rule 290	No
EU321-02	Covered by ROP & Rule 290 & 287K	No
EU321-011	Covered by ROP & Rule 290	No

Note all the units will be covered by the MON when it is deemed applicable to existing units. Also, please see FGRULE290 in Dow Corning's recent ROP Renewal Application.

6. *Data requested during 1/29/2014 inspection:*

See attached sheet on data required per Monitoring/Recordkeeping conditions of permit.

Stephen V. Moser  
 Assistant General Counsel  
 Dow Corning Corporation

10 of 12

11 of 12

Data Requested During 01/29/2014 Inspection

A. **EU321-01 (ROP Mark-up Condition VI.3.)**

Scrubber 11472: Low flow alarms and response actions during 4th Quarter of 2013

There were no low flow alarms during the fourth quarter of 2013 while the process was operating. No data are available for the period 10/7/13 1:20 PM - 10/8/13 11:20 AM because the Building lost power, but no processes were operating at this time.

B. **EU321-01 (ROP Mark-up Condition VI.4.)**

Condenser 24623: High temperature alarms and response actions during 4th Quarter of 2013

There were no high temperature alarms during the fourth quarter of 2013 while the process was operating. No data are available for the period 10/7/13 1:20 PM - 10/8/13 11:20 AM because the Building lost power, but no processes were operating at this time.

C. **EU321-01 (ROP Mark-up Condition VI.5.)**

VOC Emissions (12-month rolling total as of end of December 2013): 0.75 TPY (1,499.9 lbs/yr)

D. **EU322-03 (ROP Mark-up Condition VI.3.)**

VOC Emissions (12-month rolling total as of end of December 2013): 0.33 TPY (665.8 lbs/yr)  
Hexane Emissions (12-month rolling total as of end of December 2013): 0.03 TPY (55 lbs/yr)  
Ammonia Emissions (12-month rolling total as of end of December 2013): 96.5 TPY (193,042.3 lbs/yr)

E. **EU322-06 (ROP Mark-up Condition VI.4.)**

VOC Emissions (12-month rolling total as of end of December 2013): 1.12 TPY (2,249.3 lbs/yr)

F. **EU322-11 (ROP Mark-up Condition VI.2.)**

VOC Emissions (12-month rolling total as of end of December 2013): 0.46 TPY (922.3 lbs/yr)

DC 006074