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

A404326183

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:** 06/24/2014
STAFF: Jennifer Lang	**COMPLIANCE STATUS:** Compliance	**SOURCE CLASS:** MEGASITE
SUBJECT: EU601-01, EU2703-01 & FGRULE290 - Scheduled Inspection		
RESOLVED COMPLAINTS:		

Inspection date: 6/24/14
Inspection started: 9:00 am
Inspection ended: 12:00 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)

EU601-01

Compliance Status: Compliance

Items noted during the inspection.

1. EU601-01 covers the alkoxylation process including kettles, condensers, storage tanks, distillation columns, drum off station equipment, scrubbers, and other related equipment. Also included are filler handling and loading for alkoxylation manufacturing. EU601-01 is equipped with the following APC equipment: venturi scrubber no. 24683, emergency vent scrubber 5309, and filters (1-5382, 2-5382, 3-5382 & 4-5382 – associated with vent nos. SV601-020 and SV601-021). PTI No. 534-77G covers EU601-01 and it also lists vent scrubber no. 5360 as APC equipment. Dow Corning (hereinafter "DC") no longer uses this scrubber which was previously used as backup to scrubber no. 24683. Therefore, conditions pertaining to scrubber 5360 in PTI 534-77G no longer apply. Additional information regarding EU601-01 can be found in the 6/10/14 inspection report.

2. Air PTI No. 534-77G covers EU601-01. This permit was issued on 6/16/09. ROP modification application no. 200900104 was received by the MDEQ-AQD on 7/16/09. This application covers the addition of PTI 534-77G to the ROP. To date, the PTI has not been rolled into the ROP. PTI 534-77G was used during the inspection for the purpose of determining compliance with air quality rules and regulations.

3. Condition no. VI.1 of table EU601-01 of PTI 534-77G 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. 24683. Condition no. III.1 of the same table in the PTI states, the upper liquid flow rate of scrubber no. 24683 shall be at least 8 gpm, and the lower liquid flow rate of scrubber no. 24683 shall be at least 3 gpm. Starting at approximately 10:36 am, I observed the following operational parameter data for scrubber no. 24683 in the control room for EU601-01 at Building 601. Jim Marsh (DC Operator) provided the data. Scrubber no. 24683 controls emissions from tanks, trailers, distillation columns, compressors, the quench operation and maintenance purging. DC was operating equipment which vents to the condenser at the time of my inspection.

Operational Parameter	Observed Value**	Alarm Set Point***
Scrubber no. 24683 lower liquid flow rate (32271)	7.0 gpm (instantaneous)	Lo-Lo ≤ 3.5 gpm
Scrubber no. 24683 upper liquid flow rate (32270)	10.0 gpm (instantaneous)	Lo-Lo ≤ 8.5 gpm

**During MON (40 CFR 63, Subpart FFFF) stack testing on 8/7/13, the lower and upper liquid flow rates for this scrubber averaged 7 and 10 gpm, respectively.
***All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

4. Condition no. VI.3 of table EU601-01 of PTI 534-77G states, DC shall monitor and record the liquid flow rate of scrubber no. 5309 at least once during an emergency shutdown episode, during a startup, or during a normal shutdown. Condition no. III.3 of the same table in the PTI states, the liquid flow rate of scrubber no. 5309 shall be at least 18.0 gallons per minute during startup, shutdown, or emergency shutdown episodes. At approximately 10:43 am, I observed the following operational parameter data for scrubber no. 5309 in the control room for EU601-01 at Building 601. Jim Marsh (DC Operator) provided the data. Scrubber no. 5309 controls emissions from the same equipment specified above for scrubber no. 24683 during emergency shutdown, startup, or during normal shutdown situations. DC was not operating in any of these modes during my inspection, therefore the scrubber was not in use. However, DC was maintaining a water stream to the scrubber.

Operational Parameter	Observed Value**	Alarm Set Point***
Scrubber no. 5309 liquid flow rate	11.6 gpm (instantaneous)	Lo ≤ 18 gpm Hi ≥ 30 gpm

**During MON (40 CFR 63, Subpart FFFF) stack testing on 10/23/13, the average liquid flow rate of scrubber no. 5309 was approximately 25 gpm.
***All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

5. Condition no. VI.4 of table EU601-01 of PTI 534-77G states, a written or computer generated log of the hours of operation of the MeViDES production operations shall be made available to the AQD upon request. Condition no. IX.1 of the same table in the PTI states DC shall not operate the MeViDES production operation for more than 5610 hours per year. Annual hours shall be based upon a 12-month rolling time period as determined at the end of each calendar month. During the inspection, I requested the 12-month rolling total MeViDES production hours through April 2014. Since the DC manufacturing engineer was not available during my inspection, Mike agreed to provide the requested information at a later date. On 7/22/14, I received the requested information. According to the information (see attached), the 12-month rolling total hours of operation of MeViDES production through April 2014 was 0 hours.

6. Condition no. VI.5 of table EU601-01 of PTI 534-77B states, in part, within 30 days following the end of each calendar month, 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 the table. Condition nos. I.4 and 5 of the same table in the PTI limits VOC and HCl emissions from EU601-01 to 19.0 and 0.36 tpy, respectively. During the inspection, I asked for the 12-month rolling total VOC and HCl emissions through April 2014 for EU601-01. On 7/22/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC and HCl emissions through April 2014 for EU601-01 was 13.79 and 0.003 tpy, respectively.

7. Condition no. VI.6 of table EU601-01 of PTI 534-77G states, DC shall maintain records of normal startups, shutdowns, and emergency shutdowns including the dates on which these episodes occurred and their duration. It's my presumption this condition is required in order to demonstrate compliance with condition nos. III.3, IV.2 and VI.3 of table EU601-01 in PTI 534-77G for scrubber no. 5309 which treats emissions during these events. It should be noted that there is no limit on the total amount of time for normal startups, shutdowns, and emergency shutdown events (i.e., amount of time the facility can vent to scrubber no. 5309). Jim Marsh (DC Operator) stated the plant can bottle up emissions during these events so venting to the atmosphere is not necessary, or send them to 311 vent recovery. Because of the facility's ability to bottle up emissions or send them to 311 vent recovery, DC stated there have been no normal startup, shutdown, and/or emergency shutdown events in which the permittee vented to the 5309 scrubber in 2014.

8. Condition no. VI.7 of table EU601-01 of PTI 534-77G states, DC shall conduct a daily visible emissions check of vent nos. SV601-020 and SV601-021 during routine operating conditions. For the purposes of this condition, such checks do not have to be in accordance with Method 9. If a check reveals any visible emissions from either vent, DC shall inspect its associated filters (i.e., Filter Nos. 1-5382 and 3-5382 vent to SV601-020 and filter nos. 2-5382 and 4-5382 vent to SV601-021) and perform any maintenance required to

eliminate visible emissions. DC shall keep records of the results of the daily visible emissions check and of any maintenance performed after visible emissions are observed. During the inspection, Jim shared the June 2014 daily visible emissions check log for vent nos. SV601-020 and SV601-021. To date, no visible emissions had been observed from the vents. It was also noted that the process was not running during any of the observations. When I asked Jim why they were not conducting the observation during routine operating conditions, he informed me that the process which exhausts to these vents has not operated, to date, in June 2014. Jim further explained that these filters are associated with bag dump stations and they rarely operate. Jim said that when they do operate, it's standard operating procedure to observe the vent. During the inspection, I requested a copy of the log. DC provided a copy of the log on 7/22/14 (see attached).

9. Condition no. VII.1 of table EU601-01 of PTI 534-77G 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 in the PTI 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 3/14/14 for reporting period 1/1/13 through 12/31/13, there were no CAM excursions and/or exceedances or monitor downtime incidents for EU601-01.

EU2703-01

Compliance Status: Compliance

Items noted during the inspection.

1. EU2703-01 covers the hydrosilylation and alkoxylation process. EU2703-01 is equipped with the following APC equipment: shell and tube condensers (9214 and 9228), emergency spray tower scrubber (9163), spray tower scrubbers (9208 and 9215), and activated carbon units (CDCARBONUNITS). Although it's not stated in table EU2703-01 of ROP No. MI-ROP-A4033-2008 (hereinafter "ROP"), EU2703-01 vents to FGTHROX. I did not inspect FGTHROX during my inspection as I previously inspected it on 11/13/13 and found it to be in compliance with air quality rules and regulations. FGTHROX was operational at the time of my inspection.

2. Condition no. VI.1 of table EU2703-01 of the ROP states, in part, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the liquid flow rate of scrubber nos. 9208 and 9215. Condition no. III.1 of the same table in the ROP states, proper operation for scrubber nos. 9208 and 9215 means the scrubber liquid flow rate shall be at least 6.0 gpm, respectively. According to DC, these scrubbers operate in parallel. Scrubber no. 9208 is the primary scrubber, and scrubber no. 9215 is the backup scrubber.

   At approximately 11:00 am, I observed the following operational parameter data for scrubber nos. 9208 and 9215 in a conference room via. Charles Valentine's laptop (DC Manufacturing Engineer) at Building 2703. Scrubber nos. 9208 and 9215 control emissions from tanks, trailers, a column and reaction vessels. DC was operating equipment and venting to scrubber no. 9208 at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point***
Scrubber no. 9208 liquid flow rate	8.5 gpm (instantaneous)	Lo ≤ 7.80 gpm Lo-Lo ≤ 7.40 gpm
Scrubber no. 9215 liquid flow rate	0 gpm (instantaneous)**	I did not request the alarm set points for this scrubber during my inspection.

   **Scrubber no. 9215 is a backup to scrubber no. 9208. EU2703-01 was not venting to scrubber no. 9215 at the time of my inspection. Therefore, the observed liquid flow rate is acceptable.
   ***All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

3. Condition no. VI.1 of table EU2703-01 of the ROP states, in part, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the liquid flow rate of scrubber no. 9163. Condition

no. III.2 of the same table in the ROP states, in the event of an emergency venting to scrubber 9163, scrubber no. 9163 shall be operated at a minimum of 6.0 gpm. According to Charles, this scrubber is an emergency scrubber for the alkoxy column. Charles further stated that it's only used during maintenance shutdown and emergency situations. During the inspection, EU2703-01 was not venting to the scrubber. However, an unrelated Rule 290 emission unit was venting to scrubber 9163. Therefore, the scrubber was operational.

At approximately 11:00 am, I observed the following operational parameter data for scrubber no. 9163 in a conference room via. Charles Valentine's laptop (DC Manufacturing Engineer) at Building 2703.

Operational Parameter	Observed Value	Alarm Set Point**
Scrubber no. 9163 liquid flow rate	8.6 gpm (instantaneous)	Lo ≤ 7.50 gpm Lo-Lo ≤ 7.00 gpm

**All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

4. Condition no. VI.1 of table EU2703-01 of the ROP states, in part, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant return temperature of condenser nos. 9228 and 9214. Condition no. III.3 of the same table in the ROP states, proper operation of condenser nos. 9228 and 9214 means the coolant return temperature from either of the two condensers shall not be greater than -10 degrees C (14 degrees F), respectively.

   At approximately 11:20 am, I observed the following operational parameter data for condenser nos. 9228 and 9214 in a conference room via. Charles Valentine's laptop (DC Manufacturing Engineer) at Building 2703. Condenser no. 9228 controls emissions from the MAC process (i.e., reaction vessels, distillation columns & a surge control vessel) which was operating at the time of my inspection. Condenser no. 9214 controls emissions from the alkoxy process which was not operating at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser no. 9228 coolant return temperature	-14 F (instantaneous)	Hi-Hi ≥ 12 degrees F
Condenser no. 9214 coolant return temperature	-12.5 F (instantaneous)	Hi-Hi ≥ 12 degrees F

**All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

5. Condition no. VI.1 of table EU2703-01 of the ROP states, in part, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the weight of the carbon totes. Condition no. III.4 of the same table in the ROP states, for CDCARBONUNITS, which are to be used when the EU2703-01 manufactures compounds that emit methylallyl chloride, proper operation means that the first tote shall be replaced whenever the second tote's weight increases by 50 pounds (and the "second" tote now becomes the "first" tote).

   At approximately 11:35 am, I observed the following operational parameter data for CDCARBONUNITS in a conference room via. Charles Valentine's laptop (DC Manufacturing Engineer) at Building 2703. CDCARBONTOTES controls emissions from condenser no. 9228 when the site-wide THROX is down. EU2703-01 was not venting to CDCARBONTOTES at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
1st tote - East (primary) carbon tote bank weight – bank consists of two carbon drums in series – East tote vents to the west tote.	144.9 lbs. (instantaneous – weight of air contaminants only – does not include drum & carbon weight)	Hi ≥ 40 lbs.
2nd tote - West (secondary) carbon tote bank weight – bank consists of two carbon drums in series – West tote vents to atmosphere.	2.0 lbs. (instantaneous - weight of air contaminants only – does not include drum & carbon weight)	Hi ≥ 40 lbs.

**All alarm set points are instantaneous. This is a secured process alarm (SPA) which cannot be changed by an operator.

6. Condition no. VI.3 of table EU2703-01-01 of the ROP states, in part, within 30 days following the end of each calendar month, 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 the table. Condition no. I.2 of the same table in the ROP limits VOC emissions from EU2703-01 to 8.5 tpy. During the inspection, I asked for the 12-month rolling total VOC emissions through April 2014 for EU2703-01. On 7/22/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC emissions through April 2014 for EU2703-01 was 0.23 tpy.

7. Condition no. VII.4 of table EU2703-01 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 in the ROP 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 3/14/14 for reporting period 1/1/13 through 12/31/13, there were no CAM excursions and/or exceedances or monitor downtime incidents for EU2703-01.

8. Condition no. IX.1 of table EU2703-01 of the ROP states, DC shall not operate EU2703-01 unless scrubber no. 9215 and vent condenser nos. 9214 and 9228 are installed and operating properly. DC shall not operate the process in such a way that methylallyl chloride is generated unless the dual-stage carbon units control system is installed and operating properly. Scrubber no. 9208 shall be installed and operating properly whenever EU2703-01 is operating, except when the process is manufacturing compounds that emit methylallyl chloride (i.e., scrubber no. 9215 need not operate whenever the carbon adsorption system is operating).

   On 7/1/14, I sent Mike Gruber an email stating that based upon my understanding of the air pollution control set up following the inspection, condition no. IX.1 of table EU2703-01 of the ROP didn't seem to match up.

   As a result, it was determined that the most recent process flow diagram on file with the AQD (dated 10/3/00 and which presumably reflects the process permitted in the most recent PTI – PTI no. 155-80G) does not accurately reflect the current air pollution control set up at EU2703-01. As a result, on 7/31/14 DC submitted a draft updated process flow diagram and a written explanation as to why the changes are in compliance with the requirements of condition no. IX.1 of table EU2703-01 of the ROP, and why a permit to install application to address the change is not necessary. DC's explanation submitted on 7/31/14 is attached to this report. However, the draft process flow diagram is considered confidential information and has been filed separately. DC stated in their attached write up that they intend to submit a final updated process flow diagram to the AQD similar to the draft diagram.

FGRULE290

Compliance Status: Undetermined. To be determined at a later date.

Items noted:

1. Per my request, DC emailed me a list of their Rule 290 emission units on 6/23/14 (see attached). During my inspection on 6/24/14, I requested all information required in the monitoring/recordkeeping section (i.e., section V) of table FGRULE290 of the ROP for the following emission units: EU109-07, EU2505-01, EU3104-16, EU324-10 and EU501-52. DC agreed to provide me with the requested information. Compliance with the requirements of AQD Rule 290 and table FGRULE290 in the ROP will be determined once the information is received and will be documented in a separate report.

2. With regard to emission calculations, I requested the 1b/mo emission estimates for each of the aforementioned emission units for January through April 2014.

3. We discussed whether or not any of the Rule 290 emission units are subject to MACT standards. According to Mike, none of the Rule 290 emission units are currently subject. However, some emission units will be subject to the MON (40 CFR 63, Subpart FFFF).

4. Prior to leaving the facility on 6/24/14, I pointed out to DC that there were 170 emission units listed in the ROP renewal application (received on 3/4/13) and that there were 147 emission units listed in the email provided on 6/23/14. DC was not sure why there was a difference in total emission units and agreed to get back with me to confirm the total number. On 7/22/14, I received an updated Rule 290 emission unit list. According to the revised list, there are currently 153 Rule 290 emission units at Dow Corning.

NAME Jennifer Teig DATE 8/1/14 SUPERVISOR C. Hare

Lang, Jennifer (DEQ)

From: steve.moser@dowcorning.com
Sent: Monday, June 23, 2014 10:58 AM
To: Lang, Jennifer (DEQ)
Cc: mike.gruber@dowcorning.com
Subject: List of Rule 290 Units
Attachments: DC006153 - List of Rule 290 Units.pdf

Jennifer,

Finally, here is the most current list of Rule 290 units at the Dow Corning Midland Plant. See you tomorrow.

Steve

Stephen V. Moser
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Current and most complete list of Rule 290 Units.

EU106-01
EU106-02
EU106-04
EU106-05
EU106-06
EU106-07
EU106-08
EU106-09
EU106-10
EU106-11
EU106-12
EU108-02
EU109-01
EU109-02
EU109-03
EU109-04
EU109-05
EU109-06
EU109-07
EU109-09
EU207-04
EU212-02
EU212-03
EU212-04
EU212-05
EU212-06
EU212-07
EU212-08
EU212-09
EU212-10
EU212-11
EU212-15
EU212-19
EU2504-06
EU2504-07
EU2504-08
EU2504-09
EU2505-01
EU2505-02
EU2602-01
EU2602-03
EU2703-02
EU2703-04
EU2703-05
EU2703-06
EU2703-07
EU2703-08
EU2703-09
EU2703-10
EU2703-12
EU2703-13
EU2703-14
EU2901-02
EU2901-04
EU2901-05
EU2901-06
EU2901-10
EU2901-14
EU2901-16
EU303-10
EU303-12
EU303-13
EU304-01
EU305-01
EU3101-01
EU3102-02
EU3102-05
EU3102-09
EU3104-02
EU3104-06
EU3104-08
EU3104-09
EU3104-014
EU3104-15
EU3104-16
EU321-02
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EU322-08
EU322-09
EU322-10
EU324-02
EU324-03
EU324-04
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EU324-11
EU324-12
EU324-13
EU324-14
EU324-15
EU324-16
EU324-17
EU325-02
EU325-07
EU325-08
EU340-03
EU340-04
EU501-03
EU501-05
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EG501-52
EU502-02
EU502-04
EU505-04
EU505-05
EU602-01
EU602-02
EU602-03
EU602-04
EU602-05
EU602-06
EU602-07
EU602-08
EU602-12
EU602-13
EU602-14

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Lang, Jennifer (DEQ)

From: steve.moser@dowcorning.com
Sent: Tuesday, July 22, 2014 11:03 AM
To: Lang, Jennifer (DEQ)
Cc: mike.gruber@dowcorning.com
Subject: Information Requested
Attachments: DC006156 - Follow up Information to 6-24-2014 Inspection.pdf; DC006155 - Corrected List of Rule 290 Units_as of 7-11-2014.pdf; DC006154 - EU601-01 Condition VI.7._Visible Emissions Checks.pdf; DC006157 - DC006159 - Rule 290 Units Records_selected units.pdf

Jennifer,

Attached is the information you requested during the most recent inspection, June 24, 2014 (see Documents DC 006154-6156). Also attached, in anticipation of tomorrow's meeting, is the information you requested on selected Rule 290 Units (see Documents DC 006157-6159).

Mike and I look forward to seeing you and Kathy Brewer tomorrow morning. Because of a meeting at the Corporate Center, I will not get to the Midland Plant Site until 9:15am. Mike Gruber, however, will be able to meet you at 9:00am. He has compiled and will have ready for your review information you requested concerning some units permitted and put into operation within the last few months.

As always, thank you for your patience and cooperation.

Steve

Stephen V. Moser
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Rec'd by MDEQ-AQD on 7/22/14

Dow Corning Midland Plant

July 22, 2014

P9-10-18

Information Requested During 06/24/2014 Inspection

A. **EU601-01 (ROP Mark-up Condition VI.5.)**

VOC Emissions (12-month rolling total as of end of April 2014):	13.79 TPY (27,582.2 lbs/yr)
HCl Emissions (12-month rolling total as of end of April 2014):	0.003 TPY (6.8 lbs/yr)

B. **EU2703-01 (ROP Mark-up Condition VI.2.)**

VOC Emissions (12-month rolling total as of end of April 2014):	0.23 TPY (455.2 lbs/yr)

C. **EU601-01 (ROP Mark-up Condition VI.7.)**

Visible Emissions Checks

See attached Document DC006154

D. **EU601-01 (ROP Mark-up Condition VI.4.)**

Hours of MeViDES production (12-month rolling total as of end of April 2014):	0 hours

E. **Updated Rule 290 List**

See attached Document DC006155

RCVD BY MDEQ-AQD ON 7/22/14

SITE: MIDLAND PLANT ORGANO SUPPLY CHAIN

Title: 601 CHECKLIST - FILLER TRANSFER SYSTEM EMISSION CHECK SHEET

Document Type:	Checklist
Document Sub-Class:	601 Building Operators
Document Number:	0052.CK.601OP.00014
Version Number: (manual entry)	1.0

When this form is filled out, please give to Operations Leader to fill. Do not send to EVS.

Month/Year: June, 2014

Day	Initials & Time	Vent 20 emitting? (Y/N)	Vent 21 emitting? (Y/N)	Comments
1	HC 1400	N	N	
2	HC 1500	N	N	
3	HC 1300	N	N	
4	HC 1400	N	N	
5	HC 0900	N	N	
6	HC 1230	N	N	
7	DM 0830	N	N	
8	DM 1000	N	N	
9	DM 1100	N	N	
10	HC 0900	N	N	
11	HC 1130	N	N	
12	HC 1330	N	N	
13	HC 1220	N	N	
14	HC 1420	N	N	
15	HC 1300	N	N	
16	HC 1400	N	N	
17	DM 0900	N	N	
18	DM 1200	N	N	
19	DM 0800	N	N	
20	DM 1300	N	N	
21	HC 1200	N	N	
22	HC 1500	N	N	
23	DM 1330	N	N	
24				
25				
26				
27				
28				
29				
30				
31				

- When Filler Transfer System is being used, vents 20 & 21 must be checked daily for visible emissions.
- If emissions are visible, notify supervision and note maintenance action under comments.

Current and most complete list of Rule 290 Units (Updated July 11, 2014)

EU106-01	EU2602-01	EU321-02	EU501-10
EU106-02	EU2602-03	EU321-05	EU501-11
EU106-04	EU2703-02	EU321-06	EU501-12
EU106-05	EU2703-04	EU321-07	EU501-13
EU106-06	EU2703-05	EU321-09	EU501-14
EU106-07	EU2703-06	EU321-10	EU501-20
EU106-08	EU2703-07	EU321-11	EU501-22
EU106-09	EU2703-08	EU321-12	EU501-23
EU106-10	EU2703-09	EU321-13	EU501-24
EU106-11	EU2703-10	EU321-14	EU501-29
EU106-12	EU2703-12	EU321-16	EG501-30
EU108-02	EU2703-13	EU321-17	EU501-31
EU109-01	EU2703-14	EU321-18	EU501-32
EU109-02	EU2901-02	EU322-05	EG501-33
EU109-03	EU2901-04	EU322-08	EU501-34
EU109-04	EU2901-05	EU322-09	EG501-36
EU109-05	EU2901-06	EU322-10	EU501-37
EU109-06	EU2901-10	EU324-02	EG501-42
EU109-07	EU2901-14	EU324-03	EG501-44
EU109-09	EU2901-15 *	EU324-04	EU501-47
EU207-04	EU2901-16	EU324-06 *	EU501-48
EU212-02	EU303-10	EU324-09	EU501-50
EU212-03	EU303-12	EU324-10	EU501-51
EU212-04	EU303-13	EU324-11	EG501-52
EU212-05	EG303-14	EU324-12	EU502-02
EU212-06	EU304-01	EU324-13	EU502-04
EU212-07	EU305-01	EU324-14	EU505-04
EU212-08	EU3101-01	EU324-15	EU505-05
EU212-09	EU3102-02	EU324-16	EU602-01
EU212-10	EU3102-05	EU324-17	EU602-02
EU212-11	EU3102-09	EU325-02	EU602-03
EU212-15	EU3104-02	EU325-07	EU602-04
EU212-19	EU3104-06	EU325-08	EU602-05
EU2504-06	EU3104-08	EU340-03	EU602-06
EU2504-07	EU3104-09	EU340-04	EU602-07
EU2504-08	EU3104-14	EU501-03	EU602-08
EU2504-09	EU3104-15	EU501-05	EU602-12
EU2505-01	EU3104-16	EU501-07	EU602-13
EU2505-02	EU3113-02 **	EU501-08	EU602-14

* Equipment removed per ERD

** Moved to 2602, became EU2602-03

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290 Unit Records:

EU109-07: subject to air pollution control

chem_name	cas_no	voc	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	itsl	avg_per_itsl
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		
Cyclic Dimethylsiloxane, D4	556672	N	2.2	0.7	4.9	1.5	0.5	0	1.7	2.1	0.7	1.9	0	2.1	75	24hr
Methyl isobutyl ketone	108101	Y	1.2	0.4	2.7	0.9	0.5	0	0.9	1.5	0.4	1.1	0	1.4	3000	24hr
Toluene	108883	Y	3.3	1.2	7.2	2.3	0.5	0	2.5	3	1.2	2.8	0	2.9	5000	24hr
Toluene	108883	Y	50.6	47.1	24.2	46.1	10.8	19.9	29.2	38.7	36	22.9	36.6	49	5000	24hr
		Totals	57.3	49.4	39	50.8	12.3	19.9	34.3	45.3	38.3	28.7	36.6	55.4		

EU3104-16: no air pollution control

No emissions in 12 month rolling period between Jun 2013 and May 2014

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EU324-10: subject to pollution control

chem_name	cas_no	voc	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	itsl	avg_per_itsl
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		
Cyclic Dimethylsiloxane, D3	541059	N	3.3	1.9	2.8	1.8	2.7	1.5	1.6	2.5	2.1	2.6	2	3.2	50	ann (ITSL)
Cyclic Dimethylsiloxane, D4	556672	N	8.1	4.9	7.2	4.8	6.9	3.6	4	6.6	4.9	6.4	5.7	9	75	24hr
Heptane	142825	Y	30.6	0	0	10.1	29.5	0	85.2	20.8	60.4	50.4	65.3	20.9	3500	8hr
Hexamethyl-disiloxane	107460	N	1.3	0	0	0	0	0	1.3	0	2.6	2	1.3	2.6	240	ann (ITSL)
Tetramethyldi-hydrogendisiloxane	3277267	Y	34.3	23.4	35.5	27.2	31	14.4	14.8	33.9	17.4	21.4	17.2	46.3	120	ann (ITSL)
		Totals	77.6	30.2	45.5	43.9	70.1	19.5	106.9	63.8	87.4	82.8	91.5	82		

EU501-52: no air pollution control

chem_name	cas_no	voc	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	itsl	avg_per_itsl
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		
Cyclic Dimethylsiloxane, D4	556672	N	1	1.2	0.8	1	1.2	1	1.2	1	0.9	1.2	1.3	1.2	75	24hr
Dimethylsiloxane, hydroxyl-terminated	70131678	Y	0.5	0.6	0.4	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.7	0.6	0.1	ann (ITSL)
		Totals	1.5	1.8	1.2	1.5	1.8	1.5	1.8	1.5	1.4	1.8	2	1.8		

EU2505-01: no air pollution control ★ per Mike Gruber on 7/23/14.

chem_name	cas_no	voc	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14	Apr-14	May-14	itsl	avg_per_itsl
			lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		
2,2,4,6,6-pentamethylheptane	13475826	Y	0	2.1	0	2.6	2.1	3	1.7	2.6	1.7	2.2	6	3.1	0.1	unlisted ann (ITSL)
3-octylheptamethyl trisiloxane	17955883	Y	0.8	0	0.3	0.8	0.8	1.6	0.8	0.8	0.4	0.4	0	0	0.1	unlisted ann (ITSL)
Cyclic Dimethylsiloxane, D4	556672	N	4.9	3.8	4.3	3	4.6	2.7	3	4.1	2.7	4.4	4.4	4.4	75	24hr
Cyclic Dimethylsiloxane, D5	541026	N	73.3	58.4	61.6	47.1	69.3	41.1	44.9	63.1	41.7	67.2	67.6	68.4	200	24hr
Dimethyl Siloxane, trimethylsiloxy terminated	63148629	N	0	0.2	0	0	0	0.6	0	0	0	0	0	0.6	2	ann (ITSL)
Dimethylcyclosiloxanes - CARN 69430246 D6 & higher	DUM000181	★N	0	0	0	0	0	0	0	0.1	0	0.1	0.1	0.1	0.1	unlisted ann (ITSL)
Hexadiene	592427	Y	2.5	2.2	2.3	1.6	2.4	1.5	1.6	2.1	1.5	2	2.2	2.4	264	ann (ITSL)
Hexamethyldisiloxane	107460	N	0	0	0.2	0	0	0	0	0	0	0	0.1	0	240	ann (ITSL)
Linear dimethyl siloxane, MD2M, Decamethyltetrasil	141628	N	0	0	4.5	0	1.1	0	0	1.1	0	1.1	2.2	0	0.1	ann (ITSL)
Linear dimethyl siloxanes, MD3M and higher	141639	N	0	1.1	0.3	0.3	0.2	3.7	0.3	0	0	0.3	0	4	0.1	ann (ITSL)
Tetramethylcyclotetra-siloxane- 1,3,5,7	DUM000049	Y	25.9	21.5	24.3	16.1	25	15.6	17.9	21.2	15.1	20.3	21.4	19.3	0.1	ann unlisted (ITSL) ★
Tetramethyldivinyldi-siloxane	2627954	Y	1.3	1	1.2	0.9	1.3	1	1	1.1	0.7	0.8	0.9	0.8	16	ann (ITSL)
Tetramethyltetravinyl-cyclotetrasiloxane	2554065	Y	0	0	0.1	0	0	0.1	0	0	0	0	0.1	0.1	0.1	unlisted ann (ITSL)
Cyclic Dimethylsiloxane, D4	556672	N	7.3	6.7	7	4.3	7.4	4.9	2.9	7.8	5.5	7.7	6.8	7.8	75	24hr
Cyclic Dimethylsiloxane, D5	541026	N	109.6	101.4	104.8	64.2	112	74.7	43	118.6	83.5	116	102.9	117.7	200	24hr
Dimethylcyclosiloxanes - CARN 69430246 D6 & higher	DUM000181	★N	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	unlisted ann (ITSL)
Hexadiene	592427	Y	3	2.8	2.8	1.7	3.1	2	1.1	3.3	2.3	3.2	2.9	3.2	264	ann (ITSL)
Tetramethylcyclotetra-siloxane- 1,3,5,7	DUM000049	Y	28.2	26.1	27	16.6	28.9	19.3	11	30.6	21.5	29.9	26.5	30.4	0.1	unlisted ann (ITSL)
Tetramethyldivinyldi-siloxane	2627954	Y	0.9	0.8	0.8	0.5	0.8	0.6	0.4	1	0.7	0.9	0.8	0.9	16	ann (ITSL)
	Totals		257.9	228.2	241.7	159.9	259.2	172.5	129.7	257.7	177.4	256.7	245	263.4		

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Lang, Jennifer (DEQ)

From: steve.moser@dowcorning.com
Sent: Thursday, July 31, 2014 3:50 PM
To: Lang, Jennifer (DEQ)
Cc: mike.gruber@dowcorning.com
Subject: Follow Up Information for EU2703-01
Attachments: DC006167 - DC006168 - EU2703-01 Follow Up Information.pdf; DC006169 - EU2703-01 Draft Process Flow Diagram CONFIDENTIAL.pdf

Jennifer,

Attached is the information you requested from the July 23, 2014 inspection. Hopefully, this is sufficient for your purposes, but Mike and I are happy to answer any questions you or Kathy may still have. As noted, Dow Corning intends to submit an updated PFD to MDEQ, which should eliminate the confusion we experienced last week. As always, thank you for your patience and cooperation.

Sincerely,

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Rec'd by the MDEQ-AQD on 7/31/14

Dow Corning Midland Plant July 31, 2014

EU2703-01: Follow up Information

EU2703-01 really consists of two chemical processes that both utilize common air pollution control equipment, namely Condenser 9214 and Scrubber 9208. These two processes make two different types of materials: (1) a family of materials made on the reactive distillation column through an alkoxylation reaction and (2) a family of materials made on a Continuously Stirred Reactor with Methyl Allyl Chloride (MAC) or SiH alkoxysilanes through a hydrosilylation reaction.

The permit condition as written is appropriate and makes sense based on the flow diagram provided in permit application PTI155-80G. That process flow diagram, however, no longer reflects the air pollution control equipment set up on the two processes that comprise EU2703-01. Nevertheless, as explained below, the condition as written continues to apply and make sense for the processes as operated in the field today. Dow Corning Midland Plant intends to submit an updated process flow diagram, along the lines of the diagram attached to this note, to eliminate the confusion that surfaced during the recent site inspection.

When making MAC based products, emissions from the EU2703-01 Hydrosilylation process are routed through condenser 9228 and then to either carbon totes or Throx. Scrubber 9215 currently is tied into condenser 9228 (in parallel with carbon totes and the Throx), but it is no longer used since non-MAC chlorosilanes are no longer a part of the product mix for this emissions group. In recent years, piping has been installed that allows emissions that are normally treated by scrubber 9208 to also be scrubbed by scrubber 9215. Thus, scrubber 9215 is only used as a back-up to scrubber 9208. Scrubber 9215 is considered a Michigan Rule 285 equivalent scrubber to the 9208 scrubber.

When making non-MAC related alkoxysilanes on hydrosilylation, emissions are routed through condenser 9214 and then to scrubber 9208. These devices take vents from the reactor, distillation column, and thin film evaporators on the hydrosilylation process. They also take vents from rework and product vessels that are part of the alkoxylation process, as shown in the attached current process flow diagram.

> ***"The permittee shall not operate EU2703-01 unless scrubber no. 9215 and vent condenser nos. 9214 and 9228 are installed and operating properly."***

The above sentence from the permit still is appropriate and makes sense. Only three products are currently made in EU2703-01. Two products require the above sentence to be true during operation. Both condensers 9214 and 9228 and either scrubber 9208 or 9215 must be running to operate. The scrubber can be either 9215 or 9208 under Michigan Rule 285.

Making Z-6040 product involves the following components of the EU2703-01 train: Starts with alkoxylation and then finishes with SiH hydrosilylation of an alkoxysilane. Tank 9149 vents to tank 9219, then to condenser 9228 and then to Throx or carbon drums. Rework tanks 9217 and 9176, waste tank 9161, MeOH tank 9151, reactor 9168, distillation column 9167, Luwas 9180/81 vent to tank 9188, then to condenser 9214 and scrubber 9208.

DC 006167

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Rcv'd by the MDEQ-AQD on 7/31/14

Making 2-8037 product involves the following components of the EU2703-01 train: Starts with MAC hydrosilylation, finishes with alkoxylation. Reactor 9168, distillation column 9167, and intermediate tank 9149 all vent to tank 9219, then to condenser 9228 which normally vents to the Throx but also can vent to carbon drums. MeOH tank 9151 still vents to tank 9188, then to condenser 9214 and scrubber 9208.

> ***"The permittee shall not operate the process in such a way that methylallyl chloride is generated unless the dual-stage carbon units control system is installed and operating properly."***

The above sentence from the permit still is appropriate and makes sense. The carbon unit is a back-up to the Throx. This is not a compliance issue as Throx is an acceptable Rule 285 alternative to carbon. During normal operation the vent either goes to Throx or carbon.

> ***"Scrubber no. 9208 shall be installed and operating properly whenever EU2703-01 is operating, except when the process is manufacturing compounds that emit methylallyl chloride (i.e., scrubber no. 9215 need not operate whenever the carbon adsorption system is operating).2 (R336.1702(a), R336.1225, R336.1227(2), R336.1201)"***

The above sentence from the permit still is appropriate and makes sense. This sentence addresses the Z-8061 product, which only utilizes the MAC hydrosilylation portion of the EU2703-01 process. Reactor 9168 and distillation column 9167 vent to tank 9219, then to condenser 9228, which normally vents to Throx but also to carbon drums as back-up. Since only the MAC half of the process is operating there is no reason to run scrubber 9208 or 9215 during this operational scenario.