

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

A404324567

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: 03/13/2014
STAFF: Jennifer Lang	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MEGASITE
SUBJECT: EU303-07, EU303-09 & EU304-02 - Scheduled Inspection		
RESOLVED COMPLAINTS:		

Inspection date: 3/13/14  
 Inspection started: 9:00 am  
 Inspection ended: 11:30 am

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)

**EU303-07**

Compliance Status: Compliance

Items noted during the inspection.

1. EU303-07 covers batch polymer and resin processing including reactors, vacuum pumps, receivers, condensers, scrubbers and related equipment. EU303-07 is equipped with the following air pollution control (APC) equipment: condensers (1602, 1634, 1635, 1637, 3420, 3458), venturi scrubbers (1673, 23370), and the site-wide THROX (FGTHROX). EU303-07 was venting to the THROX at the time of my inspection. Emissions from the process are vented through the condensers and scrubbers prior to the THROX.

I did not inspect FGSITEBLOWER, FGSITESCRUBBERS, FGTHROX or FGFACILITY (flexible groups associated with EU303-07) 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.

2. Air Permit to Install (PTI) No. 281-96A covers EU303-07. This permit was issued on 9/29/10. ROP modification application no. 201000117 was received by the MDEQ-AQD on 10/25/10. This application covers the addition of PTI 281-96A to ROP No. MI-ROP-A4043-2008 (hereinafter "ROP"). To date, the PTI has not been rolled into the ROP. For the purpose of determining compliance during the inspection, PTI 281-96A was used instead of table EU303-07 in the current ROP.
3. Condition no. VI.1 of table EU303-07 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 of condenser nos. 1634 and 1635. Condition no. III.2 of the same table in the ROP states, if the exhaust gas temperature of the condensers exceeds 95 degrees F (35 degrees C), respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. At approximately 10:20 am, I observed the following operational parameter data for the condensers in the control room for EU303-07 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Condenser 1634 controls emissions from kettle 1690. Condenser 1635 controls emissions from kettle 1693. DC was operating equipment which vents to the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 1634 exhaust gas temperature	16.1 degrees C (instantaneous)	Hi ≥ 31.0 degrees C Hi - Hi ≥ 33.0 degrees C

Condenser 1635 exhaust gas temperature	29.2 degrees C (instantaneous)	Max ≥ 35 degrees C
		Hi ≥ 31.0 degrees C Hi – Hi ≥ 33.0 degrees C Max ≥ 35 degrees C

\*\*All alarm set points are instantaneous.

4. Condition no. VI.1 of table EU303-07 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 of condenser nos. 1637 and 3458. Condition no. III.1 of the same table in the ROP states, if the exhaust gas temperature of the condensers exceeds 50 degrees F (10 degrees C), respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. At approximately 10:20 am, I observed the following operational parameter data for the condensers in the control room for EU303-07 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Condenser 1637 controls emissions from kettle 1636. Condenser 3458 controls emissions from 3454 vacuum pump. DC was operating equipment which vents to the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 1637 exhaust gas temperature	29.6 degrees C (instantaneous)	Hi ≥ 6.0 degrees C Hi – Hi ≥ 8.0 degrees C Max ≥ 10 degrees C
Condenser 3458 exhaust gas temperature	3.5 degrees C (instantaneous)	Hi ≥ 6.0 degrees C Hi – Hi ≥ 8.0 degrees C Max ≥ 10 degrees C

\*\*All alarm set points are instantaneous.

Although the exhaust gas temperature of condenser 1637 was in excess of the limit at the time of my inspection, I do not consider this a non-compliance issue as the site-wide THROX was operational and receiving emissions from EU303-07.

5. Condition no. VI.1 of table EU303-07 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant flow rate and the coolant exit temperature of condenser nos. 1602 and 3420. Condition no. III.3 of the same table in the ROP states, if the coolant flow rate of the condensers is less than 20 gpm, respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. Condition no. III.4 of the same table in the ROP states, if the coolant exit temperature of the condensers exceeds 85 degrees F (29.44 degrees C), respectively, the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. At approximately 10:20 am, I observed the following operational parameter data for the condensers in the control room for EU303-07 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Condenser 1602 controls emissions from kettle 1600. Condenser 3420 controls emissions from kettle 1650. DC was operating equipment which vents to the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 1602 coolant flow rate	51.2 gpm (instantaneous)	Lo ≤ 30.0 gpm Lo-Lo ≤ 25.0 gpm Min ≤ 20 gpm
Condenser 3420 coolant flow rate	58.5 gpm (instantaneous)	Lo ≤ 30.0 gpm Lo-Lo ≤ 25.0 gpm Min ≤ 20 gpm
Condenser 1602 coolant exit temperature	18.7 degrees C (instantaneous)	Hi ≥ 25.4 degrees C Hi – Hi ≥ 27.4 degrees C Max ≥ 29.4 degrees C
Condenser 3420 coolant exit temperature	18.5 degrees C (instantaneous)	Hi ≥ 25.4 degrees C Hi – Hi ≥ 27.4 degrees C Max ≥ 29.4 degrees C

\*\*All alarm set points are instantaneous.

6. Condition no. VI.2 of table EU303-07 of the ROP states, DC shall monitor and record, on a per shift basis, the liquid flow rate of venturi scrubber nos. 1673 and 23370. For scrubber 23370, the ROP states that

monitoring and recordkeeping is only required when the scrubber is operating. Condition no. III.5 of the same table in the ROP states, if the liquid flow rate of the scrubbers is less than 5 gpm (presumably respectively), the permittee shall implement corrective action and maintain a record of action taken to prevent reoccurrence. At approximately 10:20 am, I observed the following operational parameter data for the scrubbers in the control room for EU303-07 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Scrubber 1673 controls emissions from kettle nos. 1600 and 1650. Scrubber 23370 controls emissions from kettle nos. 1690 and 1693. According to Matt and Justin, these scrubbers are only required when they're running reactions that generate chlorosilanes. Although DC was operating equipment which vents to the scrubbers at the time of my inspection, they were not running reactions that generate chlorosilanes. It should also be noted that DC now records the liquid flow rate for these scrubbers on a continuous basis.

Operational Parameter	Observed Value	Alarm Set Point**
Venturi scrubber 1673 liquid flow rate	0 gpm (instantaneous)	Low $\leq$ 6.0 gpm Min $\leq$ 5 gpm
Venturi scrubber 23370 liquid flow rate	0 gpm (instantaneous)	Low $\leq$ 6.0 gpm Min $\leq$ 5 gpm

\*\*All alarm set points are instantaneous.

Although the liquid flow rate of the venturi scrubbers was less than the limit at the time of my inspection, I do not consider this a non-compliance issue as the site-wide THROX and scrubbers were operational and receiving emissions from EU303-07.

7. Condition no. VI.3 of table EU303-07 of the ROP states, the permittee shall maintain batch production records and other records sufficient to demonstrate compliance with the emission limit specified in condition no. I.1 of the table. 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 calculation discussed in item no. 8 below.
8. Condition no. VI.4 of table EU303-07 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 month to demonstrate compliance with the 12-month rolling time period emission limit specified in the table. Condition no. I.1 of the same table in the ROP limits VOC emissions from EU303-07 to 30.0 tpy (based on a 12-month rolling time period as determined at the end of each calendar month). During the inspection, I asked for the 12-month rolling total VOC emissions through January 2014 for EU303-07. On 3/19/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total VOC emissions through January 2014 for EU303-07 was 0.019 tpy.
9. Condition no. VII.1 of table EU303-07 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.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 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 EU303-07.

### EU303-09

Compliance Status: Compliance

Items noted during the inspection.

1. EU303-09 covers the flake resin hydrolysis process. This process is equipped with the following air pollution control equipment: condensers 3335 and 24697 (previously 3481), cyclone 3446 and fabric filter 22770. According to the ROP renewal application received by the MDEQ-AQD on 3/4/13, EU303-09 also vents to FGTHROX and FGSITESCRUBBERS. During the inspection, DC informed me that condenser 3481 was replaced with condenser 24697 under a Rule 285 exemption. EU303-09 was venting to the THROX at the time of my inspection. Emissions from the process are vented through the condensers prior to the THROX. Emissions from the cyclone and fabric filter vent directly to atmosphere.

I did not inspect FGTHROX or FGSITESCRUBBERS (flexible groups associated with EU303-09) 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.

- Condition no. VI.1 of table EU303-09 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant flow rate of condenser 3335. Condition no. III.1 of the same table in the ROP states, proper operation of the condenser means the coolant flow rate shall be at least 40.0 gpm. At approximately 10:20 am, I observed the following operational parameter data for the condenser in the control room for EU303-09 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Condenser 3335 controls emissions from kettle 3360. DC was operating equipment which vents to the condenser at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 3335 coolant flow rate	53.6 gpm (instantaneous)	Lo ≤ 50.0 gpm Lo-Lo ≤ 45.0 gpm Min ≤ 40 gpm

\*\*All alarm set points are instantaneous.

- Condition no. VI.1 of table EU303-09 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 of condenser 24697. Condition no. III.2 of the same table in the ROP states, proper operation of the condenser means the exhaust gas temperature from the condenser shall not exceed 95 degrees F (35 degrees C). At approximately 10:20 am, I observed the following operational parameter data for the condenser in the control room for EU303-09 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Condenser 24697 controls emissions from kettle 3390. DC was operating equipment which vents to the condenser at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 24697 exhaust gas temperature	28.0 degrees C (instantaneous)	Hi ≥ 31.0 degrees C Hi - Hi ≥ 33.0 degrees C Max ≥ 35 degrees C

\*\*All alarm set points are instantaneous.

- Condition no. VI.2 of table EU303-09 of the ROP states, DC shall monitor and record, at least once every 12-hour shift, the pressure drop for fabric filter 22770. Condition no. III.3 of the same table in the ROP states, proper operation of the fabric filter means the pressure drop is maintained within a range of 0 to 20 inches of water. At 10:31 am, I observed the following operational parameter data for the fabric filter in the control room for EU303-09 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Fabric filter 22770 controls emissions from flake hopper 3460. DC was operating flake hopper 3460 at the time of my inspection. It should be noted that DC records the fabric filter pressure drop on a continuous basis instead of once every 12-hour shift.

Operational Parameter	Observed Value	Alarm Set Point**
Fabric filter 22770 pressure drop	8.0 inches of water (instantaneous)	≥ 10 inches of water

\*\*All alarm set points are instantaneous.

- Condition no. IX.4 of table EU303-09 of the ROP states, in part, DC shall equip and maintain cyclone 3446 with a pressure drop indicator. However, table EU303-09 does not require DC to monitor and record this parameter, nor does it set a pressure drop limit for the cyclone. Despite this fact, DC monitors and records the parameter on a continuous basis. As a result, at 10:31 am, I observed the following operational parameter data for cyclone 3446 in the control room for EU303-09 at Building 303. Matt Maiers (DC Manufacturing Engineer) and Justin Needer (DC Manufacturing Engineer) provided the data. Cyclone 3446 controls emissions from flaker 3421. DC was operating flaker 3421 at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Cyclone 3446 pressure drop	0.8 inches of water (instantaneous)	≥ 10 inches of water

\*\*All alarm set points are instantaneous.

- Condition no. VII.4 of table EU303-02 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 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 EU303-09.

**EU304-02**

Compliance Status: Compliance

Items noted during the inspection.

- EU304-02 covers the alkylsilane process including reactors, distillation columns, condensers, scrubber, storage tanks, tanker station, and related equipment. This process is equipped with the following air pollution control equipment: 337 wet scrubber (only used as a backup control device when the THROX is down), and condensers (414 & 1154 – emissions from the process are vented through the condensers prior to the THROX). According to the ROP renewal application received by the MDEQ-AQD on 3/4/13, EU304-02 also vents to FGTHROX, FGSITESCRUBBER and FGSITEBLOWER. These control devices were added later pursuant to AQD Rule 285 and are covered by the facility's malfunction abatement plan (MAP). The MAP and the renewal application also address the use of FG304VENTRECOVERY. However, according to DC, EU304-02 does not vent to 304 vent recovery. Mike stated he would correct this in the MAP and submit it to the AQD for review and approval.

I did not inspect FGTHROX or FGSITESCRUBBERS 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.

- Condition no. VI.1 of table EU304-02 of the ROP states, DC shall monitor and record, on a continuous basis (i.e., at least once every 15-minutes), the coolant inlet temperature of condenser nos. 414 and 1154. Condition nos. III.1 and 2 of the same table in the ROP state, the maximum coolant inlet temperature of condenser nos. 414 and 1154 shall not exceed -13 degrees C, respectively. At approximately 11 am, I observed the following operational parameter data for the condensers in the control room for EU304-02 at Building 304. Ted Knapp (DC Manufacturing Consultant) provided the data. Condenser 414 controls emissions from distillation column 412. Condenser 1154 controls emissions from distillation column nos. 1150 and 1186, and bulk tank nos. 1105, 1184, and 23597. DC was operating equipment which vents to the condensers at the time of my inspection.

Operational Parameter	Observed Value	Alarm Set Point**
Condenser 414 coolant inlet temperature	-23 degrees C (instantaneous)	Hi ≥ -13 degrees C
Condenser 1154 coolant inlet temperature	-23 degrees C (instantaneous)	Hi ≥ -13 degrees C

\*\*All alarm set points are instantaneous.

- Condition nos. VI.2 and 3, and condition nos. IX.4 and 5 of table EU304-02 of the ROP pertain to the amylichlorosilane process. According to Ted, DC has not run this process since 2005. Therefore, I did not request a copy of the records required by these conditions.
- Condition no. VI.4 of table EU304-02 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 month to demonstrate compliance with the 12-month rolling time period emission limits specified in the table. Condition nos. I.2, 4, 6, 8, 10 and 12 of the same table in the ROP limits ton per year emissions (based on a 12-month rolling time period) for several compounds which are listed in the table below. During

the inspection, I asked for the 12-month rolling total emissions through January 2014 for EU304-02. On 3/19/14, I received the requested information. According to data provided by DC (see attached), the 12-month rolling total emissions through January 2014 for the compounds specified in the table below were in compliance with their prescribed emission limit.

Pollutant	Limit (based on a 12-month rolling time period)	12-Month Rolling Total Through January 2014
VOC	15.2 tpy	0.09 tpy
EITCS (CAS #115219)	0.149 tpy	0 tpy
MeHDCS (CAS #75547)	1.273 tpy	0 tpy
EtMeDCS (CAS #4525444)	1.37 tpy	0 tpy
Amylene (CAS #513359)	0.346 tpy	0 tpy
1-Octene (CAS #111660)	0.287 tpy	0.0004 tpy

5. Condition no. VII.4 of table EU304-02 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 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 EU304-02.

NAME

DATE

3/19/14

SUPERVISOR

FoxView 20AW01:02001D - ROP\_HYDRO

File Help

Mar 13, 2014 10:19 AM

303 BLDG ROP - HYDRO

RESINS OPERATOR ROP

HEAD OPERATOR ROP

PREV DISP

PROCESS	EQUIPMENT	INSTRUMENT	DESCRIPTION	LO ALARM LIMIT	LO-LO ALARM LIMIT	MIN FLOW
1600	1602	51.2 GPM	1602 SWR FLOW	30.0 GPM	25.0 GPM	20 GPM
1650	3420	58.5 GPM	3420 SWS FLOW	30.0 GPM	25.0 GPM	20 GPM
1600/1650	1673	-0.0	CITY H2O FLOW	5.0 GPM		5 GPM
1690/1693	23370	-0.0	CITY H2O FLOW	5.0 GPM		5 GPM
3360	3335	53.6 GPM	3335 SWS FLOW	50.0 GPM	45.0 GPM	40 GPM

  

PROCESS	EQUIPMENT	INSTRUMENT	DESCRIPTION	HI ALARM LIMIT	HI-HI ALARM LIMIT	MAX TEMP
1600	1602	18.7 DEG C	1602 SWR TEMP	25.4 DEG C	27.4 DEG C	29.4 DEG C
1650	3420	18.5 DEG C	3420 SWR TEMP	25.4 DEG C	27.4 DEG C	29.4 DEG C
1690	1634	16.1 DEG C	1634 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
3390	24697	28.0 DEG C	VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C

opt/MP/303BLD/M303\_ROP/ROP\_HYDRO.fdf Initial LP39 Hist20s Overlay:0

APC parameters observed in the control room on 3/13/14 @ 303 bldg.

Rev'd by MDEC-AAD on 3/19/14  
*[Signature]*

303 BLDG  
ROP RESINS

HYDRO OPERATOR  
ROP

HEAD OPERATOR  
ROP

PREV DISP

PROCESS	EQUIPMENT	INSTRUMENT	DESCRIPTION	HI ALARM LIMIT	HI-HI ALARM LIMIT	MAX TEMP
3454 VAC	3458	3.5 DEG C	NASH VENT TEMP	6.0 DEG C	8.0 DEG C	10 DEG C
1610	1623	20.4 DEG C	1623 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
1620	1645	27.5 DEG C	1645 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
3350	3303	22.9 DEG C	3303 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
3304	3307	22.8 DEG C	3307 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
1636	1637	29.6	1637 VENT TEMP	6.0 DEG C	8.0 DEG C	10 DEG C
1693	1635	29.2 DEG C	1635 VENT TEMP	31.0 DEG C	33.0 DEG C	35 DEG C
23985	24095	26.3	24095 VENT TEMP	25.0 DEG C	n/a	25 DEG C

File Help

Mar 13 2014 10:19 AM

Change Env

Initial Display

Initial

LP39

hst20s

Overlays:0

opt/MP/303BLD/M303\_ROP/ROP\_RESINS.fdf

APC parameters observed in the control room on 3/13/14 @ 303 bldg.

Rev'd by MDEA-AAD on 3/19/14

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Data Requested During 03/13/2014 Inspection

A. **EU303-07 (ROP Mark-up Condition VI.4.)**

VOC Emissions (12-month rolling total as of end of January 2014):

0.019TPY (38.2 lbs/yr)

B. **EU304-02 (ROP Mark-up Condition VI.4.)**

VOC Emissions (12-month rolling total as of end of January 2014):

0.09 TPY (181.0 lbs/yr)

EtTCS Emissions (12-month rolling total as of end of January 2014):

0 TPY (0 lbs/yr)

MeHDCS Emissions (12-month rolling total as of end of January 2014):

0 TPY (0 lbs/yr)

EtMeDCS Emissions (12-month rolling total as of end of January 2014):

0 TPY (0 lbs/yr)

Amylene Emissions (12-month rolling total as of end of January 2014):

0 TPY (0 lbs/yr)

1-Octene Emissions (12-month rolling total as of end of January 2014):

0.0004 TPY (0.8 lbs/yr)

DC 006090

Rev'd by MDEQ ADD on 3/19/14  
*[Signature]*