

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

A403336007

FACILITY: The Dow Chemical Company U.S.A., Midland		SRN / ID: A4033
LOCATION: 1790 Building, MIDLAND		DISTRICT: Saginaw Bay
CITY: MIDLAND		COUNTY: MIDLAND
CONTACT: Kayla Peacock, Environmental Specialist		ACTIVITY DATE: 08/02/2016
STAFF: Kathy Brewer	COMPLIANCE STATUS:	SOURCE CLASS: MEGASITE
SUBJECT: EU93-S1		
RESOLVED COMPLAINTS: <i>Complaint KJB</i>		

8/2/2016 Compliance evaluation for EU93-S1, Dow Chemical Company:

Arrival : 9 AM

Depart: 2:30 PM

Participants

Megan Feil – Production Engineer

Brad Kischnick – Environmental Specialist

Jeremy McKeon – Production Leader

Jeff Tenwalde – Technical Advisor

Kayla Peacock (Dow Chemical, Air Delivery Specialist)

Kathy Brewer (MDEQ-AQD, EQA)

The compliance evaluation included a tour of the propylene oxide storage tank (EUPOSTGTANK), Vinylidene chloride storage sphere (EUVDCSPHERE), loading & plant distribution pumps, compressors, & associated valves & piping, on site records review, and, AQD Saginaw Bay District file review

The EU93-S1 major activity is unloading from railcars, material storage, and distribution to on site users. The emission unit includes transfer racks, compressors, pumps, EUPOSTGTANK – a 50,000 gallon storage tank for storing propylene oxide. (PO), and EUVDCSPHERE– a 300,000 gallon storage sphere for storing vinylidene chloride (VDC).

Vapors from the PO tanks, offloading, and, distribution system are operated as a closed loop system. Vapors from the VDC tanks, offloading, and, distribution system are operated as a closed loop system except during VDC maintenance activities when emissions are routed to the 954 TTU. The emission unit is permitted to use the SARAN TTU in 989 Building as an alternate control device, but the Vinyl Chloride operations that vented to the SARAN TTU were decommissioned over a year ago.

This emission unit is subject to the requirements of 40 CFR Part 63, Subparts A, FFFF, UUUU, and the equipment leak provisions of the HON (40 CFR Part 63, Subpart H).

The Forward Looking Infrared (FLIR) optical gas imaging camera was used during the inspection to view the material transport and storage devices. A copy of the IR video was provided to the company. A video file of the IR portion of the inspection edited in Movie Maker is located on the MDEQ AQD share drive.

All information reviewed during the inspection indicated the EU93-S1 emission unit was in compliance with the sites ROP requirements.

Attachments

954 Propylene Oxide Flowsheet

Vinylidene Chloride Flowsheet

June & Dec 2015, Aug 2, 2016 Operations screen shot of tank pressure for EUPOSTGTANK (AI 868)

June & Dec 2015, Aug 2, 2016 Operations screen shot of tank pressure for EUVDCSPHERE (AI 812)

Graph for IR Spectrum of PO

Graph for IR Spectrum of VDC

Aug 2, 2016 PO release NRC Incident Report

Aug 11, 2011 Dow SARA Title III Release Notification follow up report for Aug 2, 2016 release

AQD file review

Jan – Dec 2015 Annual Compliance certification

Jan – June 2016 Semi Annual ROP Deviation Report

2015 Semi Annual ROP Deviation Reports

<http://intranet.deq.state.mi.us/maces/WebPages/ViewActivityReport.aspx?ActivityID=24594921>

9/22/2016

2012 to present Dow Chemical release reports

EMISSION AND MATERIAL LIMITS, TESTING AND SAMPLING REQUIREMENTS, STACK VENT RESTRICTIONS,

There are no emission limits, material limits, stack vent restrictions, or testing and sampling requirements specific to EU93-S1 in the EU93-S1 Special Conditions of the ROP.

PROCESS/OPERATIONAL RESTRICTIONS

The permit requires that the operating pressure of the propylene oxide storage tank EUPOSTGTANK and the Vinylidene chloride storage sphere EUVDCSPHERE do not exceed 100 psig.²

I reviewed the on site records for EUPOSTGTANK and EUVDCSPHERE pressure. On site records reviewed indicated the facility monitored and maintained pressure below 100 psig in the tanks.

Month	EUPOSTGTANK (psig)	EUVDCSPHERE (psig)
June 1, 2015	Chart avg <20	Chart avg <50
Dec 1, 2015	Chart avg <15	Chart avg <55
Aug 2, 2016	Chart avg <15	Chart avg <45

DESIGN/EQUIPMENT PARAMETER(S)

The permit requires a vapor equalization system during railcar unloading. The unloading procedure has process control steps followed by operators. A compressor with pressure valve maintains the vapor equalization system. Flow totalizers and pressure readings are monitored. High and low pressure alarms are established. The PO tank loads from the top and unloads from the bottom. For both tanks during unloading, a compressor pushes the material from the railcar station to the storage tank. Vapors go to a knock out pot and then are compressed and recirculated.

The permit also requires that prior to disconnection of railcar unloading lines from a storage tank, the unloading lines must have been blown with nitrogen to the railcar. Each offloading system has manually activated and timed nitrogen purge after unloading that purges back to each systems storage tank. The automated tracking of purge time indicates to an operator when a line can be disconnected. When not loading, tank pressure set points signal demand for more nitrogen if needed to maintain a nitrogen blanket in the storage tank and unloading lines.

The permit requires that leak detectors for PO and VDC are installed and operating properly, except when the leak detectors are being calibrated or preventive maintenance and repair activities are being performed. There are (8) LELs for PO and (14) LELs for the VDC processes located throughout EU93-S1 that monitor and send signals back to the 954 Building control room. Instrumentation technicians perform required checks on LELs located throughout the PO & VDC processes. The operations are alarmed for high and low pressure points, maintain flow totalizers, and monitor pressure readings. Vapors from the distribution system can be sent to the storage tank if pressure relief is needed.

During the review of the PO storage tank, I used an optical gas imaging camera to view pumps, piping, valves and storage tank. A leak was found on a component ID Connector #95325.5. The 954 Building control room was informed and the PO related activities were suspended. Participants in the inspection and others in the area were required to evacuate the tank storage area. A monitoring and repair crew repaired the leaking component. The initial measurement on the leaking connector was 19,198 ppm. The follow up monitoring after the replacement was 0 ppm. The NRC received the release information as stated in the attached NRC report incident NRC#1155121.

] A SARA Title III Release Notification follow-up correspondence received on August 15, 2016, reported an estimated 5 pounds of Propylene Oxide was released during the event.

Vapors from the PO tanks, offloading, and, distribution system are operated as a closed loop system. Vapors from the VDC tanks, offloading, and, distribution system are operated as a closed loop system except during VDC maintenance activities when emissions are routed to the 954 TTU. The VDC operations vent to the 954 TTU infrequently (approximately once/year) and are normally "locked" closed. Procedures are in place to verify when 954 TTU is operating. The 954 TTU will automatically close the vents from VDC if 954 TTU goes offline.

The emission unit is permitted to use the SARAN TTU in 989 Building as an alternate control device. The VDC operations that vented to the SARAN TTU were decommissioned over a year ago. Physical piping to SARAN TTU remains but is not immediately functional.

MONITORING/RECORDKEEPING

The permit requires monitoring and recording of the operating pressure of Propylene oxide storage tank

EUPOSTGTANK and Vinylidene chloride storage sphere EUVDCSPHERE on a continuous basis (once every 15 minutes for at least 90% of the operating time during an operating calendar day. In practice data points are collected at a frequency of less than one data point per minute. During the site tour we viewed the pressure monitoring equipment of EUPOSTGTANK which was at 12.3 psi at 11:30 AM. The EUVDCSPHERE monitor is physically located at the top of the sphere and accessible but not viewed during this inspection.

On site records review indicate adequate monitoring & recording of pressure for each tank was performed.

REPORTING

A review of the ROP Deviation reports found that EU93-S1 was one of the site areas where there was incomplete documentation due to lack of identification of transfer racks subject to 40 CRF Part 63 Subpart EEEE (OLDMACT). The deviation was reported in a voluntary environmental audit disclosure received on July 1, 2015. The NOCS and ROP have been updated to include EU93-S1 which is now included in FGOLDMACT.

OTHER REQUIREMENT(S)

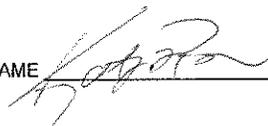
The predominant user of the EUPOSTGTANK is Methocel (EUB2-S1) and therefore subject to 40 CFR Part 63, Subpart UUUU for cellulose products per 63.5490(c)(2). The MACT UUUU only specifies work practices for toluene storage tanks. Equipment in EU93-S1 subject to the equipment leak provisions of 40 CFR Part 63, Subpart H and is included in the Methocel reporting for Subpart H.

The repair and re-monitoring of the component ID Connector #95325.5 appear to meet the 40 CFR 63 Subpart H requirements. The leak will be included in the next periodic MACT report and the ROP Deviation report.

NAME

DATE

SUPERVISOR



9/22/2016

