

B2155
MAWILA

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

B215540999

FACILITY: SOLUTIA INC		SRN / ID: B2155
LOCATION: 5100 W JEFFERSON AVE, TRENTON		DISTRICT: Detroit
CITY: TRENTON		COUNTY: WAYNE
CONTACT: Charles Anderson , Environmental Specialist		ACTIVITY DATE: 07/13/2017
STAFF: Jill Zimmerman	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Pre-scheduled inspection		
RESOLVED COMPLAINTS:		

DATE OF INSPECTION : July 12, 2017
 TIME OF INSPECTION : 10:00 am
 LEVEL OF INSPECTION : II
 NAICS CODE : 325211
 EPA POLLUTANT CLASS : VOC
 INSPECTED BY : Jill Zimmerman
 PERSONNEL PRESENT : Charles Anderson, Environmental Specialist
 Bob Brock, HSES Manager
 FACILITY PHONE NUMBER : 734-672-7895
 FACILITY EMAIL : ceande1@eastman.com
 rrbroc1@eastman.com

FACILITY BACKGROUND

Solutia is an organic chemical company, manufacturing a variety of resins. In the past, Solutia maintained operations on both sides of Jefferson Avenue in Trenton. However, the inorganic operations on the eastern side of Jefferson Avenue are no longer produced, and have been demolished. Located on the western side of Jefferson Avenue is the organic resin process. The Saflex process was located on the same side of Jefferson Avenue, though this process was shut down in March 2009 and all the equipment associated with this process has been removed from the facility. The facility employs approximately 140 people and operates twenty-four hours per day, seven days per week.

Solutia is a Title V / ROP source due to the potential to emit more than 100 tons of volatile organic compounds per year. Although the facility has an opt-out permit, limiting the emission of HAPS, the emission limit of 9 tons of an individual HAP per twelve month rolling time period was violated from February 2015 through January 2016 for the HAP vinyl acetate. The main HAPs of concern are vinyl acetate and acetaldehyde.

COMPLAINT/COMPLIANCE HISTORY

Twelve odor complaints have been received in the past two years, with an increase of odor complaints in the past two weeks.

On November 23, 2015 I issued a violation notice (VN) after process emissions and unplanned releases caused by twelve month rolling time period emissions of vinyl acetate to exceed the permitted limit of nine tons per year. The facility regards the unplanned releases as malfunctions. Regardless, the relevant emission limit includes emissions from process operations and all other operating scenarios. The EPA has also issued a violation based on these emissions. However, no resolution to resolve the violations have been reached.

PROCESS EQUIPMENT AND CONTROLS

Vinyl acetate is added to one of three polykettle reactors (PK). The temperature and pressure

is adjusted to allow the vinyl acetate to polymerize. After the reaction occurs, the poly vinyl acetate is mixed with water and alcohol and transported to the busvar building. Here the product goes through many stages where it is mixed with ethyl alcohol and water. Then the product is allowed to settle out. Next, the product moves to the dryer building, where it is dried to a powder form and crushed so that the product particles are the desired size for the customer. From here, the final product is placed in bags or in barrels. Occasionally, the final product is placed in hopper trucks. A co-product is produced as a result of this process, ethyl acetate, which is commonly found in nail polish remover or a solvent for other solutions is also collected and sold to customers.

INSPECTION NARRATIVE

Prior to the onsite inspection, I performed odor surveillance in the area surrounding the facility. I smelled a distinctive chemical odor suspected to be coming from Solutia along Jefferson Avenue, just north of the facility. I was not able to detect the odor at the intersection of Jefferson Avenue and Van Horn Road. I also was unable to detect the odors south of the facility. There was a south wind based on the wind sock at the facility. Therefore, I was detecting the odors while I was downwind of the facility.

I arrived at the facility on July 12, 2017 at 10:00 am and met with Mr. Charlie Anderson and Mr. Bob Brock. Together we discussed the process at the facility and the goals of the inspection. We discussed the recent odor complaints that have been received. The facility has been performing odor surveillance on their own, but have not verified any odors. There was one incident where they did smell what was described as a "cutting metal with plasma" type odor. I explained that I would be performing odor surveillance frequently in the area. I also said that I would contact the facility any time that I received a complaint or verified an odor. Mr. Brock and Mr. Anderson said that the off gas from the biofilter has an odor threshold of parts per billion (ppb).

The biofilter is made up of larger woodchips placed inside the filter chamber with smaller woodchips placed on top. The air from the dryer is pumped through a humidifier and then pumped into one of the three cells of the biofilter. Microbes in the biofilter break down the organic material from the dryer stream. Each of the three cells are tested once per quarter for water content, total organic compounds, and heterotrophic bacteria. During the last quarterly test, the water content was slightly lower than it should have been, so the facility treated the biofilter with a water sprinkler. Every second year, the mulch in the biofilter is removed and re-luffed before placing it back in the biofilter. Every fourth year, the entire mulch bed is replaced. In September of this year, the facility is planning to replace the mulch in the biofilter based on this schedule. This will occur during the facility shutdown in September.

We also discussed the permit application that is currently being processed. The facility is planning to replace the current polykettle reactors with three new polykettle reactors. Two of the current poly kettles were installed in 1957 and the third was installed in 1974. The new polykettle project will also replace the current three condensers with four condensers. The four new condensers will be installed on the roof, which will allow the facility to clean and maintain the units easier. The facility is required by the current ROP to perform a stack test on a different scrubber associated with the polykettles once every five years. The facility plans to perform the required stack test after the new polykettles are installed.

During 2015, the facility experienced at least four unplanned releases of vinyl acetate, which is considered a hazardous air pollutant (HAP). These releases were the result of a disc rupture event. In the largest release, which occurred in February 2015 more than 3 tons of

vinyl acetate were released. This release occurred when the incorrect disc was placed in one of the PK vessels. The facility attempted to short stop the reaction, which involves injecting iodine into the reactor to stabilize the reaction. This did not work properly, and resulted in the release. This release occurred less than a week after a smaller release of more than 1 ton of vinyl acetate. The last release was on Tuesday August 18, 2015; there was a release when the disc rupture failed, resulting in slightly more than a ton of vinyl acetate being released. This release occurred when the facility lost all electric power including in the uninterrupted power supply line.

The facility is required to perform a leak detection evaluation quarterly. The facility also performs weekly leak detection surveillance and repairs any leaks promptly. A copy of the formal leak detection reports is sent to the MDEQ office quarterly. The last evaluation was performed in April, with some sites completed in June.

During the onsite inspection, PK1 was not operating, PK2 had completed the reaction, and PK3 was in the process of reacting. The flowrate for the scrubber associated with PK3 was 3.6 gallons per minute. The scrubbers associated with the other two PK were not operating since the reactors were not operating. While we were on the catwalk of the Gelvar building, no visible emissions were seen coming from any of the condensers or the scrubbers. During the inspection, the roll dryer was not operating, and no product was being packaged. The crusher was not operating, but is used to crush the final product to the customer desired particle size. We walked past the biofilter and no visible emissions were observed to be coming from the biofilter.

Currently the facility uses steam which is generated by DTE Trenton Channel plant located across the street from Solutia. During the past year, DTE was unable to supply steam to Solutia for a period of time. Solutia temporarily installed boilers onsite to provide the needed steam. When DTE was able to provide the steam, the boilers were removed.

APPLICABLE RULES/PERMIT CONDITIONS

Solutia is currently operating as a Title V source under MI-ROP-B2155-2009a. During the onsite inspection, I had requested a copy of the monthly and 12-month rolling average emission records for the facility wide HAPs, which is attached to this report. Additional records were collected from the facility that contain information that the facility has deemed as confidential. While MDEQ may not agree that this information is confidential, the records will be filed as confidential at this time.

The facility has a source wide condition which limits the emission of a single HAP to less than 9.0 tons per year and aggregate HAPs to less than 22.5 tons per year. The facility has not had an unplanned release of any HAPs since August 2015. Between June 2015 and May 2017 the highest reported emitted HAP was 16.7 tons during July 2015 and the lowest reported emitted HAP was 9.6 tons during multiple months. Based on the individual HAP's emitted, vinyl acetate (VA) is the highest emitted in a range of 14.12 TPY and 7.12 TPY between June 2015 and May 2017.

During 2015 the facility experienced multiple unplanned releases which increased their vinyl acetate, a HAP, emissions above the 9 tons per year limit. A VN was issued based on these emissions. The facility, the agency and EPA have yet to arrive at a resolution for the VN.

The FGBUTVARN is limited to 13 batches per day and 4745 batches per year. The facility reported in MAERS that 2523 batches were made during 2016, which is in compliance with the limit. The facility reported emitting about 1.4 tons of VOC during 2016 which is less than

the limit of 9.02 tons per year. The facility appears to be operating in compliance with the conditions for this emission unit.


The FGGELVAVARN is limited to less than 3.08 tons VOC per year. Based on the emissions reported in MAERS, the facility emitted about 0.69 tons of VOC during 2016, which is less than the permitted limit. During 2016, the facility completed about 758 batches, which is less than the permit limit of 996.5 batches per year.

MAERS REPORT REVIEW

On May 31, 2017, I performed an audit of MAERS submitted on March 13, 2017. The supporting documentation appears to verify that the emissions have been reported accurately. The facility experienced no unplanned releases during 2016. Boilers were added at the facility during 2016. These boilers have been removed from the facility.

FINAL COMPLIANCE DETERMINATION

Solutia is not operating in compliance with the current ROP. The facility was cited by both MDEQ and EPA for exceeding the individual HAP of 10 tons per year. This violation occurred during 2015 when the facility experienced multiple releases that resulted in large amounts of vinyl acetate being emitted. The twelve month rolling average for VA exceeded the permit limit of 9 TPY between July 2015 and January 2016, and the exceeded 10 TPY from April 2015 through January 2016. Therefore, the facility stands in violation of Special Conditions I.1 of the source wide conditions in MI-ROP-B2155-2009a. The DEQ's Violation Notice of November 23, 2015 and the USEPA's Finding of Violation of August 24, 2016 remain unresolved.

NAME 

DATE 10/10/17

SUPERVISOR 