

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

B281749190

FACILITY: VERTELLUS ZEELAND LLC		SRN / ID: B2817
LOCATION: 215 N. Centennial St., ZEELAND		DISTRICT: Grand Rapids
CITY: ZEELAND		COUNTY: OTTAWA
CONTACT: Kevin Bott , Environmental Health and Safety Manager		
STAFF: Kaitlyn DeVries	COMPLIANCE STATUS: Compliance	ACTIVITY DATE: 06/06/2019
SUBJECT: The purpose of this inspection was to determine compliance with PTI No. 104-09E and 104-09F and other applicable air quality rules and regulations. Until the operation of the flare associated with EUB031, the facility is complying with the provisions of PTI No. 104-09E.		
RESOLVED COMPLAINTS:		

On Thursday June 6, 2019, Air Quality Division (AQD) Staff Kaitlyn DeVries (KD) conducted an unannounced, scheduled inspection of Vertellus Zeeland, LLC located at 215 N. Centennial St., Zeeland, Michigan. The purpose of this inspection was to determine compliance with PTI No. 104-09E and 104-09F and other applicable air quality rules and regulations. Until the operation of the flare associated with EUB031, the facility is complying with the provisions of PTI No. 104-09E.

KD arrived on shortly before 9:00 am and surveyed the perimeter of the facility for excess odors and opacity prior to entrance. None were noted. After checking in with the security guard, KD was greeted by Mr. Kevin Bott, Environmental, Health, and Safety Manager, who accompanied her on a tour of the facility.

It should be noted that the required records for the control devices associated with all of the emission units' records were inadvertently destroyed in March 2019. The records were for all control devices for all of 2018 up through March of 2019. Therefore, these records could not be reviewed. This was addressed with Vertellus Zeeland, LLC in a Violation Notice issued on April 2, 2019. This violation as subsequently been resolved.

Facility Description

Vertellus Zeeland, LLC (Vertellus) is a chemical manufacturer specializing in products for the pharmaceutical, personal care, and imaging industries. This site also manufacturer's polymers for composite binders.

Regulatory Analysis

Currently, Vertellus is operating under PTI No. 104-09E and 104-09F and is a synthetic minor source of Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOC's). In addition to the permit, Vertellus is subject to 40 CFR Part 63 Subpart VVVVVV the National Emissions Standard for Hazardous Air Pollutants (NESHAP) for chemical manufacturing area sources. Michigan currently has delegation for this area source MACT. Many of the conditions of the regulation are already written into the permit.

Compliance Evaluation

EUB026

This emission unit covers all of the process equipment located in Building 26. This building is primarily used for Vitride manufacturing. No Vitride was being processed at the time of the inspection. There are three (3) scrubbers associated with this building; two (2) oil scrubbers and one (1) water scrubber. Vertellus operator Jerry discussed the operational parameters with KD explaining that for the water scrubber, they record the operational parameters every two (2) hours. These parameters include the pressure drop and the water flow rate. At the time of the inspection, the water scrubber was running at a flow of 5.7 gallons per minute (gpm) and a pressure drop of 0.3" Water Column (WC). For the oil scrubbers, Jerry explained that they also regularly track the operational parameters, including the oil level, the oil flow, the pump pressure, the pressure drop, and the percentage of Toluene in the oil. KD asked how frequently the oil is changed in the scrubbers, and Jerry replied that if the percent of Toluene in the oil is above 20%, the oil is changed. He went on to say that the inside scrubber is changed more frequently, while the outside scrubber can last for 6 months without an oil change. The inside oil scrubber most recently had its oil changed in January 2019. KD was able to observe all three (3) scrubbers and could see the flow rate, the pressure drop recording devices, and the oil level. Records of the operational parameters were reviewed on site and indicated that the scrubbers operate within the parameters specified in the Malfunction Abatement Plant (MAP).

There is also an aluminum dust handling baghouse associated with this process. The aluminum collected from this process is recycled and sent back into the process. This process was not running at the time of the inspection.

Vertellus is adequately tracking all maintenance on the scrubbers and baghouse, including annual calibrations of the magnehelics. Inspection records are attached to this report.

The Vitride process has a throughput limit of 5,175,000 lbs per year (ppy), based on a 12-month rolling time period. Per the attached records, as of April 2019 the 12-month rolling throughput was 1,823,839 lbs. VOC emissions are limited to 2.5 tons per year (tpy) also based on a 12-month rolling time period. As of June 2017, the 12-month rolling emissions were 0.37 tpy.

Upon rooftop inspection, all stacks appeared to be of the correct dimension, and all exhaust points and equipment is properly labeled.

EUB031

All of the equipment found in building #31 comprises this emission unit. This emission unit was the reason for the last permit modification, and the only differences between PTI No. 104-09E and 104-09F are found in this emission unit. PTI No. 104-09E is to be voided once the ground flare is fully operational. KD was able to see the construction of the Flare, and per Mr. Bott they have started some preliminary testing of the flare, with trial operations beginning on May 16, 2019. KD spoke to Mr. Bott about the permit requirement for testing the flare within 180 days of commencement of trial operation. The 180 days correlates to November 5, 2019. Upon operation the flare must achieve a 90% destruction efficiency during the production of EMAE60. Currently, an ethylene recovery system and cold chillers (Cold trap #1 and Cold trap #2) are the primary control devices used for this emission unit. In addition to the cold traps, for control, there is a wet scrubber used to control the packaging of the products. Vertellus Operator Jim showed KD the scrubber system. He stated that the scrubber system's water is replaced every 48 hours. As Jim was showing KD and Mr. Bott the system there were several small leaks noted in the ductwork for the scrubber where liquid could be seen dripping down. As soon as this was noticed Jim said he would shut the process down and change out the water for system. Mr. Bott assured KD that they would fix the leaks as soon as possible. KD asked for confirmation from Mr. Bott as to when these fixes were made.

The two (2) primary products in this building are E60 and E400, both of which are ethylene maleic anhydride products. Vertellus was processing E60 at the time of the inspection. Currently, E60 has a maximum throughput of 2,640,000 ppy. This limit applies until the ground flare has commenced trial operation. After operation of the ground flare, the material limit increases to 3,960,000 ppy; both limits are based upon a 12-month rolling time period. The records obtained through the end of April 2019 are from prior to the ground flare commencing trial operation. Those records indicate a throughput of 1,995,776 pounds. E400 has a maximum throughput of 440,000 ppy, both based on a 12-month rolling time period. Based on the attached records, the 12-month rolling throughput for the E400 was 30,864 pounds. During the previous 12-months, E400 was only produced in April 2019.

Since the ground flare has only recently begun trial operations, the two (2) cold traps are the primary control devices. After commencement of the ground flare, the cold trap will still be used, but will become a secondary control device. At the time of the inspection, cold traps #1 and #2 had exhaust temperatures of 6.8°F and 3.96 °F, respectively; the permitted maximum temperature of the cold traps is 10°F. Currently, Vertellus is recording the temperatures of the cold traps via a circular disc chart. Temperature records were reviewed on site and were acceptable. Additionally, Vertellus is adequately addressing maintenance issues, and has most recently calibrated the cold trap temperature gauges in February 2019.

Toluene is the primary HAP in this process, and is recovered and stored in a tank equipped with a conservation vent. VOC's from this process are limited to 78.58 tpy based on a 12-month rolling time period. Based on the attached records, the 12-month rolling emissions as of April 2019 were 33.89 tpy. While the stack dimensions were not explicitly measured, all dimensions appeared correct.

EUNEWPILOTPLANT

All of building #32, or the new pilot plant, comprises this emission unit. The new pilot plant is used primarily for research and development operations or small batches and is comprised of three (3) floors of operation. No

products were being made at the time of the inspection. Inside the building there is a clean room that has HEPA filtration, and is also equipped with a pressure indicator ensuring negative pressure at all times.

The building is equipped with two (2) scrubbers, a lead and a tail scrubber, which are exhausted through a common stack. While the stack dimensions were not explicitly measured, it appeared to be correct. The scrubbers are equipped with flow indicators; records of the flow were reviewed on site.

VOC's from the operations in this building are limited to 35 lbs per batch, and 3.7 tpy, based on a 12-month rolling time period. Based on the attached records, the 12-month rolling VOC emissions as of April 2019 were 66.46 lbs., and the maximum pounds per batch was 5.648. Particulate matter (PM) emissions from this building is limited to 0.01 pph, based on a daily average, and 0.01 lbs per 1,000 lbs of exhaust gas, according to the test method. Based on the attached records, the daily average is 0.0012 lbs. and 0.00748 lbs. per 1,000 lbs of exhaust gas is emitted.

Other emissions from this building are limited based on toxicity. Toxic Air Contaminants (TACs) are categorized based on their respective screening levels and then limited to a specified pound per hour limit (See PTI No. 104-09F for more details). Vertellus is required to track all emissions from this building and place it into the correct category, based on averaging time. Records for each are attached to this report, and do not show any exceedances; Vertellus is properly tracking the batches processed per month, and all additional information in order calculate emissions based on appendix 2 and 3 of PTI No. 104-09F.

FGCONSOLIDATED

This flexible group covers all process equipment located in buildings 2, 5, 7, 12, 15, 19, and 26a. The various buildings have associated scrubbers, or dust collectors associated with each building.

Building 15 and its associated scrubber were under construction at the time, with the scrubber receiving maintenance. Per Mr. Bott, this building is not used very often.

Within this flexible group EUB002, EUB007, and EUB019 are the emission units that make Vertellus subject to 40 CFR part 63 Subpart VVVVVV. Vertellus accepted throughput limits on the production through these emission units in order to comply with the MACT. Another requirement, of 40 CFR Part 63 Subpart VVVVVV is the controlling of the metal HAP emissions, in this case Chromium. Vertellus has a control device for the chrome emissions and is properly tracking the number of batches per month with a total of 2.58 batches produced in the last 12 months. EUB002 (Stack #6), has a production limit of 1.5 million pounds of any one product, based on a 12-month rolling time period. As of April 2019, the 12-month rolling production was 4,738 pounds. EUB007 has a throughput limit of 10 million pounds based on a 12-month rolling time period, and as of April 2019 the 12-month rolling throughput was 117,693 pounds. EUB019 has a throughput limit of 40 million pounds based on a 12-month rolling time period. The April 2019 12-month rolling records indicate a throughput of 1,372,212 pounds.

This flexible group has a VOC limit of 43.4 tpy, based on a 12-month rolling time period. Based on the attached records, the 12-month rolling VOC emissions as of April 2019 were 13.43 tons. Batches within this flexible group have a VOC limit of 0.03 lbs/lb. of product, except for ethylene. The highest VOC emission in pounds per pound of product was 0.0232, according to the attached records. Ethylene is limited to 1.0 lbs per lb. of product, on a per batch basis. According to the records, no ethylene was emitted in the last 12-months.

PM from EUB007, for flaking and grinding, is limited to 0.175 pph and 0.01 lbs. per 1,000 pounds of exhaust gas, based upon test protocol. Records indicate daily average PM emissions of 0.004 pph and 0.0050 pounds per 1,000 pounds of exhaust gas. PM from EUB019 and EUB005, for drying and packaging operations and centrifuge unloading, is limited to 0.025 pph and to 0.01 lbs per 1,000 lbs of exhaust gas, all based on test protocol. Records indicate daily average PM emission of 0.011 pph and 0.0021 pounds per 1,000 pounds. Additionally, no visible emissions were seen from any of the stacks during the inspection.

Emissions of other pollutants are limited based on toxicity. Toxic Air Contaminants (TACs) are categorized based on their respective screening levels and then are limited to a specific pound per hour emission rate based upon those screening levels and the respective stack where they exhaust. Vertellus is required to calculate and track all emissions from this flexible group in accordance with the requirements of Appendix 5 of PTI No. 104-09F. Per the attached records, the emissions do not show any exceedances of any of the limits. All production information, including material throughput, also appears to be properly tracked.

Control devices consisting of dust collectors and scrubbers appeared to be properly operating for all of the buildings. Dust collector 19 was operating with a pressure drop of 2" WC. Records for all of the dust collectors were operating within the ranges specified in the MAP. All records for the scrubbers associated with this flexible group indicated they were operating within the specified ranges as specified in the MAP. All of the scrubbers are equipped with high level and low flow alarms.

KD was able to observe many of the stacks during the inspection; the stacks were labeled and appeared of proper dimension, however, KD did not measure the stacks.

Based on the compliance with the material throughput limits and the operational practices, as outlined in the MAP, Vertellus appears to be complying with the provisions of 40 CFR Part 63 Subpart VVVVVV. KD did mention to Mr. Bott that the AQD is looking more closely into 40 CFR Part 63 Subpart VVVVVV, and more information regarding this subpart may be coming out for industry.

FGFACILITY

This flexible group covers all equipment located at the facility including permitted, grandfathered and exempt equipment. Vertellus has a facility-wide VOC limits of less than 100 tpy based on a 12-month rolling time period. Per the attached records, as of April 2019 the 12-month rolling VOC emissions were 74.51 tons. There are also facility-wide HAP limits of less than 25 tons per year for aggregate HAPs, and less than 10 tpy for individual HAPs; both are based on 12-month rolling time periods. Per the attached records, aggregate HAP emissions were 8.81 tons with Toluene being the individual HAP with the highest emission rate at 6.45 tons. As mentioned in *FGCONSOLIDATED*, Vertellus is complying with the provisions outlined in 40 CFR Part 63 Subpart VVVVVV.

MISCELLANEOUS EXEMPT EQUIPMENT

Vertellus has a methanol storage tank on site, which is exempt from Rule 201 permitting under Rule 284(2)(n). Rule 290 is used to track the emissions from the methanol storage tanks and as well as the old pilot plant. The monthly methanol emissions from the storage tanks are 1.02 lbs./month, which is below the allowed 500 pounds per month limit for rule 290. Per the attached records, the old pilot plant operated for one month in October 2018, emitting a total of 122 pounds.

There are four (4) Diesel emergency generators on site, ranging from 20 KW to 80 KW (26.8 HP to 107.3 HP) installed between 1991 and 2010. Specifically, the 20 KW generator was installed in 2002, the 30 KW generator was installed in 1991, the 40 KW generator was installed in 2010, and the 80 KW generator was installed in 1998. All of these engines are exempt from Rule 201 permitting under Rule 282(2)(b)(ii). The 40 KW generator is subject to the provisions of 40 CFR Part 60 Subpart IIII the new source performance standards (NSPS) for stationary compression ignition internal combustion engines. Based on manufacturer's specification, this is a certified engine, and meets the emissions standards as outlined. All four (4) engines are subject to the provisions of 40 CFR Part 63 Subpart ZZZZ the NESAHF for stationary Reciprocating Internal Combustion Engines at area sources; AQD does not have delegation for this area source regulation. The total lifetime operating hours for the four (4) range between 525.3 hours and 93.5 hours. Per Mr. Bott, these engines are ran for testing purposes only.

Vertellus has two (2) 20 MMBTUI natural gas only boilers. Both boilers are exempt from Rule 201 permitting under Rule 282(2)(b)(i). Neither boiler is subject to the provisions of 40 CFR Part 63 Subpart JJJJJJ the NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources since the boilers are natural gas only. One (1) boiler, installed in 1979, is also exempt from the provisions of the New Source Performance Standard (NSPS) 40 CFR Part 60 Subpart Dc for Small Industrial-Commercial-Institutional Steam Generating Units. The other boiler, installed in 1990, is, however, subject to Subpart Dc. AQD has received proper notification of this boiler.

Finally, Vertellus does not have any cold cleaners.

Compliance Determination

Based on the observations made during the inspection and a subsequent review of the records, it appears as if Vertellus Zeeland, LLC is compliant with PTI No. 104-09E and 104-09F.

NAME

Kristyn Dubow

DATE

6/20/2019

SUPERVISOR

[Signature]