

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

B281740958

<b>FACILITY:</b> VERTELLUS ZEELAND LLC	<b>SRN / ID:</b> B2817
<b>LOCATION:</b> 215 N. Centennial St., ZEELAND	<b>DISTRICT:</b> Grand Rapids
<b>CITY:</b> ZEELAND	<b>COUNTY:</b> OTTAWA
<b>CONTACT:</b> Randy Elenbaas , Process Engineer	<b>ACTIVITY DATE:</b> 07/18/2017
<b>STAFF:</b> Kaitlyn DeVries	<b>COMPLIANCE STATUS:</b> Compliance
<b>SUBJECT:</b> The purpose of this inspection was to determine compliance with PTI No. 104-09D and other applicable air quality rules and regulations	
<b>RESOLVED COMPLAINTS:</b>	

On Tuesday July 18, 2017, 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. 104-09D and other applicable air quality rules and regulations.

KD arrived on site around 9:30 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 Ms. LeeAnn Karabelski, HSSE Engineer and then with Mr. Randy Elenbaas, Process Engineer.

Prior to a tour of the facility, KD and Vertellus Zeeland, LLC (Vertellus) staff discussed changes since the last inspection and any upcoming changes. Mr. Elenbaas stated that Vertellus is looking to expand the process located in building 31 due to capacity limitations and will likely be applying for a new permit for the changes in the upcoming months. Ms. Karabelski also provided KD with an updated Malfunction Abatement Plan (MAP), Preventative Maintenance Plan (PMP) at that time. KD reviewed the MAP/PMP and it appears to be adequate and addresses all permit conditions appropriately.

KD reviewed some of the records on site, while others were received electronically.

### 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. Vertellus operates three (3) shifts, seven (7) days a week.

### Regulatory Analysis

Vertellus is currently operating under PTI No. 104-09D 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. Please reference FGCONSOLIDATED for more specific information regarding this NESHAP.

### Compliance Evaluation

#### *EUB026*

This emission unit covers all of the process equipment located in Building 26. This building is primarily used for Vitride manufacturing. At the time of the inspection, no Vitride was being processed, as the process was down for the month of July. Per Mr. Elenbaas, they typically shut down this process during July for maintenance, and due to low demand; the process will likely start back up in early August, or just before. There are two (2) scrubbers associated with this building; an oil scrubber and a water scrubber. KD was able to observe both scrubbers and could see the flow rate and the pressure drop recording device, but since the process wasn't running there was no pressure drop to observe. Pressure drop records, which were reviewed on site, indicated the water scrubber typically operates at a flow rate of 8.5 – 9.0 gallons per minute (gpm) and a pressure drop of 0.2" – 0.4" water column (WC). The oil scrubber has been operating at a flow rate of 28 – 34 gpm with a pressure reading of 8.7 – 8.8 pounds per square inch (psi).

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 June 2017 the 12-month rolling throughput was 2,151,187 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 0.53 tpy.

Upon rooftop inspection, all stacks appeared to be of the correct dimension.

#### *EUB031*

All of the equipment located in building #31 comprises this emission unit. Per Mr. Elenbaas, this is the process area that Vertellus is looking to expand in the next few months. An ethylene recovery system and cold chillers (Cold trap #1 and Cold trap #2) are the primary control devices used for this emission unit. The two (2) primary products in this building are E60 and E400, both of which are ethylene maleic anhydride products. Per Mr. Elenbaas, the production increase that Vertellus would be requesting would be for the E60 product only. Currently E60 has a maximum throughput of 1,540,000 ppy and 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 E400 was 108,603 ppy and 932,791 ppy for E60.

Cold Traps #1 and #2 had exhaust temperatures of 6.8°F and 5.2°F, respectively; both are below the permitted maximum temperature of 10°F. Currently, Vertellus is recording the temperatures of the cold traps via a circular disc chart. Mr. Elenbaas, Vertellus is looking to digitize the temperature recording and asked KD if this would require a change to the permit. KD showed Mr. Elenbaas the requirements as outlined in the permit, which just requires Vertellus to continuously monitor and record the temperatures of the cold traps, and doesn't specify how to do so, so an upgrade to a digital system would be fine. Temperature records were reviewed on site, and were acceptable with no exceedances noted. Additionally, Vertellus is adequately addressing maintenance issues, and has most recently calibrated the cold trap temperature gauges in January 2017.

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 June 2017 were 15.11 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. 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. The scrubbers are equipped with flow indicators, and were properly operating. The stack dimensions were not explicitly measured, they appeared to be correct. Additionally, there were no visible emissions coming from any of the stacks.

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 June, 2017 were 0.01 lbs, and the maximum pounds per batch was 18.7. 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, based on test protocol. Based on the attached records, the daily average is 0.001 lbs and 0.0078 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. Vertellus is required to track all emissions from this building and place it into the correct category, based on the averaging time from their respective screening level. Records for each are attached to this report, and do not show any

exceedances; Vertellus is also properly tracking the batches processed per month, and all additional information in order calculate emissions based on appendix 2 and 3 of PTI No. 104-09D.

#### *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.

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 of product through these three (3) emission units in order to comply with this area MACT and opt-out of obtaining a Title V permit. By electing to take through-put limits, the uncontrolled, but restricted potential for HAP's from this emission unit is below major source threshold. EUB002, has a production limit of 1.5 million pounds of any one product, based on a 12-month rolling time period. As of June 2017, the 12-month rolling production was 11,670 pounds. EUB007 has a throughput limit of 10 million pounds based on a 12-month rolling time period, and as of June 2017 the 12-month rolling throughput was 123,721 pounds. EUB019 has a throughput limit of 40 million pounds based on a 12-month rolling time period. The June, 2017 12-month rolling records indicate a throughput of 1,492,785 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 June, 2017 were 14.18 tons. Batches 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, the pound per pounds emission rate is well below the 1.0 lb. limit.

PM from EUB007, for flaking and grinding, is limited to 0.0175 pph and 0.01 lbs 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. Additionally, no visible emissions were seen from any of the stacks during the inspection.

Emissions of other pollutants are limited based on toxicity. TACs are categorized based on their respective screening levels and then are limited to a specific pound per hour emission rate. Vertellus is required to calculate and track all emissions from this flexible group in accordance with the requirements of Appendix 5 of PTI No. 104-09D. Per the attached records, the emissions do not show any exceedances of any of the limits. All production information and recordkeeping requirements also appears to be properly tracked.

Control devices for these buildings consist of dust collectors and scrubbers appeared to be properly operating. Dust collector 19 was operating with a pressure drop of 1" WC. Records for all of the dust collectors were operating within the ranges specified in the MAP. The scrubber for building 2 was operating at a tare of 40 gpm. All records for the scrubbers associated with this flexible group indicated they were operating within the specified ranges. Additionally, per Mr. Elenbaas, 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.

#### *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 June 2017 the 12-month rolling VOC emissions were 52.97 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 9.55 tons with Toluene being the individual HAP with the highest emission rate at 6.44 tons. KD did note in the records that the lead emission from the boilers were not included in the HAP calculations provided by Vertellus. With the lead emissions added in, Vertellus is still below the 25 ton per year limit as the lead emissions for the past 12-months were 0.033 pounds. 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 0.34 lbs/month, which is below the allowed 500 pounds per month limit for rule 290. Currently, Vertellus is only using the old pilot plant for storage and has not been used for production since 2010.

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 area sources.

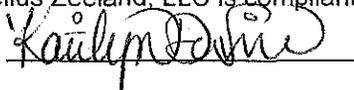
Vertellus has two (2) natural gas only 20 MMBTU boilers. Both boilers are exempt from Rule 201 permitting under Rule 282(2)(b)(i). Neither boiler is subject to the provisions of 40 CFR Part 63 Subpart JJJJJJ the NESHAP for Industrial, Commercial, and Institutional Boilers at Area Sources. One (1) boiler, 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. 104-09D.

NAME



DATE

8/4/2017

SUPERVISOR

