

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

B651954553

FACILITY: ALBEMARLE CORPORATION		SRN / ID: B6519
LOCATION: 1421 KALAMAZOO ST, SOUTH HAVEN		DISTRICT: Kalamazoo
CITY: SOUTH HAVEN		COUNTY: VAN BUREN
CONTACT: Daniel Carr, Environmental Manager		ACTIVITY DATE: 08/04/2020
STAFF: Rachel Benaway	COMPLIANCE STATUS: Compliance	SOURCE CLASS: SM OPT OUT
SUBJECT: Scheduled inspection for verification of compliance with air use permit and all state and federal air quality regulations.		
RESOLVED COMPLAINTS:		

Due to Covid-19 health and safety precautions, all AQD inspections are now announced and scheduled prior to entry to a facility. The purpose of this scheduled inspection on 8/4/2020 by AQD staff, Rachel Benaway, was to verify Albemarle Corporation (B6519) compliance with air use PTI #141-07J and all state and federal air use regulations. Albemarle, a chemical processor, is a synthetic minor for HAPS and VOC and a minor source of SOx, CO, and PM. The facility is subject to 40 CFR 60 Subpart Dc for small industrial steam-generating units and 40 CFR 63 Subpart VVVVVV for chemical manufacturing. The facility is currently in the process of obtaining a new PTI for an additional storage tank. Daniel Carr is the Environmental Manager for the facility.

Permitted equipment at the facility consists of 21 storage tanks for solvents, wastewater, recovered solvents, and bulk storage (FGTANKFARM), reactors, tanks, pumps, and vessels for processing chemicals (FGPROCESS), and PM emitting equipment vented to a large indoor dust collector (EUPMEQUIPMENT).

There were no visible emissions observed or odors detected outside of the facility. The facility is operating 7 days a week, 2 shifts per day. There are two exempt boilers (R 282(2)(b)(i)), one is a 14.65 MMBtu/hr. and the other 8.37 MMBtu/hr. There are two exempt #2 ultra-low sulfur fuel oil emergency generators, one is a 280hp Generac (hours meter: 234.8) and the other a Kohler (hours meter: 419). Both receive regular annual maintenance from a third party and are operated for test purposes less than 50 hours per year. The facility has one cold cleaner in the maintenance area, with the lid down and DEQ safety sticker displayed. The facility sent an MSDS on the mineral spirits cleaning solvent.

EUPMEQUIPMENT

The large dust collector is located on the second story within the chemical storage portion of the process plant. The differential pressure reading at the time of the inspection was 1.25 in water. The area was clean of debris and the collector appeared well maintained. Filters are typically maintained annually.

PTI #141-07J

EUPMEQUIPMENT CONDITIONS	COMPLIANT?	Y	N
SC IV.1 -Shall not operate unless respective cartridge filters are installed/maintained. -Must maintain a differential pressure of 0.5 to 5 in water column		X	X
SC VI.1 Monitor cartridge filter differential pressure on continuous basis		X	
SC VI.2 Keep weekly records of cartridge filter differential pressure		X	

According to reports submitted by Mr. Carr, the weekly readings on 2/11/2020 and 2/19/2020 exceeded the maximum differential pressure reading of 5.0 in water allowed in the permit. Mr. Carr explained that maintenance activities in areas of the facility that feed into the dust collection system caused a spike in activity which put an overwhelming burden on the collector and resulted in differential pressure readings of 5.6 inches and 5.7 inches respectively. The issue was addressed by a thorough cleaning and replacement filters. Since the event, if a reading of 4.5 inches water is entered into the tracking software, it must be followed up with maintenance actions and brought to the attention of Mr. Carr. A violation notice will not be sent due to the isolated nature of the incident and the new safeguards created to avoid future occurrences.

Emission Limits/Monitoring/Recordkeeping

PTI #141-07J

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EUPMEQUIPMENT CONDITIONS	COMPLIANT?	Y	N
SC VI.1 Monitor cartridge filter differential pressure on continuous basis		X	
SC VI.2 Keep weekly records of cartridge filter differential pressure		X	

Monitoring records of cartridge filter differential pressure readings are included with this report.

FGPROCESS

Emission units: EUPROCESSUNITS, EUHCLTANKS, and EU-TK0613.

The process plant consists of tanks, pumps, vessels, the tetrahydrofuran (THF) storage tank (TK0613), and the hydrochloric acid (HCl) bulk storage tank (TK0603), which are all routed to the packed-bed scrubber system before ultimately passing through the regenerative thermal oxidizer (RTO). The RTO, scrubber, and caustic storage for the scrubber are located outside, adjacent to the tank farm.

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FGPROCESS CONDITIONS	COMPLIANT?	Y	N
Maintain a detailed equipment list on site		X	
SC III.1 Shall not operate unless MAP for RTO implemented and maintained		X	
SC IV.1 Shall not vent EUPROCESS equipment to Plant 2 scrubbers unless scrubbers are installed/maintained: Maintain an educator minimum flow rate of 22 gallons per minute for each of the Plant 2 scrubbers.		X	
SC IV.2 Install/calibrate monitor device for educator liquid flow rate on continuous basis when in use		X	
SC IV.3 must vent corrosive vapors to packed-bed scrubber or Plant 2 Scrubbers -maintain scrubber flow rates to manufacturer's recommendations		X	
SC IV.4 Install device to monitor and record packed-bed scrubber liquid inlet flow rate (gallons/minute) on continuous basis		X	
SC IV.5 Shall not operate EU-TK0613 unless RTO is installed -maintain minimum combustion chamber temp 1,500F and minimum retention time 0.5 sec		X	
SC IV.6 Shall not operate EUPROCESS units unless RTO installed -RTO minimum VOC and acetone destruction efficiency of 98% or outlet concentration less than or equal to 20 ppmv combined for VOC and acetone and maintain combustion chamber temp 1500F, retention time 0.5sec		X	
SC IV.7 Install temp monitoring device in combustion chamber or RTO		X	

The Delta V monitoring system can be accessed from within the control room. This system tracks pH meters, flow meters, and differential pressure monitors for the packed bed scrubber and the temperature monitor for the RTO combustion chamber. At the time of the inspection, the packed bed scrubber was operating at 190.6 gpm and the RTO combustion chamber registered at 1,588.3 degF. Last June, the RTO was shut down for maintenance and to replace the interior bricks. The last stack test for the RTO was in 2012 where it demonstrated a 95% destruction efficiency rate. According to the records of the past two years of readings sent by the facility, there have been multiple instances when Delta V recorded temperature drops below the permitted minimum 1500 degF. Mr. Carr explained these were power outages and that the production process does not run again until the RTO combustion chamber is brought back up to at least 1600 degF.

Emission Limits/Monitoring/Recordkeeping

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FGPROCESS CONDITIONS	COMPLIANT?	Y	N
SC VI.2 Plant 2 scrubbers: keep daily records of Plant 2 scrubbers liquid flow rates when EUPROCESSUNITS equipment is venting to Plant 2 scrubbers. (Provided 2 years of records.)		X	
SC VI.3 Monitor and record temperature in combustion chamber of RTO on continuous basis. Measurements not to exceed 15 minutes per interval. (Provided 2 years of records.)		X	
SC VI.5 Keep records: -Chemical steps performed to make each batch of product -Calculated emission rates in pounds per batch of each pollutant -Calculated emission rates in pounds per hour of each pollutant -Calculated emissions rates in pounds per month for each pollutant w/monthly emission limit -Method of calculation		X X X X X	
SC VI.6 Keep records for each month of average hourly VOC and individual TAC emission rate from EUPROCESSUNITS. (Provided 2 years of calculations.)		X	
SC VI.7 Keep records of throughput of each solvent/mixture for EU-TK0613 when controlled by RTO for each month and 12-month rolling time period.		X	

The facility uses Emissions Master for tracking and calculating emissions. Monthly records were submitted for each pollutant FGPROCESS emitted, although not every pollutant listed on the permit is emitted each year. Monthly VOC emissions ranged from 0.0494 lb/hr to 0.13818 lb/hr, well below the 7 lb/hr limit. Representative, below permit limit emissions from other pollutants from June of 2020 include: Acetone (0.08567 lb/hr), ethanol (0.00458 lb/hr), methanol (0.00040 lb/hr), tetrahydrofuran (0.00940 lb/hr), and xylene (0.00003 lb/hr).

At this time, FGPROCESS appears to be in compliance with PTI #141-07J.

FGTANKFARM

Twenty-one storage tanks are included in the external tank farm. All tanks have conservation vents. TK0613 (THF) and TK0603 (HCl) vent directly to the scrubber and then to the RTO.

PTI #141-07J

FGTANKFARM CONDITIONS	COMPLIANT?	Y	N
SC II.1 Shall not store tetrahydrofuran (THF) in EU-TK4103A, EU-TK4103B, EU-TK4301A, EU-TK4301B, EU-TK4301C, EU-TK4301D, or EU-TK0627B.		X	
SC IV.1 Shall not operate FGTANKFARM unless conservation vent is installed/maintained		X	

The conservation vents are checked annually. Maintenance and inspection plans were submitted as verification of adherence to the NESHAP, detailed below.

Emission Limits/Monitoring/Recordkeeping

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FGTANKFARM CONDITIONS	COMPLIANT?	Y	N
SC VI.2 Keep records of throughput of each solvent/mixture for each tank for each month and 12-month rolling time period. (Provided 2 years of records.)		X	
SC VI.3 Calculate VOC emission rate from FGTANKFARM monthly and 12-month rolling time period. (Provided 2 years of records.)		X	

The permit allows a VOC emission limit of 2 tpy. Records were submitted for throughputs for each tank and both monthly and 12-month rolling time VOC emission rates. FGTANKFARM emitted a range from 46.6 lb to 211.7 lb per month between July 2018 and June 2020. The highest 12-month rolling time emission was 1.1 ton.

FGTANKFARM appears to be in compliance with permit conditions at this time.

FGFACILITY

Source-wide process equipment covered by other permits, grand-fathered, and exempt equipment. Pollution control equipment: RTO, dust collector, new packed bed scrubber system.

PTI #141-07J

FGFACILITY CONDITIONS	COMPLIANT?	Y	N
SC IX.1 Comply with provisions of NESHAP for Chemical Manufacturing Area Sources 40 CFR 63 A and 6V.		X	

The facility included a spreadsheet detailing the requirements of the NESHAP and their compliance procedures. These requirements include maintenance practices such as inspection schedules, leak checks, and repair records. The facility submitted a sample leak check and repair form as well as a standard operating procedure (SOP) document that details adherence to the NESHAP requirements.

Emission Limits/Monitoring/Recordkeeping

PTI #141-07J

FGFACILITY CONDITIONS	COMPLIANT?	Y	N
SC VI.2 Calculate individual and total HAP emissions for any process emitting any urban HAP (Table 1 40 CFR 63 VVVVVV) on uncontrolled basis, monthly and 12-month rolling time period. (Provide 2 years of records.)		X	

The SG2 process is the only process that emits one of the urban HAPS. In the past two years, the facility has only run this process in March, April, August, and December of 2019 and June of 2020. Records were submitted with the total HAPS and 12-month rolling time HAPS, as well as individual HAPS (hydrazine and methanol) totals. The facility emitted a total of 0.699 tons of HAPS between March 2019 and June 2020.

FGFACILITY appears to be in compliance with permit requirements at this time.

NAME Rachel Beraway

DATE 9/3/2020

SUPERVISOR RIL 9/30/20