



RICK SNYDER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
DETROIT



C. HEIDI GRETHER
DIRECTOR

May 5, 2017

Mr. Jordan Thompson
BASF Corporation
1609 Biddle Avenue
Wyandotte, Michigan 48192

SRN: B4359, Wayne County

Dear Mr. Thompson:

VIOLATION NOTICE

On December 6 and December 7, 2016, the Department of Environmental Quality (DEQ), Air Quality Division (AQD), conducted an inspection of BASF Chemical Plants located at 1609 Biddle Avenue, Wyandotte, Michigan. In addition, observation of the regenerative thermal oxidizer (RTO) stack test at the Wyandotte Resins Plant (WYR) was conducted on December 6, 2016. On August 30, 2016, the ROP semi-annual deviation report for the reporting period January 1, 2016 through June 30, 2016 was received. On March 15, 2017, the ROP annual deviation report for the reporting period January 1, 2016 through December 31, 2016 was received. On February 24, 2017, the emission test report for the WYR RTO was received. As part of the review of the annual and semi-annual deviation reports, review of the emission test report for the WYR, and inspections on December 6 and 7, 2016, the AQD evaluated BASF's compliance with the requirements of the federal Clean Air Act; Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451); the Air Pollution Control Rules; and the conditions of Renewable Operating Permit (ROP) MI-ROP-B4359-2003b, and the conditions of Permit to Install (PTI) numbers 80-11 and 113-07A.

As a result of the review of the above listed reports and the inspections on December 6 and 7, 2016, the following violations were identified:

Process Description	Rule/Permit Condition Violated	Comments
Polyols Plant - FGPOLEMCON	MI-ROP-B4359-2003b, Section 2, Table D-2.3 FGPOLEMCON, SC II.B.1.1; R336.1702(a)	The release of 460 pounds of ethylene oxide on March 30, 2016 is a violation of the emission limit of 6.4 pounds per hour on a daily average.
Chemical Engineering Research - FGCHEORGACT	PTI 80-11, FGCHEORGACT, SC III.1, SC IV.1, and SC VI.1; R 336.1910	The secondary condenser (cooled with chilled glycol) is not in use and the exhaust temperature is not monitored.

Wyandotte Resins – FG-PRODUCTS	PTI 113-07A, FG-PRODUCTS, SC VIII.1 (SV-PROD)	Stack conditions do not meet permit requirements.
Wyandotte Resins – FG-DRUMMING	PTI 113-07A, FG-DRUMMING, SC VIII.1 (SV-DRUM)	Stack conditions do not meet permit requirements.
Wyandotte Resins – FG-RAWMATLS, EUJONTK-004	PTI 113-07A, FG-RAWMATLS, SC III.1; 40 CFR 60.112b(a)(3)(ii)	BASF reports the average non-methane VOC destruction efficiency was 73.99% during the December 6, 2016 stack test. SC III.1 requires compliance with 40 CFR Part 60, Subpart Kb. 40 CFR 60.112b(a)(3)(ii) requires a minimum destruction efficiency of 95%.
Wyandotte Resins – FG-RTO	PTI 113-07A, FG-RTO, SC IV.1; R 336.1910;	BASF reports the average non-methane VOC destruction efficiency was 73.99% during the December 6, 2016 stack test. SC IV.1 requires a minimum destruction efficiency of 98%.

Polyols Plant - FGPOLEMCON

Within the ROP semi-annual deviation report for the reporting period January 1, 2016 through June 30, 2016 and the ROP annual deviation report for the reporting period January 1, 2016 through December 31, 2016, BASF reports that on March 30, 2016 there was release of ethylene oxide (EO) to atmosphere from a pressure safety valve (PSV) on TK-155. According to the ROP semi-annual deviation report for the reporting period January 1, 2016 through June 30, 2016 and the ROP annual deviation report for the reporting period January 1, 2016 through December 31, 2016, during maintenance of TK101B (EO storage tank), where process water is sent to oxide scrubber (TK-403D) and interconnected neutralization tank (TK-155), the system experienced an over pressurization resulting in the lifting of the PSV of TK-155. The total amount of the release is estimated at 460 pounds, with the PSV venting for approximately 89 seconds. Once the pressure build was noticed by operators, all production activities were halted and the tanks were allowed to cool and equilibrate overnight to mitigate the release. Once the PSV reseated, process vents were restored to their normal control device path (to the thermal oxidizer).

During a conversation with Mr. Jordan Thompson on March 20, 2017, the following was described regarding the EO release. The tank clearing of TK101B was conducted using past practices. The tank heel (EO left in the tank) was "mixed" with water, with the intention that EO and water will react to form ethylene glycol (EG). The water and EO "mixture" was pumped to the scrubber as batches (the caustic pushes the EO to EG at a faster pace). It is believed that the water and EO were stratified and during the 3rd batch to the scrubber. The

system over pressurized. The thermal oxidizer tripped (shutdown), due to too many British thermal units (BTU's) being vented for thermal combustion. Therefore, over pressurization occurred, the PSV was lifted to and the EO was released. The release of 460 pounds of EO is a violation of the emission limit of 6.4 pounds per hour on a daily average (MI-RQP-B4359-2003b, Section 2, Table D-2.3 FGPOLEMCON, Special Condition (SC) II. B.1.1.) because the daily average on March 30, 2016 is not less than 153.6 pounds per day (24 hours times 6.4 pounds per hour).

Furthermore, SC II.B.1.1 includes the underlying applicable requirement (UAR) of R 336.1702(a). R 336.1702(a) reads as follows.

R 336.1702. A person who is responsible for any new source of volatile organic compound emissions shall not cause or allow the emission of volatile organic compound emissions from the new source in excess of the lowest maximum allowable emission rate of the following:

(a) The maximum allowable emission rate listed by the department on its own initiative or based upon the application of the best available control technology.

Because the thermal oxidizer tripped and did not operate to control emissions, the release of 460 pounds EO is also a violation of R 336.1702(a).

Chemical Engineering Research - FG-CHEORGACT

During the inspection on December 7, 2016, BASF notified the AQD that BASF utilized R 336.1285(b) (also known as Rule 285(b)), now identified as Rule 285(2)(b) in the administrative rules, and began producing a hexane based catalyst (X-5400) using the organic activator (FG-CHEORGACT) equipment in September 2016. Under Rule 285(2)(b) the current PTI and all conditions remain enforceable. As a result of the December 7, 2016 inspection, it was identified that the secondary condenser (cooled with chilled glycol) is not in use and the exhaust gas temperature is not monitored. This is a violation of PTI 80-11, SC III.1, SC IV.1, and SC VI.1.

Furthermore, SC III.1, SC VI.1, and SC VI.1 include the UAR R 336.1910. R 336.1910 reads as follows.

R 336.1910. An air-cleaning device shall be installed, maintained, and operated in a satisfactory manner and in accordance with these rules and existing law.

Because the secondary condenser is not in operation, this is also a violation of R 336.1910.

Wyandotte Resins Plant - FG-PRODUCTS

PTI 113-07A, FG-PRODUCTS, SC VIII.1 specifies that the stack for F-1091 (SV-PROD) shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 58 feet. During the inspection on December 6, 2016, SV-PROD did not meet PTI 113-07A requirements. The rectangular stack appeared to be

approximately 15 inches by 20 inches and exhausted to ambient air at approximately 20 feet above ground surface. This is a violation of PTI 113-07A, FG-PRODUCTS, SC VIII.1.

Wyandotte Resins – FG-DRUMMING

PTI 113-07, FG-DRUMMING, SC VIII.1 specifies that the drumming stack (SV-DRUM) shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 42 feet. During the inspection on December 6, 2016, SV-DRUM did not appear to meet PTI 113-07A requirements. The stack did not discharge unobstructed vertically upwards (rain cap installed) and the discharge height was only 35 feet above ground surface. This is a violation of PTI 113-07A, FG-DRUMMING, SC VIII.1.

Wyandotte Resins – FG-RAWMATLS

PTI 113-07, FG-RAWMATLS, SC III.1 specifies compliance with 40 CFR Part 60, Subpart Kb (NSPS Kb) as applicable to storage tanks EUJONTK-0001, EUJONTK-0002, EUJONTK-0003, EUJONTK-0004, EUJONTK-0005, EUJONTK-0006, EUJONTK-0007, and EUJONTK-0008. At 40 CFR 60.110b(b), the following volatile organic liquid storage tanks constructed after July 23, 1984 are subject to NSPS Kb: (i) those with capacity of 151 cubic meters or greater (about 40,000 gallons) storing a liquid with a vapor pressure of 3.5 kilopascals or greater, or; (ii) those with capacity of 75 cubic meters or greater (about 20,000 gallons) storing a liquid with a vapor pressure of 15.0 kilopascals or greater. From Appendix F of the permit application for PTI 113-07, only EUJONTK-0004 meets the criteria (e.g. it has a capacity of 80,000 gallons and stores a liquid with vapor pressure of 5.8 kilopascals). NSPS Kb requires a 95% VOC destruction efficiency (40 CFR 60.112b(a)(3)(ii)).

On February 9, 2017, the AQD received via email BASF's test report of the VOC destruction efficiency test conducted on December 6, 2016 of the RTO. BASF reports the average non-methane VOC destruction efficiency was 73.99%. This is a violation of 40 CFR 60.112b(a)(3)(ii) and SC III.1.

Wyandotte Resins – FG-RTO

PTI 113-07A, FG-RTO, SC IV.1 requires that the 3-hour average firebox temperature be maintained at 28°C (50°F) below the average temperature during the most recent performance test at which compliance was demonstrated or higher, reducing the total organic compound (TOC), minus methane and ethane, by 98%. SC V.1 requires testing every 5 years to verify and quantify the ethyl acrylate emission rate and TOC destruction efficiency.

On February 9, 2017, the AQD received via email BASF's test report of the VOC destruction efficiency test conducted on December 6, 2016 of the RTO. BASF reports the average non-methane VOC destruction efficiency was 73.99%. This is a violation of PTI 113-07A, FG-RTO, SC IV.1. Compliance with the 98% destruction efficiency was not demonstrated during the December 6, 2016 test, and therefore a minimum firebox temperature cannot be established. The average temperature of the RTO during the performance test,

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approximately 1602°F, was determined to be insufficient to achieve the required destruction efficiency.

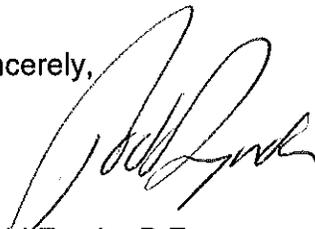
Furthermore, SC IV.1 includes the UAR R 336.1910. Because the RTO is not achieving the required destruction efficiency, this is a violation of R 336.1910. The RTO is not operating satisfactory manner to achieve the required destruction efficiency.

Please initiate actions necessary to correct the cited violations and submit a written response to this Violation Notice by May 26, 2017 (which coincides with 21 calendar days from the date of this letter). The written response should include: the dates the violations occurred; an explanation of the causes and duration of the violations; whether the violations are ongoing; a summary of the actions that have been taken and are proposed to be taken to correct the violations and the dates by which these actions will take place; and what steps are being taken to prevent a reoccurrence.

If BASF believes the above observations or statements are inaccurate or do not constitute violations of the applicable legal requirements cited, please provide appropriate factual information to explain your position.

Thank you for your attention to resolving the violations cited above and for the cooperation that was extended to me during my inspection of BASF. If you have any questions regarding the violations or the actions necessary to bring this facility into compliance, please contact me at the number listed below.

Sincerely,



Todd Zynda, P.E.
Environmental Engineer
Air Quality Division
313-456-2761

cc/via e-mail: Mr. Bryan Hughes, BASF
Ms. Lynn Fiedler, DEQ
Ms. Mary Ann Dolehanty, DEQ
Mr. Chris Ethridge, DEQ
Mr. Thomas Hess, DEQ
Ms. Wilhemina McLemore, DEQ
Mr. Jeff Korniski, DEQ