

B4359
MAJL

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

B435947687

FACILITY: BASF CORP		SRN / ID: B4359
LOCATION: 1609 BIDDLE AVE, WYANDOTTE		DISTRICT: Detroit
CITY: WYANDOTTE		COUNTY: WAYNE
CONTACT: Jordan Thompson , Senior EHS Specialist		ACTIVITY DATE: 01/24/2019
STAFF: Todd Zynda	COMPLIANCE STATUS: Non Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled Inspection - January 24 and 25, 2019		
RESOLVED COMPLAINTS:		

REASON FOR INSPECTION: Scheduled Inspection

INSPECTED BY: Todd Zynda, AQD

PERSONNEL PRESENT: Jordan Thompson, Senior EHS Specialist; Tom Wharton, EHS Specialist; Justine Madonna, Wyandotte Resins Process Technology Manager; Mark Gill, Wyandotte Resins Process Engineer; Andrew Perez, TPU Operations Engineer; Scott Taylor, Wyandotte Resins Bagging Operations Manager; Jason Allen, Wyandotte Resins Maintenance Operator; Don Swanson, Polyol Plant Operations Coordinator; Phillip Langenkamp, Polyol Plant Technology Engineer; Thomas Plegue, CER Research Associate; Ed Kachadoorian, Site Utilities Manager

FACILITY PHONE NUMBER: (734) 324-6523

FACILITY WEBSITE: www.basf.com

FACILITY BACKGROUND

BASF Corporation (BASF) is located in Wyandotte, Michigan on the east side of Biddle Avenue, along the Detroit River, between Goddard Road and Ford Road in a primarily industrial setting. A mixture of commercial and residential areas is located immediately to the west across Biddle Avenue.

BASF's Wyandotte operations comprise three separate stationary sources: (1) chemical production plants with a Standard Industrial Classification (SIC) major grouping of 28 and identified as State Registration Number (SRN) B4359; (2) plastics production plants with an SIC major grouping of 30 and identified as SRN M4777; (3) laboratory and research operations with an SIC major grouping of 87 and identified as SRN M4808. Abbott Laboratories (P0164) also operate a manufacturing plant at this site.

BASF's chemical plant operations comprise the Polyols Manufacturing Plant, the Analytical Chemistry & Chemical Engineering (ACCE) plant, the Thermoplastic Urethane (TPU) plant, the Joncryl Polymers plant, and the Steam Generating Facility. The BASF Chemical Plants were issued Renewable Operating Permit No. MI-ROP-B4359-2003 on December 1, 2003. The ROP has since been amended to incorporate subsequent permits to install.

PROCESS OVERVIEW

The Polyols Plant manufactures conventional and graft polyether polyols for sale to the urethane industry. Conventional polyether polyols are hydroxyl-functional polymers manufactured from the polymerization of propylene oxide or ethylene oxide (or both) following an initial bond of the epoxide to a low molecular weight multifunctional alcohol (e.g. a diol, a triol, etc.). Graft polyether polymers are manufactured from the polymerization of styrene or acrylonitrile (or both) in the presence of a matured conventional polyether polyol product; the resulting copolymer consists of a vinyl polymer dispersed within the conventional polyether polyol. Polyether polyols are sold to the urethane industry for reaction with diisocyanates to form polyurethanes. Four reactor systems are operational at the plant. Reactor systems No. 7 (reactor TK-405B), No. 8 (reactor TK-405C), and No. 9 (reactor TK-405D) are used to produce conventional polyether polyols through a batch process. Graft polyether polyols are produced in reactor system No. 10, which includes a batch reactor (R-500) and a continuous reactor (R-528) operating in parallel. The Polyols Plant also encompasses storage tanks and emissions control equipment, including a water scrubber, a baghouse, and a thermal oxidizer.

The Analytical Chemistry and Chemical Engineering (ACCE) unit, now referred to as Chemical Engineering Research (CER), manufactures several small quantity products and provides research services. The research

services provided by CER are included within SRN M4808. The manufacturing operations included in SRN B4359 encompass three small scale reactor systems, bulk storage areas and an acid scrubber system.

The Thermoplastic Urethane (TPU) Plant mixes, heats, and reacts raw materials to produce thermoplastic polyurethane elastomers. The elastomers solidify on a belt line, are cut to the desired size, and stored in silos. Raw material drums are equipped with carbon beds, the heated zone of the belt line is vented to a water scrubber, and the storage silos are equipped with a baghouse.

The Joncryl Polymer Plant, now referred to as Wyandotte Resins (WYR), manufactures emulsion polymers and solid or liquid grade resins. The emulsion production process and the resin production process consist of four reactor trains each, accompanied by associated raw material and product storage tanks, resin cutting vessels, and product finishing operations. The majority of volatile organic compound emissions are controlled by a regenerative thermal oxidizer (RTO) and particulate emissions are controlled by a fabric filter.

The Steam Facility and Ancillary Operations houses four boilers; each boiler has a heat input capacity of approximately 49.9 million British thermal units (MMBtu) per hour and is permitted to burn natural gas. Natural gas fired and diesel fired generators and a groundwater treatment system are also included in this group.

COMPLIANCE BACKGROUND

As a result of the inspection on December 6 and 7, 2016 and January 17, 2017, and review of semi-annual deviation report for the reporting period January 1, 2016 through June 30, 2016, the ROP annual deviation report for the reporting period January 1, 2016 through December 31, 2016, and the emission test report for the WYR RTO, it was determined that BASF was in violation of the following listed items.

Polyols Plant - violation of MI-ROP-B4359-2003b, Section 2, Table D-2.3 FGPOLEMCON, Special Condition (SC) II. B.1.1 and R 336.1702(a).

Chemical Engineering Research - violation of PTI 80-11, FGCHEORGACT, SC III.1, SC IV.1, and SC VI.1 and R 336.1910.

Wyandotte Resins Plant - violation of PTI 113-07A, FG-PRODUCTS, SC VIII.1; FG-DRUMMING, SC VIII.1; FG-RAWMATLS, SC III.1 and 40 CFR 60.112b(a)(3)(ii); and FG-RTO, SC IV.1 and R 336.1910.

Steam Facility (FGSTEFACILITY) – violation of R 336.1201(1).

A violation notice was issued on May 5, 2017. On August 10, 2017 BASF was referred to the AQD Enforcement Unit regarding the above violations (see facility file for enforcement referral and associated documents). On May 7, 2018 Administrative Consent Order (ACO) AQD No. 2018-03 became effective, resolving the above listed violations. ACO AQD No. 2018-03 is evaluated below.

OUTSTANDING VIOLATIONS

None

INSPECTION NARRATIVE

On January 24 and 25, 2019 the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Air Quality Division (AQD) inspector, Mr. Todd Zynda, conducted an inspection of BASF Chemical Plants at 1609 Biddle Avenue, Wyandotte, Michigan. During the inspection, Mr. Jordan Thompson, Senior EHS Specialist, and Mr. Tom Wharton, EHS Specialist provided information and a tour of facility operations relating to air quality permits. Additional BASF personnel at each plant at the facility provided information and tours of their respective plant. The inspection was conducted to determine the facility's compliance with the Natural Resources and Environmental Protection Act (NREPA), Act 451, Part 55, ROP No. MI-ROP-B4359-2003b, and permits to install (PTI) 272-04, 84-07, 113-07A, 174-08A, 143-09, 80-11B, 145-17, 14-18, 115-18, and 186-18.

On January 24, 2019 at approximately 8:50 AM, Mr. Todd Zynda (AQD) arrived onsite. Prior to entering the facility observations were made (limited to the facility's property boundary along Biddle Avenue). No visible emissions were observed. Odors were not detected at the property boundary. At 9:00 AM Mr. Zynda entered the facility and was greeted by Mr. Thompson. Prior to the inspection a visitor pass was obtained at the administration building.

Records were provided via email on April 9, 2019, May 7, 13, 15, and 16, 2019, and June 10, 12, and 13, 2019.

Steam Facility and Ancillary Operations

The steam facility, groundwater treatment operations, and generators/fire pumps are all associated with the general administration of the site and therefore under the umbrella of the B4359 stationary source because the Chemical Plants are the dominant SIC footprint at the Wyandotte operations.

The steam generating facility was visited on January 25, 2019. During the inspection, Mr. Ed Kachadoorian, Site Utilities Manager provided a tour of the plant. The steam generating facility comprises four natural gas-fired boilers each with a rated heat input capacity of 49.9 MMBtu per hour. The boilers are operated with low-NOx burners. The steam facility no longer have the capability to combust #6 fuel oil. The fuel oil lines have been removed or capped. During the inspection the four boilers were operating.

	Steam Flow (lb/hr)	Gas Flow Rate (scfh)	Firing Rate (%)
Boiler #1	26,170	35,438	72.3
Boiler #2	26,010	35,085	72
Boiler #3	24,150	19,866	48.5
Boiler #4	25,976	34,714	71.4

The steam plant emergency generator is located on north side of the steam plant (between the steam plant and Krelon Building). The generator was observed from a distance during the inspection (the control panel was not observed).

During the inspection of January 25, 2019, "IS Backup Gen" and "PBX Gen" were observed.

During the inspection on January 24, 2019, the location of the three diesel fire pump engines was observed. The engines are located on south side of BASF property adjacent to the large water storage pond. The engines are used to pump water from the storage pond to the BASF fire suppression system.

The groundwater treatment system building was also observed during the inspection.

Polyols Plant

The Polyols plant produces conventional and graft polyols in four reactor trains. Polyols are sold to customers as an ingredient in the production of urethane foams for application in the automotive and housing industries. The reactor systems comprise raw material storage tanks (including tanks for ethylene oxide, propylene oxide, acrylonitrile, and styrene), blending and reaction and process vessels, and finished product storage tanks. VOC emissions from storage and process areas vent to a common duct and then through a thermal oxidizer. Emissions from solid raw materials transported to, and added to, reactors are controlled with fabric filters.

The Polyols plant was visited on January 24, 2019 from approximately 1:00 PM to 2:30 PM. During the inspection Mr. Don Swanson, Polyol Plant Operations Coordinator and Mr. Phillip Langenkamp, Polyol Plant Technology Engineer provided a tour of the plant. The tour began with observation of the raw material storage areas for ethylene oxide (EO), propylene oxide (PO), acrylonitrile, and styrene. Raw materials are delivered by railcar along tracks entering the plant from Alkali Street and ending to the north of the polyol area. EO, PO, acrylonitrile, and styrene are either equalized (vapor balanced) during unloading to storage tanks lining the railroad tracks; if not equalized then the emissions are vented to the thermal oxidizer.

In addition, toluene diisocyanate (TDI) and methylene diisocyanate (MDI) transfer stations were observed.

TDI/MDI transfers are vapor balanced to and from TDI tank TK-536 and MDI tank TK-122. Breathing losses are emitted out the top of the storage tanks through carbon adsorption canisters. The carbon adsorption units are changed out every six months. Nitrogen blankets are also employed during storage and transfer to suppress

working and breathing losses. Loading or unloading operations were not observed during the inspection. Following observation of the TDI and MDI transfer stations, a walkthrough of the polyol tank farm was conducted.

During the inspection the conventional polyol reactor train numbers 8 and 9 were in operation. Reactor train number 7 was not in operation. Reactor train number 7 has not been in operation since the mid-2000's and there is currently no plan to operate reactor train number 7 in the future. The graft polyol reactor train no. 10 was in operation. During the inspection the Polyols plant control room was observed. The T-152/153 oxide scrubbers registered a combined flow of 172 gallons per minute and pH readings of 13.4 and 13.5. A water scrubber (T-408) controls emissions from various ancillary vents at the conventional side of the process; the water flowrate measured 68.1 gallons per minute. According to the control room operator an alarm sounds at 35 gpm. The thermal oxidizer combustion temperature gauges read 1824°F and 1830°F and the waste gas valves for the processes were positioned open to the oxidizer on the plant process control screen. The thermal oxidizer controls the majority of volatile organic compound vent streams for each of the four reactor trains.

Filters for the conventional reactors capture magnesol, a solid particle used to recover catalysts from the product; particulate emissions and fabric filter controls from the magnesol conveying and charging system are independent of the thermal oxidizer control system. The filters actively collect particulate for brief periods in time and were not in use when observed.

During the inspection the Polyols plant maintenance area cold cleaner was not observed. Previous inspections indicate that the cold cleaner is equipped with posted instructions and a mechanically assisted lid.

Chemical Engineering Research

The CER plant (formerly ACCE) mixes pilot-scale research activities with small-scale chemical manufacturing operations. Polyols are a commercial product from this plant. The research and development activities are covered under SRN M4808 and manufacturing activities are covered under SRN B4359.

The CER plant was visited on January 25, 2019. During the inspection, Mr. Thomas Pleque, Research Associate, provided a tour of plant operations. The facility has several smaller size reactors ranging from 10 to 160 gallons that are used for pure research (SRN M4808). Emissions are controlled by vacuum pumps with dry ice traps. Additionally, CER contains three reactors utilized for either polyol production or research. The smaller 60 gallon R-20 and 250 gallon R-100 reactors are more often utilized for research and development while the larger 2,000 gallon R-30 reactor is more often utilized for commercial manufacture. A wet scrubber and vacuum jet condenser controls are applied for emissions control under either scenario. The wet scrubber located in Building 55R controls emissions from reactor vents and raw material tank air displacements. The north/south (N/S) vacuum jet condensers located in Building 55R or the east/west (E/W) vacuum jet condensers located in Building 53Z control emissions from oxide stripping. During the inspection, the oxide scrubber control panel in Building 55R showed a T-110 wet scrubber pump outlet pressure of 0.97 bar. According to previous inspections, an alarm sounds at 2 bar and the pH is sampled monthly. The operations log entry for January 4, 2019 showed a scrubber water concentration of 88.2% and a pH of 2.12. The north/south vacuum jet was in operation at the time of the inspection and registered a temperature of 15.7 °C (or 60.26°F). An alarm will sound if temperature reaches 42 °C.

Building 55R also contains support laboratories for WYR, which includes bench scale autoclave reactors (included under SRN M4808).

During the inspection, emission unit EUMARS7 was not observed. EUMARS7 produces catalyst, through a process that takes an existing catalyst (vanadium) and improves the efficiency. Emissions from EUMARS7 are controlled by a venturi scrubber and dust collector. The facility reports emissions per Rule 290. According to Mr. Thompson, EUMARS7 did not operate in 2018.

TPU Plant

The TPU plant produces a thermoplastic polyurethane elastomer from diols, MDI, and solid materials. Raw materials are mixed together and conveyed by belt through an oven. Upon release from the oven the solid product is cut, stored, and packaged. Carbon adsorbers and water scrubbers are employed for VOC emissions control; dust collectors are used for particulate emissions control. Two process lines are currently installed at the plant.

The TPU plant was visited on January 24, 2019. During inspection of the TPU plant, Mr. Andrew Perez, Operations Engineer provided a tour of facility operations. Two MDI storage tanks are installed inside the plant

with a carbon adsorption control located on the top of the tank. Transparent carbon-filled sleeves are installed on the top of each adsorption unit as a color gauge. The carbon is initially purple in color and turns brown as the carbon in the drum is exhausted. The sleeves on MDI storage tanks 1104 and 1105 were inspected and observed to be 50% purple.

Both Line 1 and Line 2 were in operation at the time of the inspection. Particulates escaping the mixing pot are drawn into the F-4185 baghouse which registered a differential pressure of 2.50 inches water column; the baghouse serves both lines. Emissions from each oven's hot zone are vented to a water scrubber. The older Line 1 is equipped with a two-stage scrubber that registered flows of 34 gallons per minute and 39 gallons per minute in the respective stages at 11:10 AM; the newer Line 2 registered a flow of 175 gallons per minute.

The mix pots are cleaned in a Rule 290 natural gas burnoff oven located to the northeast of the TPU plant. During the inspection the oven was not in use. According to Mr. Perez, the burnoff oven is operated weekly.

The TPU plant also operates three extruder lines (2 double screw lines, and one single screw line). Rule 286(2) (a) excludes from the requirement to obtain a Permit to Install "[p]lastic extrusion . . . and associated plastic resin handling, storage, and drying equipment." This exemption applies to the TPU extruding lines and plastic storage silos. This equipment is still required to comply with Rules 301, 331, 901, and 910. Observations during the inspection on January 24, 2019 suggest compliance with these requirements, as visible emissions and off-site odors were not noted during the site visit.

Wyandotte Resins Plant (Joncryl Polymers Plant)

The WYR Plant (formerly referred to as Joncryl Polymers plant) manufactures polymers and resins for inks, varnishes, and industrial coatings utilized in the printing and packaging industries. Raw material monomers, surfactants, initiators, and water are reacted to form emulsion polymers and solid and liquid grade resins. Resin cutting, product drumming and storage, and a product warehouse are sited at the plant. This facility is designed such that the majority of emissions points throughout the plant are ducted to a regenerative thermal oxidizer (RTO) for the control of VOC emissions. A fabric filter controls particulates from other ancillary emissions points not exhausting through the RTO.

An inspection of WYR was conducted on January 24, 2019. During the inspection, Ms. Justine Madonna, Wyandotte Resins Process Technology Manager and Mr. Mark Gill, Wyandotte Resins Process Engineer provided information and a tour of the facility. During the inspection, the pressure across the F-1091 fabric filter measured 4 inches water column; the range for proper operation is set at 1 to 7 inches water column. The F-1091 fabric filter stack vents horizontally out the north side of the main WYR process building. The rectangular stack appeared to be approximately 15 inches by 20 inches and exhausted to ambient air at approximately 20 feet above ground surface.

During the inspection the emulsion reactor trains and solid/liquid grade (SGO) reactor trains were not observed. The reactor trains are contained on the upper floors of WYR process building. The reactors contain pressure safety valves, that if ruptured, vent uncontrolled to the atmosphere in a tall stack located on the south side of the process building. On the 1st floor of the process building is the polymer cooling belts (three lines (EUSGOCOOBELT)). After cooled the material is ground to size (controlled by F-1091) and transferred to storage silos for bagging. Additionally, on the 1st floor is the finished material drum line. At this location, both emulsion polymer product and resin product are packaged in drums for shipment. The drumming stack (SV-DRUM) discharges unobstructed vertically upwards and was approximately 8 inches in diameter and 50 feet above ground surface (a modification to stack following ACO AQD No. 2018-03 and meeting FG-DRUMMING, SC VIII.1).

To the east of the main processing building is the raw material tank farm. Raw material arrives by truck or rail. Where applicable, emissions are controlled by the plant RTO. The raw material tank farm was observed from a distance. During the previous inspection on December 7, 2016, the WYR tank farm was observed and it was verified that EUJONTK-0004 is equipped with a closed vent system that exhausts to the RTO. The closed vent lines are painted yellow and vent to the RTO.

On February 9, 2017, the AQD received BASF's RTO test report via email. Within the report BASF reports the average ethyl acrylate emission rate was 0.09 pph. BASF reports the average non-methane VOC destruction efficiency was 73.99%. On September 21, 2017 VOC destruction efficiency testing was conducted following repairs to the RTO. At that time the test demonstrated a destruction efficiency of 99.41%. The firebox

temperature averaged 1598°F across the test. PTI 113-07A, FG-RTO, SC IV.1 sets the minimum 3-hour average firebox temperature to 50°F less than the average exhibited during a compliant performance test: the 3-hour minimum average is therefore 1548°F. During the inspection the RTO combustion chamber temperature was recorded as 1641 °F (9:19 AM) and 1625 °F (10:04 AM). A bypass stack is installed prior to the RTO and its exhaust stack.

The bagging line and warehouse (EUJONBAGGING, PTI 174-08A) at the southern end of the site was observed. During the inspection, the bagging line was in operation. The pressure drop for the baghouse on the bagging line read 2.4 inches water. The stack requirements appeared to be in compliance with PTI 174-08A.

Compliance Status:

Stationary source B4359 is currently covered under MI-ROP-B4359-2003b, issued December 1, 2003 and last amended January 8, 2007. The Steam Facility is covered in Section 1, the Polyols Plant in Section 2, the ACCE Plant (now referred to CER) in Section 3, and the TPU Plant in Section 4. The Joncryl Plant (now referred to as Wyandotte Resins [WYR]) is not yet incorporated into the ROP. In addition, certain equipment is covered under Permit to Install Nos. 272-04 (issued January 19, 2005), 84-07 (issued July 6, 2007), 113-07A (issued September 14, 2015), 174-08A (issued January 11, 2016), 143-09 (issued July 31, 2009), 80-11B (issued September 24, 2018), 145-17 (issued March 23, 2018), 14-18 (issued April 30, 2018), 115-18 (September 19, 2018), and 186-18 (issued December 14, 2018); these permits will be incorporated into the ROP during renewal.

Prior to the inspection of January 24 and 25, 2019 the last site inspection was conducted on December 6 and 7, 2016 and January 17, 2017, with the last full compliance evaluation covering compliance activities reviewed through approximately December 6, 2016. In general, this report covers compliance activities that have occurred since December 7, 2016 through approximately January 24, 2019. Records were provided via email on April 9, 2019, May 7, 13, 15, and 16, 2019, and June 10, 12, and 13, 2019. BASF claims certain selected data within the submittal as "Confidential Business Information". This requires further follow-up as a portion of the information discloses pollutant emissions, which is not eligible for confidentiality, and another portion of the information discloses production information that is already reported within the annual emissions inventory for the source. Therefore, AQD does not necessarily agree with BASF's assertions. However, for the purpose of processing this report the information will be treated as confidential until a final determination is reached.

MI-ROP-B4359-2003b, Sections 1 through 4, General Conditions

These general conditions (GC) are repeated at the beginning of each ROP section and are addressed here in total.

GC 9, GC 10 – **COMPLIANCE** – Collected air contaminants shall be removed to maintain controls at required collection efficiency; air cleaning devices installed and operated in a satisfactory manner – Controls were installed and operating as directed by the ROP during the January 24 and 25, 2019 inspections.

GC 11 – **COMPLIANCE** – Visible emissions limited to 20% over a six-minute average, with the exception of one 27% opacity per hour unless otherwise specified in the ROP or in a federal new source performance standard. This limit applies to point source (non-fugitive) emission units at the plant. During the inspection on January 24 and 25, 2019 visible emissions were not observed.

GC 12 – **COMPLIANCE** – Nuisance emissions prohibited – No citizen complaints have been received by the AQD's Detroit Office for the BASF Wyandotte operations in the period since the last inspection and the current inspection.

GC 19 through 23, 25 (and under individual EU/FG tables at SC III.B.IV.1 through 3) – **COMPLIANCE** – Certification of reports and prompt reporting of deviations – Annual certifications and semiannual deviation reports were received or postmarked September 13, 2018, March 15, 2018, September 14, 2017, and March 15, 2017. Please see MACES reports B435946885, B435943840, B435941540, and B435939348.

GC 24 – **COMPLIANCE** – Submissions to the Emissions Inventory – The AQD received this facility's 2016 and 2017 MAERS databases on (or postmarked) March 15, 2018 and March 15, 2017.

MI-ROP-B4359-2003b, Sections 1 through 4, SOURCE-WIDE

These plant-wide special conditions (SC) are repeated at the beginning of each ROP section and are addressed here in total.

SC II.B.1.1 and 2.2, III.A.3.2 and 3 – **COMPLIANCE** – Hazardous Air Pollutant (HAP) emissions limited to less than 9.0 tons per 12-month rolling time period for each individual HAP and 22.5 tons per 12-month time period for combined HAPs; records; these requirements apply to the three stationary sources B4359, M4777, and M4808 combined.

BASF provided site-wide HAP emissions totals for the period January 2017 through December 2018 in the April 9, 2019 submittal. Monthly total HAP emissions range between 1.133 and 1.336 tons. Acrylic acid registered the highest total of any single HAP for a 12-month rolling period at 2.915 tons. BASF reported that the highest 12-month rolling total HAPs occurred at the end of December 2017 at 15.2461 tons.

SC III.A.3.1, IV.4, VI.1 and 2 – **UNDETERMINED** – Compliance with certain requirements within 40 CFR 61, Subparts A, M: National Emission Standard for Asbestos, and FF: National Emission Standard for Benzene Waste Operations – During the 2015 inspection, a conversation was held with Mr. Thompson regarding the Subpart FF requirements. Mr. Thompson did not believe that BASF was subject to Subpart FF, and could not think of any operations subject to the requirements. Records were not reviewed for these standards during the inspection or records request.

MI-ROP-B4359-2003b, Sections 1 through 4, Rule 290 Flexible Groups

Multiple sections of the ROP contain flexible group and/or emission units relating to Rule 290 subject equipment installed in each area (section) of the ROP. R336.1290 exempts from R336.1201 those sources with limited emissions. The rule is divided into three general sections and further divided into subsections, depending on the type of emission (VOC, particulate, etc.), the carcinogenicity of the emissions, and the health-based screening level(s) of the emissions. Only those rules applicable to the Rule 290 emission units at the stationary source will be addressed.

R 336.1290(a) through (d) – **COMPLIANCE** – Emissions less than 1000 lbs. uncontrolled and 500 lbs. controlled with more restrictive limits for certain ITSL/IRSLs; particulates limited to emissions of 0.01 lbs. particulate per 1000 lbs. gas, controlled by dust collector or equivalent installed and maintained, 5% opacity limit and monthly visible emission observation; description on file and records maintained. Required records are as follows for each emission unit: written description of the emission unit and control device, including the design control efficiency and exhaust gas flowrate; identify air contaminants emitted, carcinogenicity, screening level, and level of control; monthly emissions calculations; record of monthly visible emission readings.

The following emission units are listed as Rule 290 subject in the 2018 MAERS with their reported annual emissions in pounds:

2018 MAERS emissions reported (in pounds)

Section	Emission Unit	VOC	PM10
1	EUSTENWORKGROUN	0.5	-----
2	EUPOLGRAFTINDEX	325	-----
2	EUPolSugarPent	Did not operate	
2	RGPOLTANKS	4,307.91	-----
3	EUChеBlends	0	-----
3	EUChеEpilmine	Did not operate	
3	EUChеGraftedPoly	1,997	-----
3	EUCHEGRAFTINDEX	Did not operate	
3	EUChеHalfEster	5.4	-----
3	EUChеMacromer	Did not operate	
3	EUChеNMP	2	-----
3	EUCHEHardlen	0.9	-----
4	EUTPUFURNACE	24	36
4	EUTPUSYNTHESIS	2,335.9	90.9

The emission unit EUTPUFURNACE is also reported to have emitted 79 pounds of CO, 37 pounds of NOx, and 2 pounds of SO2 during the 2018 calendar year. In addition, four Rule 290 emission units are listed as did not operate (EULuwBatch, EULuwCont, EULuwWW, EULuwFug) that relate to the shutdown Amino Resins Plant.

While not conclusive, as Rule 290 data is evaluated for compliance month-by-month, the annual emissions data largely suggests compliance with the Rule 290 emission limits because they are well beneath the controlled limit extrapolated for a calendar year (6,000 pounds). RGPOLTANKS, consists of 23 storage tanks (containing polyol and MDI) so the average annual emission from any single tank is likely less than a ton.

In email correspondence dated April 9, 2019, BASF provided Rule 290 emissions records on a monthly basis for TPU and CER emissions units. In addition, EUPOLGRAFTINDEX monthly emission records were provided. The Rule 290 records also demonstrate that emissions are less than the Rule 290 limits.

MI-ROP-B4359-2003b, Sections 1 through 4, Cold Cleaner Flexible Groups

Currently, one cold cleaner is installed at the Polyols plant. The Polyol plant cold cleaner is considered a “new” cold cleaner subject to the requirements of Rule 707.

SC II.A.1.1 – **COMPLIANCE** – Less than 5% of any combination of methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform – The SDS for the cleaning solvent, “Extreme Simple Green Aircraft Precision Cleaner”, is provided in the April 9, 2019 submittal and indicates the material is water based and does not contain the above listed compounds.

SC I.C.1 through 3, III.A.3.1 through 5, V.1 through 5, VI.1 – **COMPLIANCE** – Cold cleaner operational requirements, including draining parts, closing cover when not in use, posting operating procedures near the cleaner, and storing waste solvents in closed containers; cold cleaner operational requirements are based on the type of cleaner and the vapor pressure of the solvent; information on each cold cleaner to be maintained on file.

During the inspection the Polyols plant maintenance area cold cleaner was not observed. The 2016 inspection indicated that the cold cleaner is equipped with posted instructions and a mechanically assisted lid. Therefore, the cold cleaner is judged in compliance with SC I.C.1 and VI.1. The vapor pressure of the solvent is reported at 20.7 mmHg (0.40 psia). Records provided indicate the air/vapor interface to be less than 10 square feet and therefore in compliance with SC V.1.a. The solvent in the Polyols cold cleaner is agitated and its lid motorized, in compliance with SC I.C.2.

MI-ROP-B4359-2003b, Sections 1-4, NSPS Tanks Flexible Groups

NSPS Subpart Kb – **COMPLIANCE** – This subpart regulates volatile organic compound storage tanks that commenced construction or modification after July 23, 1984. The affected facility is defined at 40 CFR 60.110b as storage vessels containing volatile organic liquids (as defined in the subpart) and with capacities greater than or equal to 75 cubic meters (19,813 gallons).

Multiple sections of the ROP contain either a general flexible group or specific conditions to encompass requirements applicable to all NSPS subject storage tanks installed in each area (section) of the ROP. References to NSPS Kb in the ROP are as follows:

FGPOLNSPSKBTANKS (Section 2 – emission unit table – contains list of tanks)
FGPOLFACILITY, SC V.3 (Section 2)
EUCHEPOLYOL, SC V.1 (Section 3)
EUCHETK-43 (Section 3)

Please see the April 9, 2019 submittal for tanks subject to this subpart at the stationary source and how they comply with NSPS Kb. Not all tanks listed in the ROP as NSPS Kb subject remain so because after the October 2003 revision to NSPS Kb, those tanks sized less than 75 cubic meters but greater than 40 cubic meters, formerly subject to NSPS Kb, are no longer subject to the regulation.

PTI 145-17, FGBOILERS

Previously the steam facility was permitted through MI-ROP-B4359-2003b, Section 1, FGSTEFACILITY. On March 23, 2018, PTI 145-17 was issued for the steam plant following the issuance of ACO AQD No. 2018-03. PTI 145-17 replaces the conditions listed in MI-ROP-B4359-2003b, Section 1, FGSTEFACILITY.

SC I.1, 2, 4, and 6, SC V.1, SC IX.1 – **COMPLIANCE** – Hourly NO_x and CO emissions shall not exceed the following: 2.4 pounds per hour NO_x; 0.048 lb/MMBTU NO_x; 19.7 pounds per hour CO; and 0.39 lb/MMBTU CO. Testing to be conducted within 90 days after natural gas usage (12-month rolling time period) exceeds 1,100 MMSCF. At this time the facility is not required to conduct stack testing demonstrating compliance with the hourly CO and NO_x emission limits. The maximum 12-month rolling natural gas usage occurred at the end of April 2018 at 630.54 MMSCF.

SC I.3 and 5, SC VI.2 – **COMPLIANCE** - NO_x emissions shall not exceed 36 tons per year (12-month rolling). CO emissions shall not exceed 86.4 tons per year (12-month rolling). The highest 12-month rolling NO_x

emissions (15.76 tons) occurred at the end of April 2018. The highest 12-month rolling CO emissions (26.48 tons) occurred at the end of April 2018.

SC II. 1 and 2, SC IV.1, and SC VI.1 – **COMPLIANCE** - Natural gas usage shall not exceed 1,467 MMSCF on a 12-month rolling time period. Shall burn only pipeline quality natural gas. Shall install, calibrate, maintain and operate in a satisfactory manner a device to monitor and record natural gas usage on a monthly basis. The facility maintains monthly and 12-month rolling records of natural gas usage. The maximum 12-month rolling natural gas usage occurred at the end of April 2018 at 630.54 MMSCF.

SC III. 1 – **COMPLIANCE** – Shall not operate boilers unless equipped with low NOx burners (installed and maintained per manufacturer requirements). The facility appears to be meeting this requirement.

SC VIII. 1 – **COMPLIANCE** – Exhaust gases from stack to be discharged unobstructed vertically upwards. A maximum exhaust diameter of 66 inches is required. A minimum height of 150 above ground surface. The stack appears to meet these requirements. Measurements were not collected.

MI-ROP-B4359-2003b, Section 2, EUPOLCONV

This emission unit covers the conventional polyol manufacturing process (reactor trains 7, 8, and 9).

SC I.B.1 through 3 – **COMPLIANCE** – Maximum stack height and diameters for SVPOLSUGARFEED (24 inches and 32 feet), SVPOLT-408 (3 inches and 55 feet), and SVPolMagSil7 (9.75 inches by 11.5 inches and 30 feet) – SVPolMagSil7 is not used as reactor 7 has not been in use since the mid-2000's.

SC II.A.1.1 and SC III.A.3.8 – **COMPLIANCE** – Magnesium silicate (magnesol) use limited to 2,500 tons per 12-month rolling time period; records – BASF reports monthly and 12-month rolling totals for the period January 2017 through December 2018; each 12-month rolling total is less than 2,500 tons (April 9, 2019 submittal). BASF claims this data as "Confidential Business Information". In the 2018 MAERS, BASF reports 157 tons of "magnesium silicate (solid)" was processed in the EUPOLConv bulk material conveyors during the calendar year.

SC II.B.1.1 and 2, SC II.B.2, SC III.A.3.5 – **COMPLIANCE** – Aggregate volatile organic compound (VOC) emissions from reactor trains 7, 8, 9 sugar feed shall not exceed 1.27 pounds per hour based on a daily average nor 2.24 tons per 12-month rolling time period; aggregate propylene oxide (PO) emissions from reactor trains 7, 8, 9 sugar feed shall not exceed 0.18 tons per 12-month rolling time period; records.

According to the April 9, 2019 submittal, sugar is no longer used. Therefore, these conditions are not applicable. According to Mr. Thompson, when sugar was used, reactor 7 was the primary reactor for sugar additions. Reactor 7 is currently not in operation as it has been de-rated. At this time, there is no plan for future use of reactor 7. VOC and PO emissions for operations not using sugar are captured in SC II.B.4 through 6 and SC III.A.3.7 as described below.

SC II.B.3.1 and 2, III.A.3.6 – **COMPLIANCE** – Particulate matter (PM) emissions from each solid raw material conveying system servicing reactor trains 7, 8, 9 shall not exceed 0.10 pounds per 1000 pounds of exhaust gases; aggregate PM emissions from all solid raw material conveying systems shall not exceed 1 ton per 12-month rolling time period; records.

Compliance with the pound per thousand pound limit is to be determined through stack testing in GC 13, if requested; BASF has not been requested to perform a stack test on particulate emissions. BASF reports monthly and 12-month rolling totals of PM emissions for the period January 2017 through December 2018; each 12-month rolling total for PM is less than 1.0 ton (April 9, 2019 email submittal). BASF claims this data as "Confidential Business Information". In the 2018 MAERS, BASF reports aggregate PM emissions from EUPolConv at 665 pounds (0.333 tons).

SC II.B.4 through 6, and SC III.A.3.7 – **COMPLIANCE** – Aggregate VOC emissions from reactor trains 7, 8, 9 equipment venting to the water scrubber shall not exceed 2.4 pounds per hour based on a daily average; aggregate emissions from reactor trains 7, 8, 9 equipment venting to the water scrubber shall not exceed 0.13 tons (260 pounds) PO per 12-month rolling time period and 0.02 tons (40 pounds) EO per 12-month rolling time period; records.

Compliance with the VOC pounds per hour value is to be determined through stack testing in GC 13, if requested. As discussed in the 2013 inspection report (MACES Report B435923233), BASF has not been

requested to perform a VOC stack test on the water scrubber, however, testing for EO and PO was conducted March 18, 2009 through March 20, 2009 pursuant to a United States Environmental Protection Agency (USEPA) administrative order. Oxide emissions were measured at less than 0.1 pounds per batch and it is likely VOC emissions are of a similar order of magnitude because oxide emissions are the predominant VOC expected at the water scrubber emission point; please see report B435907772.

BASF reports monthly and 12-month rolling totals of EO, PO and VOC for the period January 2017 through December 2018; monthly VOC emissions indicate compliance with the daily VOC limit. VOC emissions are reported monthly, with the majority of monthly VOC emissions being less than 5.95 pounds. The 12-month rolling total for EO and PO is less than 0.13 tons and 0.02 tons, respectively (April 9, 2019 submittal).

SC III.A.3.1, and SC V.1 through 3 – **COMPLIANCE** – Polyol production rates for reactor trains 7, 8, 9 shall not exceed the following, each in units of pounds per 12-month rolling time period: 100,000,000 for reactor train 7; 72,000,000 for reactor train 8; 191,000,000 for reactor train 9; records.

BASF reports monthly and 12-month rolling throughputs in each reactor the period January 2017 through December 2018. Reactor 7 has not been in operation. Therefore, the monthly production for reactor 7 is zero for the last two years. The April 9, 2019 submittal for each 12-month rolling total show compliance with the 100,000,000 pounds limit for reactor train 7, the 72,000,000 pound limit for reactor train 8, and the 191,000,000 pound limit for reactor train 9. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports 25,064 tons (50,128,000 pounds) of product through EUPOLConv and 25,064 tons (50,128,000 pounds) of product through EUPOLFugConv.

SC V.4 – **COMPLIANCE** – Conventional equipment to be vented to the thermal oxidizer shall not be operated unless the oxidizer is installed and operating properly, including achieving a minimum temperature of 1700°F, a minimum residence time of 0.8 seconds, and maximum emission rates of 1.3 pounds per hour EO and 0.96 pounds per hour PO; exceptions are given in SC V.6 through 8.

Testing conducted on December 6, 2010 through December 9, 2010 measured EO and PO beneath their respective detection limits of 0.006 pound per hour EO and 0.008 pounds per hour PO. Please see report B435915927. Continuous thermal oxidizer temperatures for January 24, 2019 are provided in the April 9, 2019 submittal; the temperature measures fluctuate within a range from about 1806°F to about 1841°F. During the inspection on January 24, 2019 the thermal oxidizer temperature was observed operating within a range from 1824°F and 1830°F.

SC V.5 – **COMPLIANCE** – Vacuum jets for the conventional processes shall not be operated unless they vent to the thermal oxidizer – During the inspection, the process flow scheme on the computer consoles at the Polyol plant demonstrates that the vacuum jets vent to the thermal oxidizer when the conventional process is in operation.

SC III.A.3.2, and SC V.6 – **COMPLIANCE** – TK-405B, TK-405C, and TK-505 pressure releases to add solid materials shall not exceed, in the aggregate, 24 times per day nor 800 times per 12-month rolling time period; records.

BASF reports monthly and 12-month rolling total reactor depressurizations for the period January 2017 through December 2018; each monthly total demonstrates compliance with the daily limit of 24 and each 12-month rolling total is less than 800 (April 9, 2019 submittal). BASF claims this data as “Confidential Business Information”.

SC V.7 – **COMPLIANCE** – The following may vent to the water scrubber: TK-410A, TK-408C except during filling and transfer operations, TK-534 after unreacted materials have been removed, the filter press, TK-532. Based on the test conducted March 18, 2009 through March 20, 2009, each of these vents to the water scrubber; please see report B435907772.

SC V.8 – **COMPLIANCE** – EO (TK-101B) and PO storage tanks (TK-101C, TK-102) shall be filled with satisfactory vapor balance in place or venting to thermal oxidizer. Satisfactory vapor balance includes: vapor-tight collection line before transfer, nitrogen purge of vapor line after transfer, hatches and openings closed, nitrogen purge of liquid line after transfer, device to minimize liquid drainage. Procedures shall be developed incorporating the listed requirements.

Based on December 7, 2016 observations of the process flow scheme on the computer consoles at the Polyol plant, this equipment is connected to the thermal oxidizer; the equipment is also equipped with a vapor balance during transfers. During the inspection on January 24, 2019, a transfer was not observed. Non-confidential procedures for EO and PO transfers were received in the April 9, 2019 submittal.

SC III.A.1, SC III.A.3.3, and SC V.9 – **COMPLIANCE** – Conventional process equipment venting to the water scrubber shall not do so unless the scrubber is operating properly; satisfactory operation includes maintaining the water scrubber flowrate specified in the water scrubber operating procedures; the liquid flowrate shall be monitored daily with an acceptable device; records.

Continuous water scrubber flowrates for January 24, 2019 are provided in the April 9, 2019 submittal; the flowrate measures within the range of about 85 to 171 gallons per minute. Water scrubber procedures were provided in the April 9, 2019 submittal. From the procedures, the water scrubber is designed to operate down to 25 gallons per minute; an alarm is triggered should the flowrate drop to 35 gallons per minute and the vent lines are shut down should the flowrate drop to 30 gallons per minute.

SC III.A.2.2 and 3, SC III.A.3.4, and SC V.10, Appendix 2-3.1 through 3 – **NOT IN COMPLIANCE** – Solid raw material conveying systems shall not be operated unless the fabric filter is installed and operating properly; satisfactory operation includes maintaining the pressure drop specified in the fabric filter operating procedures; the pressure drop across each fabric filter shall be monitored with an acceptable device; periodic inspections of the baghouses to be conducted; records.

During the previous inspection it was identified that there are two dust collectors, each stacked individually for reactors 8 and 9. Based on previous maintenance records provided, it appears that F-531 services reactor #9 and F-410C services reactor #8.

The June 10, 2019 submittal contained the dust collector maintenance records for F-531. The dust collector records for F-410C were not provided. According to the records provided the last inspection/preventative maintenance at F-531 was conducted March 15, 2017. Per Appendix 2-3. 1, regular inspections of the baghouses shall be conducted during scheduled outages or downtime, or after observing visible emissions, but not less frequently than every 12 months. The due date for the last inspection was March 15, 2018.

Additionally, the facility was unable to provide pressure drop records as required under SC A.3.4 demonstrating that the pressure drop is monitored across each fabric filter.

A violation notice will be issued regarding these issues.

SC VI.1 – **COMPLIANCE** – Permittee shall comply with applicable requirements of MACT A and PPP – Though not stated explicitly in the condition, as the emission unit EUPOLCONV covers the non-fugitive aspects of conventional polyols production, this condition covers compliance with those aspects of MACT PPP addressing process vents, wastewater provisions, etc. and not those aspects of the MACT PPP that relate to leak detection and repair, which are covered under a similar condition within the flexible group FGOLFUG.

Based on information obtained during an inspection from March 17 through 20, 2008 and from subsequent 114 (a) requests, USEPA Region 5 found BASF in violation of MACT PPP as detailed in a Finding of Violation (FOV) issued September 29, 2008 and an FOV issued September 25, 2009. On June 15, 2012, USEPA and BASF entered into an Administrative Consent Order (ACO), and on June 19, 2012, a Consent Agreement and Final Order (CAFO) between USEPA and BASF was filed which resolved the MACT PPP violations.

Since the end of the last FCE period (December 6, 2016), pursuant to 63.1439(e)(6), MACT PPP semiannual reports have been received on March 15, 2017, September 5, 2017, March 20, 2018, and September 19, 2018. Please see reports B435939347, B435941491, B435943751 and B435946140.

MI-ROP-B4359-2003b, Section 2, EUPOLGRAFT

This emission unit covers the graft polyol manufacturing process (reactor train 10).

SC I.B.1 – **COMPLIANCE** – Maximum stack height and diameters for SVPOL115 are 24 inches and 23 feet, respectively, and exhaust gases discharged unobstructed vertically upwards. Compliance is based on visual observation during the inspection. Measurements were not collected. Based on the inspection of January 24, 2019, SVPOL115 appears to be the vent located on TK-500 (styrene tank).

SC II.A.1, SC II.B.1.1 and 2, SC III.A.3.2 and 3 – **COMPLIANCE** – Styrene emissions from storage tank TK-500 shall not exceed 9.8 pounds per hour based on a daily average nor 0.24 tons (480 pounds) per year on a 12-month rolling time period; the styrene charge to TK-500 shall not exceed 60,300,000 pounds per 12-month rolling time period; styrene monthly/12-month emissions calculations and production records kept for five years.

BASF reports the monthly and 12-month rolling total styrene throughput for the period January 2017 through December 2018 (April 9, 2019 submittal); each of the 12-month totals is less than the 60,300,000 pound limit. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports the annual throughput of styrene at 1,725,000 gallons. At a density of about 7.56 pounds per gallon, this equates to an annual throughput of 13,041,000 pounds styrene. Within the 2018 MAERS submittal the facility uses a MAERS emission factor to report emissions. Based on the records provided, the facility is determined to be in “compliance” with the emission limits. However, further evaluation of this emission unit and reported emissions needs to be completed.

The facility reports 12-month rolling styrene emissions less than 0.24 tons per year (480 lbs). Within the April 9, 2019 submittal, BASF reported styrene emissions greater than the emission limit specified in EUPOLGRAFT, SC II.B.1.2 for every month from January 2017 through December 2018. On June 10, 2019, BASF provided revised styrene emissions. BASF provided the following explanation. “The styrene emissions represented in the prior submittal represent all process styrene emissions w/o the tank working/breathing losses. Attached are the working/breathing losses as calculated using the tank working/breathing emission factor submitted in the permit, I realize that EPA Tanks would be the preferred method which factors in monthly temps however, EPA tanks no longer works on our MS Windows 10 laptop computers. Looking for a work around on this (i.e. other tanks tools) and when resolved I will go back and backfill the data. Going forward I will also add the tk-500 tank emissions to the facility tracking spreadsheet where the current process styrene emissions are currently tracked and documented.” At this time the AQD accepts the documentation and explanation provided.

SC III.A.3.1 and SC V.5 – **COMPLIANCE** – Polyol production rates for reactor trains 10 shall not exceed 150,000,000 pounds per 12-month rolling time period; records.

BASF reports monthly and 12-month rolling throughputs for reactor No. 10 in the period January 2017 through December 2018; each 12-month rolling total shows compliance with the 150,000,000 pound limit (April 9, 2019 submittal). BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports 24,364 tons (48,728,000 pounds) of product through EUGRAFTINDEX and 24,364 tons (48,728,000 pounds) of product through EUPOLFugGraft.

SC V.1 – **COMPLIANCE** – Graft equipment to be vented to the thermal oxidizer shall not be operated unless the oxidizer is installed and operating properly, including achieving a minimum temperature of 1700°F, a minimum residence time of 0.8 seconds, and maximum emission rates of 0.88 pounds per hour acrylonitrile (ACN) and 0.74 pounds per hour styrene; exceptions are given in V.3 and 4.

Testing conducted on December 6, 2010 through December 9, 2010 measured ACN and styrene beneath their respective detection limits. Measured emission rates during the testing were 0.004 pound per hour ACN and 0.023 pounds per hour styrene. Please see report B435915927. Continuous thermal oxidizer temperatures for January 24, 2019 are provided in the April 9, 2019 submittal; the temperature measures fluctuate within a range from about 1806°F to about 1841°F. During the inspection on January 24, 2019 the thermal oxidizer temperature was observed operating within a range from 1824°F and 1830°F.

SC V.2 – **COMPLIANCE** – The vacuum system for the graft process shall not be operated unless it vents to the thermal oxidizer. During the inspection, the process flow scheme on the computer consoles at the Polyol plant indicated that the vacuum jets vent to the thermal oxidizer when the graft process is in operation. During the inspection, the waste gas valves were open.

SC V.3 – **COMPLIANCE** – Styrene shall not be charged to TK-500 unless the unloading system is satisfactorily operated; satisfactory operation includes blowing back lines to the railcar and system shutdown after use, hatches and openings closed, device or procedure to minimize liquid drainage; procedures shall be developed incorporating the listed requirements. The styrene car unloading procedures were provided in the April 9, 2019 submittal. During the inspection, a styrene transfer was not witnessed.

SC V.4 – **COMPLIANCE** – ACN storage tank (TK-524) shall be filled with satisfactory vapor balance or venting to thermal oxidizer; satisfactory vapor balance includes: vapor-tight collection line before transfer, nitrogen purge of vapor line after transfer, hatches and openings closed, nitrogen purge of liquid line after transfer, device to

minimize liquid drainage; procedures shall be developed incorporating the listed requirements. The ACN car unloading procedures were provided in the April 9, 2019 submittal. During the inspection, an ACN transfer was not witnessed.

MI-ROP-B4359-2003b, Section 2, EUPOLTKFARM

This emission unit covers the toluene diisocyanate (TDI) storage tank TK-536.

SC I.B.1 – **COMPLIANCE** – Exhaust gases from the carbon canister on TK-536 shall discharge unobstructed vertically upwards with maximum diameter of 3 inches and height of not less than 35 feet above ground. During the inspection, compliance was determined based on visual observation. Measurements were not collected.

SC II.1 and SC III.A.3.3 – **COMPLIANCE** – TDI throughput in TK-536 shall not exceed 5,000,000 gallons per 12-month rolling time period; records – BASF reports the monthly and 12-month TDI throughput for the period January 2017 through December 2018; each 12-month total is less than the 5,000,000 gallon limit. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports the annual throughput of TDI at 420,000 gallons through RGPOLTANKS; TK-536 is not listed as a member of this reporting group, but that may be an oversight.

SC II.B.1.1 and 2, III.B.1 through 3 – **COMPLIANCE** – TDI emissions from TK-536 shall not exceed 0.0031 pounds per hour nor 0.18 pounds per year; TDI test to be performed on TK-536 upon request. At this time, AQD has not requested testing. Compliance with the annual limit is determined by the throughput limit and the control maintenance requirement. As the annual throughput limit is in compliance and the control system appears in compliance, the facility is presumed in compliance with the annual emission limit as well.

SC III.A.3.1, SC V.1, 6, and 7 – **COMPLIANCE** – TK-536 shall not be operated unless the carbon canister is installed and operating properly; TDI shall not be transferred to delivery vessels unless emissions from the delivery vessels are controlled by installed carbon adsorption canisters operating properly; TK-536 carbon canisters shall be replaced every five years; a written record shall be maintained of the replacements. Within the June 10, 2019 submittal, the last carbon drum changeout occurred during June 2017. During the January 24, 2019 inspection, the activated carbon canister installed on the top of TK-536 was observed. An indicator sleeve was not observed.

SC III.A.3.2, SC V.5, and SC VI.1 – **COMPLIANCE** – Records shall be maintained of the dimensions and capacity of the storage tank TK-536, per NSPS Kb; no more than 50,000 gallons stored in TK-536 at any given time – Please see submittal of September 27, 2007, where the tank capacity is listed at 50,000 gallons, the diameter at 20.2 feet, and the height at 22 feet.

SC V.2 – **COMPLIANCE** – TDI storage and transfer facilities shall incorporate a dry air or nitrogen gas pad for moisture control. According to BASF, TK-536 employs a nitrogen blanket.

SC V.3 and 4 – **COMPLIANCE** – Residual or spilled materials shall be stored in closed containers preventing TDI release to the ambient air; spilled material shall be immediately contained, neutralized and stored. During the inspection, a spill or stored spill materials were not observed.

MI-ROP-B4359-2003b, Section 2, FGPOLEMCON

This flexible group contains requirements for the thermal oxidizer that controls both conventional and graft polyol systems.

SC I.B.1 – **COMPLIANCE** – Maximum stack height and diameter for SVPOL80 are 30 inches and 100 feet, respectively, and exhaust gases discharged unobstructed vertically upwards. During the inspection visual observation indicates that the stack meets these requirements. Measurements were not conducted.

SC II.B.1.1 – **COMPLIANCE** – VOCs from equipment venting through the thermal oxidizer shall not exceed 6.4 pounds per hour on a daily average.

Testing conducted December 4, 2001 through December 7, 2001 measured an emission rate of 1.71 pounds per hour VOC. Testing conducted December 6, 2010 through December 9, 2010 measured an emission rate less than 0.03 pounds per hour VOC. The tests are not dispositive for the VOC emission limit because the sampling periods were less than the 24 hours of a calendar day. However, in the case of the 2010 test, as BASF organized process operations so as to direct the greatest amount of VOC loading to the thermal oxidizer during the 8-hour test period, and as the VOC emissions measured during the 8-hour test period represent less than

1% of the allowed daily amount, AQD concludes the test serves as a successful compliance demonstration unless future information should suggest the maximum VOC loading rate from the process was not measured during the test. Please see report B435915927.

SC II.B.1.2, II.B.2 through 6, Appendix 2-4.2 and 3 – **COMPLIANCE** – Emissions from equipment venting through the thermal oxidizer and from the thermal oxidizer itself shall not exceed the following on a 12-month rolling time period basis: 16 tons VOC; 2.2 tons PO; 0.89 tons EO; 0.72 tons ACN; 0.41 tons styrene; 15.3 tons NOx. VOC, PO, EO, ACN, styrene, and NOx monthly/12-month calculations kept for five years.

The April 9, 2019 submittal lists monthly and 12-month rolling emissions for the period from January 2017 through December 2018; each 12-month total is less than the annual emissions limitation. BASF claims this data as “Confidential Business Information”. In MAERS 2018, BASF reports emissions of 991 pounds (0.50 tons) VOC and 7360 pounds (3.68 tons) NOx for EUPOLemCon. In addition, extrapolating the worst-case hourly emissions from the stack testing performed in December 2010 (see next set of conditions below) to annual emissions results in worst-case totals of 0.044 tons EO, 0.057 tons PO, 0.026 tons ACN, and 0.162 tons styrene.

SC III.B.1 through 3 – **COMPLIANCE** – Testing of EO, PO, ACN, and styrene between June 1, 2008 and December 1, 2008 unless demonstrated last tests remain valid.

In a letter dated July 3, 2008, BASF asserted the testing conducted in December 2001 remained valid. In an email of July 21, 2008 and a letter dated July 23, 2008, AQD agreed the December 2001 remained valid and stated testing for EO, PO, ACN, and styrene was not required in the referenced time period. Tests were conducted from December 6, 2010 through December 9, 2010 and based on the FTIR limits of quantification and the average stack flow data, the hourly emission rates are reported to be less than 0.006 pounds per hour EO, 0.008 pounds per hour PO, 0.004 pounds per hour ACN, and 0.023 pounds per hour styrene. The calculated emission rates for each pollutant are consistent across the four runs. As an overestimation, were the maximum flow extrapolated from one minute to an hour (and thus a factor of 1.6 greater), the emission rates would calculate to 0.010 pounds per hour EO, 0.013 pounds per hour PO, 0.006 pounds per hour ACN, and 0.037 pounds per hour styrene; these emission rates remain beneath the hourly rates established to indicate satisfactory operation. Please see report B435915927.

SC V.1 and 2, Appendix 2-4.1 – **COMPLIANCE** – Thermal oxidizer temperature shall be continuously (at least once every 15 minutes) monitored with an acceptable device; the position of the waste gas inlet control valves to the thermal oxidizer shall be continuously monitored with an acceptable device; records of temperature and waste gas inlet control valve position – Please see discussions above under Condition V.4 of EUPOLCONV and Condition V.1 of EUPOLGRAFT.

SC VI.1 – **COMPLIANCE** – Permittee shall comply with applicable requirements of MACT A and PPP – Please see discussion above under Condition VI.1 of EUPOLCONV as it relates to the MACT PPP.

SC VI.2 and 3 – **COMPLIANCE** – Instrument for measuring liquid flowrate of water scrubber shall be calibrated, maintained, and operated according to manufacturer’s specifications – Please see discussion above under Conditions III.A.1, III.A.3.3, and V.9 of EUPOLCONV.

SC III.A.3.2.a and c, Appendix 2-3.1 through 3 – **COMPLIANCE** – Regular inspection of thermal oxidizer; records of inspection; records of malfunctions or failures and corrective actions – In the submittal of June 10, 2019, BASF reports the “Schad Refractory replaced all the internal firebrick of the thermal oxidizer during September 2018. This was “based on the prior inspection report during the annual fall maintenance outage.” The thermal oxidizer inspection record checklist was provided with notes indicating refractory brick was replaced. Additionally, BASF provided the Schad project notes for the repair/inspection conducted on September 15 and 16, 2018.

PTI 143-09 and MI-ROP-B4359-2003b, Section 2, FGPOLFUG

This flexible group contains fugitive emissions requirements for the conventional and graft polyol systems. Per PTI 143-09, the individual emission limits for EO, PO, ACN, and styrene have been removed.

SC III.A.2.1 and 2, III.A.3.1, V.1 and 2 – **COMPLIANCE** – Leak detection and repair (LDAR) shall be performed on reactor trains 7, 8, 9 as per MACT PPP; LDAR program shall be instituted for reactor train 10 equivalent to the program in Rule 628 with noted exceptions; records maintained.

Based on information obtained during an inspection from March 17, 2008 through March 20, 2008 and from subsequent 114(a) requests, USEPA Region 5 found BASF in violation of MACT PPP as detailed in a Finding of Violation (FOV) issued September 29, 2008 and an FOV issued September 25, 2009. AQD followed with Violation Notices dated October 28, 2009 and May 9, 2012 concerning MACT PPP deficiencies, similar deficiencies for NSPS VV predating the MACT, and also for failing to conduct visual inspections for pumps subject to the Rule 629 (now Rule 628) equivalent LDAR program at the graft plant. These Violation Notices were forwarded to USEPA. Please see reports B435908007 and B435917762. On June 15, 2012, USEPA and BASF entered into an Administrative Consent Order (ACO), and on June 19, 2012, a Consent Agreement and Final Order (CAFO) between USEPA and BASF was filed which resolved the MACT PPP violations. AQD considers the agreement sufficient to resolve the Violation Notices.

Since the end of the last FCE period (December 6, 2016), pursuant to 63.1439(e)(6), MACT PPP semiannual reports have been received on March 15, 2017, September 5, 2017, March 20, 2018, and September 19, 2018. Please see reports B435939347, B435941491, B435943751 and B435946140. These reports include summaries of MACT PPP LDAR activities. Rule 628 LDAR semiannual reports have been received on August 27, 2018, March 20, 2018, September 5, 2017, and March 17, 2017. Please see reports B435946137, B435943751, B435941517, and B435939346.

PTI 143-09 and MI-ROP-B4359-2003b, Section 2, FGPOLFACILITY

This flexible group aggregates permitted, exempt, and grandfathered equipment at the polyol plant and total emissions limitations. Under PTI 143-09 the individual emission limits for EO, PO, ACN, styrene, and HAPs have been removed.

SC III.A.3.1 – **COMPLIANCE** – HAP emissions are tracked and reported on the Wyandotte Site HAPs Summary. See SOURCE-WIDE conditions SC II.B.1.1 and 2.2, III.A.3.2 and 3 above.

SC III.A.3.2, III, IV, 4, and V.1 – **COMPLIANCE** – Requirement to comply with 40 CFR 63, Subpart PPP – Please see discussion above under EUPOLCONV and FGPOLFUG.

SC V.2 – **NOT APPLICABLE** – Requirement to comply with 40 CFR 60, Subpart YYY – This subpart was proposed as Standards of Performance for VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) wastewater. To be located beginning at 40 CFR 60.770, the regulation has yet to pass beyond the proposal stage.

SC V.3 – **COMPLIANCE** – Requirement to comply with 40 CFR 60, Subpart Kb – Please see above under NSPS Tanks Flexible Groups.

MI-ROP-B4359-2003b, Section 3, EUCHEPOLYTHF

This emission unit covers production of poly-THF in reactors R-30, R-62, and R-63. From site inspections and reports, Poly-THF appears to not have been produced since early 2003. The emission unit is in compliance with all emissions, throughput, and process specifications for the fact that the process has not been in operation.

PTI 272-04 and MI-ROP-B4359-2003b, Section 3, EUCHEPOLYOL

This emission unit covers production of conventional polyether polyols in reactors R-20, R-30, and R-100. The emission unit in the ROP was modified in Permit to Install No. 272-04, issued January 19, 2005. The conditions below are from the permit to install.

SC I.B.1 through 8 – **COMPLIANCE** – Stack maximum diameters (given first in inches) and minimum heights (given second in feet) above ground level for the following stacks, all of which are required to vent vertically unobstructed upwards except SVCHE527: 1.5/50 for SVCHE054; 36/53 for SVCHE057; 2/50 for SVCHE525; 1.5/27.7 for SVCHE526; 6/31 for SVCHE527; 1.61/55 for SVCHE528; 2.1/41 for SVCHET-110; 3.1/52 for SVCHEWJET – Compliance is based on visual observations during the inspections. Measurements were not conducted.

SC II.B.1 through 4, III.B.1 through 3, Appendix 3-4.2j through m – **COMPLIANCE** – Emissions from the polyether polyol process shall not exceed the following on a 12-month rolling time period basis: 7.22 tons VOC; 0.8 tons EO; 3.5 tons PO; 0.89 tons butylene oxide (BO). VOC, EO, PO, and BO monthly/12-month calculations kept for five years.

In the April 9, 2019 submittal, BASF reports combined EO, PO, and VOC emissions of 48.4 lbs (2017) and 179.1 lbs (2018). It is assumed that the BO was not used in production (zero emissions). The summation of the

emissions is significantly less than all individual emission limits. From MAERS 2018, annual emissions of VOC for the emission unit are reported at 113 pounds (0.056 tons); as EO and PO are classified as VOCs, the individual emissions for these pollutants are 113 pounds or less.

SC V.1 and 2, Appendix 3-4.2a and b – **COMPLIANCE** – Polyether polyol production shall not exceed 220 batches per 12-month rolling time period nor 3,300,000 pounds per 12-month rolling time period; records – From the April 9, 2019 submittal, for the period January 2017 through December 2018 BASF's production logs document 51 total batches and total 640,236 pounds of polyol produced (2017 and 2018 combined).

SC III.A.2.5, SC V.3 and 4, Appendix 3-4.2g and h – **COMPLIANCE** – Equipment shall not vent out of the north or south vacuum jet unless the associated vacuum jet condenser system is installed and operating properly and with a condenser exhaust gas temperature of 113°F or less; equipment shall not vent out of the east or west vacuum jet unless the associated vacuum jet condenser system is installed and operating properly and with a condenser exhaust gas temperature of 140°F or less; device installed to monitor temperature continually; temperature records.

South jet temperatures are provided, via excel file for August 8, 2018 (the last day of commercial production using the south jets). South jet temperatures continually register less than 38.1°C (100.58°F). The north/south vacuum jet was in operation at the time of the inspection and registered a temperature of 15.7°C (or 60.26 ° F). West vacuum jet temperatures were provided for December 2018 via a text file on a per minute basis. Temperatures continually register less than 30°C (86°F).

SC III.A.2.1 and 3 through 4 and 6, V.5, Appendix 3-4.2d through f and i – **COMPLIANCE** – Process steps involving the release of EO, PO, and/or BO shall not be operated unless the T-110 wet scrubber is installed and operating properly. Proper operation of the T-110 wet scrubber includes: (a) maintaining the scrubber solution pH to 3.0 or less; (b) maintaining the pump outlet pressure at 2.0 bar gauge or less; (c) maintaining the water concentration in the scrubber solution to 60 percent by weight or more. The scrubber solution shall be verified at the beginning of each month and whenever the scrubber solution is replaced. At the beginning of each month, the percent water by weight of the scrubber solution shall be determined and the theoretical number of batches that can be completed before 60% by weight is reached shall be calculated; the scrubber solution shall be replaced before the 60% limit is reached. A device shall be installed to monitor the pump outlet pressure. Records of the above maintained. The T-110 wet scrubber pump shall be maintained with a flow alarm. Records of alarm conditions and steps taken in response shall be kept.

Monitoring data for January 4, 2019, and monthly production logs for January 2019 included in the April 9, 2019 submittal. During the inspection on January 25, 2019, the oxide scrubber control panel in Building 55R showed a T-110 wet scrubber pump outlet pressure of 0.97 bar. According to the previous inspection, an alarm sounds at 2 bar and the pH is sampled monthly. The operations log entry for January 4, 2019 showed a scrubber water concentration of 88.2% and a pH of 2.12. Included in the April 9, 2018 submittal are the corrective actions taken in response to scrubber equipment faults (alarms).

SC III.A.2.2, Appendix 3-4.2c – **COMPLIANCE** – A visual inspection of all equipment in EO, PO, and BO service will be performed at the beginning of every month to ensure that there are no leaks; any leaking equipment shall be repaired or replaced prior to the start of any subsequent batch. Records to be kept – LDAR activities are summarized on the monthly production sheets for January 2019 (April 9, 2019 submittal). No record of a leaks are reported during the reported time period.

SC V.6, Appendix 3-4.2n – **COMPLIANCE** – Magnesium silicate use limited to 77,000 pounds per 12-month rolling time period; records kept – In the April 9, 2019 submittal, BASF reports total magnesium silicate usage at 165 pounds in the period from January 2017 through December 2018.

SC VI.1 – **COMPLIANCE** – Permittee shall comply with NSPS A and Kb as they apply to storage tanks as ACCE. Please see above under NSPS Tanks Flexible Groups.

PTI 84-07, EU-CheGraft and EU-CheGraftFug

PTI 84-07 was issued July 6, 2007. Emission units EU-CheGraft and EU-CheGraftFug cover the production of grafted polyether polyols in reactor R-3. The emission unit is also used for research and development; the permit to install enables the unit to be utilized for both purposes, similar to the manner in which EUCHEPOLYOL is utilized for research and for the production of conventional polyether polyols. From the information submittal provided, BASF reports no graft polyol was produced for commercial production during the last two years. The

emission units are in compliance with all emissions, throughput, and process specifications for the fact that the equipment has not been used for commercial production.

PTI 80-11B, EUCHEORGACT

EUCHEORGACT was originally permitted under PTI 80-11, issued on September 1, 2011. PTI 80-11B was issued September 24, 2018. Emission unit EUCHEORGACT covers production of organic activator in reactor R-803. The emission unit is also used for research and development. BASF states that the EUCHEORGACT has not operated for 2 years and that the unit is operated under EUCHEX5400 (evaluated below).

PTI 80-11B, EUCHEX5400

PTI 80-11B was issued September 24, 2018. X-5400 catalyst production uses hexane as a reaction base solvent utilizing existing equipment, including the condenser (E802), the decanter and receiver (D802 and R802), the reactor vessel (R803), a bulk storage tank and product bulk storage tank (TK-98 and TK-99), two exhaust stacks (EF-1 and EF-2) and an enclosed filter to filter the final product (F803). Emissions are controlled by a condenser system cooled with an inlet chilled liquid solution operating at an inlet temperature at the condenser of 57°F or less and a vapor balancing system for transfers to and from both bulk storage tanks.

SC I. 1 and SC VI. 5 - **COMPLIANCE** – VOC emissions shall be less than 1.0 tpy on a 12-month rolling time period. The reported VOC emissions from the production of X-5400 is 432.8 lbs or 0.22 tons (2017) and 357 lbs or 0.18 tons (2018).

SC II. 1, SC VI. 3 - **COMPLIANCE** – Shall not process more than 183 batches of X-5400 catalyst in EUCHEX5400 per 12-month rolling time period. The facility reports 40 batches of X-5400 during 2017 and 33 batches during 2018.

SC III.1 and 2, SC VI.2 – **COMPLIANCE** – Shall not operate EUCHEX5400 unless the condenser system is installed, maintained, and operated in a satisfactory manner. Shall not operate unless the condenser system (E802) inlet chilled liquid solution is maintained at 57 °F or less. Shall install, maintain, and operate a device to monitor and record, on a continuous basis, the inlet chilled liquid solution temperature of the condenser system. The facility appears to be meeting these requirements. The liquid temperature is recorded on a continuous basis and provided within the April 9, 2019 submittal for the day of inspection (January 24, 2019). The log shows temperatures less than 2.1°C (35.78°F).

SC III. 3 – **NOT EVALUATED** – Shall not transfer any material to or from TK-98 or TK-99 unless vapor balancing system is installed, maintained, and operated in a satisfactory manner. A transfer was not observed during the inspection on January 25, 2019.

SC V.1 – **COMPLIANCE** – Upon the request from the AQD, shall verify VOC emission rates from EUCHEX5400. At this time testing has not been requested.

SC VI. 1. **COMPLIANCE**. Shall complete all required calculations in an acceptable format.

SC VI. 4. **NOT EVALUATED** – Shall maintain a current list of materials used in EUCHEX5400 that are determined to be exempt from health-based screening level requirement of Rule 225. The list shall include the compound name and CAS number and a calculation demonstrating the emission rate of each material. The facility asserts that there are no materials emitted requiring a Rule 225 evaluation.

SC VIII. 1 and 2. **COMPLIANCE**. Stack conditions for EF-1 (36 inches maximum diameter, 72.9 feet above ground) and EF-2 (36 inches maximum diameter, 65.5 feet above ground). During the inspection the stacks appeared to meet these requirements. Measurements were not collected. TK-98 and TK-99 were not observed during the inspection. Compliance with TK-98 and TK-99 stack conditions will be observed during the next compliance inspection.

SC IX. **COMPLIANCE**. Shall comply with 40 CFR Part 63 Subpart A and VVVVVV. The AQD has accepted delegation of Subpart VVVVVV through R 336.1960 (adopted by reference in R 336.1902). Within the June 10, 2019 submittal, BASF states that "X-5400 is covered because of the use of a Table 1 Metal HAP – Nickel, found in the Nickel Chloride Solution, but it is not handled in a dry form and has no vapor pressure and therefore there are no Nickel emissions and requires only batch recordkeeping under 40 CFR 63.11496 (f)(2) to comply with the rule." Batch records are maintained as described above under SC II. 1 and SC VI. 3.

On July 19, 2019, the facility submitted a Notice of Compliance Status (NOCS) for . The NOCS received is an update to the NOCS submitted dated May 22, 2013 (received May 28, 2013). According to the submittal, the product "X5400 (EUCHEX5400) uses a Nickel salt in solution as a raw material and remains in solution throughout the entire manufacturing process. There are no emissions of particulate HAP in this process, hence the bulk of the metal HAP requirements are not applicable, except to maintain records."

PTI 14-18, EURAINCOAT

PTI 14-18 was issued April 30, 2018. Raincoat production process utilizes existing equipment, including a 2,200-gallon stainless steel reactor (R-62), the primary condenser (E-6), two receiver tanks (TK-64 and TK-65), multiple steam jets, a hot well, an intercondenser, and one (1) exhaust stack (SVCHEWJET). Emissions are controlled by a condenser system consisting of the primary condenser and the intercondenser.

SC I. 1 and SC VI. 4 - **COMPLIANCE** – VOC emissions shall be less than 1.3 tpy on a 12-month rolling time period. The reported VOC emissions from the production of EURAINCOAT is 20 lbs or 0.01 tons during 2018.

SC II. 1, SC VI. 2 - **COMPLIANCE** – Shall not process more than 400 batches of Raincoat in EURAINCOAT per 12-month rolling time period. The facility reports 3 batches of Raincoat during 2018.

SC III.1 and 2, SC VI.1 – **COMPLIANCE** – Shall not operate EURAINCOAT unless the outlet gas temperature from the hotwell is 115 °F or less. Shall install, maintain, and operate a device to monitor and record, a on a continuous basis, the outlet gas temperature from the hotwell. The facility appears to be meeting these requirements. The wet jet temperature (following the hotwell is recorded on a continuous basis and provided within the April 9, 2019 submittal for the last days of Raincoat production (January 9, 15, and 17, 2019). The log shows temperatures less than 22°C (71.6°F) for all three days.

SC IV. 1 – **COMPLIANCE** – Shall not operate EURAINCOAT unless the condenser system is installed, maintained, and operated in a satisfactory manner. The facility appears to be meeting this requirement. A record of condenser temperatures is not required.

SC VI. 3. **COMPLIANCE**. Shall complete all required calculations in an acceptable format.

SC VIII. 1 and 2. **COMPLIANCE**. Stack conditions for SVCHEWJET shall meet 3.1 inches maximum diameter and minimum 52 feet above ground. During the inspection the stack appeared to meet these requirements. Measurements were not collected.

PTI 115-18, EUBACATALYST

PTI 115-18 was issued September 19, 2018. Blocked acid catalyst production process utilizes existing equipment in Building 53Z: R63 Reactor train, multiple steam vacuum jets with an inter-condenser discharging to a hotwell and vented to an exhaust stack (SVCHEWJET).

SC I. 1 and SC VI. 3 - **COMPLIANCE** – VOC emissions shall be less than 0.123 tpy on a 12-month rolling time period. The reported VOC emissions from the production of EUBACATALYST is 12.9 lbs or 0.006 tons for 2017 and 2018 combined.

SC II. 1, SC VI. 2 - **COMPLIANCE** – Shall not process more than 30 batches of blocked acid catalyst in EUBACATALYST per 12-month rolling time period. The facility reports 3 batches of blocked acid catalyst have been produced in 2017 and 2018 combined.

SC VI. 1. **COMPLIANCE**. Shall complete all required calculations in an acceptable format. Records provided satisfy this requirement.

SC VIII. 1. **COMPLIANCE**. Stack conditions for SVCHEWJET shall meet 3.1 inches maximum diameter, 52 feet above ground, and discharge unobstructed vertically upwards. During the inspection the stack appeared to meet requirements. Measurements were not collected.

PTI 186-18, EURAWMAT3334

PTI 186-18 was issued December 14, 2018. Production of Rawmat 3334 in a batch process. Equipment includes reactor R-30, process condenser E-4, decanter D-59, receiver tank TK-52, and steam jets. According the April 9, 2019 submittal, EURAWMAT3334 did not operate during 2018.

MI-ROP-B4359-2003b, Section 4

Section 4 of the ROP contains emission units and flexible groups composing the Thermoplastic Urethane (TPU) plant. Emission units EUTPUSYNTHESIS and EUTPUFURNACE are Rule 290 emission units, addressed above. Emission unit EUTPU EXTRUSION comprises plastics extrusion equipment and associated plastic resin handling and storage equipment exempt under Rule 286(a).

PTI 113-07A, Wyandotte Resins (formerly Joncryl Polymers Plant)

PTI 113-07A was issued September 14, 2015. A subsequent PTI (113-07B) was issued February 28, 2019 but is not evaluated as part of this inspection.

FG-RAWMATLS, SC II.1 and VI.1 - **COMPLIANCE** – Ethyl acrylate throughput limited to 379,000 gallons per 12-month rolling time period; records – Monthly and 12-month rolling total ethyl acrylate throughput records are provided for the period January 2017 through December 2018 in the April 9, 2019 submittal. Each 12-month total is less than 379,000 gallons. BASF claims this data as “Confidential Business Information”.

FG-RAWMATLS, SC III.1, IV.1 and VI.2 - **COMPLIANCE** – Comply with 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). Under 60.110b(a), (b), and (c) of the pre-10/15/2003 requirements of NSPS Kb, tanks greater than 40 cubic meters (about 10,500 gallons) that were not subject to control standards were still subject to the recordkeeping standards at 60.116b(b) and (c). With the 10/15/2003 revision to the standard the formerly “recordkeeping only” subject tanks are no longer subject to the standard at all. Excepting EUJONTK-0004, all of the tanks are reported to store liquids with vapor pressures less than 1.1 kilopascals. Although SC III. 1 infers that these tanks are subject to the recordkeeping provisions of NSPS Kb the known information about these tanks determine otherwise. As verified during the inspection on December 7, 2016, BASF complies with 60.112b(a) by operating EUJONTK-0004 with a closed vent system that exhausts through the RTO (60.112b(a)(3)).

PTI 113-07A, SC IV. 1 requires a 98% TOC (minus methane and ethane) destruction efficiency, which is likely carryover from NSPS Subpart DDD (40 CFR 60.562-1(b)(1)(iii)) requirements. NSPS Kb requires a 95% VOC destruction efficiency (40 CFR 60.112b(a)(3)(ii)) and stipulates a test to demonstrate compliance if the oxidizer’s minimum residence time is less than 0.75 seconds or its minimum temperature is less than 1500°F (40 CFR 60.113b(c)(1)(i)).

On February 9, 2017, the AQD received BASF’s test report via email. BASF reports the average non-methane VOC destruction efficiency was 73.99%. This was a violation of 40 CFR 60.112b(a)(3)(ii) and SC III.1 and was documented through Violation Notice dated May 5, 2017. On May 7, 2018 ACO AQD No. 2018-03 became effective, resolving the above violation. On September 21, 2017 BASF retested for the TOC destruction efficiency (see MACES report B435941693). Testing conducted on September 21, 2017 indicates an average TOC destruction efficiency of 99.41% demonstrating compliance.

FG-EMULSIONS, SC II. 1 and VI. 1. **COMPLIANCE** – Production of emulsion polymer limited to 241,000,000 pounds per 12-month rolling time period; records – Monthly and 12-month rolling total production records of emulsion polymer are provided for the period January 2017 through December 2018 in the April 9, 2019 submittal. Each 12-month total is less than 241,000,000 pounds. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports 78,442 tons (156,884,000 pounds) of product through RGJonEmulsions.

FG-SGO, SC I.1, IV.1, IV.2, and VI.3. **COMPLIANCE** – Particulate emissions from the grinder not to exceed 0.10 pounds per thousand pounds of exhaust gases; test upon request of AQD; fabric filter F-1091 installed and operating properly, including the operation of the filter within the proper pressure drop operating range; pressure drop measured and recorded on a daily basis – A test has not been requested by AQD. The daily pressure drop records for December 2018 are provided in the April 9, 2019 submittal. The fabric filter operating procedures were previously provided in the September 25, 2013 information submittal and indicate a pressure drop range of 1 to 7 psi. The pressure drop measurements in December 2018 range from 3.8 psi to 5.0 psi. Two days have not values recorded (12/24/18 and 12/31/18), likely due to the holidays.

FG-SGO, SC II.1, VI.1, and VI. 2. **COMPLIANCE** – Production of solid/liquid grade resin limited to 142,000,000 pounds per 12-month rolling time period; records – Monthly and 12-month rolling total production records of solid/liquid grade resin are provided for the period January 2017 through December 2018 in the April 9, 2019 submittal. Each 12-month total is less than 142,000,000 pounds. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports 36,026 tons (72,052,000 pounds) of product through RGJonResins.

FG-RESINCUT, SC II.1 and VI. 1. **COMPLIANCE** – Production of cut resin limited to 143,000,000 pounds per 12-month rolling time period; records – Monthly and 12-month rolling total production records of cut resin are provided for the period January 2017 through December 2018 in the April 9, 2019 submittal. Each 12-month total is less than 143,000,000 pounds. BASF claims this data as “Confidential Business Information”. In the 2018 MAERS, BASF reports 44,377 tons (88,754,000 pounds) of product through RGJonResinCut.

FG-PRODUCTS, SC I.1 VI. 1, and VI. 3. **COMPLIANCE** – Ethyl acrylate from FG-PRODUCTS equipment not vented to the RTO limited to 0.0144 pounds per hour; throughput records and other records maintained as necessary to determine compliance with limit, which may be prorated from monthly records to an hourly rate – Prorated pound per hour ethyl acrylate emissions data is provided in the April 9, 2019 submittal for each month in the period January 2017 through December 2018. Revised emission records were provided on May 22, 2019. Each monthly pound per hour ethyl acrylate emission rate is less than 0.0144. BASF claims this data as “Confidential Business Information”.

FG-PRODUCTS, SC I.2, IV.1, IV.2, and VI. 2. **COMPLIANCE** – Particulate emissions from FG-PRODSILOS not to exceed 0.10 pounds per thousand pounds of exhaust gases; test upon request of AQD; fabric filter F-1091 installed and operating properly, including the operation of the filter within the proper pressure drop operating range; pressure drop measured and recorded on a daily basis – Please see discussion for fabric filter F-1091 under FG-SGO.

FG-PRODUCTS, SC VIII.1. **COMPLIANCE** – The stack for FG-PRODUCTS shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 58 feet. During the previous inspection, the F-1091 stack was assumed to be SV-PROD and did not meet PTI 113-07A requirements. However, upon further evaluation, the stack was determined to be as built room vent for the finished products storage area (emulsions and resin). BASF included new modeling using the installed stack(s) (there are two room vents) along with the stack condition for FG-DRUMMING (SV-DRUM) in the PTI application for 113-07B. The new stack conditions were approved in PTI 113-07B issued February 28, 2019. For this compliance evaluation the FG-PRODUCTS stack is considered in compliance.

FG-DRUMMING, SC I.1, VI.1, and VI.2. **COMPLIANCE** – Ethyl acrylate from FG-DRUMMING equipment not vented to the RTO limited to 0.0144 pounds per hour; throughput records and other records maintained as necessary to determine compliance with limit, which may be prorated from monthly records to an hourly rate – A test has not been requested by AQD. Prorated pound per hour ethyl acrylate emissions data is provided in the May 1, 2015 submittal for each month in the period January 2017 through December 2018. Revised emission records were provided on May 22, 2019. Each monthly pound per hour ethyl acrylate emission rate is less than 0.0144. BASF claims this data as “Confidential Business Information”.

FG-DRUMMING, SC II.1, VI.3. **COMPLIANCE** – Loading of organic compounds with a vapor pressure greater than 1.5 psia limited to 5,000,000 gallons per 12-month rolling time period; records – Monthly and 12-month rolling total loading records are provided for the period January 2017 through December 2018 in the April 9, 2019 submittal. Each 12-month total is less than 5,000,000 gallons. BASF claims this data as “Confidential Business Information”.

FG-DRUMMING, SC VIII.1. **COMPLIANCE** – The stack for FG-DRUMMING shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 42 feet. During the previous inspection, the drumming stack (SV-DRUM) did not appear to meet PTI 113-07A requirements. The stack did not discharge unobstructed vertically upwards (rain cap installed) and was approximately 8 inches in diameter and 35 feet above ground surface. The stack has been modified and is now in compliance with SV-DRUM. The stack was extended approximately 15 feet and is now equipped with a rain sleeve (discharging vertically upwards). As described above under FG-PRODUCTS, BASF included new modeling using the installed stack in FG-PRODUCTS along with the stack condition for FG-DRUMMING (SV-DRUM) in the PTI application for 113-07B. The new stack conditions were approved in PTI 113-07B issued February 28, 2019.

FG-RTO, SCs I.1 and SC V. 1. **COMPLIANCE** – Ethyl acrylate emissions limited to 0.21 pounds per hour; test required – A performance test was conducted on December 6, 2016. On June 23, 2010, AQD received BASF's test report on February 24, 2017. BASF reports the ethyl acrylate emission rate of 0.09 pound per hour, and therefore in compliance with the SC I.1 emission limit of 0.21 pounds per hour.

FG-RTO, SC III.1, VI.1, and VI.3. **COMPLIANCE** – An operating plan pursuant to 60.113b(c)(1) to be submitted; facility to monitor the closed vent system and RTO in accordance with the operating plan; maintain a copy of operating plan and records of monitoring conducted for compliance with the operating plan.

AQD received the operating plan from BASF on July 26, 2007. The operating plan is required under NSPS Kb for the affected storage tank EUJONTK-0004. Please see report B435901112. Pursuant to 60.113b(c)(1)(i), flow and VOC constituent loading rates are provided and manufacturer's design specifications are given. The operating plan is to document the control device will meet the minimum destruction efficiency of 95% required under 60.112b(a)(3)(ii). Meeting a minimum residence time of 0.75 seconds and a minimum temperature of 816° C (1500°F) presumes compliance with the destruction efficiency without the necessity of a compliance test.

According to BASF, the RTO manufacturer specifies an average residence time of 0.93 seconds, a minimum combustion temperature of 790°C (1454°F), a maximum combustion temperature of 980°C (1796°F), and a destruction efficiency of 99%. The manufacturer's average residence time exceeds the minimum required, although a manufacturer's minimum is not provided. The manufacturer's minimum temperature does not meet the required presumptive minimum in the NSPS. At the time the operating plan was reviewed (B435901112), the specifications in the operating plan were accepted because of the performance test to be conducted (for the permit) to verify the destruction efficiency, which would provide superior documentation to the presumptive compliance method allowed by the regulation.

Pursuant to 60.113b(c)(1)(ii) BASF indicates the RTO system will be equipped with inlet, outlet, and combustion chamber temperatures monitors, airflow monitors, and burner flame management monitors. These monitors were to be observed during the performance test to determine appropriate parametric monitoring ranges for continued compliance.

The performance test conducted on September 21, 2017 demonstrated a destruction efficiency of 99.41%. The firebox temperature averaged 1598°F across the test. SC IV.1 sets the minimum 3-hour average firebox temperature to 50°F less than the average exhibited during a compliant performance test: the 3-hour minimum average is therefore 1548°F. Thus, in addition to the test result, the presumptive minimum of the NSPS Kb is met.

FG-RTO, SC IV.1, V.1, and VI.5. **COMPLIANCE**. Equipment vented to the RTO shall not be operated unless the RTO is installed, maintained, and operated in a satisfactory manner, including maintaining a 3-hour average temperature not less than 50°F less than the average during a performance test where a TOC (minus methane and ethane) destruction efficiency of 98% is demonstrated; TOC destruction efficiency performance test required and reported to AQD. Within the April 9, 2019 submittal, BASF provided the 3-hour average temperatures for January 24, 2019. The temperatures demonstrate compliance stack test determined temperature requirement.

The TOC destruction efficiency retest was conducted on September 21, 2017. Stack testing indicated the average total hydrocarbon (minus methane and ethane) destruction efficiency at 99.41%, and therefore in compliance with the SC IV.1 destruction efficiency standard of 98%. AQD and BASF agree the firebox temperature averaged 1598°F across the test and therefore the 3-hour minimum average is 1548°F.

During the inspection the RTO combustion chamber temperature was recorded as 1641 °F (9:19 AM) and 1625 ° F (10:04 AM). A bypass stack is installed prior to the RTO and its exhaust stack.

FG-RTO, SC IV.2, VI. 2, VI. 4, VI.6. **COMPLIANCE**. Continuously monitor and record firebox temperature; record time periods when the 3-hour average is below the minimum; regular inspections to be performed to determine operating status of RTO and process emissions to oxidizer to be discontinued within one hour in the event of an RTO malfunction; temperature monitor to be calibrated.

In the April 9, 2019 submittal, BASF supplies the 3-hour averages, calculated each hour, for the day of inspection January 24, 2019. The lowest 3-hour average recorded is 1603°F. During the inspection on January 24, 2019, the RTO was observed to be operating between 1625 and 1641°F.

According to the facility, BASF purchases pre-calibrated temperature monitors (RTD units).

BASF reports the RTO temperature has remained above the minimum during process operations (i.e. the RTO temperature may be less than the minimum during periods of process downtime) except during RTO malfunctions, when interlocks are activated to shut down the process within an hour (in accordance with SC VI.2.c).

The RTO was last inspected on March 28, 2018 (online) and September 13, 2018 (offline) by the manufacturer (Durr Environmental). The offline inspection report describes resin buildup inside the RTO underneath the rotary valve area, approximately 1 inch deep. The reports recommends annual cleaning. Additionally, Durr identified water accumulation inside tubing which goes to "airflow proven switches causing issues." Drip leg were recommended where the test ports are located and possibly heat tracing and insulation tubing. While the report does not specify, it appears that this may be the cause of the recent RTO trips that have occurred during 2018 (see MACES reports B435948310 and B435946885). Further follow up with BASF is necessary if the RTO continues to trip.

FG-RTO, SC IV.1, IV.3, IV.4, and VI. 7– **COMPLIANCE** – Shall not install bypass valves that could divert a vent stream from the RTO except as allowed by SC IV.4. During periods of shutdown of the RTO system for maintenance or offline inspections, the facility may vent storage tanks and process tanks breathing losses to atmosphere by way of the RTO emergency vent. During RTO shutdowns, the facility shall minimize uncontrolled emissions. SC IV.3 and IV.4 were added as part of issuance of PTI 113-07A. At this time, the facility appears to be meeting these requirements. The facility has had deviations related to bypassing the RTO (please see MACES reports B435948310 and B435946885). The incidents appear to be malfunctions as defined in 40 CFR Part 60, Subpart A, §60.2. It has not been verified if the facility is meeting the requirements of SC IV.4 during periods of shutdown. Records specified in SC VI.7 were not requested but the facility has reported any bypass of the RTO during shutdown or trip through semiannual and annual reporting.

FG-RTO, SC VIII. 1 and 2. **COMPLIANCE** – The RTO stack shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 36 feet. The RTO bypass stack shall discharge unobstructed vertically and not have a diameter greater than 24 inches or a discharge height less than 27 feet. Based on visual observations during the inspection on January 24, 2019, the stack is judged to be in compliance with these requirements, though measurements were not conducted.

FG-JONFACILITY, SC I.1, VI.1, VI. 2. **COMPLIANCE** – VOC emissions from WYR not to exceed 36 tons per 12-month rolling time period; records maintained – Monthly and 12-month rolling total VOC emissions for the plant are reported in the April 9, 2019 submittal for each month in the period January 2017 through December 2018. Each 12-month rolling total is less than 36 tons of VOC. BASF claims this data as "Confidential Business Information". In the 2018 MAERS, BASF reports 4,480.63 pounds (2.24 tons) of VOC were emitted from the various WYR Plant processes in calendar year 2018.

FG-JONFACILITY, SC III.1, 8.5 – **COMPLIANCE** – Implement and maintain a leak detection and repair (LDAR) program equivalent to Rule 628 with some alterations, including the submittal of semiannual (instead of quarterly) reports; records required.

The WYR plant is not subject to Rule 628, however, an LDAR program is necessary to provide a mechanism to quantify fugitive emissions; otherwise, a 12-month total for the plant cannot be obtained as needed to determine compliance with the 12-month rolling VOC limit. AQD and BASF agreed to model an LDAR program after an existing program (Rule 628) with some minor alterations. Rule 628 LDAR semiannual reports have been received on August 27, 2018, March 20, 2018, September 5, 2017, and March 17, 2017. Please see reports B435946137, B435943751, B435941517, and B435939346.

PTI 174-08A, Wyandotte Resins, Warehouse Bagging Line

Permit to Install No. 174-08 was issued June 30, 2008 was issued for the installation of a bagging line in a new warehouse constructed at the site.

EU-JONBagging, SC I.1, IV.1, IV.2, V.1, VI.1 – **COMPLIANCE** – Particulate emissions from the bagging line not to exceed 0.10 pounds per thousand pounds of exhaust gases; test upon request of AQD; baghouse installed and operating properly, including the operation of the baghouse within the proper pressure drop operating range; pressure drop measured and recorded on a daily basis – A test has not been requested by AQD. During the inspection on January 24, 2019 the bagging line was in operation. The pressure drop for the baghouse on the bagging line read 2.4 inches water. The pressure drop is recorded each day of operation. Records for December 2018 were provided. Operation records indicate that pressure drop should be between 2.2 and 2.6 inches of

water. The provided records demonstrate that the pressure drop has been maintained within the specified range.

EU-JONBagging, SC VIII.1 – **COMPLIANCE** – The bagging line exhaust stack shall discharge unobstructed vertically and not have a diameter greater than 18 inches by 18 inches or a discharge height less than 20 feet – Based on visual observations during the site inspection, the stack is judged to be in compliance with these requirements, though measurements have not been collected.

ACO AQD No. 2018-03

On May 7, 2018, ACO AQD No. 2018-03 became effective. The compliance program and implementation schedule are evaluated below (paragraphs 9 and 10).

9.A. **COMPLIANCE.** Shall keep online and offline checks performed by the Durr and all checks to verify proper function of the rotary valve and thrust bearing assembly performed by Durr on the RTO. The inspections were conducted March 28, 2018 (online) and September 13, 2018 (offline). The offline inspection report describes resin buildup inside the RTO underneath the rotary valve area, approximately 1 inch deep. The report recommends annual cleaning. On June 10, 2019, BASF provided the following response when inquiring about the RTO resin buildup. "Per Justine Madonna (WYR Process Technology Mgr.) - the recommended cleaning was not completed as the report was received after the unit was back in operation. Further it was concluded to not immediately address the finding for the following points: 1. The repair would require an outage to complete, 2. The location of the build-up is isolated from the fire chamber; 3. The vendor had tagged it as recommended cleaning, not required for functioning of their equipment. The rotary valve is always moving which mitigates the resin from settling and hardening directly at the valve point. We will be completing this cleaning during our September 2019 outage."

9.B. **COMPLIANCE.** Shall have completed modifications to the stack associated with FG-DRUMMING, to bring it into compliance with the requirements of PTI 113-07A, as amended. As described above under FG-DRUMMING, SC VIII.1., BASF has satisfied this requirement.

9.C. **COMPLIANCE.** Shall have completed modifications to the stack associated with FG-PRODUCTS to bring it into compliance with the requirements of PTI 113-07A, as amended. As described above under FG-PRODUCTS, SC VIII.1, BASF has satisfied this requirement through the issuance of PTI 113-07B.

10.A. **COMPLIANCE.** Shall comply with the VOC pounds per hour limit, which is based on a daily average, for FGPOLEMCON. The facility appears to be meeting this requirement. There have been no more reported emissions bypassing the thermal oxidizer.

10.B. **COMPLIANCE.** Shall comply with the minimum VOC destruction efficiency limits for FG-RAMATLS and FG-RTO in PTI 113-07A, as amended. As described above under FG-RAWMATLS, SC II.1 and IV.1 and FG-RTO, SC IV.1 the performance test conducted on September 21, 2017 demonstrated a destruction efficiency of 99.41%, demonstrating compliance with the special conditions.

10.C through G. **NOT EVALUATED.** No later than December 31, 2019 and continuing every two years thereafter, shall submit test plan for FG-RTO to determine the VOC destruction efficiency. Within thirty days after AQD approval of test plan, shall conduct stack testing. Within sixty days after test completion, shall submit test report with test data and results. Shall notify not less than 7 days prior to testing. After two consecutive testing events demonstrating compliance with the minimum VOC destruction efficiency the company may return to the testing schedule in PTI 113-07A, as amended. At this time, BASF is not required to submit a test plan (due date December 31, 2019).

Fire Pumps and Emergency Generators

The facility operates five emergency generators (EUPBXGEN, EUISBACKUPGEN, Steam Plant Generator, ETPU Plant Backup Generator [SRN M4777], and ETPU RTO Backup Generator [SRN M4777]) and four firewater pumps (ESTEFIREPUMP1, ESTEFIREPUMP2, ESTEFIREPUMP3, and North Fire Water Pump). The five emergency generators are each of spark ignition design and operate using natural gas. The fire pumps are each of compression ignition design and operate using diesel fuel. The fire pumps and emergency generators are both exempt from PTI requirements under the following Rule.

R336.1285(2)(g): "Permit to install does not apply to...Internal combustion engines that have less than 10,000,000 Btu/hour maximum heat input."

Using engine specification data provided in the May 1, 2015 submittal, the calculated maximum heat input for each largest fire pump is 5,069,000 Btu/hour (fuel consumption [37 gal/hour] x diesel fuel heating value [137,000 Btu/gal]).

The largest natural gas emergency generator operates at a maximum fuel usage rate at 3,984 ft³/hr. The maximum calculated heat capacity is 3,984,000 Btu/hr (3,984ft³/hr x 1,000 Btu/ft³).

40 CFR Part 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

NOT APPLICABLE – The diesel fire pump engines are not subject to this regulation as they were manufactured prior to 2009 (§60.4200(a)(1)(ii)), and Table 3).

40 CFR Part 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The NSPS for Stationary Spark Ignition Internal Combustion Engines is published at 40 CFR 60, Subparts A and JJJJ. Engines that commenced construction after June 12, 2006 are subject to the regulation. EUPBXGEN at the facility was installed January 1, 1992 and is therefore not subject to this regulation. EUISBACKUPGEN was installed on February 1, 2015 and is subject to this regulation. The Steam Plant Generator was installed sometime in October 2016 is also subject to this regulation. The other two generators (ETPU Plant Backup Generator and ETPU RTO Backup Generator) were not evaluated as part of this inspection as they are under SRN M4777.

§60.4233(d) and §60.4233(e), 40 CFR Part 60, Subpart JJJJ, Table 1 - Owner/operator must comply with emission standards specified in this subpart. **COMPLIANCE.** The facility provided a USEPA Certificate of Conformity for both engines subject to this rule.

§60.4237(b) - Install a non-resettable hour meter. **COMPLIANCE.** During the previous inspection, the verification of a non-resettable hour meter was verified on both subject units.

§60.4243(d). Limit maintenance checks and readiness testing to 100 hours per year. **COMPLIANCE.** The facility appears to be meeting this requirement based on the generator records provided.

40 CFR Part 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE)

The MACT for Stationary Reciprocating Internal Combustion Engines is published at 40 CFR 63, Subparts A and ZZZZ. MACT ZZZZ was promulgated June 15, 2004. The group of three BASF stationary sources obtained the enforceable permit limitations to become an area source for HAPs on February 7, 2006. The opt out permit was obtained prior to the compliance deadlines of May 3, 2013 and October 19, 2013 (§63.6595(a)). Therefore, the stationary source B4359 is considered an area source for the applicability of MACT ZZZZ. EUSTEFIREPUMP1, EUSTEFIREPUMP2, EUSTEFIREPUMP3, and EUPBXGEN are subject to MACT ZZZZ. Per 40 CFR 63.6590 (c) and (c)(1), EUISBACKUPGEN and the Steam Plant Generator need only comply with the requirements of NSPS JJJJ in order to satisfy the requirements of MACT ZZZZ. New affected sources under MACT ZZZZ are engines wherein construction commenced on or after June 12, 2006 (40 CFR 63.6590(a)(2)(iii)). The AQD is not the delegated authority for this regulation. Therefore, applicable conditions of Subpart ZZZZ were not evaluated.

NESHAP for Chemical Manufacturing Area Sources, 40 CFR Subparts A and VVVVVV

On May 28, 2013, the AQD received from BASF Corporation, dated May 21, 2013, an Initial Notice of Compliance Status report for Chemical Manufacturing Area Source MACT at 40 CFR 63 Subpart VVVVVV. Please see B435923198. According to BASF, MACT VVVVVV applies to certain equipment at the ACCE plant associated with the EUCHEHARDELEN and EUCHEORGACT (also known as MPPO by BASF) emission units. The AQD accepted delegation of Subpart VVVVVV through R 336.1902 and R 336.1960.

When the organic activator (EUCHEORGACT) was produced at the facility, chloroform was used in the process and was therefore subject to Subpart VVVVVV. BASF states that the EUCHEORGACT has not operated for 2 years and that the unit is operated under EUCHEX5400. Therefore, Subpart VVVVVV is not applicable to EUCHEORGACT.

According to the Subpart VVVVV May 2013 submittal, all batch chemical manufacturing process unit (CMPU) equipment consists of enclosed piping and vessels and complies with §63.11495. The May 2013 also indicates that HAP usage is significantly less than 10,000 lb/yr and process vent requirements under §63.11496 are not applicable. The May 2013 submittal indicates HAP usage for EUCHEHARDELEN at 3 lbs/year chloroform for 10 batches made in 2012. As part of this inspection, EUCHEHARDELEN records demonstrating compliance with 40 CFR §63.11496(a)(4) were requested. §63.11496(a)(4) requires that organic HAP usage is less than 10,000 pounds per year and that monthly organic HAP usage records are maintained. On June 12, 2019 BASF provided HAP usage on a yearly basis for 2017 and 2018. The facility estimates chloroform usage based SDS for Hardlen F-2P Resin used. According to the SDS provided chloroform is less than 1.5% by weight. BASF reports that chloroform used is 27.6 pounds in 2017 and 17 pounds in 2018 (see attached correspondence). Based on the small quantities used, the AQD is not pursuing monthly records at this time.

As described above under PTI 80-11B, EUCHEX5400, SC IX, batch records are maintained as described above under SC II. 1 and SC VI. 3. The facility appears to be in compliance with batch recordkeeping under 40 CFR 63.11496 (f)(2) to comply with the Subpart VVVVV. A NOCS was received for EUCHEX5400 on July 19, 2019.

Conclusion

The facility has been determined to be in noncompliance with MI-ROP-B4359-2003b, Section 2 FGPOLCONV-SC III.A.2.2 and 3, SC III.A.3.4, and SC V.10, Appendix 2-3.1 through 3. The facility did not provided pressure drop records. Baghouse inspections are not being conducted every 12 months (the last inspection was conducted March 15, 2017).

A violation notice will be issued for the above items.

NAME  _____

DATE 7/22/19

SUPERVISOR JR _____