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**DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
ACTIVITY REPORT: On-site Inspection**

M480868552

FACILITY: BASF Corporation - Labs and Application Centers		SRN / ID: M4808
LOCATION: 1609 BIDDLE AVE., WYANDOTTE		DISTRICT: Detroit
CITY: WYANDOTTE		COUNTY: WAYNE
CONTACT: Bryan Hughes , EHS Team Leader		ACTIVITY DATE: 08/01/2023
STAFF: Samuel Liveson	COMPLIANCE STATUS: Compliance	SOURCE CLASS: MAJOR
SUBJECT: Scheduled inspection.		
RESOLVED COMPLAINTS:		

Introduction

On August 1 and 2, 2023, AQD staff Sam Liveson conducted an announced, scheduled inspection of BASF Corporation - Labs and Application Centers (BASF Labs), located at 1609 Biddle Avenue in Wyandotte, Michigan.

The purpose of this inspection was to determine the facility's compliance with the federal Clean Air Act; Part 55, Air Pollution Control, of the Michigan Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; the Michigan Air Pollution Control Rules (Rules); and the conditions of Renewable Operating Permit (ROP) No. MI-ROP-M4808-2019.

Pre-Inspection Meeting and Facility Information

Arrival

The inspection was announced. I called Bryan Hughes, EHS Team Leader, on Wednesday July 26 about visiting the following week. I arrived at the facility at about 9:00 AM on Tuesday August 1. I parked at the small oval parking lot south of the Main Administration Building and walked to the building's front entrance off Biddle Avenue. At the Main Administration Building, I met with Bryan Hughes. I provided my state-issued identification and stated the purpose of my visit. We had a pre-inspection meeting prior to walking through the facility.

Stationary Source Overview

For New Source Review (NSR) purposes, BASF at 1609 Biddle Avenue is comprised of three major sources: Chemicals Plants (B4359), Plastics Plants (M4777), and Labs and Application Centers (M4808). All of these sources are adjacent/contiguous and have the same ownership. However, because the three sources have different Source Industrial Classification codes, they are considered three separate sources for air quality purposes per Rule 119(r) and AQD Policy & Procedure 011: Stationary Source Determination. However regarding hazardous air pollutant (HAP) rules at 40 CFR Part 63 and Section 112 of the Clean Air Act, stationary sources are defined without considering SIC codes, so BASF at 1609 Biddle Avenue is considered one source for HAP purposes.

Labs & Application Centers on Site

Labs and application centers are located throughout BASF and include:

- Research and Development Building
- Urethane Applications Building (UAB)
- Advanced Material Innovation Center (AMIC)
- Quality Assurance/Control (QA/QC) labs located at each process
- Woodbinder Lab
- Home Care Lab
- Packaging Application Laboratory
- Thermoplastic Urethane Plant Laboratory

Major NSR Stationary Source Determination

Prior to February 7, 2006, the group of stationary sources at BASF Wyandotte were considered a major source for HAPs. BASF Chemical Plants (B4359) operates polyether polyols manufacturing that became an existing affected source under 40 CFR 63, Subpart PPP, the MACT standard for Polyether Polyols

Production on the initial compliance date of June 1, 2002 (40 CFR 63.1422(c)). BASF Plastics (M4777) operates a flexible polyurethane foam process that became an existing affected source under 40 CFR 63, Subpart III, the MACT standard for Flexible Polyurethane Foam Production on the initial compliance date of October 8, 2001 (40 CFR 63.1291(a)).

HAP Area Source Designation

On February 7, 2006, BASF obtained opt-out permits for B4359 (PTI No. 289-05), M4808 (PTI No. 314-05), and M4777 (PTI No. 315-05) so that each stationary source is an area source of HAPs. However, BASF has yet to inform the AQD of an intent to reclassify to an area source of HAPs for MACTs PPP and III per 40 CFR 63.1(c)(6). Until such time, the group of stationary sources remains major for these two MACT standards; therefore, BASF Labs must obtain and continue to operate in compliance with a ROP.

Compliance Background

BASF Labs has no outstanding violation notices.

Facility Exemptions from Obtaining a Permit to Install

BASF asserts the labs and application centers are exempt from obtaining a permit to install per Rules 283(2)(a) and (b), which are provided below.

- (2) The requirement of R 336.1201(1) to obtain a permit to install does not apply to any of the following:
 - (a) Pilot processes or process equipment utilizing T-BACT used for any of the following:
 - (i) Chemical analysis.
 - (ii) Physical analysis.
 - (iii) Empirical research.
 - (iv) Theoretical research.
 - (v) The development of process or process equipment design and operating parameters.
 - (vi) The production of a product for field testing.
 - (vii) The production of a product for clinical testing of pharmaceuticals.
 - (viii) The production of a product for use as a raw material in the research and development of a different product.
 - (b) laboratory equipment.

R 336.1283(3) provides restrictions on the exemption at (2)(a), noting the rule does not include pilot processes or process equipment used for: (a) the production of a product for sale, unless such sale is only incidental to the use of the pilot process or process equipment; (b) the repetitive production of a product using the same process or process equipment design and operating parameters; (c) the production of a product for market testing or market development; (d) the treatment or disposal of waste which is designed, by listing or specified characteristic, as hazardous under federal regulations or state rules.

R 336.1278 precludes the exemptions from applying to any of the following:

- (1)(a) any activity subject to major New Source Review (Part 18 or Part 19 of the AQD rules);
- (1)(b) any activity resulting in an increase in actual emissions greater than the Rule 119 significance levels;
- (2) construction or reconstruction of a major source of HAPs (40 CFR 63.2 and 63.5(b)(3));
- (3) construction or modification of a HAP source at 40 CFR 61.

Facility Walkthrough and Compliance Status

Urethane Applications Building – Rules 283(2)(a) & (b)

The morning of August 1, 2023, I visited the Urethane Applications Building (UAB). This appears to be a research and development laboratory. The lab was operating during my visit. I observed lab benches with fume hoods that exhaust to ambient air, where staff were mixing resins and catalysts for product development. Additionally I observed the pilot production and testing of foam products.

Advanced Materials Innovation Center – Rule 283(2)(a) & (b)

Next, I visited the Advanced Material Innovation Center (AMIC). This building has labs along a hallway. Staff explained AMIC is a research and development lab for fundamental research related to raw material synthesis and thermoplastic urethane development. I observed a small scale extruder and compounder. Fume hoods exhaust to ambient air.

TPU Development Lab – Rule 283(2)(a) & (b)

Later on August 1, 2023, Bryan showed me the TPU Development Lab. This lab is used for TPU pilot testing. I observed hoppers to feed two extruders, mixers, hoods, and lab equipment for various strength, durability, compression, and tension tests.

Chemical Engineering Research – Rule 283(2)(a)

On August 2, 2023, I visited the Chemical Engineering Research (CER) buildings on site. Mark Waldrop, Senior Scientist, explained equipment and operations. CER appears to include buildings 53Z, 55, 55R, and 55T. The facility primarily produces chemical batches via reactors. CER equipment may either create production batches under B4359 or R&D batches under M4808. The facility considers R&D batches exempt from obtaining a permit to install per Rule 283(2)(a) for pilot processes utilizing best available control technology for toxics, or T-BACT.

Regarding whether equipment utilizes T-BACT, during the visit to CER I observed:

1. The T-110 scrubber and the vacuum jets were installed and operating.
2. The scrubber pump outlet pressure was continuously monitored and registered less than 2.0 bar, as seen by the 0.94 bar reading observed on 8/2/23 at 2:21 PM.
3. The monthly pH monitoring has been conducted and the pH has been less than 3.0, as seen by the 1.90 pH reading as noted in log entry dated July 10, 2023.
4. The monthly water content monitoring has been conducted and measured greater than 60%, as noted in the log entries where the minimum water concentration in the scrubber solution of 94.0% on July 10, 2023.
5. It appears that vacuum jets have been in operation and have measured consistently less than 113°F (N/S jets) and 140°F (E/W jets). South vacuum jet temperatures provided for August 2, 2023 were continually less than 30 °C (86 °F). West vacuum jet temperatures provided for August 2, 2023 were continually less than 100 °F.

Because CER operations have met the emissions control, monitoring, and recordkeeping requirements of the B4359 ROP when under commercial operations, it appears the R&D operations have met the T-BACT requirements under Rule 283(2)(a).

General Conditions – MI-ROP-M4808-2019

Below is a summary of general conditions (GC) from MI-ROP-M4808-2019, and an explanation of the facility's compliance status.

GC 9, 10: Collected air contaminants shall be removed to maintain controls at required collection efficiency; air cleaning devices installed and operated in a satisfactory manner.

COMPLIANCE. Controls were installed and operating in accordance with T-BACT during the inspection.

GC 11: 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.

COMPLIANCE. Visible emissions were not observed exceeding 20% opacity during the inspection.

GC 12: Nuisance emissions prohibited.

COMPLIANCE. AQD hasn't received any complaints regarding BASF Labs.

GC 19 – 25: Prompt reporting of deviations; semiannual reporting of deviations; annual certification of compliance status; submission to the emissions inventory.

COMPLIANCE. Within the last year, the following semiannual deviation reports, annual certifications, and emissions inventories to the Michigan Air Emissions Reporting System (MAERS) have been received.

Report	Reporting Period	Date Received	Comment
2022 MAERS	1/1/22 – 12/31/22	3/15/23	2022 air emissions inventory.
2022 Annual	1/1/22 – 12/31/22	3/15/23	No deviations reported.
2022 SEMI 2	7/1/22 – 12/31/22	3/15/23	No deviations reported.
2022 SEMI 1	1/1/22 – 6/30/22	9/20/22	No deviations reported.

Source-Wide Conditions – MI-ROP-M4808-2019

Below is a summary of each Source-Wide special condition (SC) from MI-ROP-M4808-2019, and an explanation of the facility’s compliance status.

SC I.1, I.2, and VI.1: HAP emission limit of less than 10.0 tons per year (tpy) individual HAPs and less than 25.0 tpy total HAPs. Calculate HAP emissions.

COMPLIANCE. Individual and total HAP monthly and 12-month rolling emissions records were provided on 10/16/23 for July 2021 through July 2023. Records indicate the highest 12-month rolling individual HAP emissions were 2.62 tons acrylic acid in July 2023, and the highest 12-month rolling total HAP emissions were 14.1 tons in July 2021.

SC VII.1-3: Prompt reporting of deviations; semiannual reporting of deviations; annual certification of compliance status.

COMPLIANCE. Within the last year, the following semiannual deviation reports and annual certifications have been received.

Report	Reporting Period	Date Received	Comment
2022 Annual	1/1/22 – 12/31/22	3/15/23	No deviations reported.
2022 SEMI 2	7/1/22 – 12/31/22	3/15/23	No deviations reported.
2022 SEMI 1	1/1/22 – 6/30/22	9/20/22	No deviations reported.

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

BASF Labs use methylene chloride per HAP records, but the facility appears to be classified as a research and development facility and therefore does not appear to be subject to 40 CFR 63 Subpart VVVVVV - National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources per 40 CFR 63.11494(c)(3) for R&D facilities as defined in CAA section 112(c)(7) and 63.11494 (c)(4) for QA/QC laboratories.

Section 112(c)(7) of the Clean Air Act defines a research or laboratory facility as “any stationary source whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.”

Conclusion

Based on the AQD inspection and records review, BASF Labs appears to be in compliance with the federal Clean Air Act, Michigan NREPA, the Michigan Air Pollution Control Rules, and facility ROP No. MI-ROP-M4808-2019.

NAME 

DATE 1/5/24

SUPERVISOR JK